

# nestor — cables —

Quality from Finland



**Fibre optic cables by Nestor Cables**

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## Finnish expertise in cable manufacturing

Nestor Cables is a Finnish highly appreciated cable manufacturer whose innovative solutions are relied on by several global companies around the world. Nestor Cables develops and manufactures optical and copper telecommunication cables together with fibre optic cable accessories.

In addition to an extremely strong market position in Finland, our main market areas are Russia, Kazakhstan, Ukraine, the Baltic states, Northern Europe, the Balkans, the USA, Central America, the Middle East and Africa.



### Our technology

The Nestor Cables factory in Oulu started its production in 2008 and has continued to be one of Europe's most modern production facilities in its size category. The processes and equipment are designed for our operations and products, which means cost efficiency, flexibility and fast reaction times to our customers.



[www.nestorcables.com](http://www.nestorcables.com)

To learn more about our products and company, or to read news and announcements about our recent projects and presence in industry events, please visit our website.



### Our team

Nestor Cables' operations began ten years ago in 2007, but our employees have decades of extensive and long-standing experience in the Finnish cable industry.

Our strong research and development unit continuously improves existing products and creates new solutions to meet tomorrow's demands. Various pilot and development projects all around the world help maintain our company know-how.

### Our products

Nestor Cables' range of optical fibre cables offers dependable solutions for various installation conditions and special requirements. All our products are developed in close cooperation with customers.

Besides cables Nestor Cables' product range includes also installation accessories and even whole customized special solutions to cater the needs of our customers.



### International standards

Our management system is certified according to ISO 9001, ISO 14001 and OHSAS 18001 standards. Our quality assurance and testing facilities for all necessary routine and type tests are according to the international standards.

#### ISO 9001 Quality

We are able to carry out all necessary routine and conformance testing, including fiber tensile strength tests and elongation measurements, as well as various low-temperature tests down to -60 °C.

#### ISO 14001 Environment

Our modern equipment has low energy and water consumption during the entire production process and our efficient use of raw materials saves natural resources.

#### OHSAS 18001 Health and Safety

Our processes are constantly monitored and developed to assure a healthy and safe workplace for all of our employees.



Nestor Cables Ltd. is a signatory of the Industry Charter of Europacable. Signatories of the Charter are committed to continuous achievement in:

- Product compliance and innovation
- Business ethics and social responsibility
- Health and Safety
- Environment and climate change





## Direct buried cables

Direct buried cables are buried under the ground without separate coverings, and therefore they might face extreme conditions, for example changing temperatures and moisture. Installation environment dictates the needed level of protection in these cables.

Nestor Cables range of cables includes a wide selection of durable direct buried cables to challenging installation conditions: from classic cables with central tube or stranded loose tube construction to new innovative fibre optic cables with flexible construction.

Nestor Cables can supply cables with a variety of fibre types and counts, and we have decided to present only a fraction of our growing product range in this brochure. However, we will modify and develop our products to fit your special requirements upon request.

### **What are flex cables?**

Newly developed flexible tube cable has a special construction and several clear benefits compared to the traditional optical fibre cable, and we are one of the few cable manufacturers able to produce flexible tube optical fibre cables.

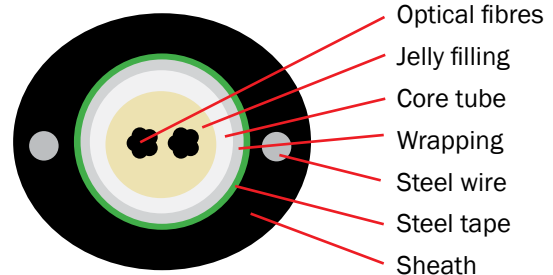
Higher packing density of fibres in flexible tube optical cables results in significantly smaller cables. Flexible construction has also features which make installing significantly easier.

The most durable cable at the market for direct buried installation



**Classic direct buried cable**

Properties		
Maximum tension during installation		5 000 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush strength with 100 mm plate		8 000 N
Reaction to fire (CPR)		Fca



**Construction**

<b>Optical fibres</b>	Coloured single-mode fibres according to the ITU-T G.652.D standard. Also available with multimode fibres.
<b>Secondary coating</b>	A plastic core tube with jelly filling.
<b>Wrapping</b>	The cable core is wrapped longitudinally with a swellable tape.
<b>Protection</b>	Polymer coated corrugated steel tape applied longitudinally with an overlap. The nominal thickness of the steel tape is 0,15 mm.
<b>Strength members</b>	Two 1,6 mm diameter steel wires in the sheath.
<b>Outer sheath</b>	UV resistant black PE. Nominal sheath thickness is 2,5 mm.
<b>Sheath marking</b>	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

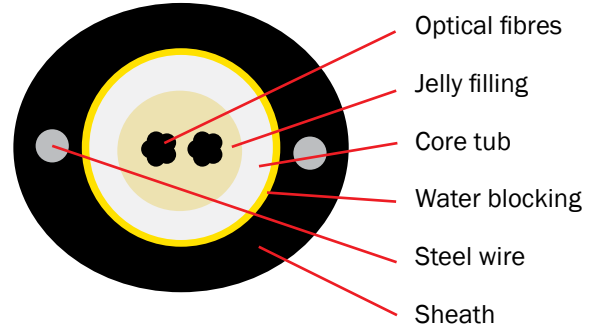
Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
6xSML	13,8	171	230	115	6 000	K20
12xSML	13,8	171	230	115	6 000	K20
2x12xSML	13,8	171	230	115	6 000	K20
4x12xSML	14,3	192	260	130	6 000	K20
2x4x12xSML	15,2	214	280	140	6 000	K22

## FY02PMU

### Lightweight fibre optic drop cable



Also suitable for duct installation



Properties		
Maximum tension during installation		3 500 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush strength with 100 mm plate		5 000 N
Reaction to fire (CPR)		Fca

Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D standard.
Secondary coating	A plastic core tube with jelly filling.
Water blocking	The cable core is surrounded with water blocking yarns.
Strength members	Two 1,2 mm diameter steel wires in the sheath.
Outer sheath	UV resistant black PE. Nominal sheath thickness is 1,5 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Maximum diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
4xSML	10,7	86	160	100	2 000	K10
6xSML	10,7	86	160	100	2 000	K10
12xSML	10,7	86	160	100	2 000	K10
2x12xSML	10,7	86	160	100	2 000	K10

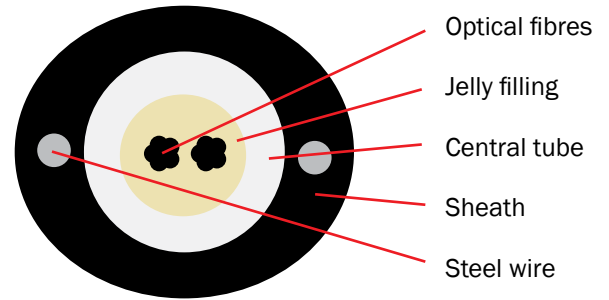
## FY02PMU Mini

Lightweight fibre optic drop cable with easy installation properties



Easy and quick installation properties

Properties		
Maximum tension during installation		3 500 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush strength with 100 mm plate		5 000 N
Crush strength sideways with 100 mm plate		3 500 N
Reaction to fire (CPR)		Fca



Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D standard.
Secondary coating	A plastic core tube with jelly filling.
Strength members	Two 1,2 mm diameter steel wires in the sheath.
Outer sheath	UV resistant black LLDPE. Minimum sheath thickness is 1,2 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Maximum diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
4xSML	8,9	57	150	60	2 000	K8
6xSML	8,9	57	150	60	2 000	K8
12xSML	8,9	57	150	60	2 000	K8

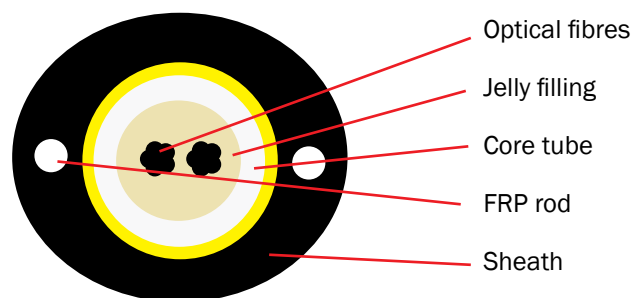
## FY02RMU 3,5kN

Non-metallic fibre optic cable for connecting the end-user to access network in FTTH applications



Also suitable for duct installation

Properties		
Maximum tension during installation		3 500 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush trength	With 100 mm plate, perpendicular to the plane of wires	6000 N
Reaction to fire (CPR)		Fca



Construction	
Optical fibres	Coloured single-mode fibers according to the ITU-T G.652.D.
Secondary coating	A plastic core tube with jelly filling.
Strength members	Two 2,2 mm glass fibre reinforced plastic rods in the sheath.
Outer sheath	UV resistant black polyethylene compound (LLDPE). Minimum sheath thickness is 1,5 mm. Min. thickness from wire to outer surface is 0,5 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Average diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			Durig installation	Installed		
4xSML	10	80	190	95	2 000	K10
6xSML	10	80	190	95	2 000	K10
12xSML	10	80	190	95	2 000	K10



