United Poly Systems

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M I C R O D U C T

Total Air Blown Solution

Advantages of Microduct Technology over Traditional Cabling Outlays

- Microduct products are easily and quickly installed in direct buried applications using minimally invasive micro-trenching equipment.
- Microduct pathways offer superior mechanical and environmental protection for lightweight microfiber optical cables, which can be easily, installed using various air blowing techniques, or traditional cable pulling and/or pushing methods.
- Microduct pathway systems offer telecom carriers increased flexibility due to the ease at which service laterals and drops can be reconfigured and installed as customer demand increases.
- Small diameter microduct products are offered in a wide variety of configurations. This gives carriers the option to install microduct pathways into existing occupied conduits.
- Microducts help to future proof carrier networks as additional fiber cables can be placed at a later time as the demand for additional capacity increases. Furthermore, whether for additional capacity or for general replacement, fiber optic cables are easily removed and replaced with high density, higher fiber count cables.
- Plenum and riser rated microduct products provide safe, flexible, lightweight, durable and easy to-install pathways to deploy bare fiber and microfiber cables inside a multi-dwelling unit (MDU) and commercial building.

Who are our customers?

Microduct Fiber Pathway provides a versatile and scalable network of HDPE microducts. This pathway is ideal for telecommunication providers, FTTH solutions, hospitals, utility and energy providers, transportation, entertainment, government facilities, corporate complexes, university campuses, military site applications and anywhere high speed communications are needed.

Utility Companies
System monitoring and controlling, and networked data communication.

Broadband Network
FTTH (Fiber To The Home) and FTTX (Fiber To The X = multiple destinations) providers using optical fiber to provide high speed service to end subscribers.

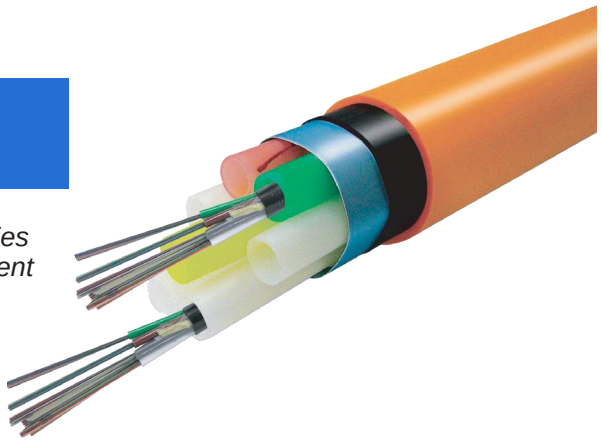
Hospital
Secure the entire hospital network to stay current with advances in data-intensive medical technology and limits staff and patient disruptions.

Campus
Adapts communication technologies to the tools of education in campus environments plus allows for interaction between outside organizations nationally and abroad for greater cooperation.

Developers
Helps with fiber installations to the home so that developers can provide high speed internet service to their customers while allowing for upgrades.

Government
Fiber moves, adds and changes are made quickly and enable segmented and secure networks in the same mircoduct configuration.

Air Blown Total Solution

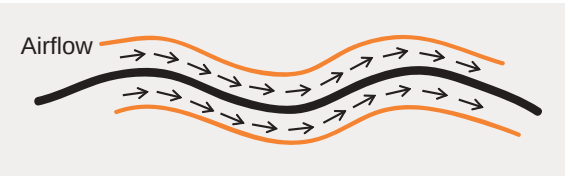


Microduct fiber pathways provide a permanent installation that satisfies your immediate fiber communication requirements and leaves sufficient pathway for future expansions. Any moves, adds or changes in the fiber network are quickly accommodated utilizing the fiber pathway and accessories.

Rapid, safe and smooth installation with air blowing methods

ABC installations are done by an air blowing technique that reduces the risk of damage to the fiber cable, accelerates installation time and increases the installation distance.

