

FIBRE UNITS

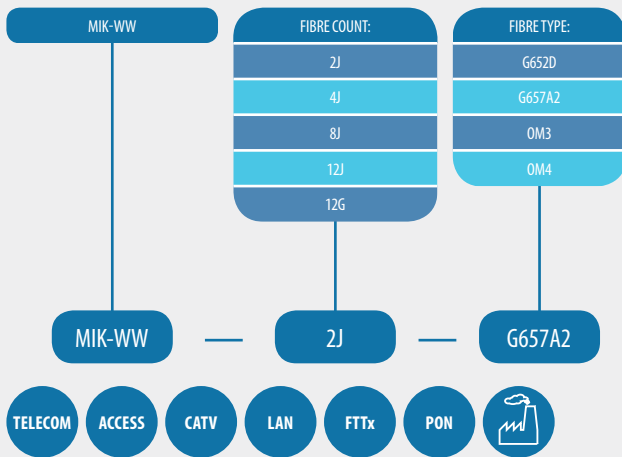
FEATURES:

- perfect for FTTH networks
- small size and weight
- available with all fibre types
- outer coating allows low friction
- easy to handle
- available in lengths up to 12 km

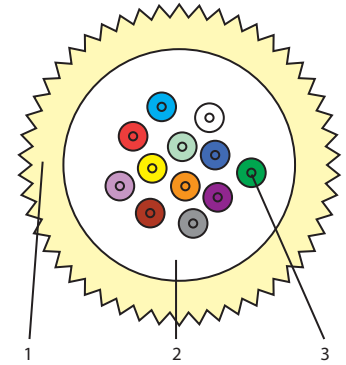
TECHNICAL SPECIFICATIONS:

	2 fibre unit	4 fibre unit	6 fibre unit	8 fibre unit	12 fibre unit
diameter [mm]	1,1		1,3	1,5	1,6
weight [g/m]	1,0		1,6	1,8	2,2
minimum bending radius [mm]	50	65	80		
minimum inner diameter [mm]	2,1	3,5			
blowing distance	for microduct with inner diameter 3,5mm, with 10 bar pressure, performance 2m3/min: 2km				
temperature [°C]	installation: -10 to +50 work: -30 to +60 storing: -20 to +70				
fibre colours	colours: 1 – red, 2 - blue, 3 - white, 4 - green, 5 - purple, 6 - orange, 7 - gray, 8 - yellow, 9 - brown, 10 - pink, 11 - black, 12 - turquoise				
fibre types	G.652 D, G.657 A2, G.657 A1, for special order: OM1, OM2, OM3, OM4				
recommended minimum microduct diameter [mm]	3,5				

ORDERING:



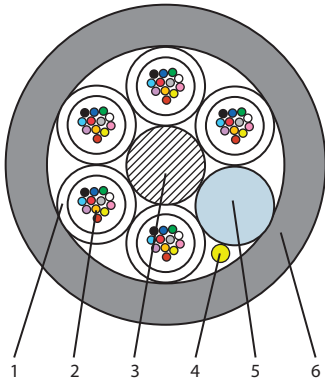
Fibre units



1. outer sheath
2. acrylic filler
3. optical fibre 250um

MINICABLES

Minicables



1. loose tube
2. optical fibres 250 μm
3. central strength element
4. ripcord
5. filling element
6. outer sheath

FEATURES:

- fibre count, small outer diameter
- compatible with industry-standard blowing equipment
- optimised for blowing
- certified to be used in various projects all over the world
- quick installation
- equipped with ripcord
- protected against humidity

TECHNICAL SPECIFICATIONS:

fibre count	12	24	36	48	60	72	96	144
outer diameter [mm]	5,6 ± 0,3						6,5 ± 0,3	8,3 ± 0,3
number of tubes in a cable	1	2	3	4	5	6	7	12
fibre count in a tube	12							
fibre type	G.652 D							
minimum bending radius [mm]	84						100	125
weight [kg/km]	28						40	63
maximum tensile load [N] according to EN-60794-1-2-E1	1000						2000	3000
crash resistance [N] according to EN-60794-1-2-E3	1500							
temperature [°C]	installation: -15 to +50 work: -30 to +70 storing: -40 to +70							
recommended microtube diameter [mm]	8						10	12

ORDERING:

PRODUCT CODE	DESCRIPTION
MIK-KM-024J/G652D/2x12	24 FO modular microcable, 2x12 FO SM G652D
MIK-KM-036J/G652D/3x12	36 FO modular microcable, 3x12 FO SM G652D
MIK-KM-048J/G652D/4x12	48 FO modular microcable, 4x12 FO SM G652D
MIK-KM-072J/G652D/6x12	72 FO modular microcable, 6x12 FO SM G652D
MIK-KM-096J/G652D/8x12	96 FO modular microcable, 8x12 FO SM G652D
MIK-KM-144J/G652D/12x12	144 FO modular microcable, 12x12 FO SM G652D

