

Fiber Optics Cabling systems

Edition 2017/11



Excellence in Connectivity Solutions



Your partner for system solutions

The HUBER+SUHNER Group is a leading global supplier of components and systems for electrical and optical connectivity. Our customers in Communications, Industrial and Transportation markets appreciate that we are specialists with detailed knowledge of practical applications. We offer technical expertise in radio frequency technology, fiber optics and low-frequency under one roof, thus providing a unique basis for continual innovation focused on the needs of our customers all over the world.

HUBER+SUHNER offers a wide portfolio of innovative fiber optic cabling systems suitable for applications in communication, transportation and industrial markets. Dedicated cable systems guarantee highest transmission reliability in indoor and outdoor areas as well as in permanent or mobile installations. Components that are closely matched assure highest mechanical and thermal durability in most demanding environment.

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FTTA (H+E) fixed installations





MASTERLINE Extreme Hybrid (MLEH)

If you are looking for the shortest possible installation time, great installation flexibility, global cost and logistics-optimised production availability and market-oriented production sites, then MASTERLINE Extreme Hybrid is the right system for you.

General features

- Hybrid cabling system for up to 9 RRHs
- Flexible hybrid cable with low bending radius and excellent cable routing properties
- Overlength management – cable jacket with ripcords for easy and quick stripping
- Ruggedised plastic enclosure with robust break-out cables
- No special installation tools required
- Robust braided sleeve with pulling eye for cable lifting
- Supplied on double-flange reels for straight forward unspooling
- Fiber optic breakout cables terminated with Q-ODC extensions to connect with Q-ODC RRH jumpers
- Power cable connectorised or blunt cut

MASTERLINE Extreme Hybrid (MLEH)

MASTERLINE Extreme Hybrid (MLEH) is a hybrid riser cable with a compact divider.



Specifications

		MLEH small	MLEH large
Number of copper pairs		3/3, 3/6, 4/4, 4/8, 5/6, 6/6, 6/7	6/12, 9/18
Dimensions		Ø 69 mm, height 315 mm	Ø 96 mm, height 300 mm
Material		plastic PPE black	
Pulling force radio end		2000 N (short-term during installation)	
Temperature range	in service during installation	-40 to +75 °C -25 to +65 °C	
Cable retention force at enclosure	fiber breakout cable power breakout cable hybrid cable	500 N 500 N 2000 N	
Ingress protection	radio end / base station	IP67 / IP65 (with protection tube)	
IK class		IK10	
Flammability		UL 94 V-0	
UV resistant		ISO 4892-2	
Salt mist, IEC 61300-2-26		96 h	
Vibration, IEC 61300-2-1		10 - 500 Hz / 10 g	
Shock, IEC 61300-2-9		100 g	

Hybrid cable



Specifications

	LSFH™ hybrid cable global market	UL listed hybrid cable US market
Jacket material	thermoplastic, low smoke free of halogen (LSFH™)	PVC
Standard	IEC 60502-1:2004-04	UL 1277
Temperature range	-40 to +75 °C	
Operating voltage	48 Vdc	
Rated voltage	0.6 kV/1 kV (1.2 kV)	
Conductors	stranded copper class 2 IEC 60228: 2004	stranded copper class C
Drain wire	stranded copper class 2 IEC 60228: 2004	stranded copper class B
Cable shielding	copper foil 100 % coverage (with drain wire)	
Fiber optic	5 mm loose-tube cable with up to 24 fibers singlemode	
Halogen free	yes	yes
Flame retardant	IEC 60332-1-2:2004	UL 1685 (UL 1581) vertical tray flame test (70 000 BTU/hr)
UV resistant	IEC 68-2-5	UL 1581



MASTERLINE Ultimate Hybrid (MLUH)

Do your requirements include the shortest possible installation time, maximum installation safety, and extensive expandability and modularity? Then MASTERLINE Ultimate Hybrid is right for you.

General features

- Pre-connectorised factory-sealed hybrid cable system for 3 and 6 RRHs
- Modular «plug & play» system compatible with Q-ODC and power jumpers
- Encapsulated IP67 sealed connector head housing
- Space-efficient, low wind-load
- Easy mounting with adaptor plate, mast-, pole-, and wallmounting
- Optional protection cover for cable exits available

MASTERLINE Ultimate Hybrid (MLUH)

Hybrid cable with a compact connector head.

Specifications

	MLEH small	MLEH large
Number of connector pairs	3	6
Dimensions L x W x H	310 x 90 x 97 mm	477 x 90 x 97 mm
Material	plastic PPE black	
Pulling eye force	2000 N (short-term during installation)	
Hybrid cable retention force at enclosure	2000 N	
Connectors for jumper cable	Q-ODC socket rugged circular plastic socket	
fiber optic power		
Temperature range	-40 to +75 °C	
Ingress protection	IP67	
Impact resistance	IK7	
Halogen free	IEC 60754-2	
UV resistant for outdoor use	ISO 4892-2	
Material flammability rating	UL 94 V-0	



MASTERLINE Classic on base station



Delivered on double flange coil

Hybrid cable specifications

	LSFH™ hybrid cable global market	UL listed hybrid cable US market
Jacket material	thermoplastic, low smoke free of halogen (LSFH™)	PVC
Standard	IEC 60502-1:2004-04	UL 1277
Temperature range	-40 to +75 °C	
Operating voltage	48 Vdc	
Rated voltage	0.6 kV/1 kV (1.2 kV)	
Conductors	stranded copper class 2 IEC 60228: 2004	stranded copper class C
Drain wire	stranded copper class 2 IEC 60228: 2004	stranded copper class B
Cable shielding	copper foil 100 % coverage (with drain wire)	
Fiber optic	5 mm loose-tube cable with up to 36 fibers singlemode	
Halogen free	yes	no
Flame retardant	IEC 60332-1-2:2004	UL 1685 (UL 1581) vertical tray flame test (70 000 BTU/hr)
UV resistant	IEC 68-2-5	UL 1581



Hybrid cable with 6 fiber optic and 6 copper cable pairs



MASTERLINE Ultimate (MLU)

Multi-riser cable with compact connector head

HUBER+SUHNER launched the most innovative cabling system for remote radio installation: MASTERLINE Ultimate. The pre-connectorised factory-sealed fiber optic systems supports up to 12 RRHs and connects the remote radios with easy-to-install Q-ODC fiber optic jumpers.

The robust connector head with an integrated pulling eye allow for easy cable lifting without the need for hoisting grips. The encapsulated connector head can be directly attached to the mast with a single «click» at a pre-mounted adaptor plate. These unique features make MASTERLINE Ultimate the best-in-class product in terms of ease of topmast installation, installation robustness and efficiency.

MASTERLINE Ultimate (MLU)

Specifications

	MASTERLINE Ultimate	
Number of connector pairs Q-ODC	6	12
Divider	small	
Dimensions L x W x H	320 x 120 x 50 mm	
Material	plastik PPE black	
Pulling eye force	800 N (short-term during installation)	
Cable retention force at enclosure	800 N	
Connector for jumper	Q-ODC flange	
Ingress protection	IP67	
Impact resistance	IK7	
Halogen free	IEC 60754-2	
UV resistant for outdoor use	ISO 4892-3	
Material flammability rating	UL 94 V-0	
Kabel		
Maximum length	4000 m	
Cable diameter min./max.	7.0 mm / 11.5 mm	
Cable types (with/without rodent protection)	LSFHTM, low smoke, halogen free and self-extinguishing Radox high temperature, low smoke, halogen free, self-extinguishing	
Temperature range		
During installation	-10 to +50 °C	IEC 61300-2-22
In service	-40 to +75 °C	
In storage	-20 to +70 °C	



MASTERLINE Classic^{HT}

Does your current situation require reliable and secure transmission in the entire temperature range as well as ease of installation in outdoor areas? Then MASTERLINE Classic^{HT} is the right system for you.

General features

- Temperature range -40 to +70 °C
- Pre-assembled «plug & play» cabling system
- Ready-to-use system
- Easy and time-saving installation
- For loose tube cables to 48 fibers
- 100 % tested with test documentation for each system

Properties

- 2 - 48 fibers
- Fiber types singlemode, multimode
- Robust, compact divider
- All glass-armoured cables can be terminated
- All standard connector types can be pre-assembled
- Single-sided or double-sided equipment assemblies

Applications

MASTERLINE Classic^{HT} combats increased attenuation at extreme temperatures. After all, only MASTERLINE Classic^{HT} has the ability, as a complete system, to ensure unimpaired data traffic at a temperature range of at least -40 to +70 °C.

MASTERLINE Classic^{HT}

Can be run directly into pipes and ducts for demanding applications in indoor and outdoor areas.

Specifications

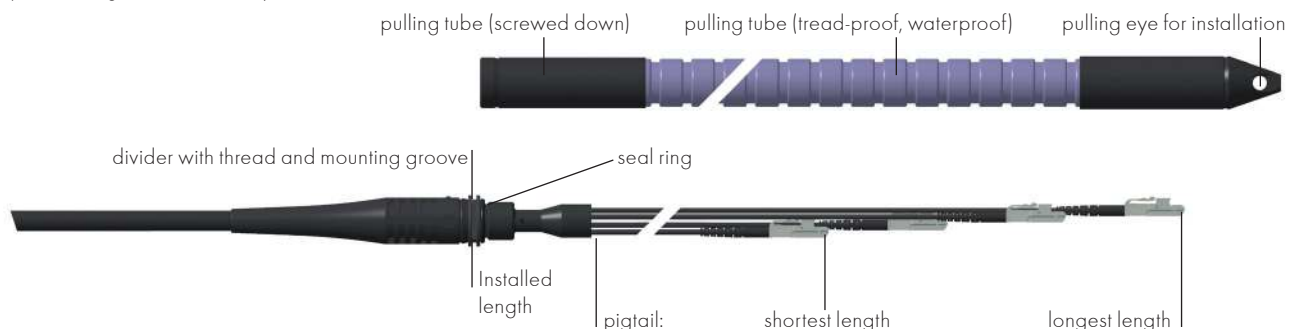
	MASTERLINE Classic ^{HT}		
Number of fibers	to 12	to 24	to 48
Divider	small	medium	large
Outer diameter	22 mm	31 mm	45 mm
Installed length	48 mm	58 mm	70 mm
Bore diameter for mounting	15.6 – 16.4 mm	25.5 – 26.5 mm	37.0 – 39.0 mm
Thread size for mounting	M16 x 1	M26 x 2	PG 29
Size mounting groove	15.2 mm	19.2 mm	30.2 mm
Maximum tensile load on divider	1000 N	1000 N	1200 N
Fanout			
Diameter of single fiber cable	2.1 mm	2.1 mm	2.1 mm
Standard pigtail staggered ¹⁾	longest length	1185 mm ±50	1045 mm ±50
	shortest length	450 mm ±50	520 mm ±50
Identification of single fiber cable	coded numbers		
Jacket material	RADOX® high temperature, low smoke, halogen free, self-extinguishing		
Connector	all HUBER+SUHNER standard connectors		
Pulling tube with pulling eye			
Outer diameter	23.5 mm	31 mm	49 mm
Maximum tensile strength ²⁾	1000 N	1000 N	1000 N
Crush resistance	250 N/cm	250 N/cm	250 N/cm
Watertightness	IP67	IP67	IP67
Cable			
Maximum length ³⁾	4000 m	4000 m	4000 m
Cable diameter max.	8.5 mm	15.0 mm	15.0 mm
Cable types	with rodent protection	LSFHTM, low smoke, halogen free and self-extinguishing	
	without rodent protection	PE for outdoor applications, longitudinal and transversal watertight	
Temperature range ⁴⁾			
During installation	-10 to +50 °C		IEC 61300-2-22
In service	-40 to +70 °C		
In storage	-40 to +70 °C		

1) Length of fanout can be freely defined, but max. of 5.0 m. Pulling tube cannot be fitted without staggered setup.

