

KNET Blulight MICRODUCT Total Solutions

www.e-knet.com

Blulight™
Knet Microduct Solutions

knet
Provides Solutions for Next

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KNET Introduction

Since its establishment in 2002, KNET has been contributing to the development of Telecommunication technologies by Supplying excellent products and providing Microduct total solutions to customers all over the world.

Our best expertise and professional R&D teams have always focused on high quality and longevity of every single product we supply with respect to our nature.

KNET has played a vital role in the development of broadband network. We have been cooperating with various telecom operators and telecom infrastructure providers, and participating in numerous projects in Europe, America, Africa, Asia and Oceania.

As a total solution provider, KNET implements the project from network design to Installation phase, providing all the necessary technical training, service and maintenance with its own resources.

Almost 20 years later, our devotion to find the very best solutions we can provide to the customer is shown through our participation in projects worldwide.

KNET is never afraid to challenge conventional method, so our expert of teams will be very happy to meet the demands of global customers and help for most efficient and low-cost infrastructure system.



What We supply

- Blulight Microduct solutions
- indoor Solutions
- OSP Solutions
- Aerial Solutions
- Passive Solutions
- Special/ Customized developed products

What We Provide

- Microduct Network Design & Engineering
- Microduct Network Deployment & installation
- Network Maintenance & Training





Technology Service

Microduct Network Design & Engineering

The optical network construction based on microduct system is a proved, flexible and cost effective solution, but some of the design concept is relatively new compared to the conventional cabling. With our accumulated knowledge from manufacturing, design and installation for more than 15 years, KNET provides consulting services including network design by experienced engineers.



Network Deployment & Installation

The civil works for deploying microduct and fiber cable generally require elaborated job scheduling and experience in order to guarantee a long-term stable operation and to avoid unexpected cost expenses. For several years, KNET has successfully carried out microduct projects ranging from in-building, FTTH, intra-city to long distance in many countries like Korea, Indonesia and Myanmar etc. With this knowledge of skilled engineers and quality products of BluLight, KNET provides microduct total solution to our customers.



Operation & Maintenance

Fiber cable transmit high speed data through long, branched network, so any service disruption causes serious problem for both service provider and customers. The fiber monitoring system (FMS) that measures fiber integrity by switched OTDR, which enables real time alert and provides fault location when a cable damage happens. KNET supplies the FMS for enhancement of optical network reliability.