TELECOM

CATV

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PON



THIN WALL PRIMARY TUBER

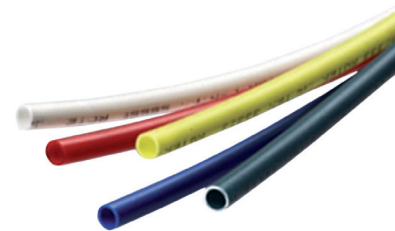
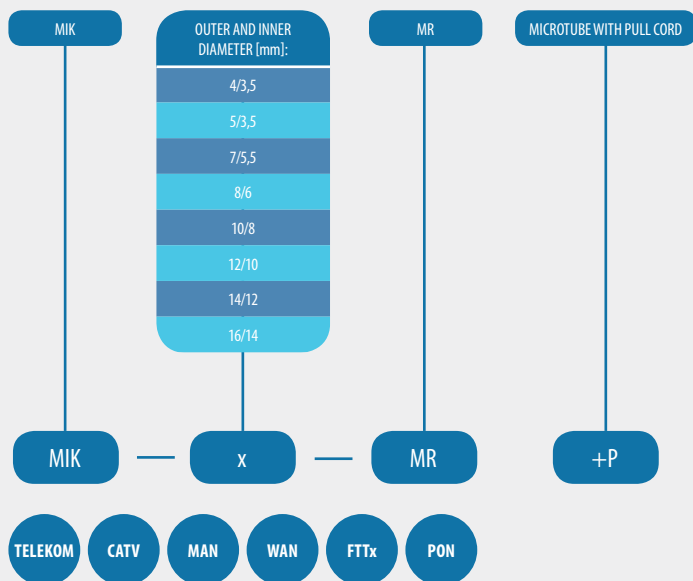
FEATURES:

- made of primary polyethylen
- designed for installation in ducts or additional protective tubes
- outer sheath with low friction factor
- optional pull cord
- high pressure resistance
- available in different colours or transparent form with colored bar (for special order)

TECHNICAL SPECIFICATIONS:

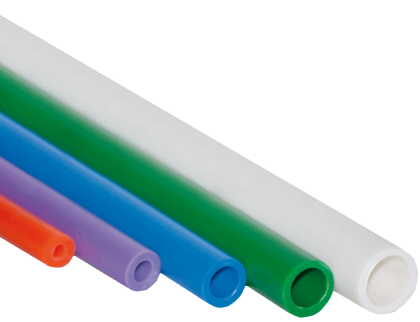
	4/3,5	5/3,5	7/5,5	8/6	10/8	12/10	14/12	16/14	
maximum pulling strength [N]	120	135	240	300	380	465	550	630	
nominal installation pressure [bar]	max. 16								
ultimate burst pressure [bar]	> 40			> 30		> 25		> 20	
minimum bending radius [mm]	40	50	70	80	100	120	140	160	
circumferential stiffness [kN/m ²]	≥ 48								
ovality [%]	≤ 4								
coefficient of friction	≤ 0,1								
temperature range for transport, work and storing [°C]	-40 to +70								
installation temperature [°C]	-10 to +50								
prefabricated lengths [mb]	3000						2000	1500	
weight [kg/km]	7	10	18	21	27	33	39	44	
recommended microtube diameter [mm]	1,5	2,5	3,7	4,2	5,6	7,0	8,4	9,8	

ORDERING:



Thin Wall Primary Tubers

HEAVY WALL PRIMARY TUBES



Heavy Wall Primary Tubes

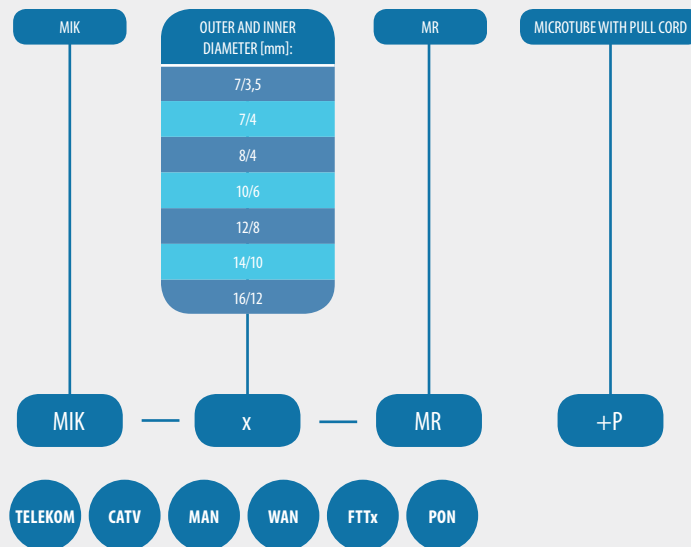
FEATURES:

- made of primary polyethylen
- corrugation inside
- outer sheath with low friction fraction
- optional pull cord
- high pressure resistance
- designed for direct bury, installation in ducts
- available in different colours or transparent form with colored bar (for special order)