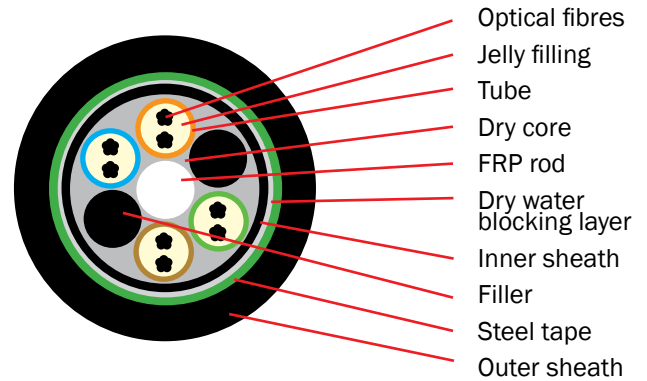
## FZOMVDMU-SD

Stranded optical fibre cable for challenging conditions



Even for challenging conditions

Properties		
Maximum tension during installation	24-96 fibres	3 500 N
	192 fibres	5 000 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush strength with 100 mm plate		7 000 N
Reaction to fire (CPR)		Fca



Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D standard.
Secondary coating	Jelly filled loose tubes made of thermoplastic polymer.
Fillers	Plastic fillers when applicable.
Central strength member	Glass fibre reinforced plastic (FRP).
Cable core stranding	The secondary coating tubes and fillers (when needed) are SZ-stranded around the central strength member. 192 fibre cable has two stranding layers.
Inner sheath	UV resistant black LLDPE. Nominal sheath thickness is 1,0 mm.
Water blocking	Dry water blocking elements.
Rip cords	Non-metallic rip cords are applied under the sheathing layers.
Moisture barrier	Polymer coated corrugated steel tape applied longitudinally with an overlap. The nominal thickness of the steel tape is 0,15 mm.
Outer sheath	UV resistant black HDPE. Nominal sheath thickness is 1,5 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

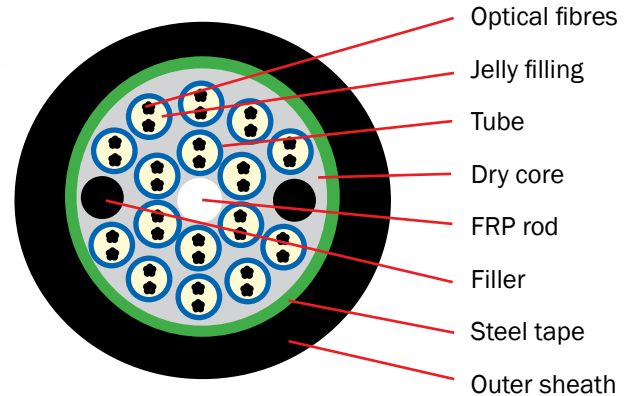
Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
2x12xSML	15,4	211	300	150	4 000	K20
4x12xSML	15,4	212	300	150	4 000	K20
8x12xSML	17,2	256	340	170	4 000	K22
16x12xSML	21,0	365	400	210	3 000	K22

## FZOVDMU-SD

### Cable with high fibre count



Even 432 fibres



Properties		
Maximum tension during installation		6 000 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush strength with 100 mm plate		5 000 N
Reaction to fire (CPR)		Fca

Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D standard.
Secondary coating	Jelly filled loose tubes made of thermoplastic polyester.
Fillers	Plastic fillers when applicable.
Central strength member	Glass fibre reinforced plastic (FRP).
Cable core stranding	The secondary coating tubes and fillers (when needed) are SZ-stranded around the central strength member. 192 fibre cable has two stranding layers.
Wrapping	The cable core is wrapped longitudinally with a swellable tape.
Rip cord	Non-metallic rip cord is applied under the sheathing layers.
Protection	Polymer coated corrugated steel tape applied longitudinally with an overlap. The nominal thickness of the steel tape is 0,15 mm.
Outer sheath	UV resistant black HDPE. Nominal sheath thickness is 1,8 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
12x2x12xSML	22,5	404	300	200	3 000	K22
16x2x12xSML	22,5	409	300	200	3 000	K22
18x2x12xSML	22,5	411	300	200	3 000	K22

## FZVD2PMU Flex

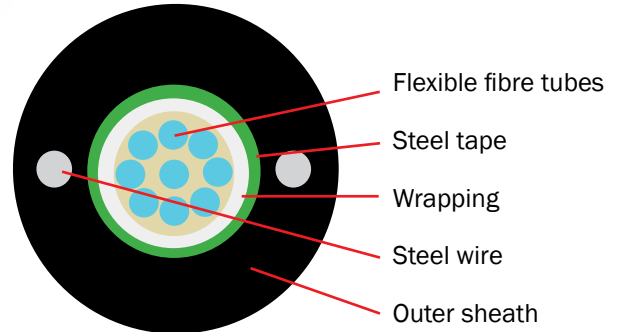
New direct buried fibre optic cable with improved durability and handling capabilities



Flexible cable core

Even 432 fibres

Properties		
Maximum tension during installation		5 000 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush strength with 100 mm plate		6 000 N
Reaction to fire (CPR)		Fca

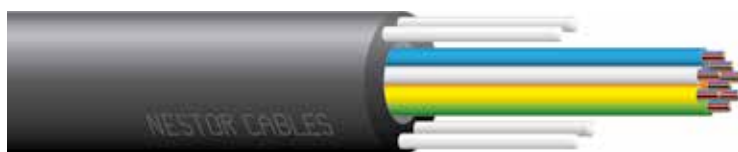


Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D.
Secondary coating	Flexible colour coded fibre modules. Fibres are housed in thin walled tubes made of soft elastomeric material.
Wrapping	Water blocking tape.
Protection / Moisture barrier	Polymer coated corrugated steel tape applied longitudinally with an overlap. The nominal thickness of the steel tape is 0,15 mm.
Strength members	Two 1,6 mm high tensile strength steel wires in the sheath.
Outer sheath	UV resistant black polyethylene compound (HDPE). Nominal sheath thickness is 3,0 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

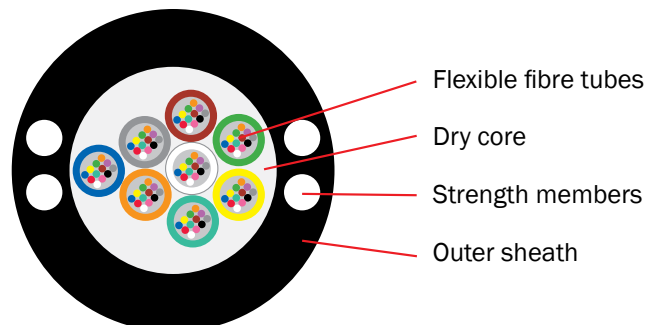
Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
2x12xSML	13,8	176	260	130	6 000	K20
4x12xSML	13,8	179	260	130	6 000	K20
8x12xSML	14,8	201	280	140	6 000	K22
16x12xSML	16,8	246	320	160	6 000	K22
24x12xSML	17,8	269	340	170	4 000	K22
16x24xSML	19,3	291	360	180	4 000	K22
18x24xSML	19,3	298	360	180	4 000	K22

## FZ4RMU Flex 3,5 kN

New non-metallic direct buried cable with improved durability and handling properties



**Non-metallic but still strong enough to be installed directly to the ground by digging or ploughing**



Properties		
Maximum tension during installation		3 500 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush strength with 100 mm plate		4 000 N
Reaction to fire (CPR)		Fca

Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D and IEC 60793-2-50 B1.3..
Secondary coating	Flexible colour coded fibre modules. Fibres are housed in thin walled tubes made of soft elastomeric material.
Wrapping	Water blocking tape.
Strength members	Four glass fibre reinforced plastic rods (FRP) in the sheath. Rod nominal diameter 1,6 mm.
Outer sheath	UV resistant black polyethylene compound (HDPE). Nominal sheath thickness is 2,6 mm. Minimum sheath thickness is 2,3 mm, from wire to outer surface 0,3 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
1x12xSML	8,5	58	180	90	6 000	K12
2x12xSML	10,1	74	200	100	6 000	K16
4x12xSML	10,1	78	200	100	6 000	K16
8x12xSML	11,4	96	220	110	6 000	K16
16x12xSML	13,4	127	260	130	6 000	K20



## Duct cables

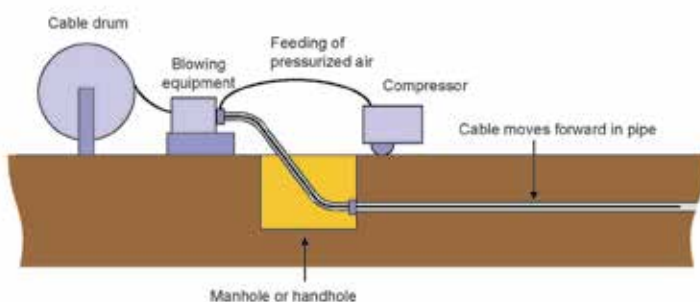
Fibre optic cables must be rigid yet flexible enough to be installed into duct systems. Our range of cables includes many options for duct installation, and there are for example cables suitable for installation by pulling or blowing. Our duct cables are robust and developed to withstand special conditions of each installation method.

Our product range varies from traditional central and stranded loose tube constructions to newly developed flexible tube constructions. Many of these constructions are non-metallic.

Nestor Cables manufactures fibre optic cables for microduct installations too.

Nestor Cables can supply cables with a variety of fibre types and counts, and we have decided to present only a fraction of our growing product range in this brochure. However, we will modify and develop our products to fit your special requirements upon request.

