

# LMNWG

## Steel Wire Armoured ALPA™ Optical Cable

### Features

- **Central Strength Member (CSM):** glass fiber reinforced plastic rod (FRP), with plastic overshathing when needed.
- **Loose Tube:** The secondary coating consists of a loose tube made of thermoplastic polyester. Each fibre in a tube is uniquely identified by a different colour.
- **Filler Elements:** thermoplastic rods, where needed.
- **Stranding:** loose tubes (and fillers), SZ stranded around the CSM.
- **Cable core:** the cable core is covered with water blocking swellable tape.
- **Aramid yarns:** are applied to give extra tensile performance.
- **Moisture Barrier:** The cable is completely covered with an aluminium foil applied longitudinally with an overlap. The aluminium foil is bonded to the inner sheath.
- **1st Inner sheath:** The 1st inner sheath consists of HDPE (high density polyethylene) (Black) compound. (Two ripcords underneath).
- **2nd Inner Sheath:** The 2nd inner sheath consists of PA (Black)
- **Armour:** The armour consists of one layer of galvanized steel wire (SWA) with a counter spiral binder.
- **Outer sheath:** Flame Retardant Low Smoke, Zero Halogen compound. This compound is UV, Heat & Oil resistant.

### Technical Data

No. of Fibres		12	24	48	72	120
Number of tubes / fillers		2 / 4	4 / 2	4 / 2	6 / 0	10 / 0
Number of fibres per tube	mm		6		12	
Loose Tube- Ø	mm		2.1		2.4	
Central Strength member	mm		2.3		2.6	3.0/5.8
1st Inner sheath thickness	mm			1.0		
2nd Inner sheath thickness	mm			0.5		
Dia over 2nd inner sheath	mm		10.8		11.7	14.8
Steel Wire thickness	mm			1.0		
Sheath thickness	mm			2.0		
Cable Diameter	mm		16.8	17.7		20.8
Cable Weight	kg/km		465		510	665

Please refer to our General Installation, Safety & Handling recommendations before handling.

### Main Characteristics

Test	Standard	Specified value	Acceptance Criteria*
Max. Tension	IEC 60794-1-2-E1	7000 N	$\Delta\alpha \leq 0.05$ dB(MM), no fibre strain
Crush	IEC 60794-1-2-E3	4000N / 100mm, short term	$\Delta\alpha$ reversible
Impact	IEC 60794-1-2-E4	30 Nm, R=200mm, 3 impacts	$\Delta\alpha \leq 0.10$ dB(MM), no damage
Repeated bending	IEC 60794-1-2-E6	R= 20 x cable Ø, 100 cycles	$\Delta\alpha \leq 0.10$ dB(MM), no damage
Cable bend	IEC 60794-1-2-E11	R= 15 x cable Ø, 5 turns, 3cycles	$\Delta\alpha \leq 0.10$ dB(MM), no damage
Torsion	IEC 60794-1-2-E7	$\pm 180^\circ$ , L=1m, 10 cycles	No damage
Water Penetration	IEC 60794-1-2-F5B	sample=3m, water=1m	No water leakage after 24 hour, up to inner sheath
UV resistancy	ISO 4892-2	-	In ISO
Halogen free	IEC 60754-1 IEC 60811	Amount of halogen acid pH value	In IEC
Heat & Oil resistancy	-	IRM902 ; 4 hrs, 70°C	In IEC
Flame retardancy	-	Reduced flame propagation	
Single cable test	IEC 60332-1		
Bundle cable test	IEC 60332-3-22 (Cat A)		
Resistance to nitric acid	Draka - Kema	7 mol/l, 6 weeks	No damage to optical fibers
Resistance to hydrocarbon mixture	Draka - Kema	Metyl-etyl-ke-ton, trichloro-ethene, cyclo-hexane, heptane, toluene	No damage to optical fibers

\* values for single-mode fibres, all optical measurements performed at 1550 nm

Min. bending radius	mm	Without Tension 15 x Cable-Ø	Under Maximum Tension 25 x Cable-Ø
Temperature range	°C	Installation -10 to +70	Transport. & Storage -40 to +70 Operation -40 to +70

### Ordering Information

LMNWG SERIES FO Cable part numbers are made up using the table below.

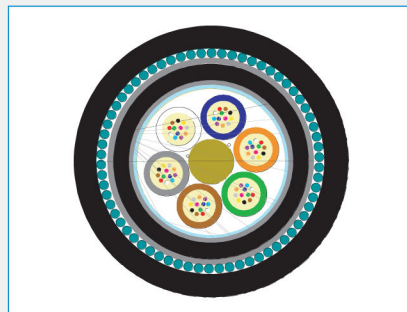
The part number always starts with the letters LMNWG to denote that it is a LMNWG SERIES FO Cable. This is followed by 3 numbers which symbolises the core quantity and then 2 letters to denote the fibre type.

Example of a LMNWG SERIES FO Cable part number:

**LMNWG024M1**

The above example describes an OM1 (62.5um, Orange Sheath) LMNWG SERIES FO Cable, with 24 cores.

LMNWG SERIES	CORE QUANTITY	FIBRE TYPE
LMNWG	XXX	XX
	012 - 12 CORES 024 - 24 CORES 048 - 48 CORES 072 - 72 CORES 120 - 120 CORES	SM - SINGLEMODE, G652D, 9um (yellow sheath) M1 - OM1, 62.5um (orange sheath) M2 - OM2, 50um (orange sheath) M3 - OM3, 50um (aqua sheath) M4 - OM4, 50um (aqua sheath)



### Application

The cable is especially designed for harsh environments. The multi-layer inner sheath system ALPA: Aluminium/HDPE/PA (nylon) withstands aggressive constituents and fluids that might occur on (petro)chemical plants. (chemical moisture - barrier). The Steel Wire Armour and FR LSZH sheath make the cable suitable for installation under and above ground.

- The ALPA design provides anti-termite protection.
- The Steel Wire Armour provides rodent protection.

### Fire Rating

- IEC 60332-1, IEC 60332-3-22