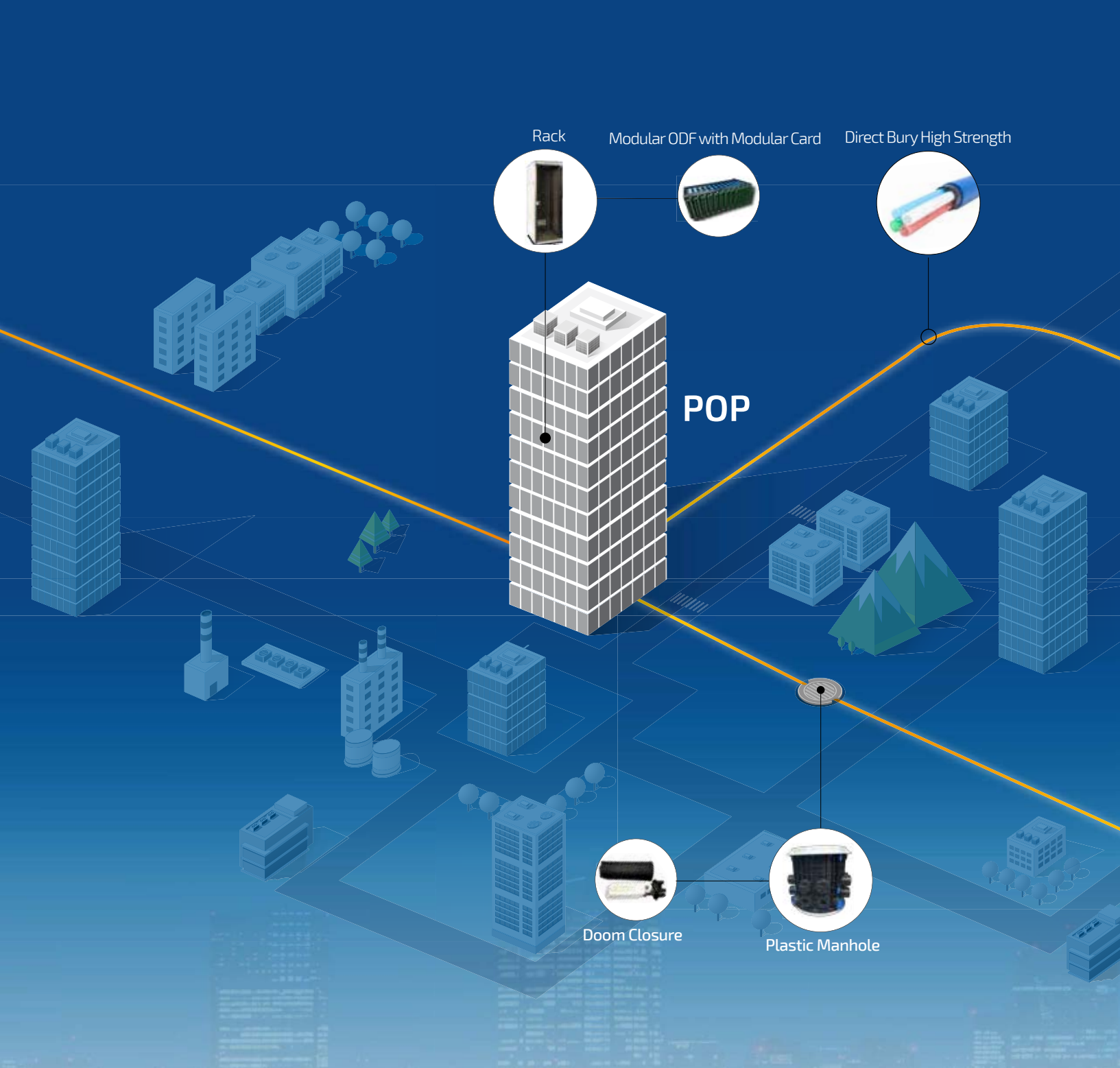


Specialized Training

KNET experts are trained in the air blown system and various trenching techniques. We have, the facility available to other customers and partners who require training on microduct and air blown solution. We have the ability to support network design, deliver knowledge about this advanced technology, providing Fiber Network Management System as well as presenting consulting services. We have, also provide a fully integrated demonstration of microduct total solution where our clients can learn directly.