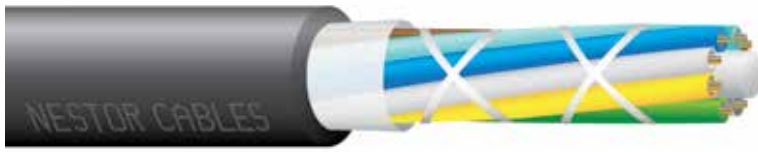
### Installation of duct cable by air blowing



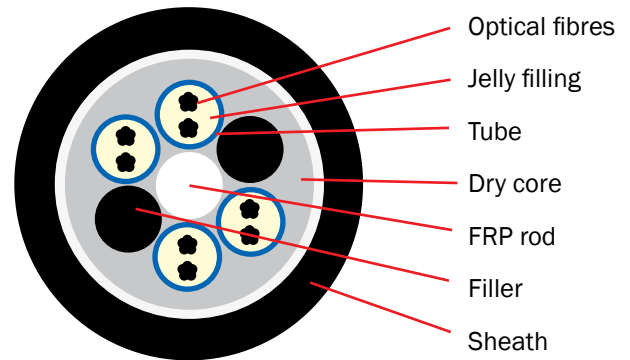
This illustration explains installation of cable into the duct system or into the underground pipe by air blowing. No pulling equipment or pulling rope is needed, and the pulling force is distributed evenly along the whole cable length. Advantage of the blowing technique is also the fact that the cable can be blown into an existing pipe during any season.

## FZOMU-SD

Non-metallic optical fibre cable for duct installation either by pulling or blowing



### Non-metallic optical fibre cable



Properties		
Maximum tension during installation	12 - 48 fibres	1 500 N
	96 - 192 fibres	3 500 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush strength with 100 mm plate		2 000 N
Reaction to fire (CPR)		Fca

Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D standard.
Secondary coating	Jelly filled loose tubes made of thermoplastic polymer.
Fillers	Black plastic fillers when applicable.
Central strength member	Glass fibre reinforced plastic (FRP).
Cable core stranding	The secondary coating tubes and fillers (when needed) are SZ-stranded around the central strength member.
Water blocking	Dry water blocking elements.
Rip cord	A non-metallic rip cord is applied under the sheath.
Outer sheath	UV resistant black HDPE. Nominal sheath thickness is 1,5 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
2x12SML	8,9	60	180	90	4 000	K12
4x12xSML	8,9	60	180	90	4 000	K12
8x12xSML	10,6	96	220	110	4 000	K14
12x12xSML	13,6	148	280	140	4 000	K18
16x12xSML	13,7	139	280	140	4 000	K18

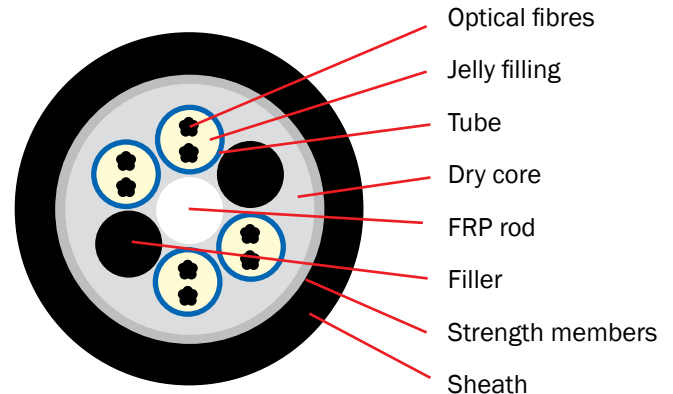
## FZORMU-SD

E-glass strengthened non-metallic optical fibre cable for duct installation either by pulling or blowing



### Non-metallic optical fibre cable

Properties		
Maximum tension during installation	12 - 48 fibres	3 400 N
	96 fibres	5 000 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush strength with 100 mm plate		2 000 N
Reaction to fire (CPR)		Fca



Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D standard.
Secondary coating	Jelly filled loose tubes made of thermoplastic polymer.
Fillers	Black plastic fillers when applicable.
Central strength member	Glass fibre reinforced plastic (FRP).
Cable core stranding	The secondary coating tubes and fillers (when needed) are SZ-stranded around the central strength member.
Water blocking	Dry water blocking elements.
Strength members	A layer of E-glass yarns under the sheath.
Rip cord	A non-metallic rip cord is applied under the sheath.
Outer sheath	UV resistant black HDPE. Nominal sheath thickness is 1,5 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

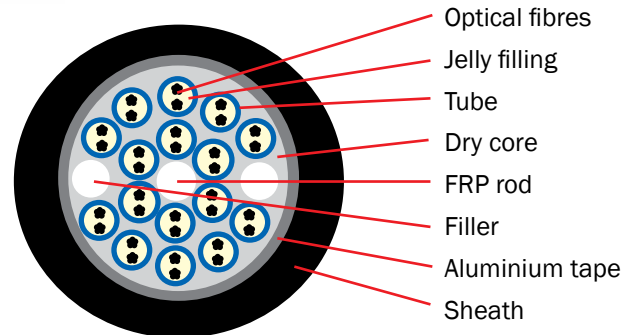
Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
1x12xSML	9,0	63	180	90	4 000	K12
2x12xSML	9,0	63	180	90	4 000	K12
4x12xSML	9,0	64	180	90	4 000	K12
8x12xSML	10,7	98	220	110	4 000	K14
12x12xSML	13,7	150	280	140	4 000	K18
16x12xSML	14,4	153	280	140	4 000	K18
24x12xSML	16,9	217	280	140	4 000	K20

## FZOHBMU-SD

### Fibre optic cable with aluminium tape for duct installation



Duct installation either by pulling or blowing



Properties		
Maximum tension during installation		3 000 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush strength with 100 mm plate		3 000 N
Reaction to fire (CPR)		Fca

Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D standard.
Secondary coating	Jelly filled loose tubes made of thermoplastic polymer.
Fillers	Plastic fillers when applicable.
Central strength member	Glass fibre reinforced plastic (FRP).
Cable core stranding	The secondary coating tubes and fillers (when needed) are SZ-stranded around the central strength member in two layers.
Water blocking	Dry water blocking elements.
Rip cord	A non-metallic rip cord is applied under the sheathing layers.
Moisture barrier	Polymer coated aluminium tape applied longitudinally with an overlap. The nominal thickness of the tape is 0,15 mm.
Outer sheath	UV resistant black HDPE. Nominal sheath thickness is 1,5 mm (≥ 288F 1,8 mm).
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
1x12xSML	13,0	128	260	130	4 000	K16
2x12xSML	13,0	133	260	130	4 000	K16
4x12xSML	13,0	134	260	130	4 000	K16
8x12xSML	14,8	170	300	150	4 000	K18
16x12xSML	18,4	251	300	200	4 000	K22
12x2x12xSML	20,5	298	300	200	4 000	K22
16x2x12xSML	20,5	303	300	200	4 000	K22
18x2x12xSML	20,5	305	300	200	4 000	K22



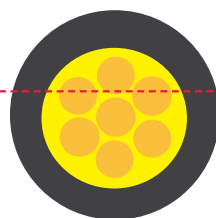


## Microduct cables

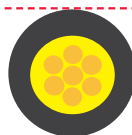
Installing telecommunication and access network cabling in metropolitan and suburban areas can be demanding. In these areas space is limited and cabling should be done underground or on existing infrastructure. These limitations can be overcome by using microduct cables. Microcabling system is built directly to the ground or on duct routes.

Microcabling system allows flexible expansion of the network. After microducts are installed, microduct cables can be easily blown in microducts whether building a new network or expanding existing network. By using microduct technology CAPEX and OPEX can be significantly reduced.

Nestor Cables can supply cables with a variety of fibre types and counts, and we have decided to present only a fraction of our growing product range in this brochure. However, we will modify and develop our products to fit your special requirements upon request.



FZORMU-SD  
96 fibres  
Outer diameter  
10,7 mm



FZOMU-SD Micro  
96 fibres  
Outer diameter  
6,4 mm

### High fibre density

High fibre density of low weight microduct cables combined with ease of handling these cables, increased jetting speeds and improved duct and space utilization result in reduced costs.

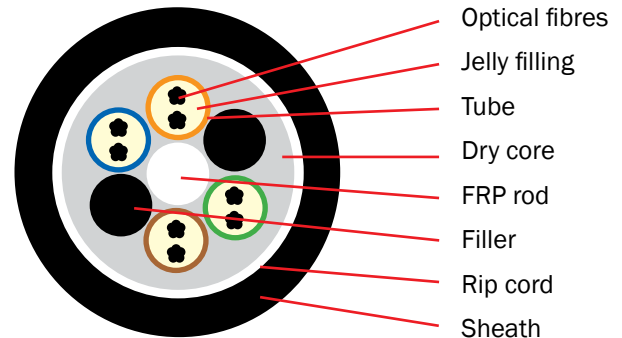
## FZOMU-SD Micro

Optical fibre cable for microduct installation by blowing



For microduct installation

Properties		
Maximum tension during installation	12 - 72 fibres	750 N
	96 - 288 fibres	1 000 N
Temperature range	Operation	-30 - +60 °C
	Installation	-15 - +60 °C
	Storage, transport	-40 - +70 °C
Crush strength with 100 mm plate		500 N
Reaction to fire (CPR)		Fca



Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D.
Secondary coating	Jelly filled loose tubes made of thermoplastic polyester.
Fillers	Plastic fillers when applicable.
Central strength member	Glass fibre reinforced plastic (FRP).
Cable core stranding	The secondary coating tubes and fillers (when needed) are SZ-stranded around the central strength member.
Water blocking	Dry water blocking elements are applied to the cable core.
Rip cord	A non-metallic rip cord is applied under the sheath.
Outer sheath	UV resistant black polyethylene compound (HDPE). Nominal sheath thickness is 0,6 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
2x12xSML	5,8	26	120	80	4 000	K9
4x12xSML	5,8	26	120	80	4 000	K9
6x12xSML	5,8	27	120	80	4 000	K9
8x12xSML	6,4	36	130	120	4 000	K10
12x12xSML	8,2	55	170	120	4 000	K12
16x12xSML	8,8	58	170	80	4 000	K12
24x12xSML	10,2	81	200	120	4 000	K14
8x24xSML	8,1	52	160	110	4 000	K12

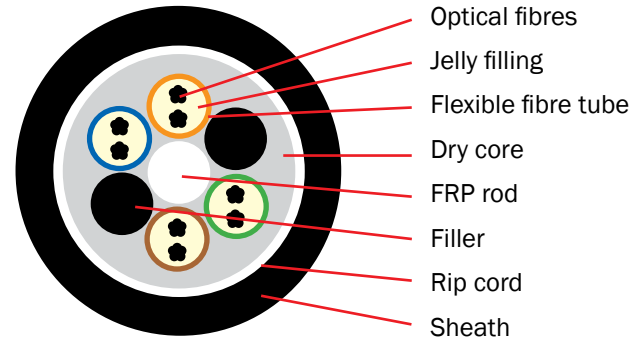
## FZOMU-SD Flex Micro

Flexible optical fibre cable for microduct installation by blowing



For microduct installation

Properties		
Maximum tension during installation	24- 48 fibres	750 N
	96 - 192 fibres	1 000 N
Temperature range	Installation	-15 - +60 °C
	Operation, storage, transport	-40 - +70 °C
Crush strength with 100 mm plate		500 N
Reaction to fire (CPR)		Fca



Construction	
<b>Optical fibres</b>	Coloured single-mode fibres according to the ITU-T G.652.D.
<b>Secondary coating</b>	Flexible colour coded fibre modules. Fibres are housed in thin walled tubes made of soft elastomeric material (polyester elastomer).
<b>Fillers</b>	Plastic fillers when applicable.
<b>Central strength member</b>	Glass fibre reinforced plastic (FRP).
<b>Cable core stranding</b>	The fibre tubes and fillers (when needed) are SZ-stranded around the central strength member.
<b>Water blocking</b>	Dry water blocking elements are applied to the cable core.
<b>Rip cord</b>	A non-metallic rip cord is applied under the sheath.
<b>Outer sheath</b>	UV resistant black polyethylene compound (HDPE). Nominal sheath thickness is 0,6 mm.
<b>Sheath marking</b>	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
2x12xSML	5,8	26	120	80	4 000	K9
4x12xSML	5,8	26	120	80	4 000	K9
8x12xSML	6,2	34	130	105	4 000	K9
12x12xSML	8,1	53	170	105	4 000	K12
8x24xSML	8,1	52	170	105	4 000	K12

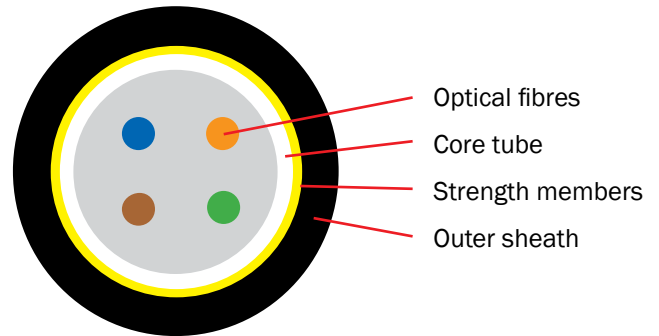
## FYORMU Micro

Optical fibre cable with 2-12 fibres for microduct installation by blowing



For microduct installation

Properties		
Maximum tension		300 N
Temperature range	Operation	-30 - +60 °C
	Installation, storage, transport	-15 - +60 °C
Crush strength with 100 mm plate		1 000 N
Reaction to fire (CPR)		Fca



Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D.
Secondary coating	A plastic core tube with jelly filling.
Strength members	Aramide yarns under the sheath.
Outer sheath	UV resistant black polyethylene compound (HDPE). Nominal sheath thickness is 0,5 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - Cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
2xSML	4,0	14	80	60	4 000	K7
4xSML	4,0	14	80	60	4 000	K7
6xSML	4,0	14	80	60	4 000	K7
8xSML	4,0	14	80	60	4 000	K7
12xSML	4,0	14	80	60	4 000	K7

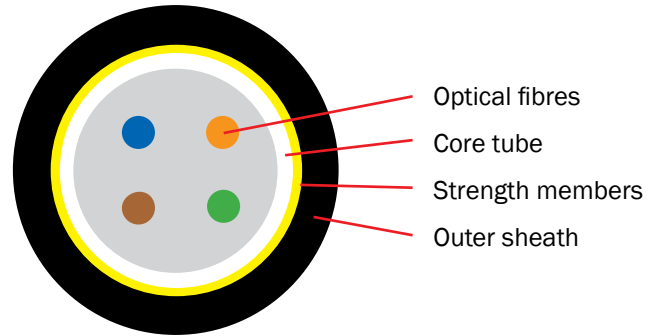
## FYORMU Micro 2,5 mm

Optical fibre cable with 2-12 fibres for microduct installation by blowing



For microduct installation

Properties		
Maximum tension		150 N
Temperature range	Operation	-30 - +60 °C
	Installation, storage, transport	-15 - +60 °C
Crush strength with 100 mm plate		500 N
Reaction to fire (CPR)		Fca



Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.657.A1
Secondary coating	A plastic core tube with jelly filling.
Strength members	Aramide yarns under the sheath.
Outer sheath	UV resistant black thermoplastic compound. Nominal sheath thickness is 0,3 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - Cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
2xSML	2,5	5	50	25	4 000	P7
4xSML	2,5	5	50	25	4 000	P7
8xSML	2,5	5	50	25	4 000	P7
12xSML	2,5	5	50	25	4 000	P7



## Aerial cables

All-dielectric self-supporting cables (ADSS) are non-metallic so they are free from lightning and overvoltage problems when used along electrical power lines. They are designed to be lightweight but also strong enough to be installed between support towers. The cables must also withstand strain of the natural elements, for example wind and ice.

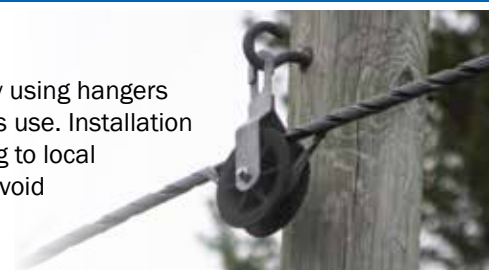
Nestor Cables' product range includes a variety of all-dielectric self-supporting cables. ADSS 3 kN FYORMU and ADSS 3 kN FZORMU-SD are meant for short span power lines whereas ADSS 8 kN FZORMU-SD is suitable for longer span (even 150 metres) power lines.

We can also manufacture fibre optic cables with suspension wire. For example classic FYOHBMUK with self-supporting figure-8 construction has a maximum span length of 60 metres.

Nestor Cables can supply cables with a variety of fibre types and counts, and we have decided to present only a fraction of our growing product range in this brochure. However, we will modify and develop our products to fit your special requirements upon request.

### Installation of ADSS cables

ADSS cables are installed to poles by using hangers which are designed especially for this use. Installation height must be determined according to local standards and rules for example to avoid interference caused by traffic.



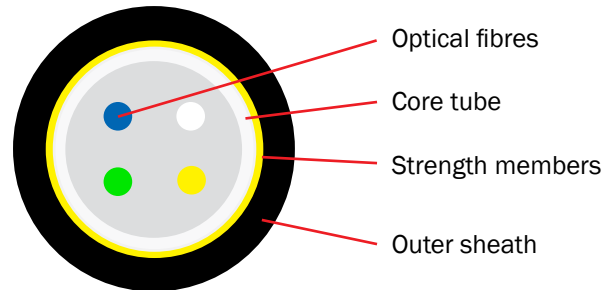
## ADSS 3kN FYORMU

Lightweigh optical fibre cable for aerial installation for short span power lines (70 m, NESC heavy)



**All-Dielectric Self Supporting**

Properties		
Maximum operational tension		3 000 N
Temperature range	Operation	-30 - +60 °C
	Installation	-15 - +60 °C
Crush strength with 100 mm plate		4 000 N
Reaction to fire (CPR)		Fca



Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D standard.
Secondary coating	A plastic core tube with jelly filling.
Water blocking	The cable core is surrounded with water blocking yarns.
Strength members	A helically stranded layer of high modulus aramide yarns.
Rip cord	A non-metallic rip cord is applied under the sheath.
Outer sheath	UV resistant black PE. Nominal sheath thickness is 1,3 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

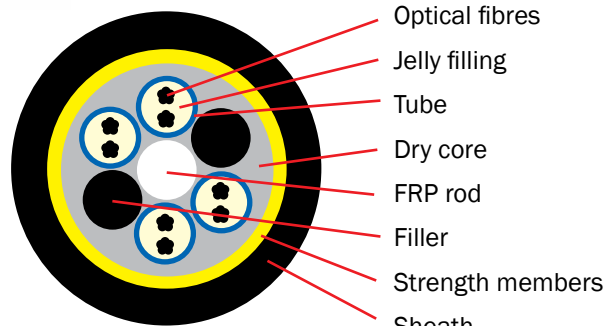
Cable size	Diameter mm	Weigh kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
4xSML	8,5	57	170	85	6 000	K14
6xSML	8,5	57	170	85	6 000	K14
12xSML	8,5	57	170	85	6 000	K14