2) Tensile load on entire cable system, including pulling tube. For tensile load on cable, see data sheet for cable type.

3) Longer cable lengths by agreement with technical support.

4) Temperature range for entire cable system.





MASTERLINE Extreme

Are you looking for a compact (boxless) divider solution for outdoor use that is suitable for the most demanding environmental conditions, impresses with its ease of installation, and offers direct tensile force? Then the MASTERLINE Extreme is what you are looking for.

General features

- Ready-to-use cabling system
- Extreme temperature resistance
- Extreme mechanical properties
- Sturdy dividers and connector components
- Waterproof, dustproof and corrosion resistant
- Different cable types can be used
- High installation reliability
- 100 % tested with test documentation for each system

Properties

- Versions with ODC®-2 (screw-in) or Q-ODC® (2x Push-Pull)
- As singlemode or multimode fiber
- Versions can be equipped at one end or both ends
- Adapter M32 for direct mounting available

Applications

MASTERLINE are pre-assembled fiber optic cable systems for reliable, easy and time-saving installation. MASTERLINE extreme can be used for demanding applications inside and outside.

MASTERLINE Extreme

MASTERLINE Extreme is a multi-fiber cable system directly equipped with the well-known HUBER+SUHNER ODC® connectors.

Specifications

	MASTERLINE Extreme			
Number of fibers	up to 8	up to 24	up to 12	up to 24
Divider	small	medium	small	medium
Outer diameter	16 mm	28 mm	16 mm	28 mm
Installed length	48 mm	90 mm	70 mm	90 mm
Maximum tensile load on divider	600 N	600 N	600 N	600 N
Fanout				
Diameter of single fiber cable	5.0 mm	5.0 mm	5.8 mm	5.8 mm
Standard fanout length (not staggered) ²⁾	1000 mm ±50	also available staggered	also available staggered	also available staggered
Identification of single fiber cable	Roll labels			
Jacket material	PUR for high chemical resistance and wide temperature range			
Connector	ODC-2 und Q-ODC-Verbinder		ODC-4	
Pulling tube with pulling eye	no			
Cable				
Maximum length ³⁾	4000 m			
Cable diameter max.	8.5 mm	8.5 mm	8.5 mm	8.5 mm
Cable types with solid conductors with rodent protection	LSFH™, low smoke, halogen free and self-extinguishing			
Temperature range ⁴⁾				
During installation	-10 to +50 °C			IEC 61300-2-22
In service	-40 to +70 °C			
In storage	-40 to +70 °C			

1) Optional 32 mm with adapter.

2) Length of fanout can be freely defined, but max. of 4.0 m.

3) Longer cable lengths by agreement with technical support.

4) Temperature range for entire cable system.





ATC Divider

Are you looking for the most compact solution for industrial environments? Do you appreciate simple handling and uncomplicated routing in cable ducts? Then the ATC Divider (multifunctional divider) is your most compact solution for indoor and outdoor use.

General features

- Ready-to-install cabling system
- Ready-to-use system
- Easy and time-saving installation
- All field, 3star, riser and single loose tube cables with up to 4 fibers can be used
- 100 % tested with test documentation for each system
- Divider available as pre-terminated assembly

Applications

ATC dividers are the innovative solution for terminating tight tubes and bare fibers with strain relief and protection using the standard connector range from HUBER+SUHNER.

Properties

- 2 - 4 fibers
- Fiber types: singlemode, multimode, HCS
- Sturdy, very compact divider
- Wide range of cable designs can be terminated
- Loose tube cables 5.0 mm
- Riser, field and 3star cables
- All common connector types can be assembled
- Version can be equipped at both ends or one end
- M32 adapters available for direct fastening

ATC Divider

ATC dividers are multi-functional dividers that are used indoor and outdoor.

Specifications

		ATC Divider	
Number of fibers		2 and 4	2 and 4
Divider		small	small
Outer diameter		9 mm	9 mm
Installed length		ca. 29 mm	ca. 29 mm
Size mounting groove ¹⁾		7 mm	7 mm
Maximum tensile load on divider		100 N	100 N
Fanout			
Diameter of single fiber cable		2.1 mm	2.1 mm
Standard fanout length (not staggered) ²⁾		1000 mm ±50	1000 mm ±50
Identification of single fiber cable		coded numbers	
Jacket material		LSFH™, low smoke, halogen free and self-extinguishing	
Connector		all HUBER+SUHNER standard connectors	
Pulling tube with pulling eye ³⁾		not standard	
Cable			
Maximum length ⁴⁾		1000 m	1000 m
Cable diameter max.		5.6 mm	7 mm
Cable types		loose tube cable Ø 5 mm field/riser cable up to Ø 5.6	field/riser cable Ø 6 - 7 mm
Cable type with solid conductors	with rodent protection	LSFH™, low smoke, halogen free and self-extinguishing	
	without rodent protection	PE for outdoor applications, longitudinal and transversal watertight PUR for high chemical resistance and wide temperature range	
Temperature range ⁵⁾			
During installation		-10 to +70 °C	IEC 61300-2-22
In service		-30 to +70 °C	
In storage		-30 to +70 °C	

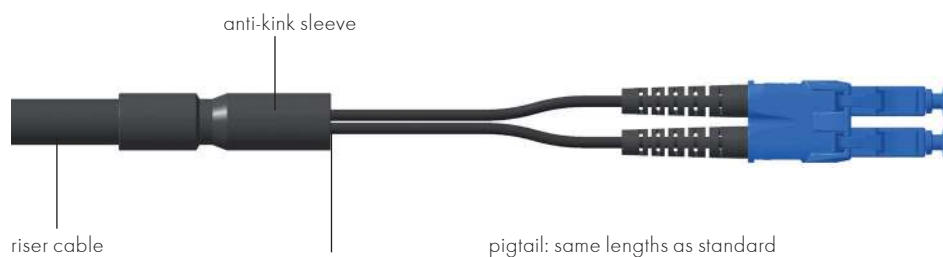
1) Suitable for fixation with cable tie.

2) Length of fanout can be freely defined, but max. of 4.0 m.

3) Special applications by agreement with technical support.

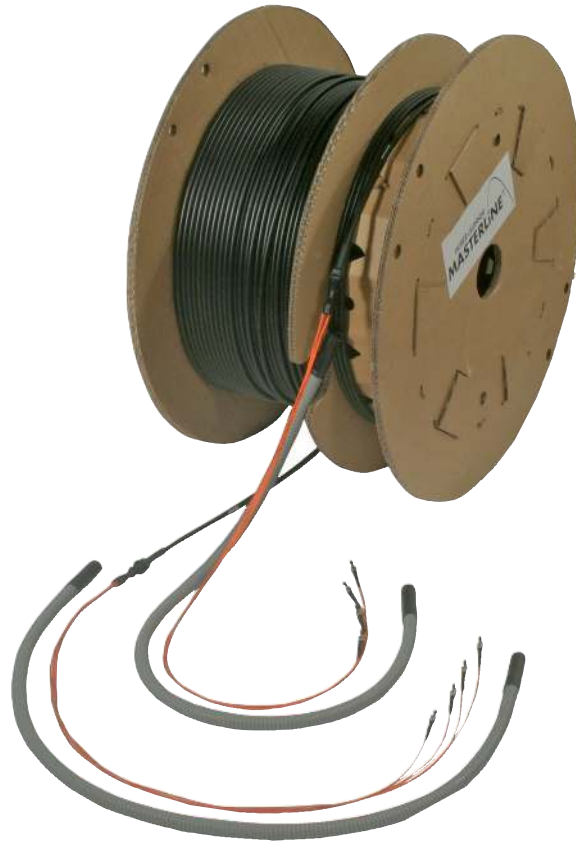
4) Longer cable lengths by agreement with technical support.

5) Temperature range for entire cable system pending on cable type.



DC (indoors) fixed installations





MASTERLINE Classic

Do you appreciate ease of installation and configurability thanks to a direct pulling eye on the protective hose, a comprehensive bandwidth of 2 to 144 fibers, IP67 protection, and high installation tensile force? MASTERLINE Classic offers precisely these benefits, making it the right choice for you.

General features

- Ready to use, plug and play system
- Fast and simple installation
- No splicing or connector assembly required
- Single-sided or double-sided equipment versions available
- Tread-proof, waterproof pulling tube with high tensile strength (IP67)

Applications

MASTERLINE Classic is a robust, pre-assembled cable system for mechanically demanding indoor and outdoor applications.

- Building backbone (horizontal wiring) or campus backbone (exterior wiring)
- Wiring in MAN, WAN, SAN and private networks and computer centres
- Wiring in industrial environments

Properties

- 48 – 144 fibers
- Robust divider with screw-on mounting
- Cable for indoor and outdoor use, with or without rodent protection
- Can be assembled with all standard connector types
- Reusable, highly robust pulling tube
- Can be supplied as a cable coil, on cardboard or wooden reel

MASTERLINE Classic

MASTERLINE Classic has primary been developed for outdoor use in extreme temperatures.

Specifications

		MASTERLINE Classic		
Number of fibers		up to 12	up to 24	up to 48
Divider		small	medium	large
Outer diameter		22 mm	31 mm	45 mm
Installed length		48 mm	58 mm	48 mm
Bore diameter for mounting		15.6 – 16.4 mm	25.5 – 26.5 mm	37.0 – 39.0 mm
Maximum tensile load on divider		1000 N	1000 N	1200 N
Fanout		Standard fiber density		
Diameter of single fiber cable		2.1 mm	2.1 mm	2.1 mm
Standard fanout staggered ¹⁾	longest length	1165 mm ±50	1045 mm ±50	1045 mm ±50
	shortest length	450 mm ±50	520 mm ±50	520 mm ±50
Identification of single fiber cable		coded numbers		
Jacket material		LSFH™, low smoke, halogen free and self-extinguishing		
Connector		all HUBER+SUHNER standard connectors		
Pulling tube with pulling eye				
Outer diameter		23.5 mm	31 mm	45 mm
Maximum tensile strength ²⁾		1000 N	1000 N	1200 N
Crush resistance		200 N/cm	250 N/cm	250 N/cm
Watertightness		IP67	IP67	IP67
Cable				
Maximum length ³⁾		4000 m		
Cable diameter max.		8.5 mm	15 mm	15 mm
Cable types with solid conductors	with rodent protection	LSFH™, low smoke, halogen free and self-extinguishing		
	without rodent protection	PE for outdoor applications, longitudinal and transversal watertight		
Temperature range ⁴⁾				
During installation		-10 to +50 °C		IEC 61300-2-22
In service		-25 to +70 °C		
In storage		-25 to +70 °C		

1) Length of fanout can be freely defined, but max. of 5.0 m. Pulling tube cannot be fitted without staggered setup.

2) Tensile load on entire cable system, including pulling tube. For tensile load on cable, see data sheet for cable type.

3) Longer cable lengths by agreement with technical support.

4) Temperature range for entire cable system.



MASTERLINE Classic

Can be drawn directly into pipes and ducts for demanding indoor and outdoor applications.

General features

- Ready-to-use, ready-to-pull-in system
- Fast and simple installation
- No splicing or connector assembly required
- Single-sided or double-sided equipment assemblies
- Tread-proof, waterproof pulling tube featuring pulling eye with high tensile strength (IP67)

Properties

- 48 – 144 fibers
- Robust divider with screw-type fastener
- Cables for both indoor and outdoor use with or without rodent protection
- Can be assembled with all standard connector types
- Reusable, extremely robust pulling tube with pulling eye
- Can be supplied as a cable coil, on cardboard or wooden reel

Applications

MASTERLINE Classic is a rugged, pre-assembled cable system for mechanically demanding applications both indoors and outdoors.

