

POLYETHYLENE INSULATED, JELLY FILLED, MOISTURE BARRIER SHEATHED TELECOMMUNICATION CABLE

Type: VMOHBU-TL

1. GENERAL

This specification covers foam-skin polyethylene insulated, pair twisted, moisture barrier sheathed (Al/PE screen tape + PE sheath) telecommunication cable. The cable is laid up in units and the interstices of the cable core are filled with petroleum jelly. The cable is designed in accordance with the Finnish Standard SFS 5012

2. CONSTRUCTION

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|----|-------------------------|--|----------------------------|
| A. | Conductor | Solid, plain, annealed copper wire.
Nominal diameter | 0.5 mm
0.6 mm
0.8 mm |
| | | | |
| B. | Insulation | Foam-skin (foamed polyethylene with skin of solid polyethylene), coloured. The base polyethylene compound used meets the requirements of EN 50290-2-23, grade C. Nominal thickness of insulation is such that the completed cable meets the electrical requirements specified | |
| | | | |
| C. | Twisting | Two insulated conductors are twisted together to form a pair.
Colour scheme according to table No 1 | |
| | | | |
| D. | Lay-up | Cables ≤100 pairs
Required number of ten pair units is stranded together.
Lay-up according to tables No 2 and 3.
Cables >100 pairs
Required number of 50 respectively 100 pair units, each containing five resp. ten assembled 10 pair units, are stranded together. Lay-up according to tables No 2, 3 and 4. | |
| | | | |
| E. | Petroleum jelly filling | The interstices of the cable core are filled with petroleum jelly along the whole cable core.
Drop point of petroleum jelly | ≥ 60 °C |

- F. Wrapping Nonwoven fibre, paper, plastic or swellable tape laid on with overlap.
- G. Moisture barrier sheath (screen + PE sheath) Single coated aluminium/polyethylene-tape, applied longitudinally with overlap and well adhered to the outer black polyethylene sheath.
One or two tinned copper wires, 0.8 mm, are laid longitudinally under the screening tape as drain wire.
Nominal thickness of aluminium according to table No 5.
The polyethylene compound meets the requirements of EN 50290-2-24, grade LLD.
Minimum thickness of sheath according to table No 5, where also dimensions and weights are given.
- H. Sheath marking On the sheath is VMOHBU-TL, dimension, Nexans GS, year of manufacturing and meter marking printed with ink.

Table No 1 - Colour scheme

Pair No	Colour of PE-insulation Conductor a	Conductor b
1	BLUE	WHITE
2	ORANGE	WHITE
3	GREEN	WHITE
4	BROWN	WHITE
5	GREY	WHITE
6	BLUE	BLACK
7	ORANGE	BLACK
8	GREEN	BLACK
9	BROWN	BLACK
10	GREY	BLACK

Table No 2 – Lay-up and identification of 10-pair units

10-pair No	Pair No in each unit (See table No 1)	Colour of 10-pair unit identification tape
1	1-10	blue
2	1-10	orange
3	1-10	green
4	1-10	brown
5	1-10	grey
6	1-10	white/blue
7	1-10	white/orange
8	1-10	white/green
9	1-10	white/brown
10	1-10	white/grey

Table No 3 - Lay up of cables or units with ≤ 100 pairs

Numbers of pairs in unit or cable	Numbers of 10-pair units in centre and layer		10-pair unit no (See table No 2)
3	Centre	3 pair	Pairs No 1-3
5	Centre	5 pair	Pairs No 1-5
10	Centre	1 unit	Unit No 1
20	Centre	2 units	Unit No 1-2
30	Centre	3 units	Unit No 1-3
50 *)	Centre	5 units	Unit No 1-5
100 **)	Centre	3 units	Unit No 1-3
	Layer	7 units	Unit No 4-10

*) Also 50 pair unit in cable with 200 and 300 pairs

**) Also 100-pair unit in cable with 400 - 800 pairs

Table No 4 – Lay up of cable with >100 pairs

Numbers of pairs in the cable	Number of 50- or 100 pair units in centre and layer		Number on the 50/100 pair unit identification tape
200	Centre	4 50 pair units	1-4
300	Centre	1 50 pair unit	1
	Layer	5 50 pair units	2-6
400	Centre	4 100 pair units	1-4
600	Centre	1 100 pair unit	1
	Layer	5 100 pair units	2-6
800	Centre	2 100 pair units	1-2
	Layer	6 100 pair units	3-8

Table No 5 – Dimensions and weights

Cable	Nominal thickness of aluminium screen / number of drain wires	Minimum thickness of sheath	Nominal outer diameter	Net weight per 100 m, appr
VMOHBU-TL	mm	mm	mm	Kg
3x2x0.5	0.15 / 1	1.6	9	7.5
5x2x0.5	0.15 / 1	1.6	10	8.5
10x2x0.5	0.15 / 1	1.6	11	13
20x2x0.5	0.15 / 1	1.6	15	22
30x2x0.5	0.15 / 1	1.6	17	29
50x2x0.5	0.15 / 2	1.6	20	44
100x2x0.5	0.20 / 2	1.8	27	80
200x2x0.5	0.20 / 2	2.0	38	160
300x2x0.5	0.20 / 2	2.0	48	260
400x2x0.5	0.20 / 2	2.2	54	340
600x2x0.5	0.20 / 2	2.6	65	490
800x2x0.5	0.20 / 2	2.6	73	630
3x2x0.6	0.15 / 1	1.6	10	10
5x2x0.6	0.15 / 1	1.6	11	11
10x2x0.6	0.15 / 1	1.6	13	16
20x2x0.6	0.15 / 1	1.6	17	29
30x2x0.6	0.15 / 1	1.6	19	38
50x2x0.6	0.15 / 2	1.6	23	60
100x2x0.6	0.20 / 2	1.8	32	110
10x2x0.8	0.15 / 1	1.6	16	26
20x2x0.8	0.15 / 1	1.6	21	48
30x2x0.8	0.15 / 1	1.6	25	68
50x2x0.8	0.20 / 2	1.8	31	110
100x2x0.8	0.20 / 2	2.0	40	195

3. ELECTRICAL DATA AT 20 °C

Conductor resistance (single conductor):				
Conductor 0.5 mm		Average	≤92	Ω/km
		Max	96	Ω/km
Conductor 0.6 mm		Average	≤64	Ω/km
		Max	67	Ω/km
Conductor 0.8 mm		Average	≤35.5	Ω/km
		Max	37	Ω/km
Insulation resistance		min	2 000	MΩkm
Mutual capacitance at 800 Hz				
≤ 30 pairs		Max	46	nF/km
> 30 pairs		Average	≤40	nF/km
		Max	45	nF/km
Capacitance unbalance at 800 Hz, pair-pair		Max	160	pF/500m
		95%	≤100	pF/500m
Dielectric strength:	Conductor-conductor	60 sec	1	kV DC
	Conductor-screen	60 sec	3	kV DC
ELFEXT	Single value	Min	42	dB@km
	Powersum	Min	38	dB@km
NEXT	Single value	Min	48	dB
	Powersum	Min	44	dB
Characteristic impedance		Nominal	125	Ω
Attenuation at 1 MHz:	Conductor 0.5 mm	Max	16	dB/km
	Conductor 0.6 mm	Max	13	dB/km
	Conductor 0.8 mm	Max	10	dB/km