Pulling



Blowing

Air Blown Fiber

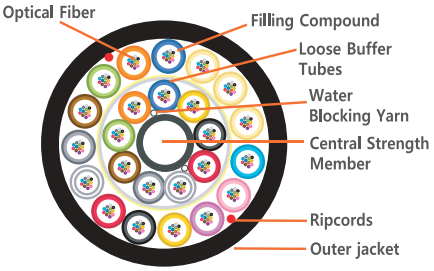
Single-mode, Multimode 50/125, Multimode 62.5/125
Hybrid(SMF+MMF) and special fibers, including fibers with high bending performance
Other configurations are also avaialble

Air Blown Cable

Up to 72 fibers

96 fibers

144 fibers



288 fibers

Microduct Selection Guidelines

Select the proper size microduct by using the Microduct Selection Guidelines table.

Fiber Counts Installed	1-12C	24-72C	96-144C	216-288C
OD of Cable	1.0-2.0mm	3.2-5.8mm	6.8 - 8.0mm	8.4-9.2mm
Microduct Tube Size (ID)	3.5mm	8mm	10mm	12mm

Conventional Cable & Air Blown cable Comparison

Cable's OD varies depending on cable brand.

	Weight (kg/km)		Max. Outer Diameter (mm)	
Fiber Counts	Conventional Cable	Air Blown Cable	Conventional Cable	Air Blown Cable
24,38,72	110	30	11	5.8
96	208	40	14	6.8
144	257	50	16	7.8
216	342	65	18	8.4
288	342	90	18	9.2

Various Applications

If you have an under utilized conduit?

Direct install DI microduct can increase the fiber pathways available for your communication network in your existing conduit. Direct install microduct provides the needed pathway for current fiber cable requirements while allowing for the ease of future fiber moves, adds or changes.

Planning or designing new fiber networks?

Direct bury DB microduct is available in 5/3.5, 8/6,10/8 &12/10 mm sizes for rapid installation that satisfies both conduit and pathway in one simple installation. This cost effective solution provides for today's needs and allows for future rapid expansion.

Do you want to limit traffic disruptions?

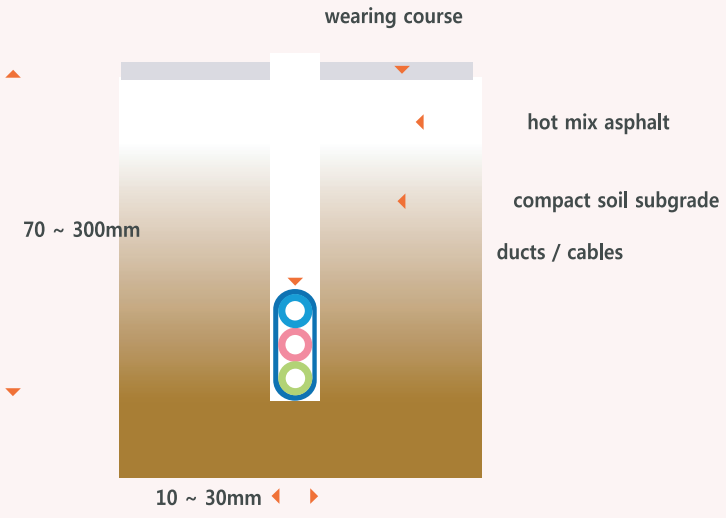
A pronounced benefit of micro trenching is that the process results in minimal traffic disruption, time and material savings and provides higher bandwidth to their customers.

Numerous styles & sizes available:

Direct Bury, Direct Install, Thick Walled Flat Duct, LSZH, Riser, Plenum and Aerial in mm sizes 5/3.5, 8/6, 10/8 & 12/10 & Thick Walled 7/3.5,10/6,12/8 & 14/10, larger size & custom configurations on request

Micro Trenching

- 70-300 mm depth/10-30 mm width
- By dedicated equipment
- Wet cut with Diamond tipped wheel
- Backfill with grout or hot/cold asphalt
- Fast and inexpensive as well



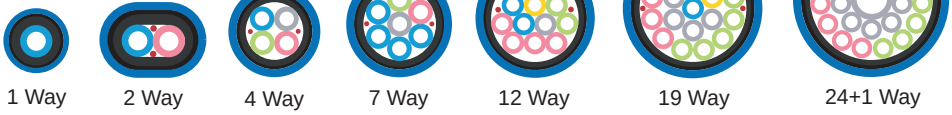
* Drawing source: ITU-T Recommendation L.48