- Building backbone (horizontal wiring) or campus backbone (exterior wiring)
- Wiring in MAN, WAN, SAN and private networks and data centres
- Wiring in industrial environments



MASTERLINE Classic

Specifications

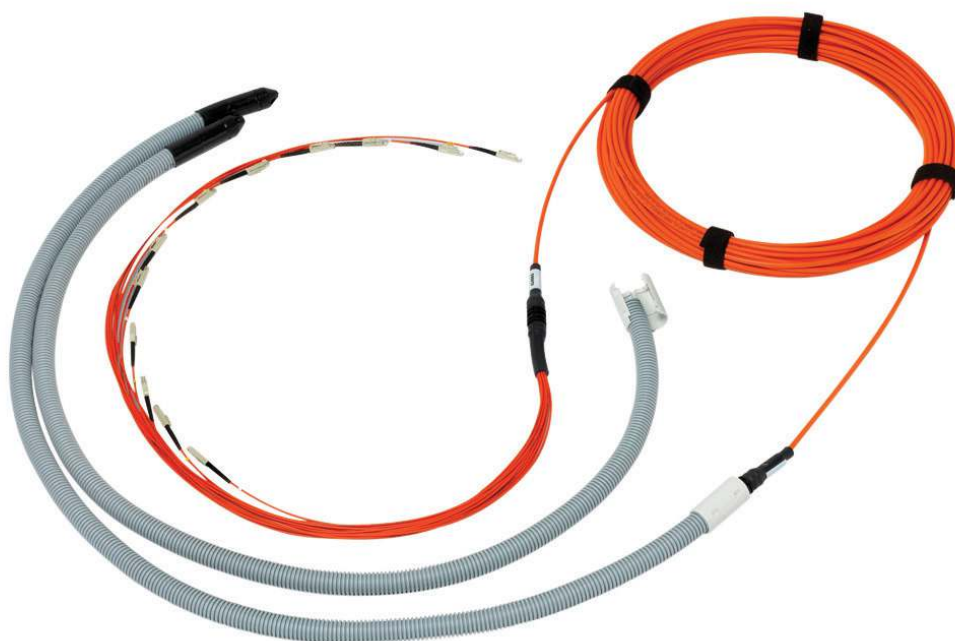
		MASTERLINE Classic			
Number of fibers		up to 24	up to 60	up to 72	up to 144
Divider		small	medium	large	large
Outer diameter		22 mm	31 mm	45 mm	45 mm
Installed length		48 mm	58 mm	70 mm	70 mm
Bore diameter for mounting		15.6 - 16.4 mm	25.5 - 26.5 mm	37.0 - 39.0 mm	37.0 - 39.0 mm
Maximum tensile load on divider		1000 N	1000 N	1200 N	1200 N
Fanout		increased fiber density			
Diameter of single fiber cable		1.7 mm	1.7 mm	1.7 mm	1.7 mm
Standard fanout staggered ¹⁾	longest length	1045 mm ±50	1235 mm ±50	1235 mm ±50	Fanout length on request
	shortest length	520 mm ±50	650 mm ±50	520 mm ±50	
Identification of single fiber cable		coded numbers			
Jacket material		LSFH™, low smoke, halogen free and self-extinguishing			
Connector		all HUBER+SUHNER standard connectors			
Pulling tube with pulling eye					
Outer diameter		31 mm	31 mm	on request, depending on the type of connector and fanout length	
Maximum tensile strength ²⁾		1000 N	1000 N		
Crush resistance		250 N/cm	250 N/cm		
Watertightness		IP67	IP67		
Cable					
Maximum length ³⁾		4000 m			
Cable diameter max.		8.5 mm	10.5 mm	11.7 mm	15.0 mm
Cable types with solid conductors	with rodent protection	LSFH™, low smoke, halogen free and self-extinguishing			
	without rodent protection	PE for outdoor applications, longitudinal and transversal watertight			
Temperature range ⁴⁾					
During installation		-10 to +50 °C			IEC 61300-2-22
In service		-25 to +70 °C			
In storage		-25 to +70 °C			

1) Length of fanout can be freely defined, but max. of 5.0 m. Pulling tube cannot be fitted without staggered setup.

2) Tensile load on entire cable system, including pulling tube. For tensile load on cable, see data sheet for cable type.

3) Longer cable lengths by agreement with technical support.

4) Temperature range for entire cable system.



MASTERLINE Lite

Are you looking for a cable system for indoor use that impresses with rapid installation and a good price/performance ratio? Then we recommend MASTERLINE Lite as your ideal solution.

General features

- Ready to use, plug and play system
- Fast and simple installation
- No splicing or connector assembly required
- Single-sided or double-sided equipment assemblies
- Tread-proof and dust-proof pulling tube (IP50)

Applications

MASTERLINE lite is a low-cost, pre-assembled cable system designed primarily for indoor applications.

- Building backbone (horizontal wiring)
- LAN wiring and private networks

Properties

- 2 - 24 fibers
- Easy-to-mount dividers (with slot or screw-on fixture)
- Cable for indoor use, with or without anti-rodent protection
- Can be assembled with all standard connector types
- Reusable pulling tube with hinged fixing sleeve
- Can be supplied as a cable coil, on cardboard or wooden reel

MASTERLINE Lite

Low-cost, lightweight cable system for quick and easy installation in indoor applications.

Specifications

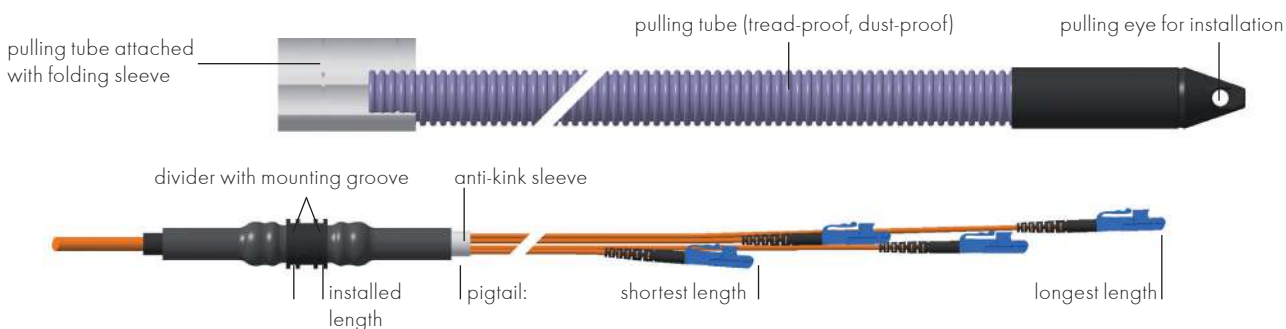
		MASTERLINE Lite	
Number of fibers		up to 12	up to 24
Divider		small	medium
Outer diameter		18 mm	25 mm
Installed length, two mounting grooves		50 mm / 60 mm	50 mm / 60 mm
Size mounting groove		15 mm / 15 mm	19 mm / 15 mm
Optional accessories	thread size for mounting	PG 16	PG 21
	min. bore for mounting	22.5 mm	28.5 mm
	width across flats	26 mm	32 mm
Maximum tensile load on divider		500 N	500 N
Fanout			
Diameter of single fiber cable		2.1 mm	2.1 mm
Standard fanout staggered ¹⁾	longest length	1045 mm ±50	1235 mm ±50
	shortest length	520 mm ±50	520 mm ±50
Identification		coded numbers	
Jacket material		LSFH™, low smoke, halogen free and self-extinguishing	
Connector		all HUBER+SUHNER standard connectors	
Pulling tube with pulling eye			
Outer diameter		22 mm	25 mm
Outer diameter, folding sleeve, pulling tube		26 mm	30 mm
Maximum tensile strength ²⁾		500 N	500 N
Crush resistance		120 N/cm	120 N/cm
Watertightness		IP50	IP50
Cable			
Maximum length ³⁾		2000 m	2000 m
Cable diameter max.		8.5 mm	8.5 mm
Cable types with solid conductors	with rodent protection	LSFH™, low smoke, halogen free and self-extinguishing	
	without rodent protection	PE for outdoor applications, longitudinal and transversal watertight	
Temperature range ⁴⁾			
During installation		-5 to +50 °C	
In service		-15 to +70 °C	
In storage		-20 to +70 °C	

1) Length of fanout can be freely defined, but max. of 5.0 m. Pulling tube cannot be fitted without staggered setup.

2) Tensile load on entire cable system, including pulling tube. For tensile load on cable, see data sheet for cable type.

3) Longer cable lengths by agreement with technical support.

4) Temperature range for entire cable system.





SMARTLINE Riser

Are you looking for a cable system with pre-assembled riser cables (mini-breakouts) that offers optimised diameters and optimum flame propagation, can be used in a protected environment, does not pose any special requirements on the connector in terms of strain relief, and is exclusively designed for indoor applications? Then SMARTLINE Riser is the right cable system for you. It can also be easily and quickly installed.

General features

- Ready to use, plug and play system
- Without divider, no strain relief for connectors
- Fast and simple installation
- No splicing or connector assembly required
- Single-sided or double-sided equipment assemblies

Applications

SMARTLINE Riser is a lightweight pre-assembled cable system with small cable diameters, suitable for protected installation.

- Installation inside buildings
- Distributor cable system for indoor use in protected environment
- FTTD (Fiber To The Desk)

Properties

- 4 – 24 fibers
- Single fiber cables 0.9 mm not strain-relieved
- Connectors mounted directly on single fiber cables without divider
- LSFH™ Riser cable: halogen free, low smoke and self-extinguishing
- Can be assembled with all standard connector types
- Can be supplied as cable coil, on cardboard or wooden reel

SMARTLINE Riser

Pre-assembled Riser cable for indoor use.

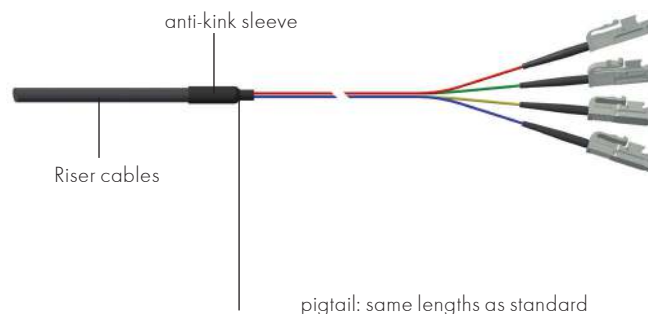
Specifications

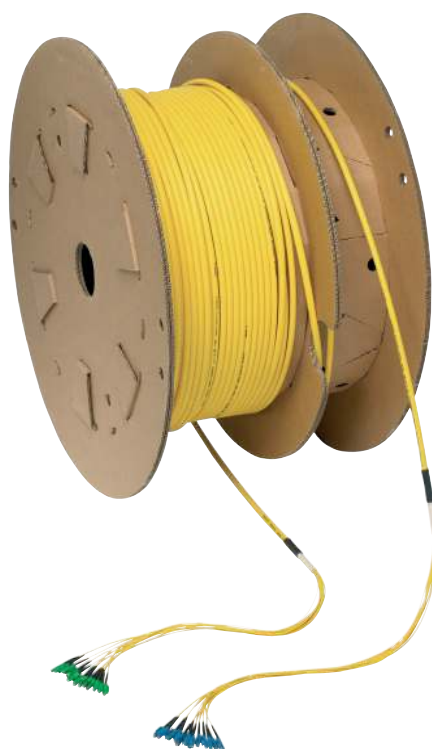
	SMARTLINE Riser						
Number of fibers	4	6	8	12	16	24	
Riser cables							
Outer diameter	5.0 mm	5.5 mm	6.0 mm	7.0 mm	8.5 mm	8.8 mm	
Weight (kg/km)	28	30	33	52	64	77	
Max. tensile strength during installation	1200 N	1600 N	2400 N	3000 N	4200 N	4500 N	IEC 60794-1-2 E1
Min. bend radius in service	50 mm	50 mm	60 mm	70 mm	85 mm	100 mm	IEC 60794-1-2 E11
Maximum length ¹⁾	500 m						
Jacket material	LSFH™, low smoke, halogen free and self-extinguishing						
Fanout							
Diameter of single fiber cable	0.9 mm tight tube cable						
Max. tensile strength in service per single fiber	10 N						IEC 60794-1-2 E1
Min. bend radius in service	10 N						IEC 60794-1-2 E11
Pigtail length, standard ²⁾	as requested by customer						
Identification of single fiber cable	colour-coded						
Jacket material	TPE, halogen free						
Connector	all HUBER+SUHNER standard connectors						
Pulling tube	no						
Temperature range ³⁾							
During installation	-10 to +50 °C						IEC 61300-2-22
In service	-20 to +70 °C						
In storage	-25 to +70 °C						

1) Longer cable lengths by agreement with technical support.