Solution



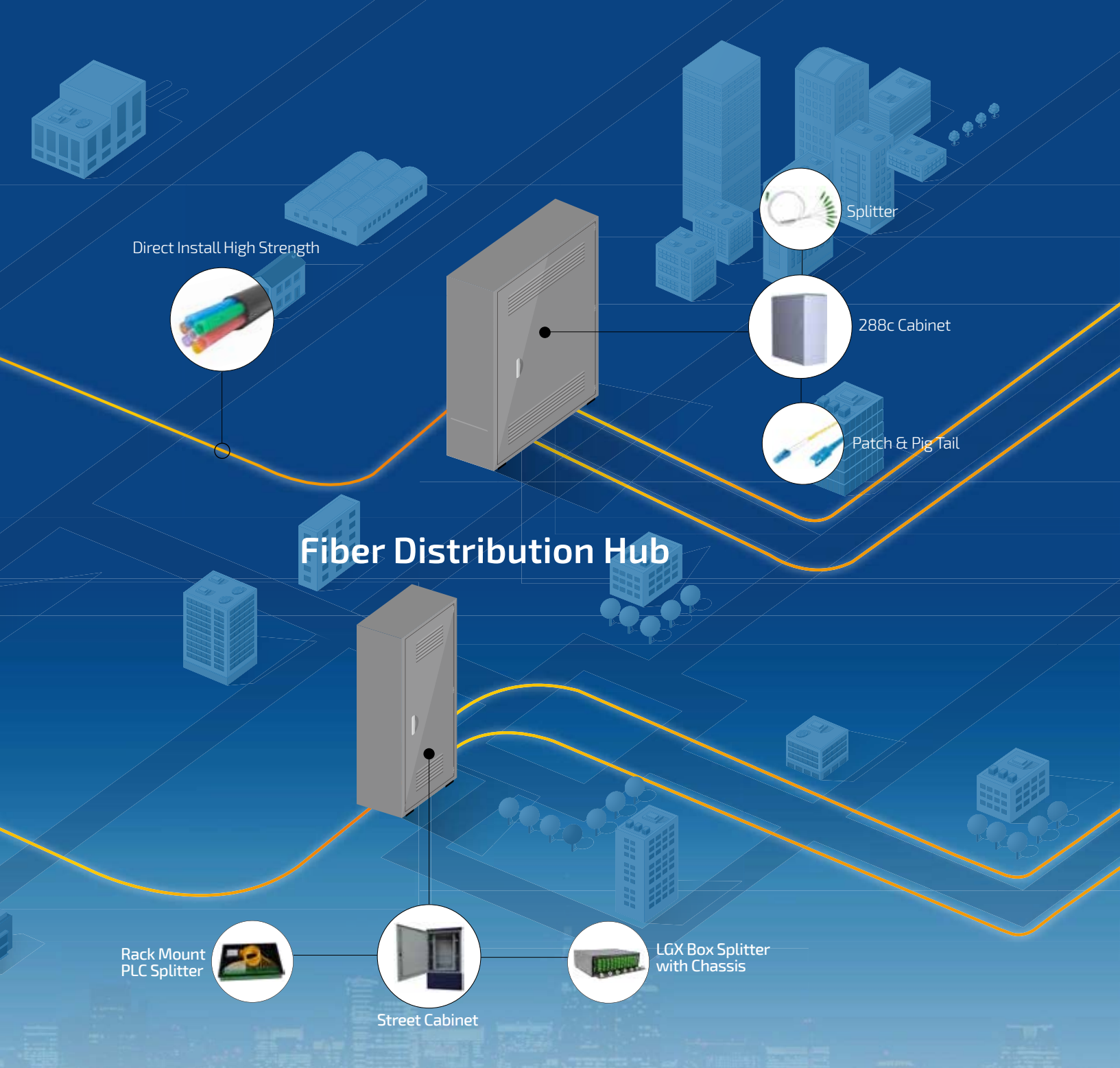
- Direct Bury High Strength Duct is designed to endure harsh environment with high crush resistance.
- Thin inner tubes of DB are more suitable for bending and branching.
- Suitable to be applied through Micro/Mini trenching, Open trenching and HDD method.