## ADSS 3kN FZORMU-SD

Lightweigh optical fibre cable for aerial installation for short span power lines (70 m, NESC heavy)



All-Dielectric Self Supporting



### Properties

Maximum operational tension		3 000 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush strength with 100 mm plate		2 000 N
Reaction to fire (CPR)		Fca

### Construction

Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D.
Secondary coating	Jelly filled loose tubes made of thermoplastic polyester.
Fillers	Plastic fillers when applicable.
Central strength member	Glass fibre reinforced plastic (FRP).
Cable core stranding	The secondary coating tubes and fillers (when needed) are SZ-stranded around the central strength member.
Water blocking	Dry water blocking elements are applied to the cable core.
Strength members	A helically stranded layer of high modulus aramide yarns.
Rip cord	A non-metallic rip cord is applied under the sheath.
Outer sheath	UV resistant black polyethylene compound (HDPE). Nominal sheath thickness is 1.5 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
2x12xSML	10,2	77	200	100	6 000	K16
4x12xSML	10,2	78	200	100	6 000	K16
8x12xSML	11,2	100	220	110	6 000	K18
12x12xSML	13,7	147	280	140	6 000	K20
24x12xSML	15,8	190	300	160	6 000	K22
18x2x12xSML	18,5	249	300	190	4 000	K22

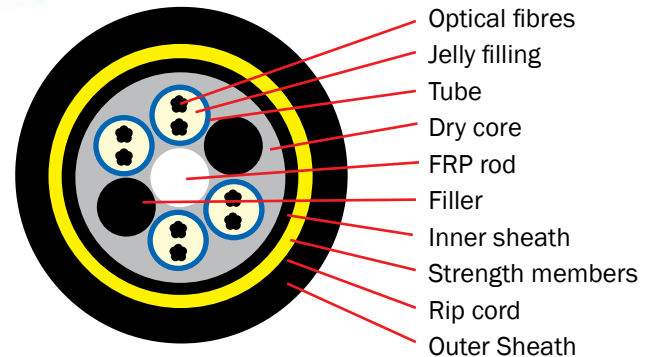


## ADSS 8kN FZOMRMU-SD

Optical fibre cable for aerial installation for longer span power lines (150 m, NESC heavy)



All-Dielectric Self Supporting



Properties		
Maximum operational tension		8 000 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush strength with 100 mm plate		4 000 N
Reaction to fire (CPR)		Fca

Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D.
Secondary coating	Jelly filled loose tubes made of thermoplastic polyester.
Fillers	Plastic fillers when applicable.
Central strength member	Glass fibre reinforced plastic (FRP).
Cable core stranding	The secondary coating tubes and fillers (when needed) are SZ-stranded around the central strength member.
Water blocking	Dry water blocking elements are applied to the cable core.
Rip cord	A non-metallic rip cord is applied under the sheath.
Inner sheath	UV resistant black polyethylene compound (LLDPE). Nominal sheath thickness is 1,0 mm.
Strength members	A helically stranded layer of high modulus aramide yarns.
Rip cord	A non-metallic rip cord is applied under the sheath.
Outer sheath	UV resistant black polyethylene compound (HDPE). Nominal sheath thickness is 1.5 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
2x12xSML	13,1	135	260	130	6 000	K20
4x12xSML	13,1	135	260	130	6 000	K20
8x12xSML	14,8	171	300	150	6 000	K22
12x12xSML	18,1	251	300	180	4 000	K22
24x12xSML	21	326	300	210	3 000	K22

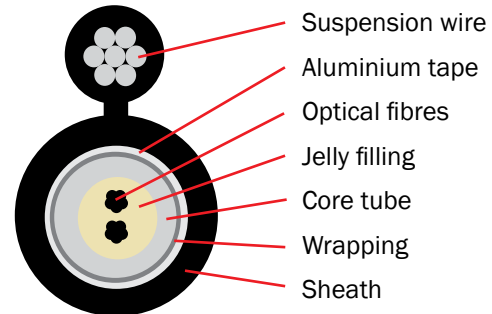
## FYOHBMUK

Classic fibre optic cable with a suspension wire for aerial installation



Self-supporting figure-8 construction

The maximum span length 60 metres



Properties		
Maximum operational tension		7 000 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush strength with 100 mm plate		3 000 N
Reaction to fire (CPR)		Fca

Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D standard.
Secondary coating	A plastic core tube with jelly filling.
Wrapping	The cable core is wrapped longitudinally with a swellable tape.
Moisture barrier	Polymer coated aluminium tape applied longitudinally with an overlap. The nominal thickness of the tape is 0,15 mm.
Suspension wire	The suspension wire is made of stranded galvanised steel wires. The nominal diameter is 7x1,57 mm.
Outer sheath	The cable sheath consists of UV resistant black PE. Nominal sheath thickness is 1,4 mm. Nominal neck dimensions: height 3,0 mm, width 2,1 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm		Weight kg/km	Minimum bending radius mm		Length m	Drum
	Width	Height		During installation	Installed		
12xSML	10,0	21,0	230	300	150	6 000	K20
2x12xSML	10,0	21,0	230	300	150	6 000	K20
4x12xSML	12,0	23,0	260	300	150	6 000	K22
2x4x12xSML	12,0	23,0	260	300	150	6 000	K22



## Indoor – Outdoor cables

When installing cables to a building, for example in Fibre to the Home applications, safe cables which can be installed both inside and outside the building are needed.

Nestor Cables' product range includes a variety of indoor - outdoor cables. Among more traditional FZOMSU-SD and FZOMSU-SD Mini cables we can also offer FZ2RMSU Flex with a newly developed flexible tube construction.

Nestor Cables can supply cables with a variety of fibre types and counts, and we have decided to present only a fraction of our growing product range in this brochure. However, we will modify and develop our products to fit your special requirements upon request.



### Safety first

In fibre optic cables for indoor - outdoor installation safety is a necessity, and it is important that these cables fulfill certain standards. In our indoor - outdoor cable range you can find fibre optic cables which are halogen-free, flame retardant and low smoke according to international standards.

Nestor Cables' quality assurance and testing facilities for all necessary routine and type tests are according to the international standards.

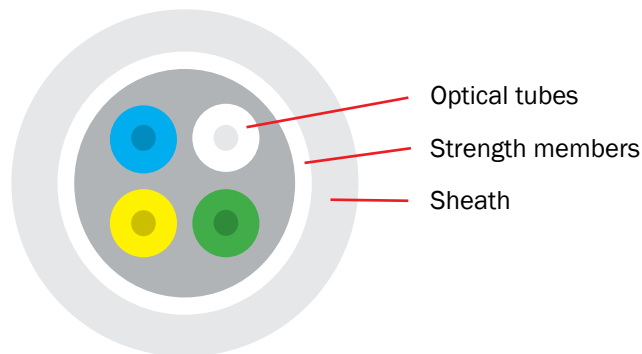
## FTMSU

Non-metallic tight-buffered optical fibre cable for indoor and outdoor FTTX applications (riser, distribution and drop cable)



Non-metallic construction

Properties		
Maximum tension during installation		500 N
Temperature range	Operation	-45 - +60 °C
	Installation	-15 - +60 °C
Crush strength with 100 mm plate		2000 N
Reaction to fire (CPR)		Dca -s2,d2,a2



Construction	
Optical fibres	Single-mode fibres according to the ITU-T G.657.A1. Fibres meet also the requirements of ITU-T G.652.D.
Secondary coating	Tight buffer, outer diameter 900 µm
Strength members	Glass yarns with water-blocking coating under the sheath.
Outer sheath	Flame retardant, halogen free and UV resistant plastic (LSZH). Colour of the sheath is light grey RAL 7035. Nominal sheath thickness is 1,0 mm. Cable is flame retardant according to the IEC 60332-1-2 and IEC 60332-3.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
2xG.657.A1	5,3	28	100	50	2 000	P6
4xG.657.A1	5,3	28	100	50	2 000	P6
12xG.657.A1	7,2	51	100	50	2 000	P8
24xG.657.A1	8,3	67	160	80	2 000	P8

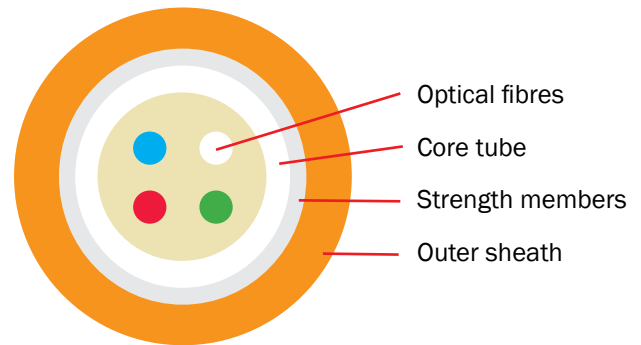
## FYORMSU 1,8 KN

Non-metallic rodent protected optical fibre cable. Suitable for both indoor and outdoor (duct) installation.



