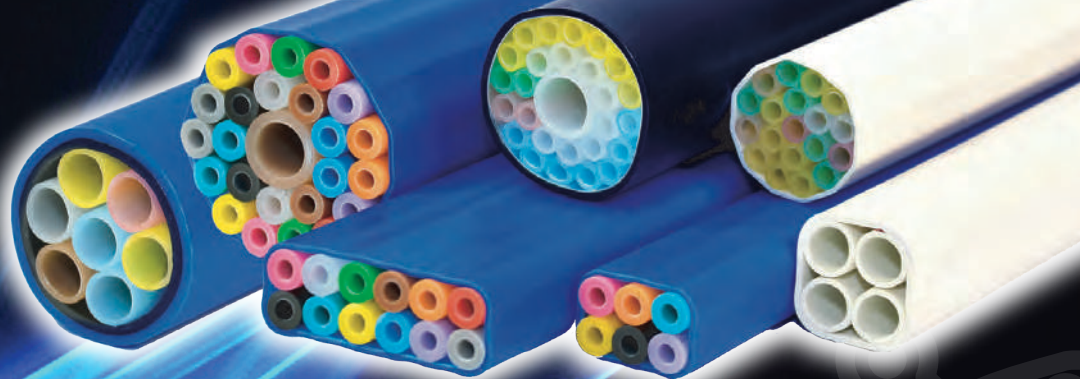


K-NET Microduct Fiber Pathway

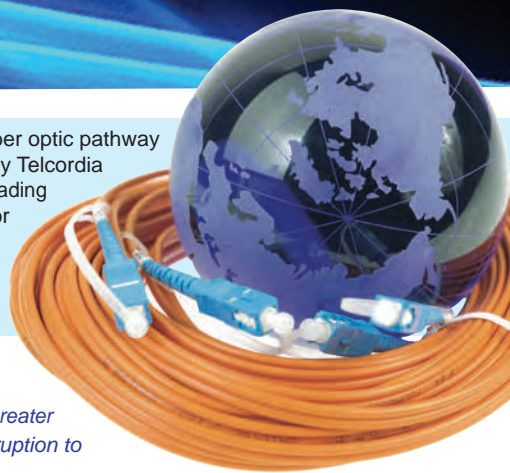
Air Blown Total Solution





K-NET Co, Ltd. headquartered in Seoul, S.Korea is a world leader in producing fiber optic pathway microduct products. K-NET Microduct Fiber Pathway has been rigorously tested by Telcordia Technologies and found to be compliant with Telcordia GR 3155 CORE. K-NET is a leading provider of HDPE microduct primary tubing in numerous sizes and configurations for the telecommunications industry. K-NET is a TL 9000 and ISO 9001 certified manufacturer shipping to customers worldwide. K-NET offers a complete fiber pathway total solution that includes all of the accessories needed for successful fiber cable installations.

K-NET offers a broad range of microduct products to meet the many different deployment scenarios facing global telecom carriers. The products are designed to enable carriers to bring fiber optic service to business and residential customers with greater speed and efficiency while dramatically reducing carrier deployment costs and disruption to existing roadways and landscaping



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.
- K-NET's 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.
- K-NET 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?

K-NET 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.

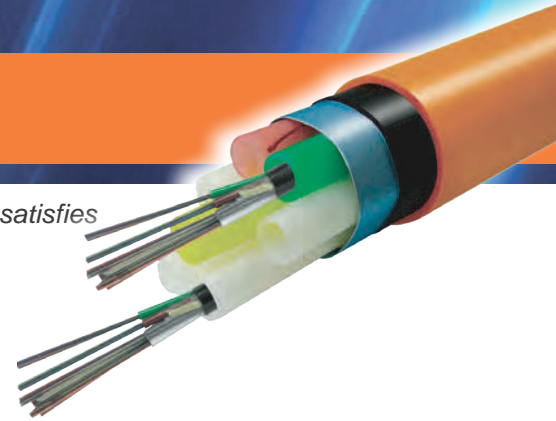
Government

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



Air Blown Total Solution

K-NET's microduct fiber pathway provides 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 K-NET fiber pathway and accessories.

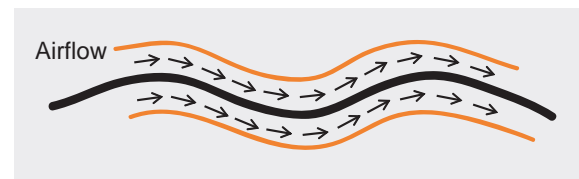


ABC and 100% Installation with air blowing method

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 available

Air Blown Cable



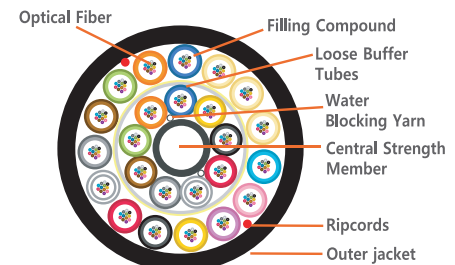
Up to 72 fibers



96 fibers



144 fibers



288 fibers

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

Microduct Selection Guidelines

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

Cable's OD varies depending on cable brand.

Conventional Cable & Air Blown cable Comparison

Fiber Counts	Weight (kg/km)		Max. Outer Diameter (mm)	
	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?