TECHNICAL SPECIFICATIONS:

	7/3,5	7/4	8/4	10/6	12/8	14/10	16/12
maximum pulling strength [N]	390	350	510	680	840	1010	1150
nominal installation pressure [bar]	max. 20						
ultimate burst pressure [bar]	> 70			> 60		> 50	> 40
circumferential stiffness [kN/m ²]	≥ 150						
compressive strength [N]	≥ 1000						
toughness [J]	15						
ovality [%]	≤ 4						
coefficient of friction	≤ 0,1						
temperature range for transport, work and storing [°C]	-40 to +70						
installation temperature [°C]	-10 to +50						
minimum bending radius [mm]	70	80	100	120	140	160	
prefabricated lengths [mb]	3000					2000	1500
weight [kg/km]	28	24	36	48	59	72	84
recommended microtube diameter [mm]	2,5	2,8	2,8	4,2	5,6	7,0	8,4

ORDERING:



LOW FIRE HAZARD MICRODUCTS LFH

FEATURES:

- made of primary polyethylen
- inner sheath with low friction factor
- outer sheath with low friction factor
- optional pull cord
- high pressure resistance
- designed for inside installation
- available in white colour
- made of low smoke zero halogen material

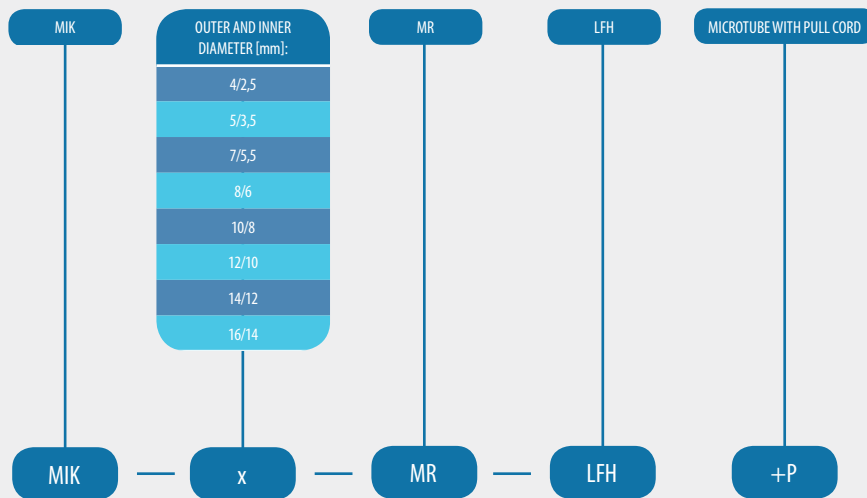
TECHNICAL SPECIFICATIONS:

	4/2,5	5/3,5	7/5,5	8/6	10/8	12/10	14/12	16/14
maximum pulling strength [N]	120	135	240	300	380	465	550	630
nominal installation pressure [bar]	max. 16							
ultimate burst pressure [bar]	> 40			> 30		> 25		> 20
minimum bending radius [mm]	40	50	70	80	100	120	140	160
circumferential stiffness [kN/m ²]	≥ 48							
ovality [%]	≤ 4							
coefficient of friction	≤ 0,1							
temperature range for transport, work and storing [°C]	-40 to +70							
installation temperature [°C]	-10 to +50							
prefabricated lengths [mb]	3000						2000	1500
weight [kg/km]	7	10	18	21	27	33	39	44
recommended microtube diameter [mm]	1,5	2,5	3,7	4,2	5,6	7,0	8,4	9,8



Low Fire Hazard Microducts LFH

ORDERING:



LOOSE ORGANISED THIN-WALL MICRODUCT BUNDLES



*Loose Organised Thin-Wall
Microduct Bundles*

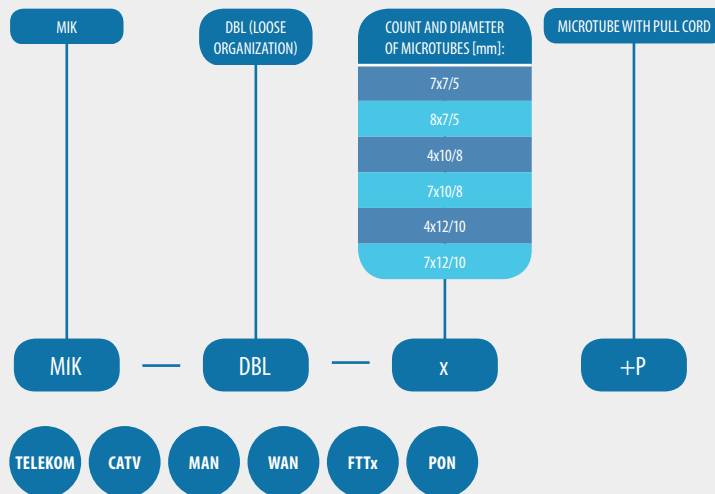
FEATURES:

- designed for direct bury or duct installation
- microducts count and diameter is selected according to customer's needs
- build of thin-walled microducts with low friction factor
- high pressure resistance
- protective tube in orange or black
- available in different colours or transparent form with colored bar (for special order)

TECHNICAL SPECIFICATIONS:

quantity / type of microtube	7x7/5	8x7/5	4x10/8	7x10/8	4x12/10	7x12/10
material	poliethylen HDPE					
external package dimensions [mm]	21,5	25,6	28,8	34,6	33,6	40,6
internal package dimensions [mm]	16,9	21	24,2	30	29	36
number of microducts in the package	4	7	4	7	4	7
microtubes dimensions [mm]	7/5		10/8		12/10	
maximum pulling strength [N]	5700	6450	7850	10300	9400	15700
temperature range for transport, work and storing [°C]	-40 to +70					
installation temperature [°C]	-10 to +50					
prefabricated length [mb]	2000					
weight [kg/km]	203	369	365	566	509	774

ORDERING:



TIGHT ORGANISED HEAVY-WALL MICRODUCT BUNDLES

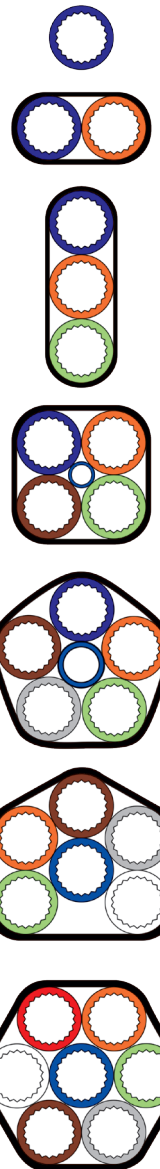
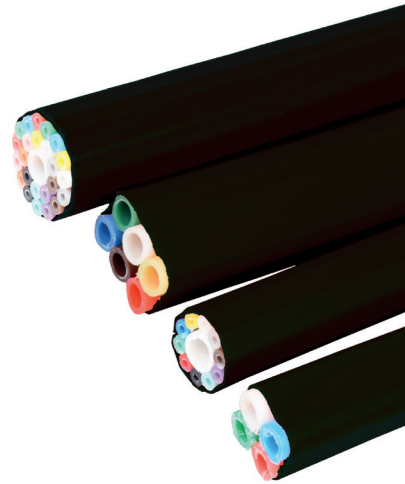
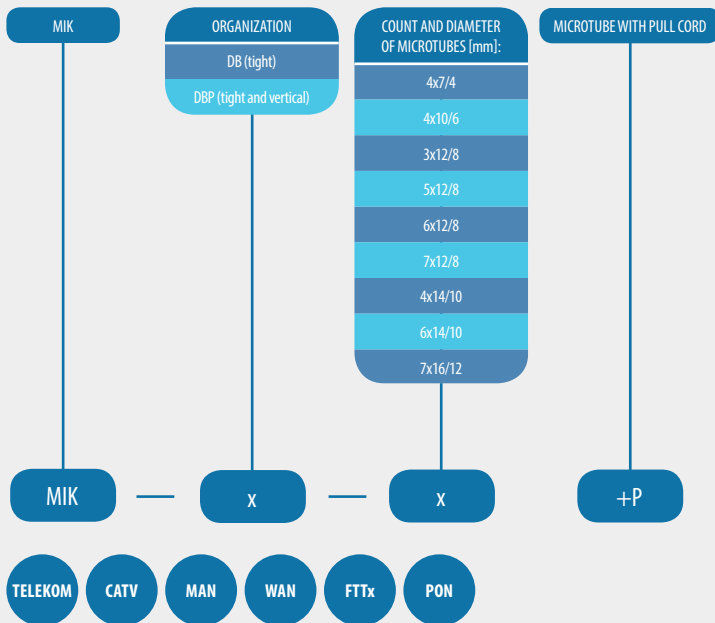
FEATURES:

- designed for direct bury or duct installation
- built of thick - walled direct bury microducts
- high pressure resistance
- outer sheath can be cut
- available in 12 colours
- all microduct connections to be done with the use of direct bury connectors, no need to restore protective layer

TECHNICAL SPECIFICATIONS:

quantity / type of microtube	4x7/4	4x10/6	3x12/8	5x12/8	6x12/8	7x12/8	4x14/10	6x14/10	7x16/12
material	polyethylen HDPE								
external package dimensions [mm]	18,5	25,7	26,2	37,6	33,6	40,6	35,1	43,6	45,6
internal package dimensions [mm]	15,6	21,6	25,6	30	29	36	29,6	37,6	39,6
microtubes dimensions [mm]	7/4	10/6	12/8			14/10		16/12	
maximum pulling strength [N]	1400	2720	2520	4200	5040	5880	4040	6060	8050
minimum bending radius [mm]	185	257	262	376			351	436	376-
transport temperature [°C]	-40 to +70								
installation temperature [°C]	-10 to +50								
prefabricated length [m]	2000								
weight [kg/km]	141	251	241	380	450	519	370	536	719