2) Length of pigtail can be defined: standard 1.0 m unless specified otherwise, not staggered.

3) Specifications for singlemode fibers at 1550 nm, for multimode fibers at 1300 nm.





SMARTLINE Breakout

Do you need an extremely space-saving solution that offers a high storage density and a small bending radius, and can be used with both Small Form Factor (SFF) and Big Form Factor (BFF) connectors? Then SMARTLINE Breakout with the OptiBreak 1.4 mm cable is the perfect solution for you.

General features

- Ready to use, plug and play system
- Without divider, with protected transition
- Each fiber enclosed in strain-relieved individual core
- Fast and simple installation
- No splicing or connector assembly required
- Single-sided or double-sided equipment assemblies

Applications

The SMARTLINE Breakout cable is suitable for shorter link lengths and it is commonly used as a «multi-patch» cable for point-to-point connections.

- Installation inside buildings
- Data cable in distribution networks
- For horizontal cabling and collapsed backbone

Properties

- 4 – 16 fibers
- Individual single fiber cables:
2.0 mm standard, 2.7 mm optional
- LSFH™ Breakout cable: halogen free, low smoke and self-extinguishing
- Without divider, with protected transition
- Can be assembled with all standard connector types
- Can be supplied as cable coil, on cardboard or wooden reel

SMARTLINE Breakout

Pre-assembled Breakout cable for primarily indoor use.

Specifications

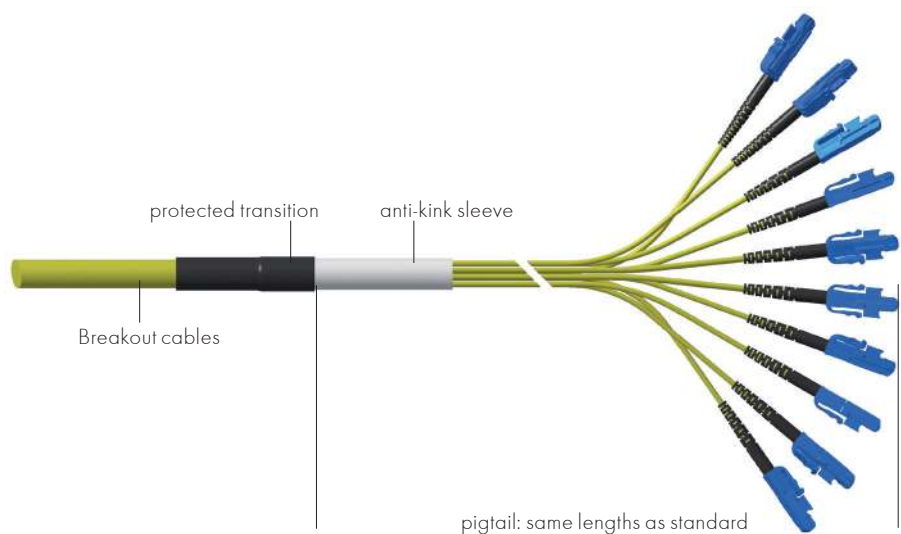
	SMARTLINE Breakout						
Number of fibers	4	8	12	16	18	24	
Breakout cable 1.4 mm							
Outer diameter ¹⁾	7.0 mm	7.0 mm	9.0 mm	9.0 mm	9.5 mm	10.6 mm	
Weight (kg/km)	47	50	85	81	81	105	
Max. tensile strength during installation	1200 N	2000 N	3000 N	4000 N	4000 N	5000 N	IEC 60794-1-2 E1
Min. bend radius in service	70 mm	70 mm	90 mm	90 mm	95 mm	100 mm	IEC 60794-1-2 E11
Maximum length ²⁾	2000 m						
Jacket material	LSFH™, low smoke, halogen free and self-extinguishing						
Fanout							
Diameter of single fiber cable	1.4 mm (optional 2.0 mm) ²⁾						
Max. tensile strength in service pro single fiber	100 N						IEC 60794-1-2 E1
Min. bend radius in service	25 mm						IEC 60794-1-2 E11
Pigtail length, standard ³⁾	1.0 mm not staggered						
Identification of single fiber cable	coded numbers						
Jacket material	LSFH™, low smoke, halogen free and self-extinguishing						
Connector	all HUBER+SUHNER standard connectors						
Pulling tube	as requested by customer						
Temperature range ⁴⁾							
During installation	-10 to +60 °C						IEC 61300-2-22
In service	-25 to +70 °C						
In storage	-25 to +70 °C						

1) With single fiber cables of diameter 2.7 mm, the outer diameter of the cable is larger.

2) Longer cable lengths by agreement with technical support.

3) Length of pigtail can be defined: standard 1.0 m unless specified otherwise, not staggered.

4) Specifications for singlemode fibers at 1310 nm, for multimode fibers at 1300 nm.





SMARTLINE Optipack

Do your requirements specify a metal-free internal cable with an optimised outer diameter that combines ideally with multifiber connectors (MTP/MPO) and assemblies, and offers a customisable modular fanout length? Then look no further than SMARTLINE Optipack, which is ideally suited for use as an efficient datacentre rack cabling solution.

General features

- Metal-free internal cable
- Strain relief with aramid yarn
- Narrow bending radii
- Optimised outer diameter

Properties

- 12 – 24 fibers
- Patch cables for MTP/MPO
- LSFH™, halogen free, low smoke and self-extinguishing
- Jacket material as per UL 94V-0

Applications

SMARTLINE OptiPack is perfect for use in data centres in combination with multifiber connectors (MTP/MPO) and assemblies.

- Data cables from distribution networks/data centres
- Connection between the main and floor distributors

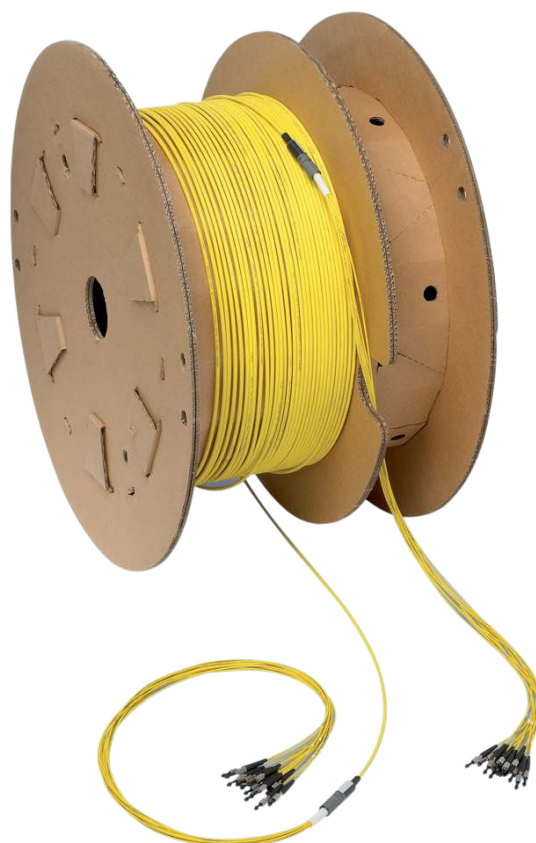
SMARTLINE Optipack

Metal-free internal cable with an optimised outer diameter, mainly for use in data centres.

Specifications

	SMARTLINE Optipack						
Number of fibers	12	24	48	72	144	24	
Optipack cable							
Outer diameter	3.0 mm	8.5 mm	8.5 mm	10.4 mm	13.5 mm	3.6 mm	
Weight (kg/km)	9.2	60	60	97	152	10.5	
Max. tensile strength during installation	500 N	800 N	800 N	1000 N	1200 N	500 N	IEC 60794-1-2 E1
Min. bend radius in service	20 mm	130 mm	130 mm	150 mm	200 mm	20 mm	IEC 60794-1-2 E11
Maximum length	2000 m						
Jacket material	LSFH™, low smoke, halogen free and self-extinguishing						
Fanout							
Diameter of single fiber cable	3.0 mm						
Max. tensile strength in service per single core	50 N						IEC 60794-1-2 E1
Min. bend radius in service	25 mm						IEC 60794-1-2 E11
Pigtail length, standard ¹⁾	1.0 mm						
Identification of single fiber cable	coded numbers						
Jacket material	LSFH™, low smoke, halogen free and self-extinguishing						
Connector	MTP/MPO					MTP/MPO (24)	
Temperature range							
During installation	-10 to +50 °C						IEC 61300-2-22
In service	-10 to +70 °C						
In storage	-10 to +70 °C						

1) Length of fanout definable, standard 1.0 m if not specified, not staggered.



MASTERLINE Compact

Do your requirements demand the most compact cable solution with the best possible system integration in cases of space restrictions in communications, network and data centre applications? Then MASTERLINE Compact by HUBER+SUHNER is the best choice for you.

General features

- Ready to use, plug and play system
- Narrow cable divider
- Good thermal properties
- Fast and simple installation
- No splicing or connector assembly required
- Single-sided or double-sided equipment assemblies

Properties

- 2 to 24 fibers
- Dividers with mounting slot to fix in distribution boxes
- Cable for indoor use, with or without rodent protection
- Can be assembled with all standard connector types
- Can be supplied as a cable coil, on cardboard or wooden reel

Applications

MASTERLINE Compact is a pre-assembled cable system which is extremely suitable as a patch or connecting cable between two distributor units for short to medium distances.

- External patch / connecting cable (interconnection)
- As a connection between the main distribution device and transmitters
- As a connection between the main distribution device and terminal area

MASTERLINE Compact

Compact and robust cable system for indoor applications with restricted available space.