DB(Direct Bury)

The outer sheath is rugged High Density Poly Ethylene HDPE providing excellent protection from the physical environment. An Aluminum or non-metalic layer is added to provide additional strength whichresults in crush and impact resistance

Primary Duct Dimensions OD/ID (mm)	Outside Dimensions H x W (mm)						
	1 Way	2 Way	4 Way	7 Way	12 Way	19 Way	24+1 Way
5/3.5mm	12.4	12.4X17.4	19.5	22.4	28.3	32.3	37.9
8/6mm	15.4	15.4X23.4	28.1	32.8	41.2	48.8	56.01
10/8mm	17.4	17.4X27.4	32.9	38.8			
12/10mm	19.4	19.4X31.4	37.8	44.8			

- Silicone coated ducts
- Available Water Blocking tape (Aluminum or Fabric) installed
- Two Layer of Sheath
- Available Tracer Wire, Ripcords installed



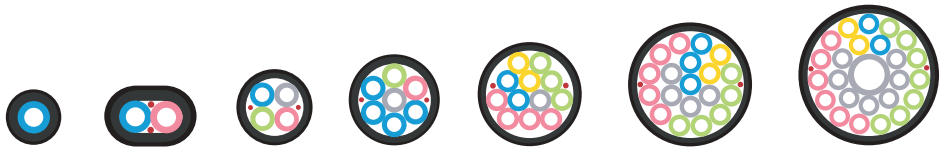
1 Way 2 Way 4 Way 7 Way 12 Way 19 Way 24+1 Way

DI(Direct Install)

The microducts are surrounded by a layer of moisture-barrier metallic or non-metallic tape and a flexible sheath of black HDPE. DI ducts can be installed in pre-existing pipes or sub-ducts.

Primary Duct Dimensions OD/ID (mm)	Outside Dimensions H x W (mm)						
	1 Way	2 Way	4 Way	7 Way	12 Way	19 Way	24+1 Way
5/3.5mm	8.4	8.4 X13.4	15.5	18.4	23.7	27.7	33.3
8/6mm	11.4	11.4X19.4	23.1	27.8	36.2	43.8	51.01
10/8mm	13.4	13.4X23.4	27.9	33.8			
12/10mm	15.4	15.4X27.4	32.8	39.8			

- Silicone coated ducts
- Available Water Blocking tape (Aluminum or Fabric) installed
- Available Tracer Wire, Ripcords installed



1 Way 2 Way 4 Way 7 Way 12 Way 19 Way 24+1 Way

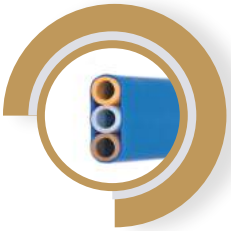
TW(Thick Wall)

Thick Walled Microduct is designed for direct burial. Its superior blowing characteristics and sufficient thickness of the sub duct Walls often results in no additional protective ducts required.
Thick walled microducts can be branched off easily and the primary tube can be directly buried as a single microduct. All TW duct are silicone coated. Available Tracer Wire, Ripcords installed

Primary Duct Dimensions OD/ID (mm)	Outside Dimensions H x W (mm)								
	1 Way	3 Way	4 Way	5 Way	6 Way	7 Way	12 Way	19 Way	24+1Way
7/3.5mm	9	15.1X16	16.9X16	15.1X16	19.5X21.1	21.1X23	27.2X30	33.2X37	43.6
10/6mm	12	20.7X22	22X22	27.4X28.2	27X29.3	29.3X32	42X37.98	52X46.64	
12/8mm	14	24.4X26	26X26	24.4X38.0	32X34.8	34.8X38			
14/10mm	16	28.1X30	30X30	28.1X44	37X40.2	40.2X44.0			