Microduct

- Direct Bury High Strength

Product

- Rack
- Modular ODF with Modular Card
- Plastic Manhole
- Doom Closure



Fiber Distribution Hub

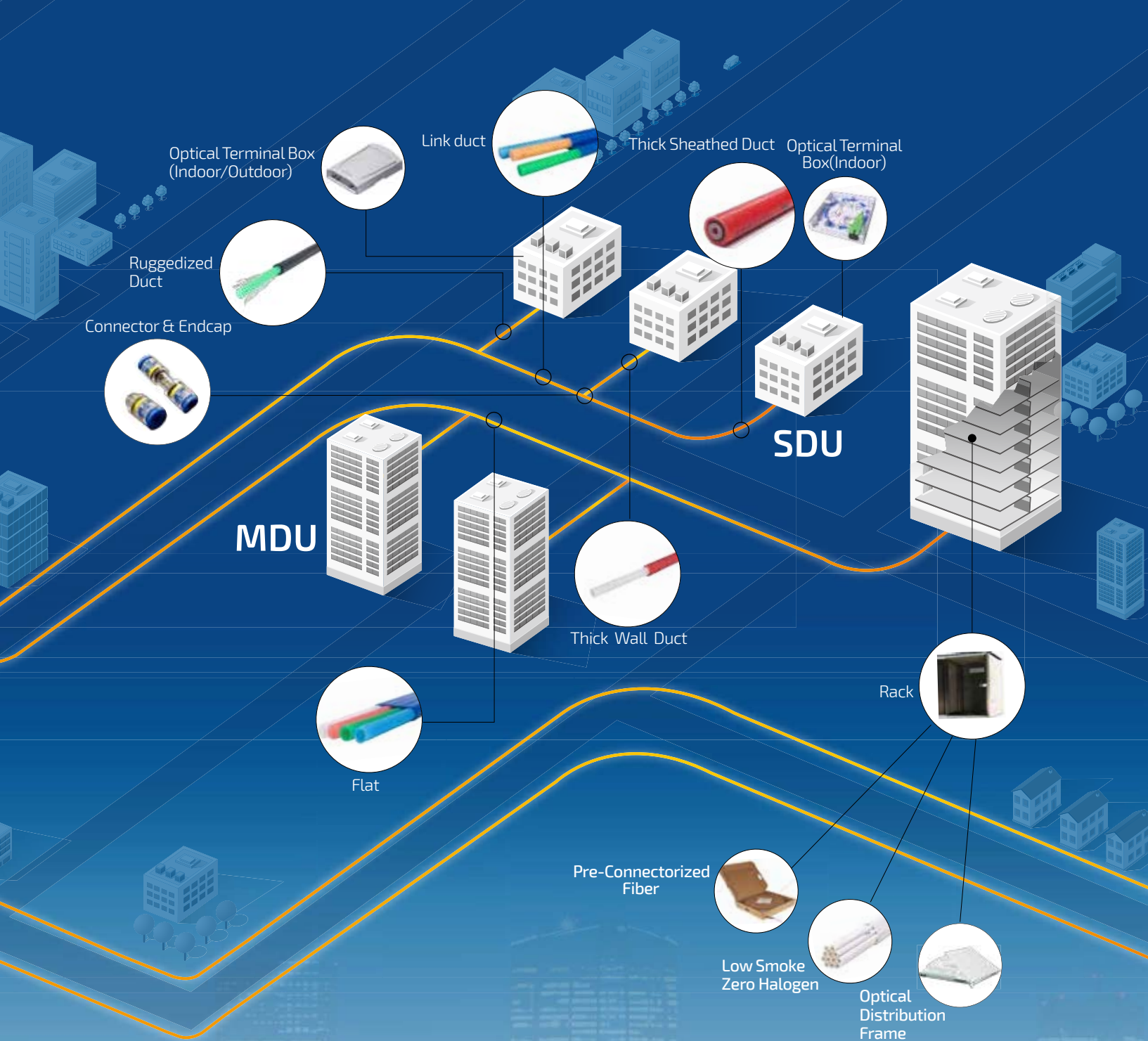
- Direct Install High Strength Duct is designed for installation duct and subduct.
- Suitable for brownfield environment (DI Microduct can be blown or pulled into existing conduit)
- Possible to accommodate more cables in limited space.

Microduct

- Direct Install High Strength

Product

- 288c Cabinet
- Splitter
- Patch & Pig tail
- Street Cabinet
- Rack Mount PLC Splitter
- LGX Box Splitter with Chassis



- Thick Wall Duct is designed for direct burial by having thicker inner tube.
- Flat duct is designed for installation at the site to be excavated narrowly.
- Link duct is designed to be distributed much easier to points.
- Ruggedized Duct is designed as brass coated steel wired duct to enhance crush resistance in drop area it is designed for drop area which requires high crush resistance.
- Thick Sheathed Duct has 2.5mm thickness of jacket with 2 layer to enhance crush resistance in drop area This product is strong enough to endure external pressure and impact.
- Low Smoke Zero Halogen is designed as enough to meet the international regulation and standards on fire.