ORDERING:



Tight Organised Heavy-Wall Microduct Bundles

FLAT ORGANISED HEAVY-WALL MICRODUCT



Flat Organised Heavy-Wall Microduct

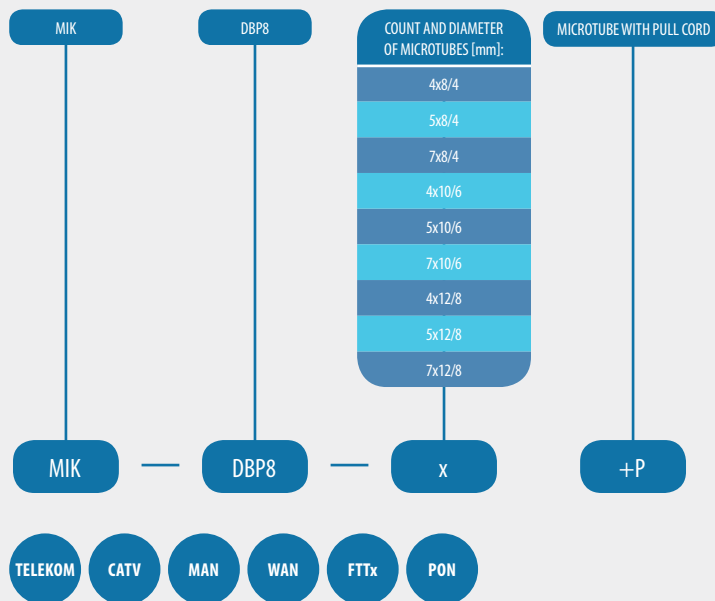
FEATURES:

- direct bury
- possibility of mounting in slots cut in the base
- built of heavy-wall microducts for direct bury
- high pressure resistance
- outer sheath can be cut in any place
- available in different colours or transparent form with colored bar (for special order)
- all microduct connections to be done with the use of direct bury connectors, no need to restore protective layer

TECHNICAL SPECIFICATIONS:

quantity / type of microtube	4x8/4	5x8/4	7x8/4	4x10/6	5x10/6	7x10/6	4x12/8	5x12/8	7x12/8
material	poliethylen HDPE								
external package dimensions [mm]	42,8	53,8	75,8	50,8	63,8	89,8	58,8	73,8	103,8
internal package dimensions [mm]	9,6			11,6			13,6		
number of microducts in the package	4	5	7	4	5	7	4	5	7
microtubes dimensions [mm]	8/4			10/6			12/8		
maximum pulling strength [N]	1600	2150	3010	2750	3400	4700	3360	4200	5900
minimum bending radius [mm]	96			116			136		
transport temperature [°C]	-40 to +70								
installation temperature [°C]	-10 to +50								
prefabricated length [m]	2000								
weight [kg/km]	166	202	273	219	267	361	272	331	450

ORDERING:



STRAIGHT CONNECTORS AND PLUGS

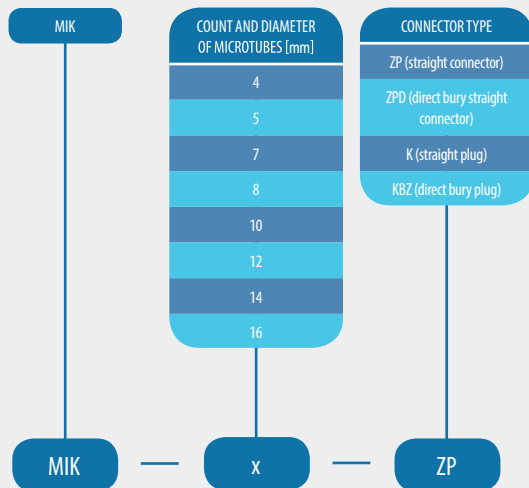
FEATURES:

- reusable connectors and end caps with a snap mechanism for microducts
- waterproof and gas-tight
- for connecting microducts of different diameters
- easy and quick installation
- no dedicated tools required
- made of transparent elements
- opcjonalnie przystosowane do bezpośredniego zakopania w ziemi

TECHNICAL SPECIFICATIONS:

	4	5	7	8	10	12	14	16
material	polymer, NBR							
outer diameter [mm]	4,0	5,0	7,0	8,0	10,0	12,0	14,0	16,0
pressure resistance [bar]	20							
impact strength (at -20 °C) [J]	<1							
tensile strength [N]	<130							
temperature range for transport, work and storing [°C]	-20 to +50							
environmental protection	IP 68							

ORDERING:



Universal Straight Connector



Universal Straight Plug



Straight Connector



Straight connector with a cap to bury in the ground

REDUCERS



Reducer

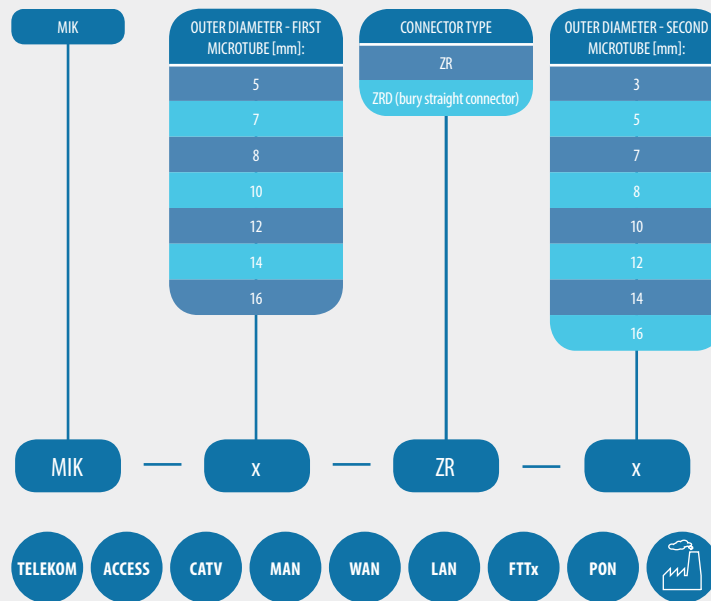
FEATURES:

- reusable reducers with a snap mechanism for microducts
- for connecting microducts of different diameters
- water and gasproof
- easy and quick installation
- available with clips holding microducts together
- optionally adapted for direct burial in the ground

TECHNICAL SPECIFICATIONS:

	5/3	7/5	8/5	10/7	12/7	12/10	14/10	14/12	16/12
material	polymer, NBR								
outer diameter - first microtube [mm]	5,0	7,0	8,0	10,0	12,0		14,0		16,0
outer diameter - second microtube[mm]	3,0	5,0		7,0		10,0		12,0	
pressure resistance [bar]	20								
impact strength (at -20 °C) [J]	<1								
tensile strength [N]	<60								
temperature range for transport, work and storing [°C]	-20 to +50								

ORDERING:



GAS-BLOCK STRAIGHT CONNECTOR

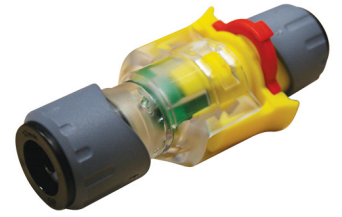
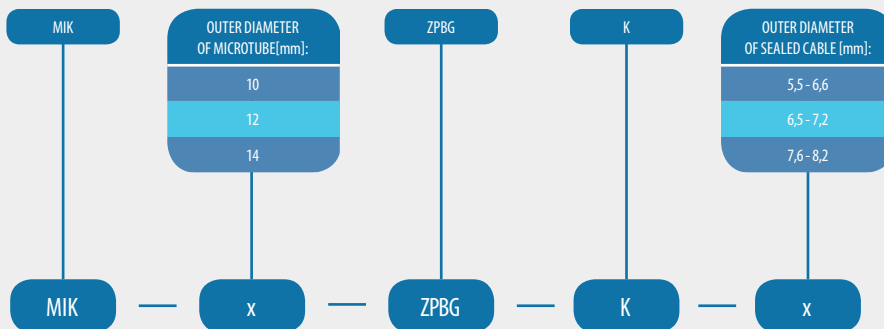
FEATURES:

- designed for installation in microducts with cable before entering the building
- protecting against gas leak
- sealing level minimum 1 bar
- water and gasproof
- easy and quick installation
- available with clips preventing disconnection

TECHNICAL SPECIFICATIONS:

sealing connector	10		12			14	
material	NBR, polymer, silicon						
outer diameter of microtube[mm]	10		12			14	
outer diameter of sealed cable [mm]	5,5 - 6,6	6,5 - 7,2	5,5 - 6,6	6,5 - 7,2	7,6 - 8,2	6,5 - 7,2	7,6 - 8,2
seal colour	green	red	green	red	blue	red	blue
sealing [bar]	16						
tensile strength [N]	< 120						
temperature range for transport and installation [°C]	-25 to +60						
environmental protection	IP 68						

ORDERING:



Gas-Block Straight Connector

DIVISIBLE MICROCABLE TO MICRODUCT END SEALS



Divisible Microcable to Microduct End Seals

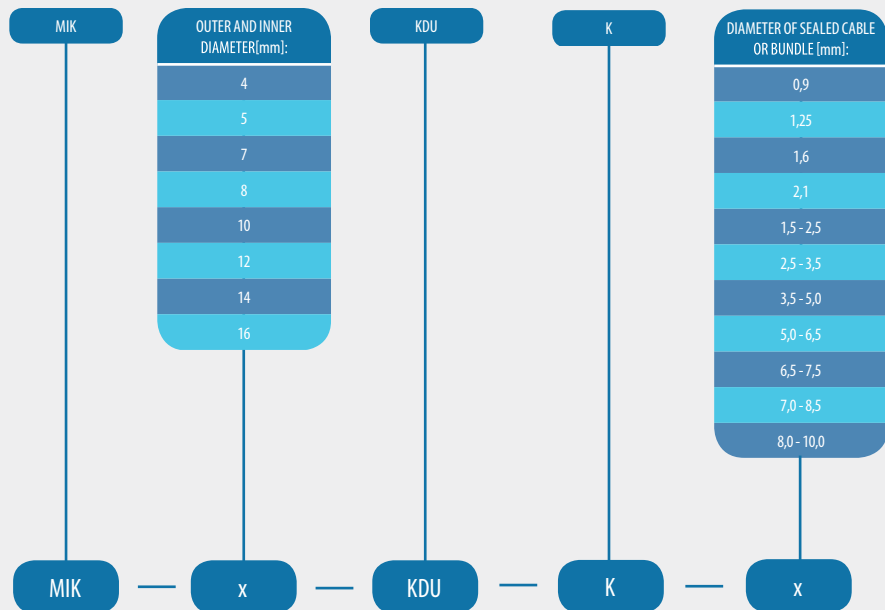
FEATURES:

- designed for sealing microduct ends
- double construction enables assembling after cable installation
- providing protection against water, gas and dirt
- sealing level 0,5 bar
- can be matched depending on microduct and cable diameters

TECHNICAL SPECIFICATIONS:

sealing connector	4	5	7	8	10	12	14	16
material	PC housing, seal TPE				GFRP housing, seal			
outer diameter of microtube(mm)	4,0	5,0	7,0	8,0	10,0	12,0	14,0	16,0
outer diameter of sealed cable or bundle [mm]	bundle				bundle/cable			
	0,9				1,5-2,5			
	1,25				2,5-3,5			
	1,6				3,5-5,0			
	2,1				5,0-6,5			
sealing [bar]	0,5							
tensile strength [N]	<120							
temperature range for transport and installation [°C]	-20 to +50							
environmental protection	IP 67							

ORDERING:



RUBBER AND CAPS

FEATURES:

- economical solution
- water and gasproof
- holds pressure up to 1 bar
- protection against water and dirt
- made of rubber EPDM, that provides chemical and acid resistance
- designed for installation in additional covers or direct bury

ORDERING:

PRODUCT CODE	DESCRIPTION
MIK-7-KG	rubber microduct plus, outer diameter 7mm, for installation in closures or direct bury
MIK-10-KG	rubber microduct plus, outer diameter 10mm, for installation in closures or direct bury
MIK-12-KG	rubber microduct plus, outer diameter 12mm, for installation in closures or direct bury
MIK-14-KG	rubber microduct plus, outer diameter 14mm, for installation in closures or direct bury
MIK-16-KG	rubber microduct plus, outer diameter 16mm, for installation in closures or direct bury



Rubber Microduct Plug

MICROCABLES COILER ZS-500



Microcables Coiler ZS-500

FEATURES:

- coils the mini cable into a basket without tangling
- cable outer diameter range: 4 mm to 12 mm
- strong mechanical construction
- allows to extend the blowing range (onward blowing)
- no powering required
- holds up to 2 km of minicable

EQUIPMENT:

- minicable basket
- rotary head
- a set of guiding rollers

ADDITIONAL EQUIPMENT:

- replaceable cable guides

ORDERING:

ZS-500 - microcables coiler

TELECOM

ACCESS

CATV

MAN

WAN

LAN

FTTx

PON



DIRECT BURY DISTRIBUTION CLOSURE

FEATURES:

- designed for direct bury
- tight and durable
- allows up to six single DB microducts to be branched from a single port
- a wide range of seals and cable ports

TECHNICAL SPECIFICATIONS:

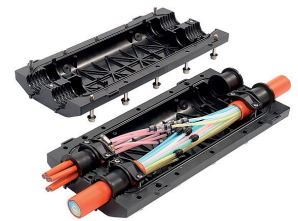
closure type	counts of grommets	dimensions [mm]	protection	product code
TDC	6	316/220/70	IP67	EMT-TDC
H	4	470/210/110	IP68	EMT-9190
CL01	4	405/155/125	IP68	EMT-9500
3A	6	648/160/160	IP68	EMT-7247

ORDERING:

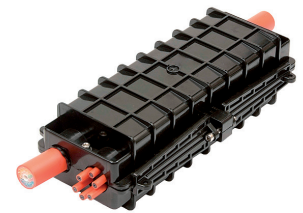
PRODUCT CODE	DESCRIPTION
EMT-TDC	TDC closure



TDC Closure



Closure Type H



CL01 Closure

MIK-OSN CUSTOMER LEAD-IN POINT



FEATURES:

- allows to make an aesthetic and tight subscriber connection from a microtube
- protect the microtube and cables against breaking
- for indoor and outdoor application
- enables the installation of a gas-tight connector or reducer

TECHNICAL SPECIFICATIONS:

	4-8	10-12	2x7mm
material	PC, ASA (UV resistant, LFH)		
dimensions [mm]	121x44x26	160x40x40	
diameter of microtubes	from 4 to 8 mm	from 10 to 12 mm (to 16 mm after breaking the flap)	2x 7 mm
colour	white, RAL 9010		
temperature range for transport, work and storing [°C]	-20 to +50		

ORDERING:

PRODUCT CODE	DESCRIPTION
MIK-OSN	closure enabling converting underground microduct to indoor microduct, possibility of assembling connectors



MIK-OSN Customer Lead-in Point

BRANCHING CLOSURES FOR CONNECTING MICRODUCT BUNDLES

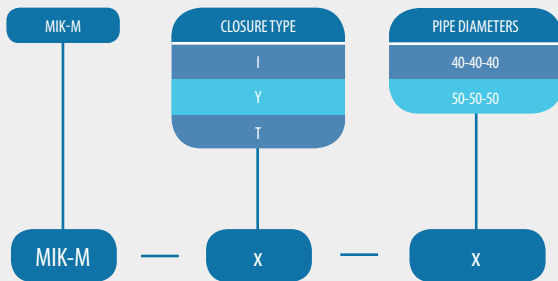
FEATURES:

- direct bury or chambers installation
- for installing closure in existing microduct system
- hermetic
- no need to use additional tools for closing

TECHNICAL SPECIFICATIONS:

closure type	I-type	Y-type	T-type
material	PP, nylon, TPE	ABS, POM	
dimensions [mm]	615x159x108	290x205x87	360x220x87
for pipe diameters	50	40	
weight [g]	2040	430	540
colour	black		

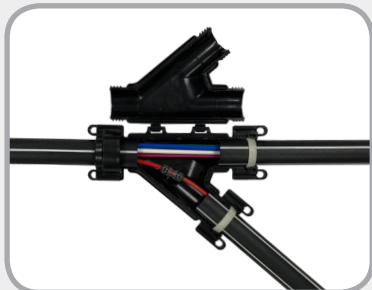
ORDERING:



x - ilość i średnica mikrorurek zgodna z tabelą danych technicznych



Open Branching Closure I-type



Open Branching Closure Y-type



Open Branching Closure T-type



Branching Closures for Connecting I-type Microduct Bundles



Branching Closures for Connecting Y-type Microduct Bundles



Branching Closures for Connecting T-type Microduct Bundles

TOOLS AND ACCESSORIES



Cutter for microtubes



Longitude cutting knife



Rotary knife for longitude and crosswise cutting



Armored cable stripper



Lubricant for microcables

CUTTER FOR MICROTUBES

- range of supported microtubes: 0-25mm

LONGITUDE CUTTING KNIFE

- cut across the microtubes, cables and secondary tubes

CROSS-SECTION CUTTING KNIFE

- for longitude cutting of pipes or cable coatings

ROTARY KNIFE FOR LONGITUDE AND CROSSWISE CUTTING

- for the precision longitudinal cutting pipes, cables and secondary pipes

ARMORED CABLE STRIPPER

- for stripping the armor layer on fiber feeder, central tube and stranded loose tube fiber optic cables

ADJUSTABLE CABLE JACKET AND INSULATION STRIPPER

- for stripping cable coverings ranging from soft insulated jackets to high-density polyethylene HDPE conduits, aluminum and copper (smooth or corrugated construction) coverings

ROUND CABLE STRIPPER

- for precise jacket removal of fiber optic multi-fiber cables (4,5-29 mm)

FIBER OPTIC TUBE CUTTER

- range of supported microtubes: 6-42 mm

CUTTER FOR FIBRE OPTIC CABLE COATING

- for cutting fiber optic cable coating (10-25 mm)

LUBRICANT FOR MICROCABLES PRELUBE 5000/2000

- reduces friction during the blowing and increases the range

ORDERING:

PRODUCT CODE	DESCRIPTION
MIK-N-NDM-0-25	cutter for microtubes
MIK-N-NCW	longitude cutting knife
MIK-N-NCP	cross-section cutting knife
MIK-N-NOWO	rotary knife for longitude and crosswise cutting
MIK-N-SPZ	armored cable stripper
MIK-N-SPZ-R	adjustable cable jacket and insulation stripper
MIK-N-SP-4,5-29	round cable stripper
MIK-N-OR-6-42	fibre optic cutter (6-42 mm)
MIK-N-PPK-10-25	cutter for fibre optic cable coating (10-25 mm)
MIK-PP-PRELUBE 5000/0,24 MIK-PP-PRELUBE 2000/0,95	lubricant for microcables Prelube 5000/2000