Specifications

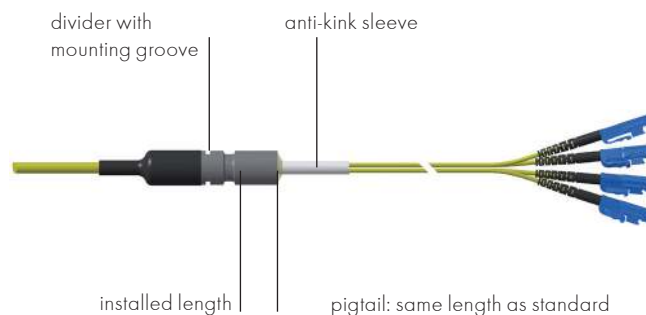
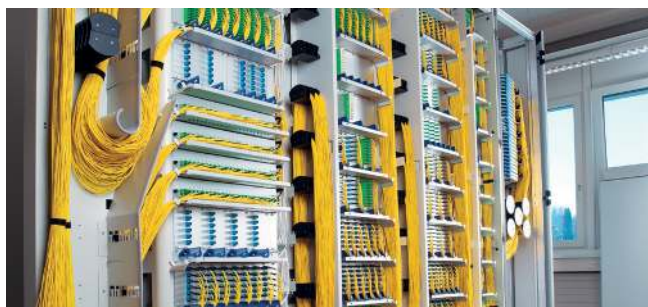
		MASTERLINE Compact	
Number of fibers		to 12	to 24
Divider		small	small
Outer diameter		15 mm	15 mm
Installed length		30 mm	30 mm
Size mounting groove		12 mm	12 mm
Maximum tensile load on divider		800 N	800 N
Fanout			
Diameter of single fiber cable		2.1 mm	1.7 mm
Pigtail length, standard	not staggered ¹⁾	1000 mm ±50	1000 mm ±50
	staggered ²⁾	optional available	optional available
Identification of single fiber cable		coded numbers	
Jacket material		LSFH™, low smoke, halogen free and self-extinguishing	
Connector		all HUBER+SUHNER standard connectors	
Pulling tube with pulling eye		no	
Cable			
Maximum length ³⁾		2000 m	2000 m
Cable diameter max.		8.5 mm	8.5 mm
Cable types (with/without rodent protection)		LSFH™, low smoke, halogen free and self-extinguishing	
Temperature range ⁴⁾			
During installation		-10 to +50 °C	IEC 61300-2-22
In service		-25 to +70 °C	
In storage		-20 to +70 °C	

1) Length of fanout can be freely defined, but max. of 5.0 m.

3) Longer cable lengths by agreement with technical support.

4) Temperature range for entire cable system.

5) Standard with 1300 mm, singlemode with 1550 mm in service -5 °C up to +60 °C.





MASTERLINE Classic MTP®

Are you looking for a compact, high fiber count cable system that is extremely easy to install, also works across multiple floors and rooms with protected connectors, and offers a proven pulling aid? Then your ideal solution is MASTERLINE MPO/MTP by HUBER+SUHNER.

General features

- Ready-to-use, ready-to-pull-in cable system
- Fast and simple installation
- No splicing or connector assembly required
- Colour coded by fiber type (SM, MM OM3, or OM4)
- Versions with one or both sides pre-assembled available
- Stands up to environmental influences

Properties

- 12 - 144 fibers per assembly
- Robust divider with thread and mounting groove
- Cables for indoor and outdoor applications, with or without rodent protection
- Fanout diameter 3.0 mm
- MTP® without pins (as standard)

MASTERLINE Classic MTP®

Compact, multifiber cable system for easy installation in data centres.

Specifications

	MASTERLINE Classic	
Number of fibers	to 60	to 144
Divider	small	small
Outer diameter	22 mm	31 mm
Installed length	48 mm	58 mm
Bore diameter for mounting	15.6 - 16.4 mm	25.5 - 26.5 mm
Thread size for mounting	M16x1	M26x2
Size of fastening groove	15.2 mm	19.2 mm
Maximum tensile load on divider	1000 N	1000 N
Fanout		
Diameter of single fiber cable	3 mm	3 mm
Pigtail length, standard	not staggered ¹⁾	1045 mm ±50
	staggered ²⁾	520 mm ±50
Identification of single fiber cable	coded numbers	
Jacket material	LSFH™, low smoke, halogen free and self-extinguishing	
Connector	MTP/MPO connector	
Pulling tube with pulling eye		
Outer diameter	31 mm	45 mm
Maximum tensile strength ²⁾	1000 N	1000 N
Crush resistance	250 N/cm	250 N/cm
Watertightness	IP67	IP67
Cable		
Maximum length ³⁾	4000 m	4000 m
Cable diameter min./max.	7.0/10.5 mm	10.5/15 mm
Cable types (with/without rodent protection)	LSFH™, low smoke, halogen free and self-extinguishing	
Temperature range ⁴⁾		
During installation	-0 to +50 °C	IEC 61300-2-22
In service	-0 to +70 °C	
In storage	-20 to +70 °C	

¹⁾ Length of fanout definable; maximum of 5.0 m supported.

²⁾ Longer cable lengths by agreement with technical support.

³⁾ Temperature range depends on type of cable used.

⁴⁾ Standard at 1300 Nm, singlemode at 1550 Nm in service -5 to +60 °C

Mobile applications H+E (indoors/outdoors)





MASTERLINE Mobile

Do you need a general cable system for location-independent communication transmission, or as a backup and contingency solution? The combination of MASTERLINE Classic and rugged cables gives you the ultimate solution: MASTERLINE Mobile.

General features

- Mobile, ready-to-operate cable system
- Highly robust, specially designed for in-the-field applications
- Cable types suitable for use in the field
- Choice of different reels
- Tread-proof, waterproof protection tube with high tensile strength (IP67)

Properties

- 2 to 12 fibers
- Robust divider with screw-on mounting
- Used with cable types suitable for use in the field (up to 12 fibers)
- Can be assembled with all standard connector types
- Reusable, highly robust protection tube
- Available on metal or plastic reel for mobile applications

MASTERLINE Mobile

The ready-to-use fiber optic cabling system for mobile applications in the field.

Specifications

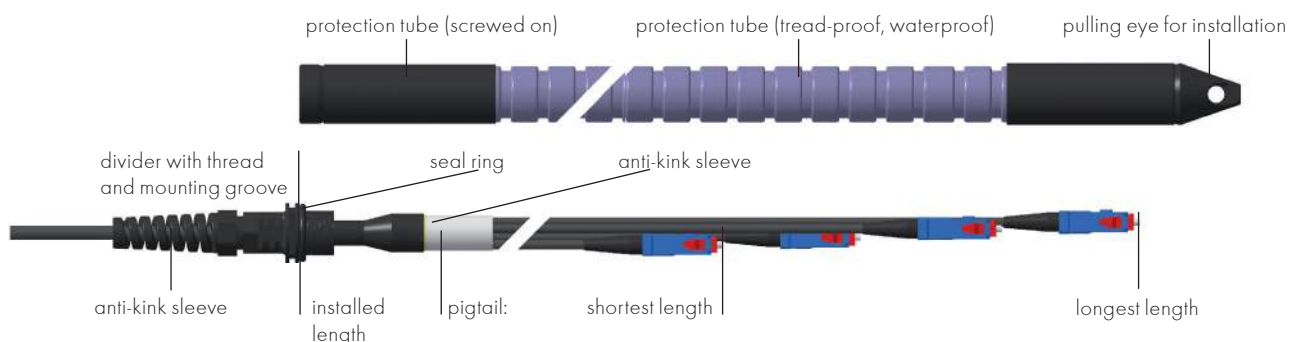
		MASTERLINE Mobile					
Number of fibers		to 4		to 8		to 12	
Divider		small	medium	small	medium	medium	
Outer diameter		22 mm	31 mm	22 mm	31 mm	31 mm	
Installed length		48 mm	58 mm	48 mm	58 mm	58 mm	
Bore diameter for mounting (mm)		15.6 - 16.4	25.5 - 26.5	15.6 - 16.4	25.5 - 26.5	25.5 - 26.5	
Thread size for mounting		M16 x 1	M26 x 1	M16 x 1	M26 x 2	M16 x 2	
Size mounting groove		15.2 mm	19.2 mm	15.2 mm	19.2 mm	19.2 mm	
Maximum tensile load on divider		1000 N	1000 N	1000 N	1000 N	1000 N	
Fanout / Breakout cable							
Diameter of single fiber cable		2.7 mm 3.4 mm opt.		2.7 mm	2.7 mm 3.4 mm opt.	2.7 mm 3.4 mm opt.	
Standard fanout staggered ¹⁾	longest length	1165 mm ±50		1165 mm ±50		1165 mm ±50	
	shortest length	970 mm ±50		710 mm ±50		450 mm ±50	
Identification of single fiber cable black		coded numbers					
Jacket material		LSFH™, low smoke, halogen free and self-extinguishing					
Connector		all HUBER+SUHNER standard connectors					
Pulling tube with pulling eye ²⁾		small	medium	small	medium	medium	
Outer diameter		23.5 mm	31 mm	23.5 mm	31 mm	31 mm	
Maximum tensile strength ²⁾		1000 N	1000 N	1000 N	1000 N	1000 N	
Crush resistance		200 N/cm	250 N/cm	200 N/cm	250 N/cm	250 N/cm	
Watertightness		IP67	IP67	IP67	IP67	IP67	
Cable		mobile field cable		mobile field cable		drag chain cable	
Outer diameter		5.6 mm		6.8 mm		8.0 mm	
Outer jacket material		PUR		PUR		PUR	
Maximum length ³⁾		on request					
Temperature range ⁴⁾							
During installation		-10 to +50 °C					IEC 61300-2-22
In service		-40 to +70 °C					
In storage		-40 to +70 °C					

1) Length of fanout can be freely defined, but max. of 2.0 m. Protection tube cannot be fitted without staggered setup. Larger protection tube with adapter can be fitted by agreement with technical support.

2) Tensile load on entire cable system, including protection tube. For tensile load on cable, see data sheet for cable type.

3) Cable length depends on selected reel.

4) Temperature range for entire cable system.





MASTERLINE Mobile^{HT}

Do you require a solution for mobile applications and uninterrupted functionality for communications transmissions, even under extreme temperature conditions from -60 to +85 °C? Then MASTERLINE Mobile^{HT} is the perfect choice for you.

General features

- Mobile, ready-to-use system
- Extremely rugged, specially designed for field use
- Field-grade cable types
- Choice of different coils
- Tread-proof, waterproof pulling tube with pulling eye with high tensile strength (IP67)
- Wide operating temperature range

Properties

- 2 to 12 fibers
- Robust divider with screw-type fastener
- Use with field-grade cable types up to 12 fibers
- Can be assembled with all standard connector types
- Reusable, extremely robust pulling tube with pulling eye
- Can be supplied on metal or plastic coil for mobile use

MASTERLINE Mobile^{HT}

The ready-to-use fiber optic cabling system for mobile field applications.

Specifications

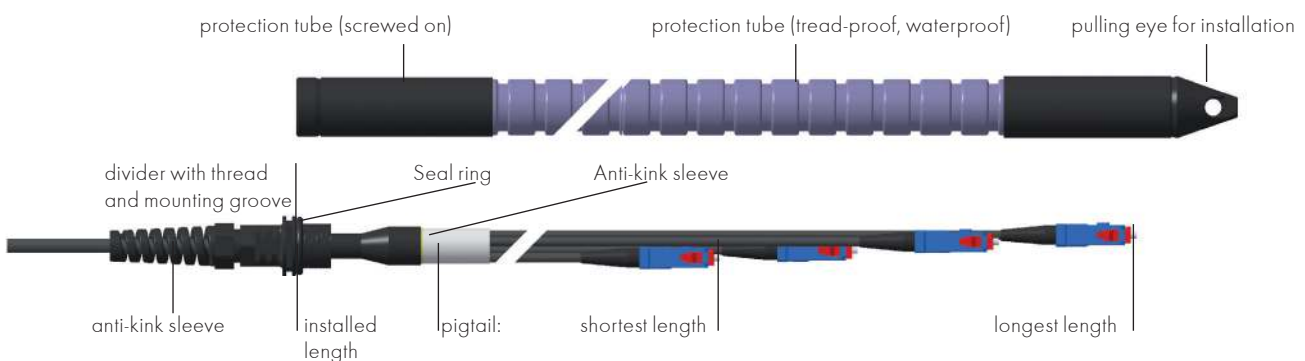
		MASTERLINE Mobile ^{HT}				
Number of fibers		up to 4		up to 8		up to 12
Divider		small	medium	small	medium	medium
Outer diameter		22 mm	31 mm	22 mm	31 mm	31 mm
Installed length		48 mm	58 mm	48 mm	58 mm	58 mm
Bore diameter for mounting (mm)		15.6 - 16.4	25.5 - 26.5	15.6 - 16.4	25.5 - 26.5	25.5 - 26.5
Thread size for mounting		M16 x 1	M26 x 1	M16 x 1	M26 x 2	M16 x 2
Size mounting groove		15.2 mm	19.2 mm	15.2 mm	19.2 mm	19.2 mm
Maximum tensile load on divider		1000 N	1000 N	1000 N	1000 N	1000 N
Fanout / breakout cable						
Diameter of single fiber cable		3.0 mm		3.0 mm	3.0 mm	3.0 mm
Standard fanout staggered ¹⁾	longest length	1165 mm ±50		1165 mm ±50		1165 mm ±50
	shortest length	970 mm ±50		710 mm ±50		450 mm ±50
Identification of single fiber cable black		coded numbers				
Jacket material		RADOX® high temperature, low smoke, halogen free, self-extinguishing				
Connector		all HUBER+SUHNER standard connectors				
Pulling tube with pulling eye ²⁾		small	medium	small	medium	medium
Outer diameter		23.5 mm	31 mm	23.5 mm	31 mm	31 mm
Maximum tensile strength ²⁾		1000 N	1000 N	1000 N	1000 N	1000 N
Crush resistance		200 N/cm	250 N/cm	200 N/cm	250 N/cm	250 N/cm
Watertightness		IP67	IP67	IP67	IP67	IP67
Cable		mobile field cable		mobile field cable		drag chain cable
Outer diameter		5.6 mm		6.8 mm		8.0 mm
Outer jacket material		PUR				
Maximum length ³⁾		on request				
Temperature range ⁴⁾						
During installation		-10 to +50 °C				IEC 61300-2-22
In service		-60 to +70 °C				
In storage		-40 to +70 °C				