Rodent protected construction

Properties		
Maximum tension	Short term	1800 N
	Long term	800 N
Temperature range	Operation	-40 - +70 °C
	Installation	-15 - +60 °C
Crush strength with 100 mm plate		3000 N
Reaction to fire (CPR)		Dca -s2,d2,a2

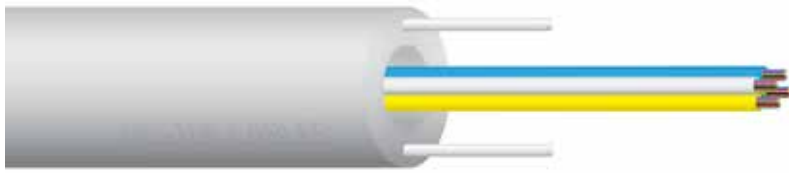


Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.657.A1
Secondary coating	A plastic core tube with jelly filling.
Strength members	Water-blocked E-glass yarns under the sheath.
Rip cord	A non-metallic rip cord is applied under the sheath.
Outer sheath	Flame retardant, halogen free and UV resistant plastic (LSZH). Colour of the sheath is orange. Nominal sheath thickness is 1,2 mm. Flame retardant, halogen free and UV resistant plastic (LSZH).  Cable fulfills the following standards: <ul style="list-style-type: none"> <li>• Flame retardant IEC 60332-1-2</li> <li>• Low smoke IEC 61034-2</li> <li>• Halogen free IEC 60754-2</li> </ul>
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
4xSML	7,0	53	140	70	2 000	P8
8xSML	7,0	53	140	70	2 000	P8
12xSML	7,5	59	150	75	2 000	P8
24xSML	7,5	59	150	75	2 000	P8

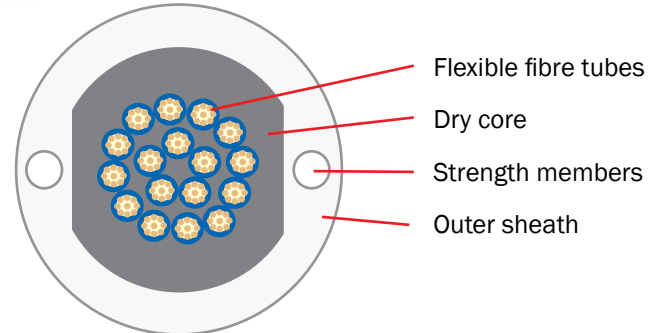
## FZ2RMSU Flex

Lightweight halogen free fiber optic cable based on flexible loose tubes that are easy to handle and strip



Flexible construction

Properties		
Maximum tension during installation	600 N	
Temperature range	Operation	-45 - +60 °C
	Installation	-15 - +60 °C
Crush strength with 100 mm plate	600 N	
Reaction to fire (CPR)	Dca -s2,d2,a2	



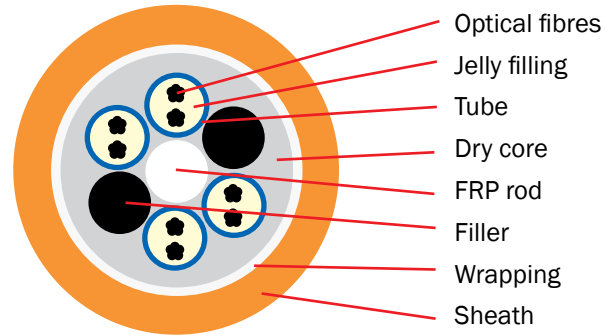
Construction	
Optical fibres	Singlemode fibers according to the standard ITU-T G.652.D or multimode fibers type OM3.
Secondary coating	Flexible colour coded fiber modules. Fibers are placed in thin tubes made of soft elastomeric material. Colours according to FIN2012. Tubes with OM3 fibers are marked with a red stripe.
Water blocking	Water blocking yarns in the cable core.
Strength members	Two glass fiber reinforced plastic rods (FRP) in the sheath. Nominal rod diameter is 1,0 mm.
Outer sheath	Flame retardant, halogen free and UV resistant plastic (LSZH). Colour of the sheath is light grey. Nominal sheath thickness is 1,5 mm. Cable fulfills the following standards: <ul style="list-style-type: none"> <li>• Flame retardant IEC 60332-3</li> <li>• Low smoke IEC 61034-2</li> <li>• Halogen free IEC 60754-2, EN 50267-2-1, EN 50267-2-2</li> </ul>
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
1x4xSML	6,0	34	120	60	2 000	P8
1x12xSML	6,0	35	120	60	2 000	P8
2x12xSML	6,0	37	120	60	2 000	P8
4x12xSML	7,6	55	160	80	2 000	P8
8x12xSML	8,6	70	180	90	2 000	P8
16x12xSML	9,6	92	200	100	2 000	P8
1x8xSML +1x8xOM3	6,0	36	120	60	2 000	P8
1x12xSML +1x12xOM3	6,0	37	120	60	2 000	P8
2x12xSML +2x12xOM3	7,6	51	160	80	2 000	P8



**Suitable for duct installation outdoors and indoors**

Properties		
Maximum tension during installation	12 - 48 fibres	1 500 N
	96 fibres	2 800 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +60 °C
Crush strength with 100 mm plate	1 500 N	
Reaction to fire (CPR)	Eca	



Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D standard. Also available with multimode fibres.
Secondary coating	Jelly filled loose tubes made of thermoplastic polymer.
Fillers	Plastic fillers when applicable.
Central strength member	Glass fibre reinforced plastic (FRP).
Cable core stranding	The secondary coating tubes and fillers (when needed) are SZ-stranded around the central strength member.
Wrapping	The cable core is wrapped longitudinally with a water blocking tape.
Rip cord	A non-metallic rip cord is applied under the sheath.
Outer sheath	Flame retardant, halogen free and UV resistant plastic (LSZH). Colour of the sheath is orange. Nominal sheath thickness is 1,4 mm. Cable is flame retardant according to the IEC 60332-1.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

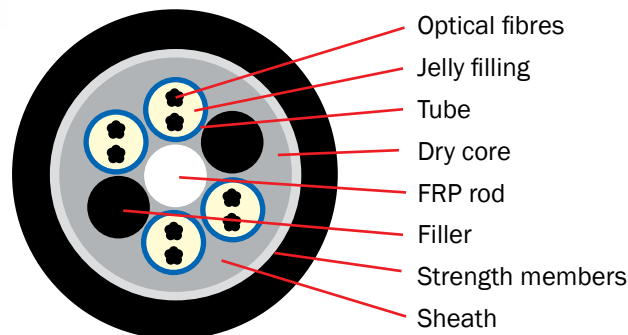
Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
1x6xSML	10,0	80	200	100	2 000	K10
12xSML	10,0	80	200	100	2 000	K10
2x12xSML	10,0	80	200	100	2 000	K10
4x12xSML	10,0	80	200	100	2 000	K10
8x12xSML	11,0	110	220	110	2 000	K11
16x12xSML	14,2	157	300	160	2 000	K14

## FZOMSU-SD Mini

Lightweigh, halogen free, UV resistant and flame retardant fibre optic cable



**Suitable for duct installation outdoors and indoors**



Properties		
Maximum tension during installation	12 - 48 fibres	1 800 N
	96 fibres	2 700 N
Temperature range	Operation	-40 - +70 °C
	Installation	-15 - +60 °C
Reaction to fire (CPR)		Dca -s2,d2,a2

Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D.
Secondary coating	Jelly filled loose tubes made of thermoplastic polymer.
Fillers	Plastic fillers when applicable.
Central strength member	Glass fibre reinforced plastic (FRP).
Cable core stranding	The secondary coating tubes and fillers (when needed) are SZ-stranded around the central strength member.
Strength members	A helically stranded layer of fiberglass yarns (waterblocking).
Rip cord	A non-metallic rip cord is applied under the sheath.
Outer sheath	Flame retardant, halogen free and UV resistant plastic (LSZH). Colour of the sheath is black. Cable is flame retardant according to the IEC 60332-1.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
1x12xSML	8,0	68	160	80	2 000	K10
2x12xSML	8,0	68	160	80	2 000	K10
4x12xSML	8,0	70	160	80	2 000	K10
8x12xSML	8,5	96	160	80	2 000	K10





A range of indoor cables is available as a handy pigtail cable with pre-assembled connectors to a termination box.

## Indoor cables

Indoor cables are used inside the buildings e.g. to connect a subscriber or end-user to the building distributor inside a building for example in multi-dwelling houses or in office buildings.

Nestor Cables can supply cables with a variety of fibre types and counts, and we have decided to present only a fraction of our growing product range in this brochure. However, we will modify and develop our products to fit your special requirements upon request.

### Complete solution for indoor installations

Among our new FZ2RMS FlexD indoor cable, we can supply other needed accessories to create effective indoor cabling solutions. Our range of products include for example termination boxes and cabinets, patch panels, pigtail kits and patch cords.

Visit our website to learn more:  
[www.nestorcables.com](http://www.nestorcables.com)



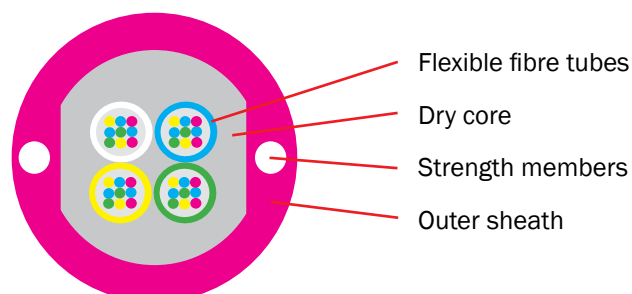
## FZ2RMS FlexD

Lightweigh, halogen-free and non-metallic optical fibre cable for indoor applications.