Microduct

- Link, Ruggedized, Thick Sheathed, Thick Wall Duct

Product

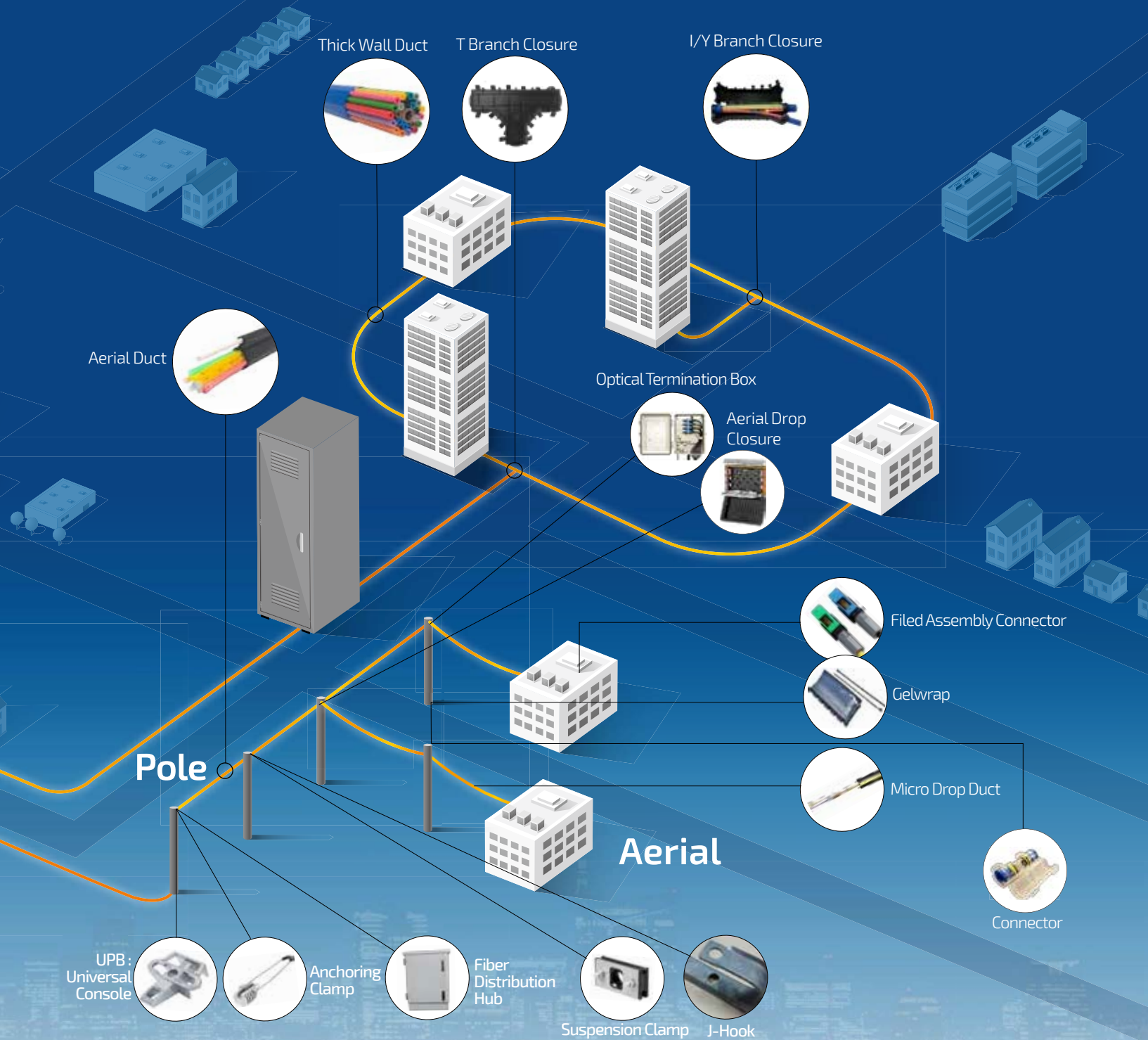
- Connector & Endcap
- Optical Terminal Box (Indoor/Outdoor)

Microduct

- Flat, Low Smoke Zero Halogen

Product

- Rack
- Optical Distribution Frame
- Pre-Connectorized Fiber



- Aerial Duct is designed for installation on existing poles or tower poles.
- High UV resistance with black polyethylene sheath is for outdoor use.
- Galvanized wire stand or FRP is used as a strength member to withstand severe load.
- Installation for longer distance can be possible by using various tools and accessories.

