

# High Performance Loose Tube Cable

**GRHL 12-192 fibers G657A1 S12**

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## Features

- Up to 192 fibres
- Slim yet very durable design
- Air-blown installation, water jetting or traditional pulling
- Excellent optical performance with ultra-low loss G657A1 fibers
- A dry cable design - easy to prepare and identify fibres

## Application

The Hexatronic slim duct cable series combines state of the art installation performance, ultra-low attenuation and a high mechanical and environmental performance.

The cable type is typically used in transport applications such as terrestrial long-haul or metro networks where low attenuation and cable performance are prime concerns.

With a reduced outside cable diameter and optimised cable stiffness, the cables can be air-blown or water-jetted long distances without the need for splicing. A reduced cable diameter also allows for reduced duct diameters which will simplify and reduce the cost of material handling in field.

Thanks to the central strength member design and a robust sheath the cables can also be installed by traditional pulling techniques.

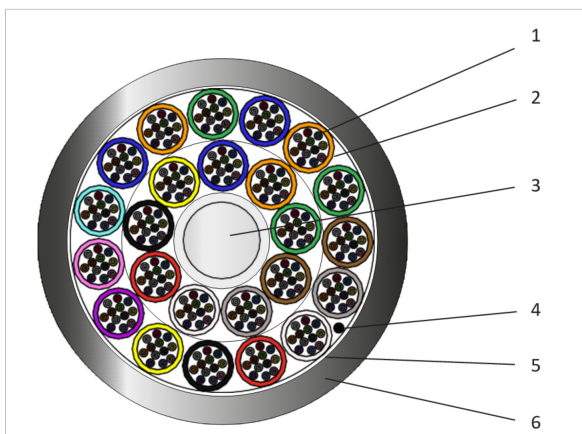
## Design

The cables are based on a dry concentric core, slim loose tube design with up to 16 tubes per cable.

The cables have one or two layers of inner protective tubes made of a robust PBT compound where each tube has 12 fibers.

The design facilitates easy fibre preparation and mid-span access.

## Product Information



- 1 Primary coated fiber: Silica, acrylate
- 2 Loose tube: PBT
- 3 Central strength member: Glass fiber reinforced plastic, PE
- 4 Slit up yarn: Aramide yarn
- 5 Wrapping: Water blocking yarns
- 6 Sheath: Polyethylene, halogen-free

Black fillers can replace empty white tubes.

## Technical Information

<b>Product Color</b>	Black sheath
<b>Color Code</b>	S12
<b>Temperature, Operation [°C]</b>	-40 to +70
<b>Temperature, Storage [°C]</b>	-40 to +70
<b>Temperature, Installation [°C]</b>	-15 to +50
<b>Water Blocking</b>	Length water blocking according to IEC 60794-1-2-F5B
<b>Fiber Type</b>	G657A1
<b>Attenuation @Wavelength [nm]</b>	1310/1383/1550
<b>Typical Attenuation [dB/km]</b>	0.32/0.32/0.18
<b>Average Attenuation [dB/km]</b>	0.33/0.33/0.21
<b>Maximum Attenuation [dB/km]</b>	0.36/0.36/0.23
<b>Conformance</b>	Length water blocking according to IEC 60794-1-2-F5B. Mechanical and environmental test in accordance with IEC 60794-5-10 Fiber parameters and tests according to the IEC series 60793-2 and 60793-1
<b>Marking</b>	Example of sheath marking, 1 time/meter: "HEXATRONIC A35 yymmddhh TOL4012128/192AH GRHL-U-CDGNRV 192/T12 G657A1 S12 xxxx m" where yymmddhh = year, month, day and hour of manufacture, xxxx=running meter marking
<b>Installation Notes</b>	If the cable is installed by blowing the temperature shall be -15 to +40°C. The cable shall not be stored in direct sunlight. The sun may heat up the cable over the permitted temperature limit.

**Ordering Information**

Supplied lengths: 2, 4, 8 km

**Articles 7**

Article name	Color	No. of Fibers	Layout	Bend Radius [mm]	Tensile Force, Installation [N]	Tensile Force, Operation [N]	Crush [N/100 mm]	Impact [J]	Diameter Ø [mm]	Weight [kg/km]
<b>GRHL 12 G657A1 S12 (1x12f)</b> TOL4012128/12AH	Black	12	1x12	140	1500	500	1500	10	9.4	65
<b>GRHL 24 G657A1 S12 (2x12f)</b> TOL4012128/24AH	Black	24	2x12	140	1500	500	1500	10	9.4	65
<b>GRHL 36 G657A1 S12 (3x12f)</b> TOL4012128/36AH	Black	36	3x12	140	1500	500	1500	10	9.4	65
<b>GRHL 48 G657A1 S12 (4x12f)</b> TOL4012128/48AH	Black	48	4x12	140	1500	700	1500	10	9.4	65
<b>GRHL 72 G657A1 S12 (6x12f)</b> TOL4012128/72AH	Black	72	6x12	140	1500	700	1500	10	9.4	65
<b>GRHL 96 G657A1 S12 (8x12f)</b> TOL4012128/96AH	Black	96	8x12	160	4000	1500	1500	10	10.7	90
<b>GRHL 192 G657A1 S12 (16x12f)</b> TOL4012128/192AH	Black	192	16x12	175	2400	1500	1500	15	13.6	126