Flexible construction

Properties		
Maximum tension during installation		600 N
Temperature range	Operation	-20 - +60 °C
	Installation	-15 - +60 °C
Crush strength with 100 mm plate		600 N
Reaction to fire (CPR)		Dca -s2,d2,a2



Construction	
Optical fibres	Available fibre types: OS2 single-mode (ITU-T G.652.D), OM3 multi-mode and OM4 multi-mode.
Secondary coating	Flexible colour coded fibre modules. Fibres are housed in thin walled tubes made of soft elastomeric material.
Strength member	Two glass fibre reinforced plastic rods (FRP) in the sheath. Nominal rod diameter is 1,0 mm.
Outer sheath	Flame retardant, halogen free and UV resistant plastic (LSZH). Nominal sheath thickness is 1,5 mm. Colour according to the fibre type: OS2 yellow, OM3 aqua, OM4 heather violet.  Cable fulfills the following standards: <ul style="list-style-type: none"> <li>• Flame retardant IEC 60332-3-24</li> <li>• Low smoke IEC 61034-2</li> <li>• Halogen free EN 50267-2-1, EN 50267-2-2</li> </ul>
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
2x12xOS2	6	37	120	60	2000	P8
4x12xOS2	7,6	52	160	80	2000	P8
8x12xOS2	8,6	65	180	90	2000	P8
2x12xOM3	6	37	120	60	2000	P8
4x12xOM3	7,6	52	160	80	2000	P8
8x12xOM3	8,6	65	180	90	2000	P8
2x12xOM4	6	37	120	60	2000	P8
4x12xOM4	7,6	52	160	80	2000	P8
8x12xOM4	8,6	65	180	90	2000	P8



## Cables for industrial premises

A variety of our most popular cables are available with OM1 or OM3 multimode fibres or as hybrid cables including both single-mode and multimode fibres.

Nestor Cables can supply cables with a variety of fibre types and counts, and we have decided to present only a fraction of our growing product range in this brochure. However, we will modify and develop our products to fit your special requirements upon request.



### Alternative use for FTRMSU

In addition to installation for industrial premises, our FTRMSU optical fibre cable can be utilized in mobile fibre optic cable units for security, defence and other temporary applications. For these applications, a full range of accessories is also available. Our selection includes for example:

- short cable assemblies
- carrying frames
- reel stands
- reeling and unreeling equipment
- cleaning kits for the connectors

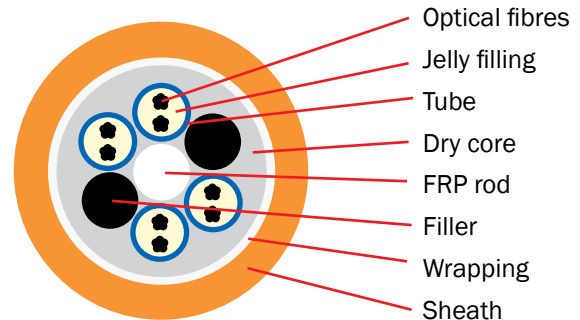
## FZOMSU-SD (OM1)

Halogen free and flame retardant fibre optic cable (LSZH)



Fire retardant according to the IEC 60332-1.

Properties		
Maximum tension during installation		1 500 N
Temperature range	Operation	-45 - +60 °C
	Installation	-15 - +60 °C
Crush strength with 100 mm plate		1 500 N
Reaction to fire (CPR)		Eca



Construction	
Optical fibres	Coloured OM1 multi-mode fibres (GKL, 62,5/125 µm). Single-mode fibres according to the ITU-T G.652.D in hybrid cables.
Secondary coating	Jelly filled loose tubes made of thermoplastic polyester.
Fillers	Black plastic fillers when applicable.
Central strength member	Glass fibre reinforced plastic (FRP).
Cable core stranding	The secondary coating tubes and fillers (when needed) are SZ-stranded around the central strength member.
Wrapping	The cable core is wrapped longitudinally with a water blocking tape.
Rip cord	A non-metallic rip cord is applied under the sheath.
Outer sheath	Flame retardant, halogen free and UV resistant plastic (LSZH). Colour of the sheath is orange. Nominal sheath thickness is 1,4 mm. Cable is flame retardant according to the IEC 60332-1.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

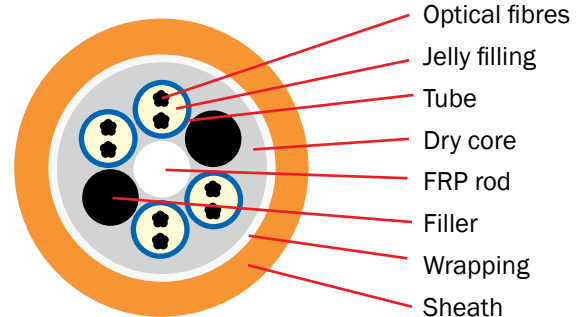
Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
4xOM1	10,0	80	200	100	2 000	K10
2x4xOM1	10,0	80	200	100	2 000	K10
3x4xOM1	10,0	80	200	100	2 000	K10
6x4xOM1	10,0	80	200	100	2 000	K10
4xSML+ 4xOM1	10,0	80	200	100	2 000	K10
2x4xSML+ 2x4xOM1	10,0	80	200	100	2 000	K10
3x4xSML+ 3x4xOM1	10,0	80	200	100	2 000	K10

## FZOMSU-SD (OM3)

Halogen free and flame retardant fibre optic cable (LSZH)



Fire retardant according to the IEC 60332-1.



Properties		
Maximum tension during installation		1 500 N
Temperature range	Operation	-45 - +60 °C
	Installation	-15 - +60 °C
Crush strength with 100 mm plate		1 500 N
Reaction to fire (CPR)		Eca

Construction	
Optical fibres	Coloured OM3 multi-mode fibres. Single-mode fibres according to the ITU-T G.652.D in hybrid cables.
Secondary coating	Jelly filled loose tubes made of thermoplastic polyester.
Fillers	Black plastic fillers when applicable.
Central strength member	Glass fibre reinforced plastic (FRP).
Cable core stranding	The secondary coating tubes and fillers (when needed) are SZ-stranded around the central strength member.
Wrapping	The cable core is wrapped longitudinally with a water blocking tape.
Rip cord	A non-metallic rip cord is applied under the sheath.
Outer sheath	Flame retardant, halogen free and UV resistant plastic (LSZH). Colour of the sheath is orange. Nominal sheath thickness is 1,4 mm. Cable is flame retardant according to the IEC 60332-1.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
4xOM3	10,0	80	200	100	2 000	K10
2x4xOM3	10,0	80	200	100	2 000	K10
3x4xOM3	10,0	80	200	100	2 000	K10
6x4xOM3	10,0	80	200	100	2 000	K10
4xSML+ 4xOM3	10,0	80	200	100	2 000	K10
2x4xSML+ 2x4xOM3	10,0	80	200	100	2 000	K10
3x4xSML+ 3x4xOM3	10,0	80	200	100	2 000	K10

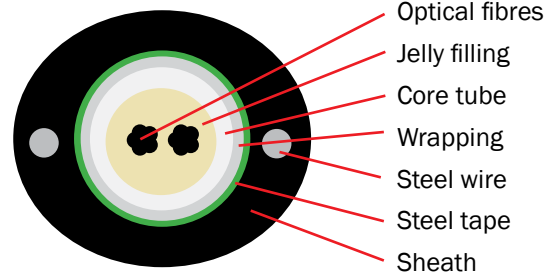
## FY0VD2PMU (OM1)

The most durable cable at the market for direct buried installation



Also available with single-mode fibres and as hybrid cable (SM+MM).

Properties		
Maximum tension during installation		5 000 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush strength with 100 mm plate		8 000 N
Reaction to fire (CPR)		Fca



Construction	
Optical fibres	Coloured OM1 multi-mode fibres (GKL). (And single-mode fibres according to the ITU-T G.652.D in hybrid cables.)
Secondary coating	A plastic core tube with jelly filling.
Wrapping	The cable core is wrapped longitudinally with a swellable tape.
Protection	Polymer coated corrugated steel tape applied longitudinally with an overlap. The nominal thickness of the steel tape is 0,15 mm.
Strength members	Two 1,6 mm high tensile strength steel wires in the sheath.
Outer sheath	The cable sheath consists of UV resistant black polyethylene compound (LDPE). Minimum sheath thickness is 1,5 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Name of manufacturer - cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
4xOM1	13,8	171	230	115	2 000	K14
2x4xOM1	13,8	171	230	115	2 000	K14
2x4xSML+ 2x4xOM1	13,8	171	230	115	2 000	K14
2x6xSML+ 3x4xOM1	13,8	171	230	115	2 000	K14

## FZVD2PMU Flex (OM3)

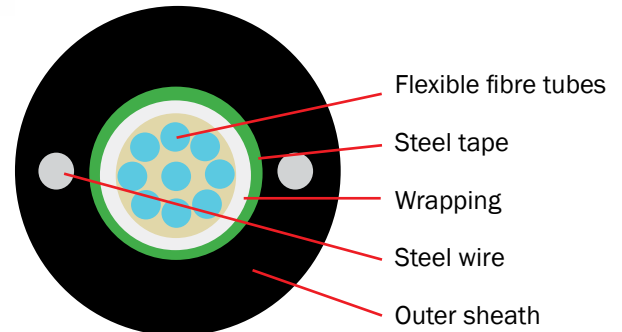
New direct buried fibre optic cable with improved durability and handling capabilities



Flexible cable core

Even 432 fibres

Properties		
Maximum tension during installation		5 000 N
Temperature range	Operation	-45 - +70 °C
	Installation	-15 - +70 °C
Crush strength with 100 mm plate		6 000 N
Reaction to fire (CPR)		Fca



Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D.
Secondary coating	Flexible colour coded fibre modules. Fibres are housed in thin walled tubes made of soft elastomeric material.
Wrapping	Water blocking tape.
Protection / Moisture barrier	Polymer coated corrugated steel tape applied longitudinally with an overlap. The nominal thickness of the steel tape is 0,15 mm.
Strength members	Two 1,6 mm high tensile strength steel wires in the sheath.
Outer sheath	UV resistant black polyethylene compound (HDPE). Nominal sheath thickness is 3,0 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking.

