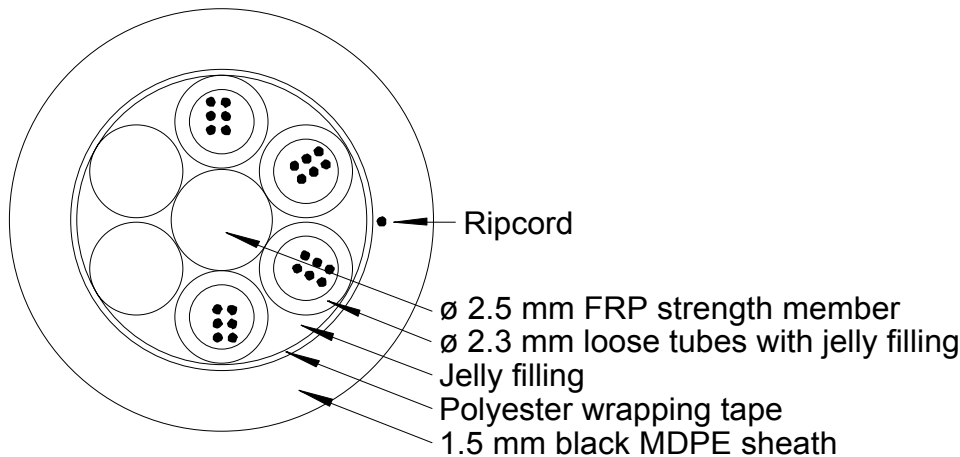




6 - 264 fibres optical cable for duct application

6, 8 or 12 fibre loose tubes (ø 2.3 mm), Black MDPE Sheath



APPLICATION

- Outdoor data communication connections
- Telecom trunk lines
- Telecom access net lines
- CATV trunk lines

The main application for these cables is for installation in ducts.

The cables are also suitable for direct burial where rodent protection is not an issue and where soil conditions are not difficult.

GENERAL

This specification covers optical cables with 6 - 264 optical fibres of loose tube construction.

The cable construction is fully dielectric for immunity against lightning. The cables fulfil the requirements of:

- EN 187 000
- IEC 60794

The cables have the following type designation according to DIN/VDE:

A- DF 2Y, n x (6, 8 or 12) ..LG; n is 1 to 22.

CABLE CONSTRUCTION

OPTICAL FIBRES

The cable can be supplied with any Draka Denmark optical fibre. For optical fibre properties and performance please see the appropriate Fibre Specification.

The fibres are individually coloured for identification. Colours are according to IEC 60304. See General Information B07 for fibre colour code.

CABLE CORE

The cables have a ø 2.5 mm glass fibre rod (FRP) as central strength member. For cables with more than 6 tubes the rod is covered with a black MDPE sheath in order to increase the diameter.

The fibres are contained in jelly filled loose tubes. The loose tubes have a nominal outer diameter of

2.3 mm. As standard there is 6, 8 or 12 fibres in each of the loose tubes. As an option other numbers are possible (less than 12).

Up to 14 loose tubes are stranded in one layer around the central strength member. Up to 22 tubes are stranded in two layers around the central strength member.

The lay-ups of the cables are given in Tables 3a, 3b, 4a, 4b, 5a and 5b.

The cable core is water blocked using a jelly.

The jellies for filling of the cables fulfil the requirements of IEC 811-5-1.

The cable core is protected by non-hydroscopic tape.

SHEATH

The cables have a 1.5 mm thick black MDPE sheath. The black MDPE contains 2.5 ± 0.5 % carbon black and fulfils the requirements of IEC 811.

**CABLE PROPERTIES**

The physical properties of the cables are given in Tables 1, 2a, 2b and 2c below.

Table 1 Physical properties

Property	Reference according to IEC 794-1	Reference according to EN 187 000	Value
Tensile strength (dynamic)	E1	501	1800 N
Tensile strength (permanent)	E1	501	1200 N
Compressive strength (crush)	E3	504	3000N
Impact	E4	505	20 Nm
Torsion	E7	508	5 cycles \pm 1 turn
Kink	E10	511	The cables do not form a kink when a loop is drawn together to a diameter 12 times the cable nominal diameter
Temperature range	F1	601	The cables can bear temperature cycling between -40°C to +60°C. The cables will operate without any attenuation variation (\leq 0.05 dB) in the temperature interval -30°C to +60°C. The cables will operate with a maximum attenuation variation of 0.1 dB in the temperature interval -40°C to +60°C.
Water penetration	F5	605	No water on free end

Table 2a: Cables with 6 fibres/tube Diameter, weight and minimum bending radius

Number of fibres in the cable	Cable nominal outer diameter [mm]	Cable nominal weight [kg/km]	Cable minimum bending radius [mm] according to IEC 794-1 E11 or EN 187 000 511
6-36	10.5	90	210
42-48	12.0	115	240
54-60	13.5	145	270
66-72	15.0	180	300
78-84	16.5	215	330
90-108	15.0	180	300
114-132	17.0	230	340