1 Way 3 Way 4 Way 5 Way 6 Way 7 Way 12 Way 24+1 Way

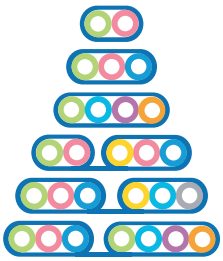
Flat Duct & Link Duct



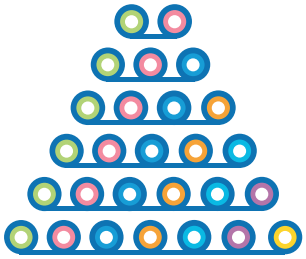
Flat duct and Link duct with thick wall is perfectly suitable for micro trenching with proper narrow width and shallow depth. All Flat duct are silicone coated. Large duct size is availalbe with folded type or linked type

*** Configurations for flat & linked type can be customized.**

OD/ID	2 Way		3 Way		4 Way		5 Way		6 Way		7 Way	
7/3.5mm	F		F		F		F		F		F	
10/6mm	F		F		F		F		F		F	
12/8mm	F	L	F	L	F	L	F	L	F	L	F	L
14/10mm	F	L	F	L	F	L	F	L	F	L	F	L
16/12mm	F	L	F	L	F	L	F	L	F	L	F	L
18/14mm	F	L	F	L	F	L	F	L	F	L	F	L
20/16mm	L		L		L		L		L		L	

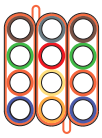


Flat



Link

4 way customized configuration

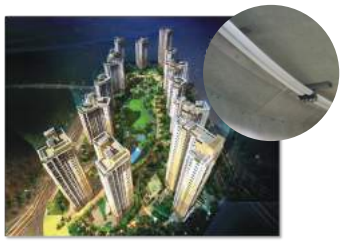


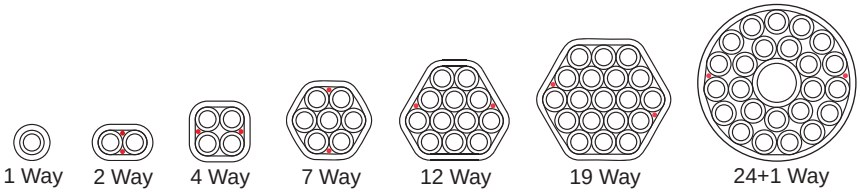
12 way customized configuration

Indoor Application

LSZH, UL 2024 Riser, Plenum Listing for indoor microduct installations that are placed in the building raceway.

Primary Duct Dimensions OD/ID (mm)	Outside Dimensions H x W (mm)						
	1 Way	2 Way	4 Way	7 Way	12 Way	19 Way	24+1 Way
5/3.5mm	7.4	7.4X12.4	12.4 X14.5	16.1X17.4	20.4X22.4	26.1X26.7	32.0X32.0
8/6mm	10.4	10.4X18.4	18.4X21.4	24.3X26.4	34.4X31.18	42.4X38.11	49.61X48.63
10/8mm	12.4	12.4X22.4	22.4X22.4	29.7X32.4			
12/10mm	15.4	15.4X27.4	32.8	39.8			





1 Way 2 Way 4 Way 7 Way 12 Way 19 Way 24+1 Way

Aerial

Aerial Microduct has been developed to facilitate the use of optical fiber subscriber drop cable. All Aerial duct are silicone coated.

High UV resistance for outdoor use

- Metal strength member and metal-free versions available

Custom microduct configurations and colors available upon request.

ACCESSORIES

A complete array of accessories are available to fulfill your fiber pathway needs including Couplers, End Caps, Reducers, Tube Branching Units,Tube Distribution Enclosures, Street Cabinets, Wall and Rack Mount Enclosures, Swift Fusion Splicers, Tools and Fiber Installation Machines

Couplers

Straight, gas blocking, reducers, DBL connectors & end caps



Tube Distribution Closure

Waterproof enclosures designed for blown fiber microcduct connections
Branch enclosures provide fast branching for microduct & air brown cable including in-line, T, Y&H enclosures.