Aerial

Microproduct

- Aerial Duct, Micro Drop Duct

Product

- Fiber Distribution Hub
- Aerial Accessory
- Aerial Drop Closure
- Filed Assembly Connector
- Optical Termination Box

Complex, Capus

Microproduct

- Thick Wall Duct

Product

- Duct Joint Closure

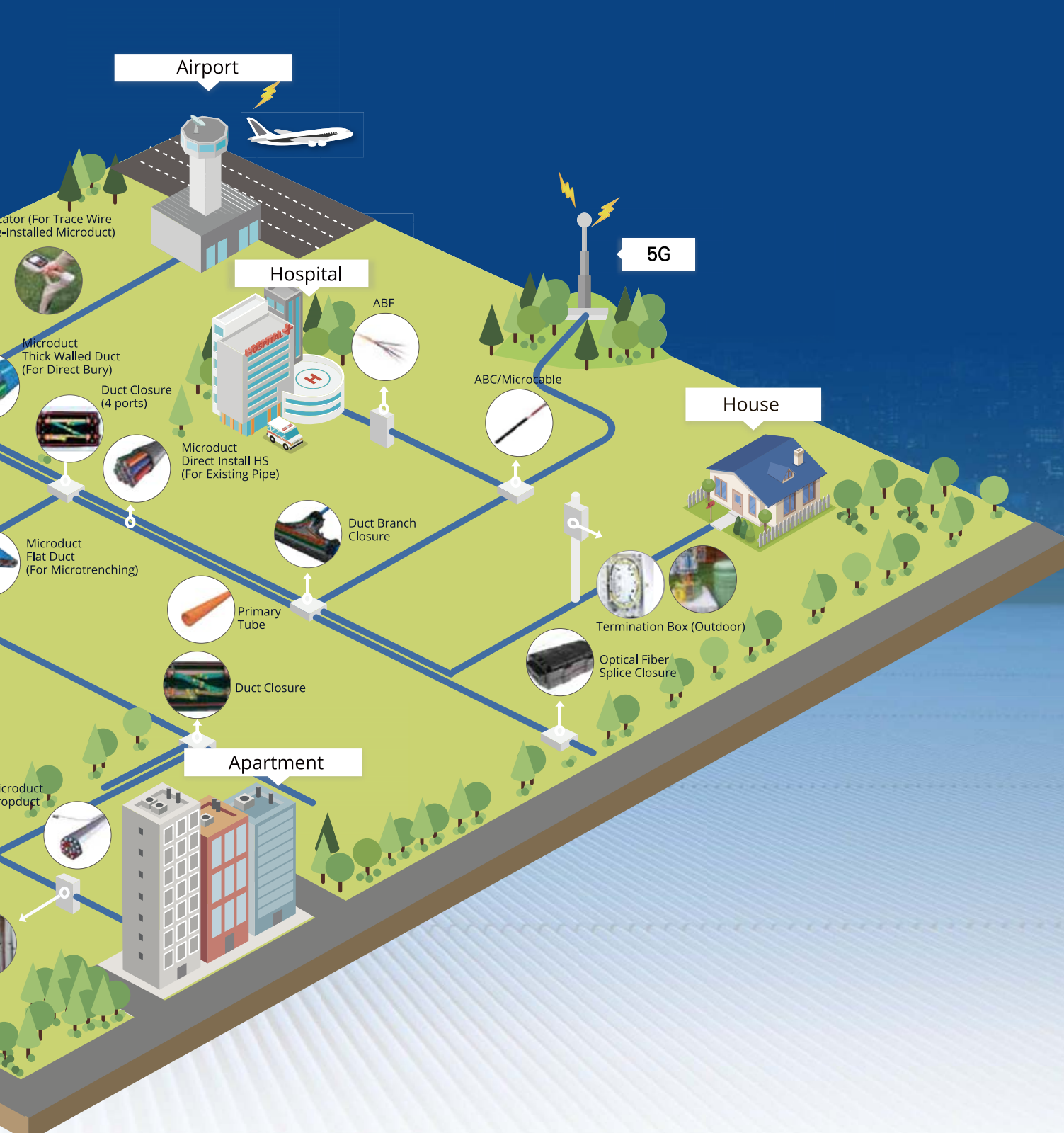
KNET Blulight Microduct

Who are our customers?