1) Length of fanout can be freely defined, but max. of 2.0 m. Protection tube cannot be fitted without staggered setup. Larger protection tube with adapter can be fitted by agreement with technical support.

2) Tensile load on entire cable system, including protection tube. For tensile load on cable, see data sheet for cable type.

3) Cable length depends on selected reel.

4) Temperature range for entire cable system.





MASTERLINE Mobile Extreme

Are you looking for a compact (boxless) divider solution for outdoor use that is designed for the most demanding environmental conditions with temperatures between -60 and $+85$ °C and for location-independent communication transmission, or as a backup and contingency solution? MASTERLINE Mobile and MASTERLINE Extreme have been combined to create the MASTERLINE Mobile Extreme cable system, the perfect product for you.

General features

- Mobile, ready-to-use system
- Extremely rugged, specially designed for field use
- Field-grade cable types
- Selection of different splits
- Tread-proof, waterproof pulling tube with pulling eye with high tensile strength (IP67)

Properties

- 2 to 12 fibers
- Robust divider with screw-type fastener
- Use with field-grade cable types up to 12 fibers
- Can be assembled with all standard connector types
- Reusable, extremely robust pulling tube with pulling eye
- Can be supplied on metal or plastic coil for mobile use

MASTERLINE Mobile Extreme

The ready-to-use fiber optic cabling system for mobile field applications.

Applications

Designed for temporary use as emergency wiring or for mobile communications in outdoor and indoor applications, MASTERLINE Mobile can be deployed in different versions as a fiber optic cabling system.

- Broadcasting, for example for mobile use for TV broadcasts
- Emergency lines as a temporary replacement for failed fiber optic links
- Military and security
- Events
- Industry, flexible cabling solution for mobile plant components

Specifications

	MASTERLINE Mobile Extreme		
Number of fibers	to 4	to 8	to 12
Divider	small	medium	small
Outer diameter	16 mm	28 mm	16 mm
Installed length	48 mm	90 mm	70 mm
Maximum tensile load on divider	600 N	600 N	600
Fanout			
Diameter of single fiber cable	5.0 mm	5.0 mm	5.8 mm
Standard fanout length (not staggered) ²⁾	1000 mm ±50	also available staggered	also available staggered
Identification of single fiber cable	Number coded		
Jacket material	PUR for high chemical durability and a wide temperature range		
Connector	ODC-2 and Q-ODC connector		ODC-4
Pulling tube with pulling eye	no		
Cable			
Maximum length ³⁾	on request		
Cable diameter max.	5.6 mm	6.8 mm	8.0 mm
Cable types with solid conductors with rodent protection	LSFH™, low smoke, halogen free and self-extinguishing		
Temperature range ⁴⁾			
During installation	-10 to +50 °C		
In service	-40 to +70 °C		
In storage	-40 to +70 °C		

¹⁾ Optional 32 mm with adapter.

²⁾ Length of fanout definable; maximum of 4.0 m supported.

³⁾ Longer cable lengths by agreement with technical support.

⁴⁾ Temperature range depends on the cable system used.





Drums

Drums specially optimised for mobile fiber optic cables ensure the full flexibility of the mobile cable systems in any situation. Thanks to the various accessory components, you can always be sure of having the perfect drum to meet your requirements

General features

- Plastic carrying roll
- Easy handling in indoor and outdoor applications
- Two-piece drum for protected inner cable end
- Both cable ends accessible
- Easy fastening of the cable ends
- Cable drum equipped with a brake/spin-lock
- Minimum bend radius delimited by the optimised drum core
- Simple retrofitting of the Optional

Properties

- Rugged design for the most demanding applications
- Cable diameters up to 13 mm
- Mobile cable types designed, including drag chain cables

Metal drum Nr. 1-6/500

Metal drum Nr. 1-6/500 ist obsolete, replacement will be available Q2/2017. Please contact your HUBER+SUHNER Sales Representative.

Metal cable drum for mobile deployment of suitable fiber optic cables in indoor and outdoor applications. Can be fitted with transport frame and handle for easier mobility and transportation.

Optional

- Transport frame with large rubber wheels for all terrains
- Reinforced reel kit for cable weight 12 kg up to max. 30 kg
- Colour of standard drum: blue

Applications

Portable metal drum for mobile applications involving MASTERLINE mobile or in combination with cables and connectors suitable for use in the field.

- Temporary fiber optic networks
- Emergency wiring for when sections of fiber optic break down (disaster recovery)
- General mobile deployment of fiber optic cables in the field

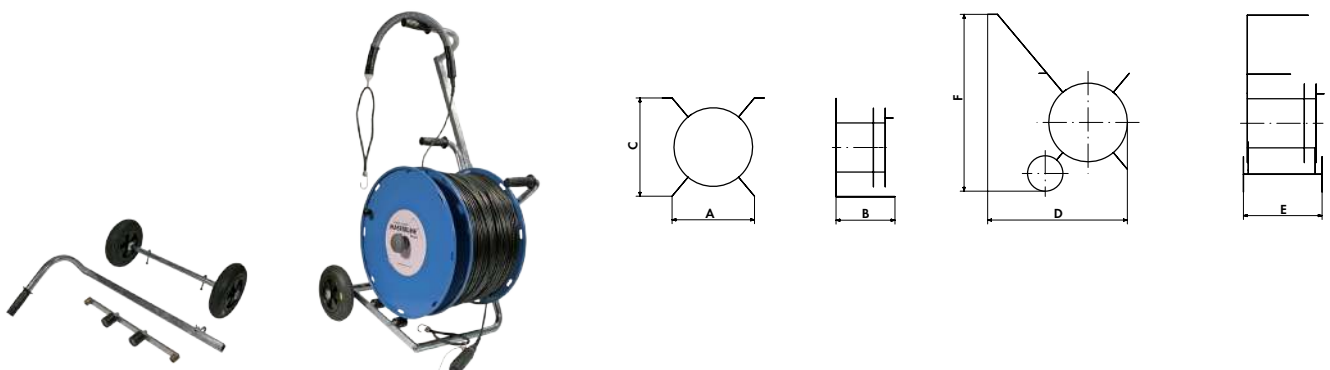


Description	Weight	Item no.
Metal drum Nr.1-6/5000 blue	10.0 kg	84018823
Carriage with handle	5.0 kg	84018824
Reinforced reel kit for cable weight 12 to 30 kg	1.0 kg	84018825

Cable volume					
Cable diameter	5 mm	6 mm	7 mm	8 mm	13 mm
Maximum length ¹⁾	750 m	500 m	400 m	300 m	70 m
Cable weight approx.	16.5 kg	14 kg	15.6 kg	15.6 kg	15.4 kg

¹⁾ Cable lengths available from 12 kg with reinforced reel kit.

Dimensions (mm)						
A	B	C	D	E	F	core-diameter
442	408	574	667	545	1096	215



Metal drum Nr. 2-6/220

Metal drum Nr. 2-6/220 ist obsolete, replacement will be availabe Q2/2017. Please contact your HUBER+SUHNER Sales Representative.

Lightweight metal cable drum for mobile deployment of fiber optic cable systems suitable for use in the field over short distances.

Optional

- Colour of standard drum: blue

Applications

Lightweight, portable metal drum for mobile applications involving MASTERLINE mobile or in combination with cables and connectors suitable for use in the field.

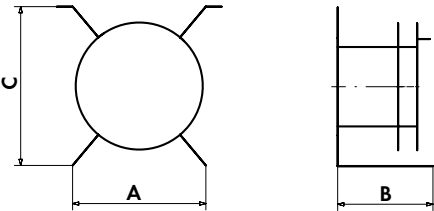
- Temporary fiber optic networks
- Emergency wiring for when sections of fiber optic break down (disaster recovery)
- General mobile deployment of fiber optic cables in the field



Description	Weight	Item no.
Metal drum Nr.2-6/220 blue	7 kg	84018826

Cable volume					
Cable diameter	5 mm	6 mm	7 mm	8 mm	13 mm
Maximum length	400 m	220 m	160 m	125 m	45 m
Cable weight approx.	11 kg	6.1 kg	6.2 kg	6.5 kg	10 kg

Dimensions (mm)			
A	B	C	core-diameter
410	300	500	225



Plastic drum Nr. 3-6/350

Lightweight plastic cable drum for mobile deployment of fiber optic cables for use in the field in indoor and outdoor applications. Can be fitted with transport frame and handle for easy mobility and transport of cable drum.

Optional

- Transport frame with rubber wheels and handle for mobile applications

Applications

The plastic drum, which is either portable or mobile, is ideal for mobile applications involving MASTERLINE mobile or in combination with cables and connectors suitable for use in the field.

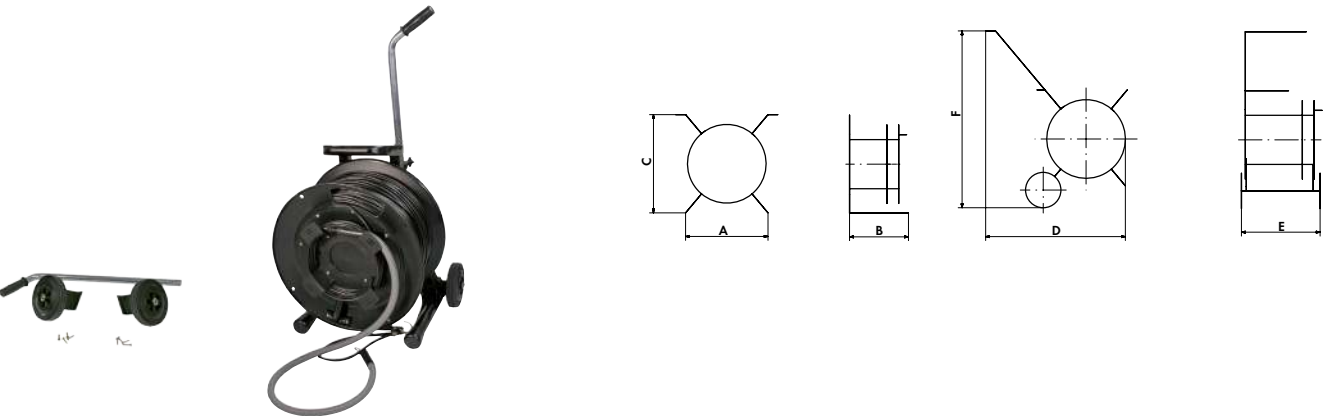
- Temporary fiber optic networks
- Broadcasting, equipment in TV transmission trucks
- Emergency wiring for when sections break down (disaster recovery)
- General mobile deployment of fiber optic cables in the field



Description	Weight	Item no.
Plastic drum Nr.3-6/350 black	7.5 kg	84018827
Carriage with handle	4.0 kg	84018981

Cable volume					
Cable diameter	5 mm	6 mm	7 mm	8 mm	13 mm
Maximum length	500 m	350 m	260 m	200 m	75 m
Cable weight approx.	11.0 kg	9.8 kg	10.1 kg	10.4 kg	16.5 kg

Dimensions (mm)						
A	B	C	D	E	F	core-diameter
445	315	555	440	550	916	295



Metal drum Nr. 5-6/1240

Sturdy metal cable drum for mobile deployment of fiber optic cable systems suitable for use in the field over long distances.