T Branch Unit


Tube Distribution Closure


Y Branch Unit

Tools

Duct, round & tube cutters & slitters


Tube Cutter

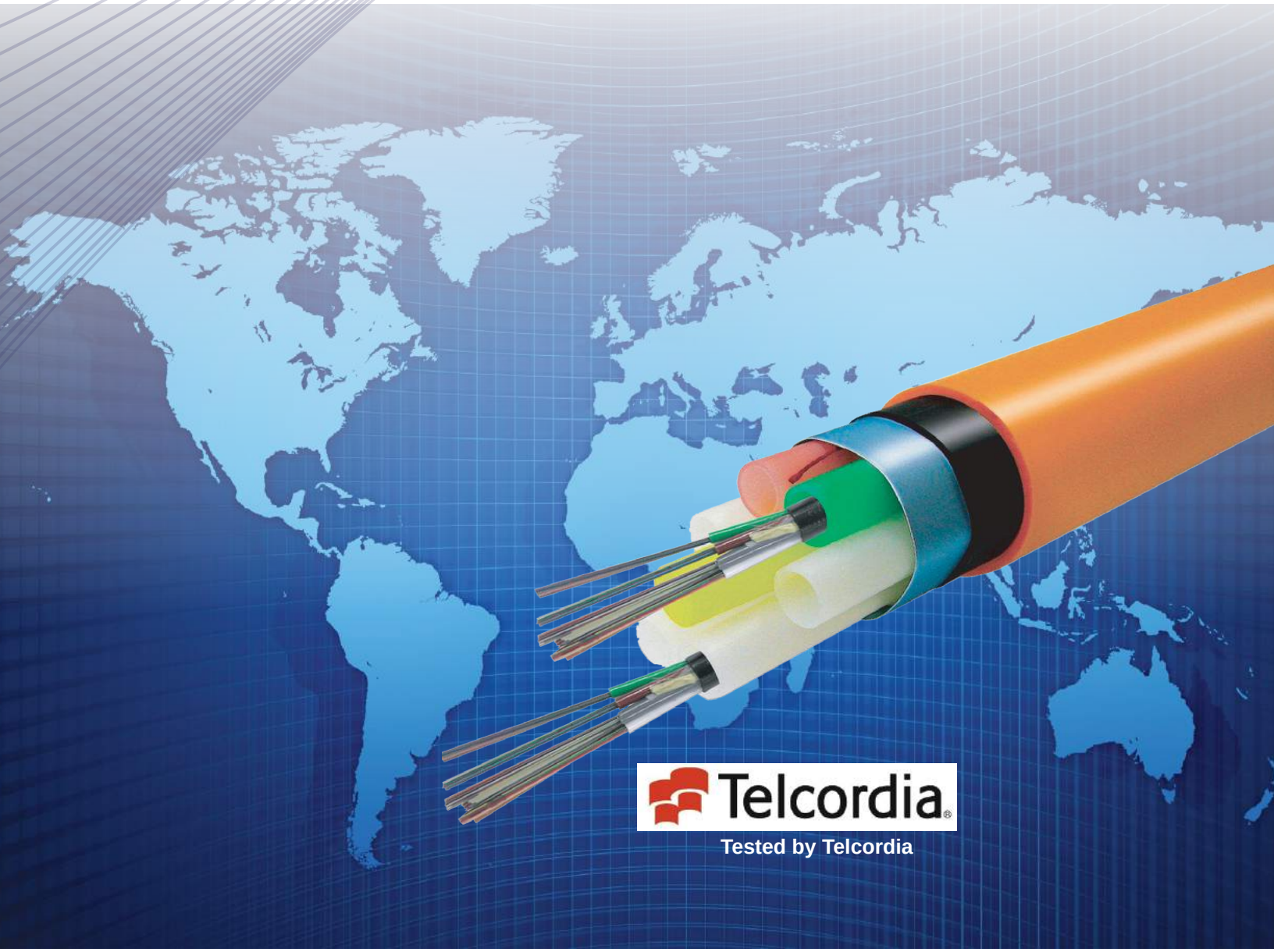

Duct Cutter

Fiber Installation Machines

Air blown fiber installation machines are available to meet specific customer requirement






Telcordia
Tested by Telcordia