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
1x4xSML +1x4xOM3	13,8	173	260	130	2 000	K12
1x8xSML +1x8xOM3	13,8	174	260	130	2 000	K12
1x12xSML +1x12xOM3	13,8	175	260	130	2 000	K12
2x12xSML +2x12xOM3	13,8	179	260	130	2 000	K12
4x12xOM3	13,8	179	260	130	2 000	K12



## Submarine cables

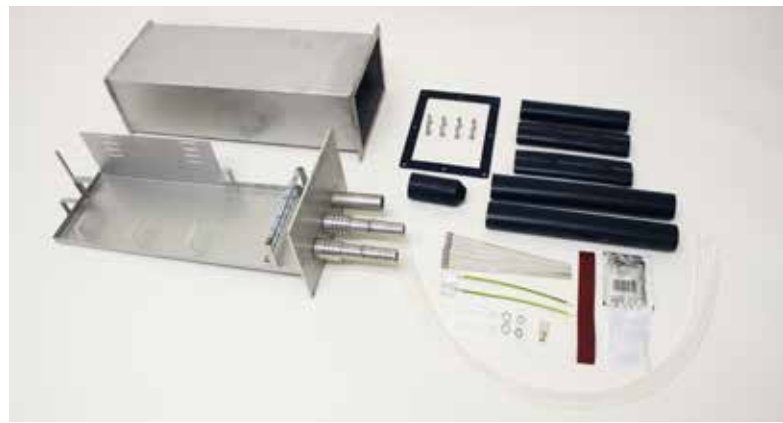
A submarine communications cable is a cable laid on the sea between land-based stations to carry telecommunication signals.

Modern "sea cables" are typically about 2,5 centimeters in diameter for the deep-sea sections, larger cables are used near shore. Optical fibre cables are anymore not only simple point-to-point connections, but multiple destinations can be served by a single cable system. Capacity has increased manifold over the past years, reaching terabits per second overseas.

Nestor Cables can supply cables with a variety of fibre types and counts, and we have decided to present only a fraction of our growing product range in this brochure. However, we will modify and develop our products to fit your special requirements upon request.

### Joint closure NC-400W

On the basis of our classic joint closure NC-400, we have developed joint closure NC-400W especially to be used with our submarine cables to create solutions for under water installations.





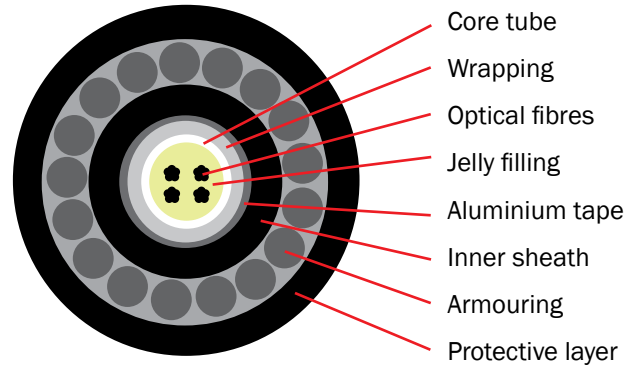
## FYOHBM1,6MW

Optical fibre cable for underwater installation for lake and river crossings



FYOHBM2,5JW also available

Properties		
Maximum tension during installation		12 000 N
Temperature range	Operation, storage, transport	-45 - +60 °C
	Installation	-15 - +60 °C
Crush strength	With 100 mm plate	10 000 N
	With 25 mm mandrel	2 000 N



Construction	
Optical fibres	Coloured single-mode fibres according to the ITU-T G.652.D.
Secondary coating	A plastic core tube with jelly filling.
Wrapping	The cable core is wrapped longitudinally with a swellable tape.
Moisture barrier	Polymer coated aluminium tape applied longitudinally with an overlap. The nominal thickness of the tape is 0,15 mm. Minimum overlap is 3 mm.
Inner sheath	UV resistant black polyethylene compound (LLDPE). Nominal sheath thickness is 1,0 mm
Armouring	Zinc-coated steel wires in single layer. Wire diameter is 1,6 mm.
Outer sheath	UV resistant black polyethylene compound (HDPE). Minimum sheath thickness is 2,5 mm.
Sheath marking	Marking printed on the sheath at one meter interval: Nestor Cables - cable type - lot number - year of manufacture - length marking

Cable size	Diameter mm	Weight kg/km	Minimum bending radius mm		Length m	Drum
			During installation	Installed		
12xSML	19,2	580	600	400	2 000/4 000	K18 - K22
2x12xSML	19,2	580	600	400	2 000/4 000	K18 - K22
4x12xSML	19,2	580	600	400	2 000/4 000	K18 - K22
2x4x12xSML	20,4	655	600	400	2 000/4 000	K18 - K22

## Color coding

Nestor Cables uses following standard color systems:

- **FIN2012**
- **ANSI/TIA** (American National Standards Institute / Telecommunications Industry Association)
- **DIN/VDE** (Deutsches Institut für Normung e.V. / Verband der Elektrotechnik Elektronik Informationstechnik e.V.)

However, we can also customize color codings according to the customer's wishes.

Fibre or group	Fin2012	ANSI/TIA 598-C	DIN/VDE 08888
	Color in English (IEC 60304)	Color in English (ANSI/TIA)	Color in English (IEC 60304)
1	Blue BU	Blue BL	Red RD
2	White WH	Orange OR	Green GN
3	Yellow YE	Green GR	Blue BU
4	Green GN	Brown BR	Yellow YE
5	Grey GY	Slate SL	White WH
6	Orange OG	White WH	Grey GY
7	Brown BN	Red RD	Brown BN
8	Turquoise TQ	Black BK	Violet VT
9	Black BK	Yellow YL	Turquoise TQ
10	Violet VT	Violet VI	Black BK
11	Pink PK	Rose RS	Orange OG
12	Red RD	Aqua AQ	Pink PK

## Drum sizes

The measurements of standard cable drums are presented in the table below.

Wood is a natural material, and its weight can fluctuate for example because of humidity.

Please notice that the drum weights in the table are estimates, and **the presented weights are possible only when the volume of wood mass is 420 kg/m<sup>3</sup> and the humidity of wood is 20%**. If wood is dryer or wetter, it will also change the weight of the drum.



Measurements in millimetres, weight in kilograms

		Standard cable drums												
Attribute		K6	K7	K8	K9	K10	K11	K12	K14	K16	K18	K20	K22	K24
Flange diameter	<b>D</b>	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	2200	2400
Barrel diameter	<b>D1</b>	250	325	375	425	500	575	675	800	950	1100	1300	1394	1400
Inner width	<b>L</b>	400	500	500	550	600	650	850	850	850	850	1000	1000	1000
Barrel hole	<b>d</b>	75	75	75	75	110	110	110	110	110	140	140	140	140
Outer width	<b>L1</b>	475	575	575	627	712	762	983	1016	1016	1016	1188	1188	1200
Transportation volume m3 without boarding		0,17	0,28	0,37	0,51	0,71	0,92	1,41	2,61	2,61	3,48	4,75	5,75	6,91
Transportation volume m3 with boarding		0,20	0,33	0,42	0,57	0,79	1,01	1,54	2,78	2,78	3,69	5,00	6,02	7,21
Empty weight		13	18	24	31	40	51	84	172	172	211	285	353	401

## Contact information

### Head office & factory

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90620 Oulu, Finland

Postal Address:  
P.O. Box 276  
FI-90101 Oulu Finland

Tel. +358 20 791 2770  
Fax +358 20 791 2779

### People

To contact any of our employees by e-mail:  
**forename.surname@nestorcables.fi**

**www.nestorcables.com**  
**info@nestorcables.fi**  
**+358 20 791 2770**

### Regional sales offices, partners and agents

Nestor Cables has a sales office in St. Petersburg, which manages sales for Russia, and we also have agents and partners in several countries (for example in Sweden & Norway, Romania, Ukraine and Algeria). You can find their contact information on our website or by contacting customer service.

**OULU**



### What Nestor Cables can offer you:

- Complete network solutions, including the needed cables and accessories: Nestor Cables has a wide range of products for different kind of customers, whether you are looking for a mere cable supplier or a complete network solution.
- Finnish tradition of producing high quality cable
- On-time deliveries
- Flexible lead times
- Customer oriented service
- Innovativeness
- Products suitable even for challenging circumstances



# nestor

## cables

Nestor Cables' product range includes optical fibre cables, copper telecommunication cables, process control and automation cables for industries, fibre optic accessories and complete fibre optic cabling solutions for different needs (for example FTTH and FTTA solutions, fibre optic cabling concept for windmill farms and mobile optical cable units).



To learn more about our products and company, or to read news and announcements about our recent projects and presence at industry events, please visit our website.

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