K-NET 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?

K-NET's 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 major telecom company in the USA points out the benefits of micro trenching as minimal traffic disruption, time and material savings and provides higher bandwidth to their customers.



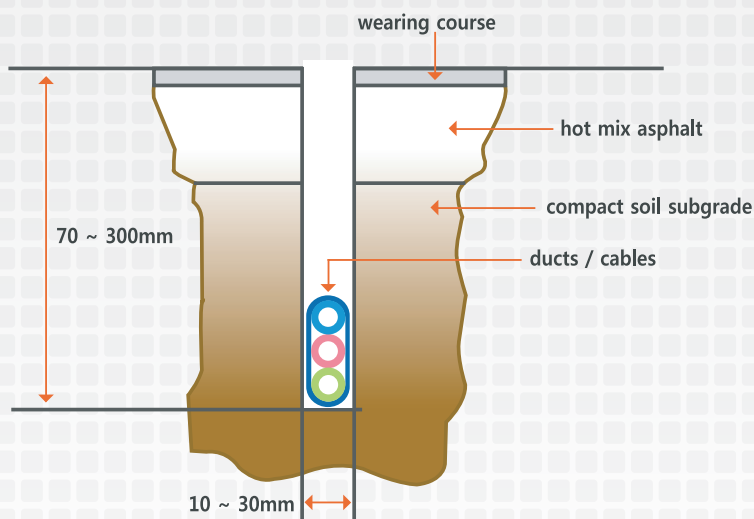
Numerous styles & sizes available:

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



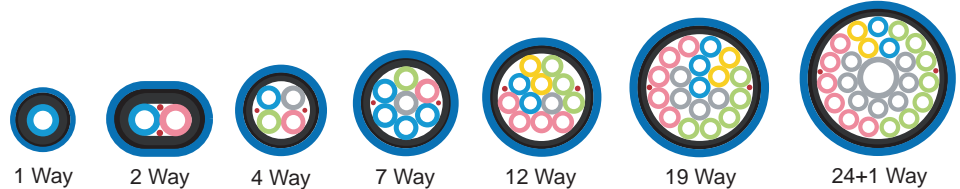
DB(Direct Bury)



The outer sheath is rugged High Density Poly Ethylene HDPE providing excellent protection from the physical environment. An Aluminum layer is added to provide additional strength which results 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



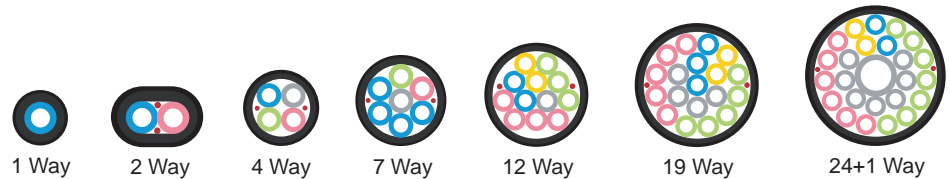
DI(Direct Install)



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



TW(Thick Wall)

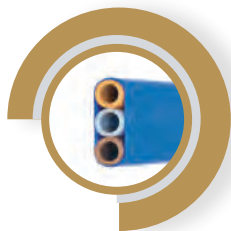


Thick Walled Microduct is designed for direct burial. Its superior blowing characteristics and sufficient thickness of the sub duct Walls often results in no additional protective ducts required. Thick walled microducts can be branched off easily and the primary tube can be directly buried as a single 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			



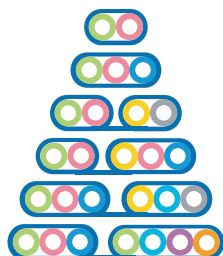
FLAT DUCT



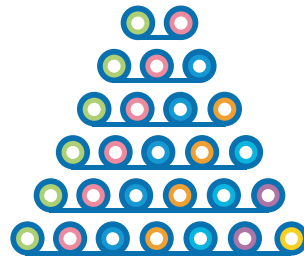
Flat duct with thick wall is perfectly suitable for micro trenching with proper narrow width and shallow depth. All Flat duct are silicone coated. Large duct size is available with folded type or linked type

***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



Linked



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



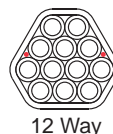
2 Way



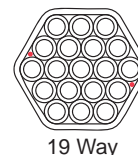
4 Way



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

- Figure - 8 design keeps the strength member and tube bundle separate
- Metal strength member and metal-free versions available

K-NET can provide custom microduct configurations and color upon request.



ACCESSORIES

K-NET provides a complete array of accessories 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 microduct 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

K-NET offers duct, round & tube cutters & slitters



Tube Cutter



Duct Cutter

Fiber Installation Machines

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





Worldwide Delivery

K-NET is one of the largest international manufacturers of HDPE microduct. K-NET routinely delivers throughout the globe and has gained a reputation for providing quality high performance products since 2002.

Innovative Product Line

K-NET's manufacturing plants located in South Korea produce a large selection of styles and sizes and are capable of meeting deadlines with reliable delivery.

Internationally Certified

K-NET has met and maintains the rigorous standards required to become a Certified ISO 9001 and TL 9000 manufacturer.



Tested by Telcordia

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