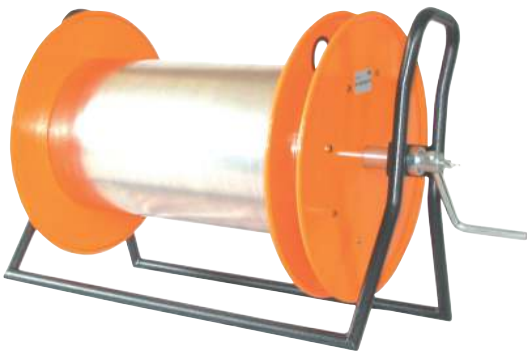
Optional

- Military version in olive green

Applications

Sturdy metal drum with longer cable lengths for mobile applications involving MASTERLINE mobile or in combination with cables and connectors suitable for use in the field.

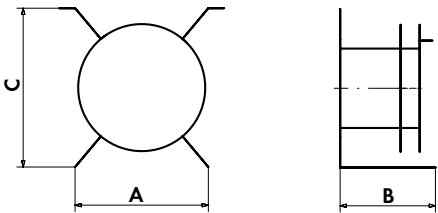
- Temporary fiber optic networks for civilian or military applications
- General deployment of fiber optic cable in the field



Description	Weight	Item no.
Metal drum Nr.5-6/1240 orange	18.8 kg	84020552
Metal drum Nr.5-6/1240 military green	18.8 kg	84020553

Cable volume					
Cable diameter	5 mm	6 mm	7 mm	8 mm	13 mm
Maximum length	1500 m	1240 m	900 m	700 m	260 m
Cable weight approx.	33 kg	35 kg	35 kg	36 kg	38 kg

Dimensions (mm)				
A	B	B incl. crank	C	core-diameter
460	695	829	550	280



Metal drum Nr. 6-6/480

The cable reel is designed for fiber optic cable and for mobile application.

General features

- Robust metal construction
- Lightweight and compact design
- Two compartments for easy access to both cable ends
- Telescopic axes
- Rubber-protected flanges
- Including two connector belts and one main compartment cover for cable protection

Optional

- Suitable carrier frame on request.

Applications

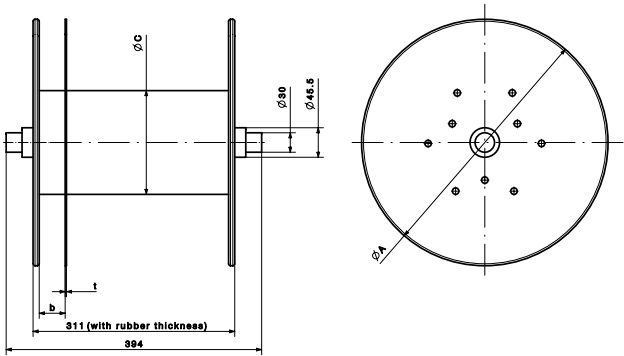
Metall drum for mobile deployment of fiber optic cable in the field in military/defence applications.



Description	Weight	Item no.
Metal drum Nr.6-6/480 military green	4.24 kg	84085910


Cable volume			
Cable diameter	5.5 mm	6 mm	7 mm
Maximum length	580 m	480 m	350 m
Cable weight approx.	14 kg	14 kg	14 kg

Dimensions (mm)			
Flange diameter	Core diameter	Flange thickness	Sheet thickness
A	C	t	b
460	695	550	225




Accessories

MASTERLINE Classic, Mobile

Securing nut for dividers		Item no.	Picture
PG 29	48 - 144 LWL	22649056	
M16 x 1	2 - 12 LWL	23040541	
M26 x 2	to 24 LWL	22649055	

MASTERLINE Lite


Fastener kit (threaded bracket and nut)		Item no.	Picture
ML lite to 12 LWL		84016231	
ML lite to 24 LWL		84016234	

MASTERLINE Classic

Adapter for installing a larger pulling tube		Item no.	Picture
Adapter_SM_A_longneck		23039455	
Adapter_SM_A_shortneck		84082085	
Adapter_SM_A_open ¹⁾		84069245	

¹⁾ Non-waterproof with mounted pulling tube and pulling eye

MASTERLINE Lite

Adapter for installing a larger pulling tube		Item no.	Picture
Adapter_SM_L_open		84099173	

MASTERLINE Hybrid

Order code

1	2	3	-	4	-	5	-	6	7	-	8	9	-	10	11	12	13
---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	----	----	----

1	System type
MLE	Masterline extreme hybrid™
MLC	Masterline classic hybrid™
MLUH	Masterline Ultimate hybrid™
MLU	Masterline Ultimate fiber™
MLLH	Masterline extreme lite™

2	Amount of Copper wires
n	Amount of Copper wires (pairwise) e.g. 06 → 12 copper wires

3	Amount of Fibers
n	Amount of Fibers (pairwise) e.g. 06 → 12 fibers

4	Diameter of copper wires
12A	12 AWG
10A	10 AWG
08A	8 AWG
06A	6 AWG
04M	4 mm²
06M	6 mm²
10M	10 mm²
16M	16 mm²
12C	12 AWG Coaxial
10C	10 AWG Coaxial
08C	8 AWG Coaxial
06C	6 AWG Coaxial
06K	6 mm² Koaxial
10K	10 mm² Koaxial
16K	16 mm² Koaxial

5	Fiber type
0	E9/125 Low Bend (G.657 A1/2)
1	E9/125 (G.652-D)
2	G50/125-OM2
3	G50/125-OM3 LB
4	G50/125-OM4 LB
6	G62.5/125-OM1

6	Connector type Copper Side A
8	Connector type Copper Side B
00	blunt cut
10	Souriau UTS7 receptacle
20	Souriau UTS7 socket

7	Connector type FO Side A
xx	Connector type (see connector code)

9	Connector type FO Side B
xx	Connector type (see connector code)

10	Cable length in m
nnn	Cable length in m, always 3 digits

11	Extras
BP	Bird Proof

12	FO Quality Side A
13	FO Quality Side B
A	Singlemode LAN ECO APC
B	Singlemode High End APC
D	Singlemode High-End UPC
M	Multimode
N	Singlemode LAN-ECO-UPC
P	Singlemode MT Ferrule standard
S	Singlemode MT Ferrule Elite
T	Multimode MT Ferrule Elite

MASTERLINE

Order code

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----

1	System type side A *
2	System type side B *
A	MASTERLINE Classic
B	Smartline Breakout
C	MASTERLINE Compact
E	MASTERLINE Extreme
H	MASTERLINE Classic ^{HT}
L	MASTERLINE Lite
M	MASTERLINE Mobile
N	MASTERLINE Mobile ^{HT}
P	MT cable system (fiber sequence method A) (standard)
S	MT cable system (fiber sequence method C)
R	Smartline Riser
T	ATC divider
Y	MT cable system (fiber sequence Method B)
Ø	no divider

3	Fiber type
0	E9/125 Low Bend (G.657 A1/2)
1	E9/125 (G.652-D)
2	G50/125 -OM2
3	G50/125 -OM3 LB
4	G50/125 -OM4 LB
6	G62.5/125 -OM1
8	HCS200/230/500

4	Numbers of fibers
nn	numbers of fibers, always 2-digits (up to 99)
	A=100, B=110, C=120, D=130, E=140, e.g. 144=E4

5	Cable type
A	non-stranded loose tube cable, non-armoured, LSFH™
B	non-stranded mini-loose tube cable, non-armoured, LSFH™
C	non-stranded loose tube cable, non-armoured, non-armoured, PE
D	stranded loose tube cable, non-armoured, PE
E	non-stranded loose tube cable, non-armoured, glass-armoured, LSFH™
F	non-stranded loose tube cable, non-armoured, glass-armoured, LSFH™, reinforced 12 mm
G	non-stranded loose tube cable, non-armoured, glass-armoured, LSFH™, optimised
H	stranded loose tube cable, glass-armoured, LSFH™, reduced outer diameter 11.6 mm

I	stranded loose tube cable, glass-armoured, LSFH™
J	stranded loose mini-loose tube cable, glass-armoured, LSFH™
K	non-stranded loose tube cable, non-armoured, steel-armoured, LSFH™
L	non-stranded loose tube cable, non-armoured, glass-armoured, LSFH™, UL listed
M	mini-loose tube cable, LSFH™
N	non-stranded loose tube cable, non-armoured, glass-armoured, PE
O	non-stranded loose tube cable, non-armoured, glass-armoured, PE, reinforced 10 mm
P	non-stranded loose tube cable, non-armoured, glass-armoured, PE, reinforced 12 mm
R	stranded loose tube cable, glass-armoured, PE
S	stranded loose mini-loose tube cable, glass-armoured, PE
T	non-stranded loose tube cable, non-armoured, steel-armoured, PE
U	non-stranded loose tube cable, non-armoured, glass-armoured, LSFH™, optimised, UL listed
V	non-stranded loose tube cable, non-armoured, jellyfree, non-armoured, LSFH™
W	stranded loose tube cable, jellyfree, glass-armoured, LSFH™
X	breakout cable (Optipack12, 24 and Optibreak)
Y	riser cable
Z	order/customer specific
1	glass-armoured riser cable
2	field cable
3	tactical field cable
4	mobile field cable
5	drag chain cable
6	field cable 3star
7	Conduit cable FO Radox 13 mm / 4 x 0.9 mm tube

6	Cable length
nnnn	cable length in m, always 4-digits

7	Drum type
A	air ring
B	cable bag
C	Reel_CA_460x297x80_ODC
D	Reel_CA_710x490x410_250ML
E	Reel_CA_905x685x405_250ML
F	Reel_WOi_900x600x510-350ML
G	Reel_WOi_1250x880x660
H	Reel_WOi_1400x700x970

MASTERLINE

I	Reel_PL_600x400x181
J	Reel_PL_600x400x331
K	Reel_PL_600x400x530
L	Reel_CA_460x313x349_223ML
M	mobile drum no. 1
N	mobile drum no. 1, with reinforcing kit
P	mobile drum no. 1, with carriage
Q	mobile drum no. 1, with carriage und with reinforcing kit
R	mobile drum no. 2
S	mobile drum no. 3
T	mobile drum no. 3 with carriage
U	mobile drum no. 4
V	mobile drum no. 5, standard orange
W	mobile drum no. 5, special olive green
Y	mobile drum no. 6, special military green
1	Packaging -MTP-Jumper-PET-D40
Z	delivered coil