Table 2b: Cables with 8 fibres/tube Diameter, weight and minimum bending radius

Number of fibres in the cable	Cable nominal outer diameter [mm]	Cable nominal weight [kg/km]	Cable minimum bending radius [mm] according to IEC 794-1 E11 or EN 187 000 511
8-48	10.5	90	210
56-64	12.0	115	240
72-80	13.5	145	270
88-96	15.0	180	300
104-112	16.5	215	330
120-144	15.0	180	300
152-176	17.0	230	340



Table 2c: Cables with 12 fibres/tube Diameter, weight and minimum bending radius

Number of fibres in the cable	Cable nominal outer diameter [mm]	Cable nominal weight [kg/km]	Cable minimum bending radius [mm] according to IEC 794-1 E11 or EN 187 000 511
12-72	10.5	90	210
84-96	12.0	115	240
108-120	13.5	145	270
132-144	15.0	180	300
156-168	16.5	215	330
180-216	15.0	180	300
228-264	17.0	230	340

Table 3a: Cables with 6 fibres/tube Lay-up of cables with 6- 84 fibres

Number of fibres in the cable	Number of elements (tubes + dummies)	Number of green tubes	Number of white or yellow tubes	Number of red tubes	Number of dummies
6	6	1	0	0	5
12	6	1	0	1	4
18	6	1	1	1	3
24	6	1	2	1	2
30	6	1	3	1	1
36	6	1	4	1	0
42	8	1	5	1	1
48	8	1	6	1	0
54	10	1	7	1	1
60	10	1	8	1	0
66	12	1	9	1	1
72	12	1	10	1	0
78	14	1	11	1	1
84	14	1	12	1	0

Note: Cables containing single mode fibres come with yellow tubes - cables containing multi mode fibres come with white tubes

Table 3b: Cables with 6 fibres/tube Lay-up of cables with 90 - 132 fibres

Number of fibres in the cable	Number of elements (tubes + dummies)	Number of green tubes in the outer layer	Number of white or yellow tubes in the outer layer	Number of red tubes in the outer layer	Number of dummies
90	6+12	1	5	1	3
96	6+12	1	6	1	2
102	6+12	1	7	1	1
108	6+12	1	8	1	0
114	8+14	1	9	1	3
120	8+14	1	10	1	2
126	8+14	1	11	1	1
132	8+14	1	12	1	0

Note: Cables containing single mode fibres come with yellow tubes - cables containing multi mode fibres come with white tubes

**Table 4a: Cables with 8 fibres/tube Lay-up of cables with 8- 112 fibres**

Number of fibres in the cable	Number of elements (tubes + dummies)	Number of green tubes	Number of white or yellow tubes	Number of red tubes	Number of dummies
8	6	1	0	0	5
16	6	1	0	1	4
24	6	1	1	1	3
32	6	1	2	1	2
40	6	1	3	1	1
48	6	1	4	1	0
56	8	1	5	1	1
64	8	1	6	1	0
72	10	1	7	1	1
80	10	1	8	1	0
88	12	1	19	1	1
96	12	1	10	1	0
104	14	1	11	1	1
112	14	1	12	1	0

Note: Cables containing single mode fibres come with yellow tubes - cables containing multi mode fibres come with white tubes

Table 4b: Cables with 8 fibres/tube Lay-up of cables with 120 - 176 fibres

Number of fibres in the cable	Number of elements (tubes + dummies)	Number of green tubes in the outer layer	Number of white or yellow tubes in the outer layer	Number of red tubes in the outer layer	Number of dummies
120	6+12	1	5	1	3
128	6+12	1	6	1	2
136	6+12	1	7	1	1
144	6+12	1	8	1	0
152	8+14	1	9	1	3
160	8+14	1	10	1	2
168	8+14	1	11	1	1
176	8+14	1	12	1	0

Note: Cables containing single mode fibres come with yellow tubes - cables containing multi mode fibres come with white tubes

**Table 5a: Cables with 12 fibres/tube. Lay-up of cables with 12 - 168 fibres**

Number of fibres in the cable	Number of elements (tubes + dummies)	Number of green tubes	Number of white or yellow tubes	Number of red tubes	Number of dummies
12	6	1	0	0	5
24	6	1	0	1	4
36	6	1	1	1	3
48	6	1	2	1	2
60	6	1	3	1	1
72	6	1	4	1	0
84	8	1	5	1	1
96	8	1	6	1	0
108	10	1	7	1	1
120	10	1	8	1	0
132	12	1	19	1	1
144	12	1	10	1	0
156	14	1	11	1	1
168	14	1	12	1	0

Note: Cables containing single mode fibres come with yellow tubes - cables containing mullet mode fibres come with white tubes

Table 5b: Cables with 12 fibres/tube. Lay-up of cables with 180 - 264 fibres

Number of fibres in the cable	Number of elements (tubes + dummies)	Number of green tubes in the outer layer	Number of white or yellow tubes in the outer layer	Number of red tubes in the outer layer	Number of dummies
180	6+12	1	5	1	3
192	6+12	1	6	1	2
204	6+12	1	7	1	1
216	6+12	1	8	1	0
228	8+14	1	9	1	3
240	8+14	1	10	1	2
252	8+14	1	11	1	1
264	8+14	1	12	1	0

Note: Cables containing single mode fibres come with yellow tubes - cables containing multi mode fibres come with white tubes