8	Verteilerausführung
S	small divider (Classic, Lite, Compact, Mobile, Extreme, ATC)
M	medium divider (Classic, Lite, Mobile)
L	large divider (Classic)
U	Crimped divider small (formerly Ultralite small)
V	Crimped divider medium (formerly Ultralite medium)
Ø	no divider

9	Fanout type A
12	Fanout type B
A	0.6 mm
B	0.9 mm
D	1.4 mm
E	1.7 mm
F	2.0 mm
G	2.1 mm
H	2.2 mm
I	2.7 mm
K	3.0 mm
J	3.4 mm

M	5.0 mm / 2x0.25 / 0.9
O	7.0 mm / 2x0.9
P	5.8 mm / 4x0.25
Ø	no fanout

10	Fanout length A, shortest fanout length
13	Fanout length B, shortest fanout length
nnn	fanout length, in cm
STD	standard length

11	Fanout construction A
14	Fanout construction B
A	fanout graduated
B	standard fanout graduated, special length, minimum 30 cm
E	fanout equal lenght 1.0 m
F	fanout equal lenght, special length, minimum 30 cm
Q	fanout equal lenght standard 50 cm
Ø	no fanout
Z	special, minimum 30 cm

15	Connector type A
16	Connector type B
xx	connector type (see connector overview)

17	Quality side A
18	Quality side B
A	Singlemode LAN ECO APC
B	Singlemode High End APC
C	Singlemode 0.1 dB APC
D	Singlemode High-End UPC
E	Singlemode High-power (APC/UPC)
F	Singlemode 0.1 dB UPC
M	Multimode
N	Singlemode LAN-ECO-UPC
P	Singlemode MT Ferrule standard
S	Singlemode MT Ferrule Elite
T	Multimode MT Ferrule Elite (standard for MTP MM)
U	Multimode Ultra Low Loss

Connector overview

	00	no connector	A	B	C	D	F	M	N	P	U
	10	FSMA						•			
	20	ST-HQ						•	•		
	22	ST-Security						•	•		
	24	ST-LEAN						•			
	30	FCPC				•	•	•	•		
	34	FCPC APC small key	•	•	•						
	40	LSA				•		•			
	43	LSA APC	•	•							
	52	MPO without pins 12						•		•	•
	53	MPO with pins 12						•		•	•
	56	MPO without pins 24						•		•	•
	57	MPO with pins 24						•		•	•
	70	SC				•	•	•	•		
	73	SC APC 8°	•	•	•						
	74	SC APC 9°	•	•	•						
	77	SC duplex				•	•	•	•		
	78	SC APC duplex	•	•	•						
	79	SC APC 9° duplex	•	•	•						
	80	LX.5				•	•	•	•		
	81	LC.5 duplex				•	•	•	•		
	83	LX.5 APC		•	•						
	84	LX.5 APC duplex		•	•						
	85	LC				•	•	•	•		•
	86	LC APC	•	•	•						
	88	LC Duplex				•	•	•	•		•
	89	LC APC Duplex	•	•	•						

	00	no connector	A	B	C	D	F	M	N	P	U
	8E	LC-HD (duplex)				•	•	•	•		•
	8F	LC-HD APC (duplex)	•	•	•						
	8P	LC Push-Pull				•	•	•	•		•
	8Q	LC APC Push-Pull	•	•	•						
	8R	LC duplex Push-Pull				•	•	•	•		•
	8S	LC APC duplex Push-Pull	•	•	•						
	8V	LC-XD PC simplex				•	•	•	•		•
	8W	LC-XD APC simplex	•	•	•						
	8X	LC-XD PC duplex				•		•	•		•
	8Y	LC-XD APC duplex	•	•							
	8U	LC-HQ PC duplex				•		•	•		•
	8Z	LC-HQ APC duplex	•	•							
	90	LSH				•	•	•			
	93	LSH APC		•	•						
	97	LSH duplex				•	•	•			
	98	LSH APC duplex		•	•						
	A1	ODC-2 plug						•	•		
	A4	ODC-2 plug						•	•		
	E1	ODC-2 extension (socket type)						•	•		
	E3	ODC-2 extension (socket type)						•	•		
	QC	Q-ODC plug						•	•		
	QB	Q-ODC plug						•	•		
	QF	Q-ODC extension						•	•		
	QG	Q-ODC extension						•	•		

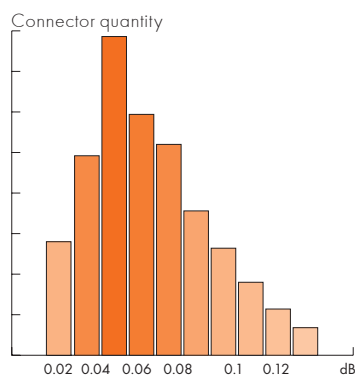
Assembly classes

HUBER+SUHNER cable assemblies stand for PERFORMANCE and RELIABILITY

Features

- Available in 3 singlemode attenuation classes to meet different customer requirements
- Full ceramic ferrules as a base for highest performance and reliability
- Optimized products and assembling processes due to HUBER+SUHNER in-house connector and cable development and manufacturing
- Outstanding mechanical and thermal strengths exceeding requirements of international standards

Singlemode 0.1 dB class



Applications

- Long haul transmissions, saving costs for signal amplification
- Low loss budget transmission
- Transmissions where uniform channel losses are required
- Splice alternative

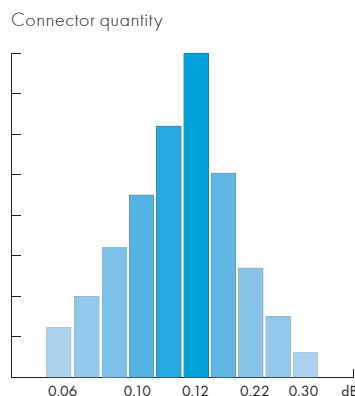
Compatibility

- All connectors are tuned
- Fibers according to ITU-T G.652-D/ IEC 60793-2-50
- Premium ferrule

Attenuation

	each-to-each measuring		against reference measuring	
IL ¹⁾	IEC 61300-3-34 97 % typ. mean	0.15 dB 0.06 dB	IEC 61300-3-4 max.	0.15 dB
RL	IEC 61300-3-6 UPC APC	>50 dB >85 dB ²⁾		

Singlemode High-End class



Applications

- CATV / video
- Passive Optical Networks PON
- WDM/DWDM

Compatibility

- All connectors are tuned acc. to IEC 61755-3-1/2, Grade B
- Fibers according to ITU-T G.652-D, IEC 60793-2-50

Attenuation

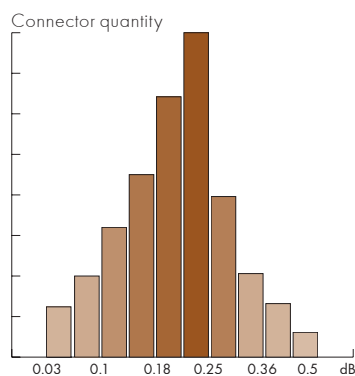
	each-to-each measuring		against reference measuring	
IL ¹⁾	IEC 61300-3-34 97 % typ. mean	0.28 dB 0.15 dB	IEC 61300-3-4 max.	0.35 dB
RL	IEC 61300-3-6 UPC	>38 dB		

¹⁾ at 1310 nm

²⁾ measurement method 3 (OLCR)

Assembly classes

Singlemode LanEco class



Applications

- Universal premises cabling according to IS 118.1, EN 50173-1, EIA/TIA 568
- Cost effective connections in PON
- FTTX, data center

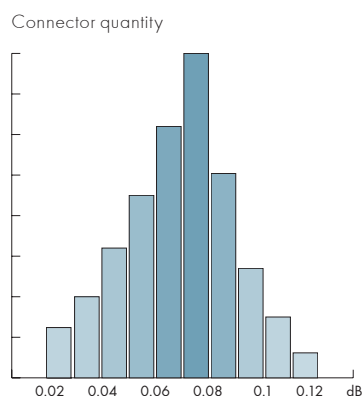
Compatibility

- Connectors are not tuned
- Fibers according to ITU-T G.652-D/ IEC 60793-2-50

Attenuation

	each-to-each measuring		against reference measuring	
IL ¹⁾	IEC 61300-3-34 97 % typ. mean	0.45 dB 0.20 dB	IEC 61300-3-4 max.	0.35 dB
RL	IEC 61300-3-6 UPC APC	>50 dB >85 dB ²⁾		

Multimode HQ



Applications

- Universal building cabling as per IS 11801, EN 50173-1, EIA/TIA 568
- FTTX, data center

Compatibility

- Fibers according to ITU-T G.651, IEC 60793-2-10

Attenuation

	each-to-each measuring		against reference measuring	
IL ³⁾	IEC 61300-3-34 97 % typ. mean	0.50 dB 0.20 dB	IEC 61300-3-4 max.	0.35 dB
RL	IEC 61300-3-6	>35 d		

¹⁾ at 1310 nm

²⁾ measuring method 3 (OLCR)

³⁾ at 1300 nm, launch conditions acc. IEC 61300-1

Please note

0.1 dB assemblies have max. losses lower than today's measurement accuracy in the field. Measurement equipment (power meter/OTDR) and measurement set-up, reference cables and adapters, environmental conditions and dirt easily cause measurement uncertainties of > 0.2 dB. Reliable and reproducible measurements at accuracies below 0.1 dB are feasible under laboratory conditions only.

Find out more about our products

Experience the broad HUBER+SUHNER product portfolio

With HUBER+SUHNER cables, connectors and systems – developed from the three important technologies of radio frequency, fiber optics and low frequency – we serve customers in the communication, transportation and industrial sectors.

Our wide range of catalogues and brochures are updated regularly and are available in electronic format from our Corporate HUBER+SUHNER homepage
«www.hubersuhner.com».

Microsites

On our microsites you will find dedicated information about the use of cable systems in applications of different markets.

fiberinthehome.com



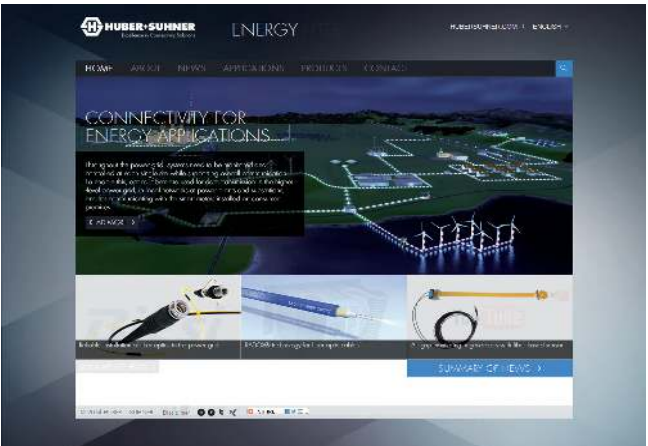
HUBER+SUHNER offers solutions for the FTTH network that can be installed efficiently and economically. On this Microsite you will find all relevant information about solutions and products tailor-made for all applications in the broadband network, from the central office to and in dwellings.

wireless-infrastructure.com



HUBER+SUHNER is the global leader for remote radio installation solutions. This microsite shows the comprehensive offering of FTTA (fiber-to-the-antenna) and PTTA (power-to-the-antenna) products which are tailored to the customer's needs. HUBER+SUHNER implements future-proofed passive cable network infrastructures which are compatible with all system vendor products and endure the future generations of active equipment.

fiberopticforenergy.com



The various systems in a power grid need to be monitored and controlled at every site. This is the only way to guarantee meaningful communication in the smart grid. The resulting high volumes of data are transmitted using fiber optic solutions. This microsite provides in-depth information on fiber optic solutions from HUBER+SUHNER that have been developed specifically for these requirements.

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HUBER+SUHNER is certified according to ISO 9001, EN(AS)9100, ISO 14001, ISO/TS 16949 and IRIS.

Waiver

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