KNET Blulight Microduct provides a versatile and scalable network. 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.





Benefit of Microduct

KNET Microduct infrastructure provides high flexibility and accessibility allowing additional access network to be newly developed and restructured .

From Feeder to lastmile all kinds of projects can be implemented more effectively and economically than expectation.

1) Minimizing the Costs

- Initial cost
 - Need less manpower
 - Reduce splicing point
- Future-proof cost
 - reduce cost for additional civil work



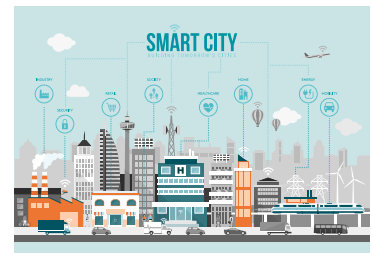
2) Environment

- Applied with micro trenching
 - Reduce the dust and waste occurred in construction
- Chemical safety, eco-friendly PE material
 - Assure more than 50 years without corrosion, chemical change of acid, alkali, salt



3) Trend

- Increasing demand of fiber and need for additional installation
 - ISmart City, FTTx, 5G, iot, fwa, A.I, Cloud, National Security, international network



4) Technology

- Air Blowing Solution
 - Install cable safely and quickly
- Various installation methods
 - Open, Mini, Micro, HDD, Direct Install

Advantages of Microduct Technology over Traditional Cabling Outlays

- Microduct products are easily and quickly installed in direct buried application 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 method.
- 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.
- KNET 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.
- KNET's indoor 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.



Installation Method

Open Cut Trench Excavation

Open cut trench excavation is the most popular method for installing conventional ducts, microducts. many types of equipment can be used depending on the conditions of site, methods of construction. This method is generally the least expensive if the site to be excavated is non-pavement area which can be backfilled with soft soil and original soil which doesn't damage the ducts.



Micro/mini Trenching

Micro/Mini trenching is a relatively new installation method which can reduce the time and lessen impacts on the environment. And if this trenching method is used with Vacuum equipment that sucks the all dust, the impact on environment can be reduced effectively. Conventional trenching method can be time-consuming, labor intensive, and disrupting traffic and passengers due to need spaces for construction and restoration.



Cut by Micro trencher
Indonesia Bandung Municipal project

Horizontal Directional Drilling

Horizontal Directional Drilling is a trenchless method designed to install ducts from one point to another without breaking all route of trench.

A pilot bore is drilled and guided underground along a pre-determined bore path, then the Microduct is dragged through the bore during back reaming. By boring underground, horizontal directionally drills are able to avoid existing utilities, landscaping, driveways, sidewalks, and other obstructions by equipment detecting the exact location of microduct.



Direct Install

Microducts are ideally suited for use in occupied conduit systems where additional Microducts are needed and space is limited.

Empty in Duct



Existing Cable in Duct



Existing Microduct in Duct



Actual Project to Use
DI Product



Microduct Product Line

Direct Buried Application

TWD

Flat duct

Link Duct

DB HS

DBAL

Direct Installed Application

DI HS

DIAL

Indoor Application

LSZH

Hybrid LSZH

Aerial Duct

Special Duct

Numerous styles & sizes available

Direct Bury, Direct Install, Thick walled, Flat Duct, LSZH, and Aerial in mm sizes 5/3.5, 8/6, 10/8 & 12/10 & Thick Wall 7/3.5, 10/6, 12/8, 14/10, 16/12, 18/14, 20/16 & larger size & custom configurations on request

Various Applications

If you have an under utilized conduit?

KNET 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?

KNET's direct bury DB microduct is available in various sizes for rapid installation that satisfies both conduit and pathway in one Simple installation. This cost effective solution provides for today's demand and allows for future rapid expansion.

Do you want to limit traffic disruptions?

A major telecom company worldwide points out the benefits of micro trenching as minimal traffic Disruption, time and material saving and provides higher band width to their customers.

All KNET microduct has the excellent blowing performance with a silicone coating inside.

Optional Features

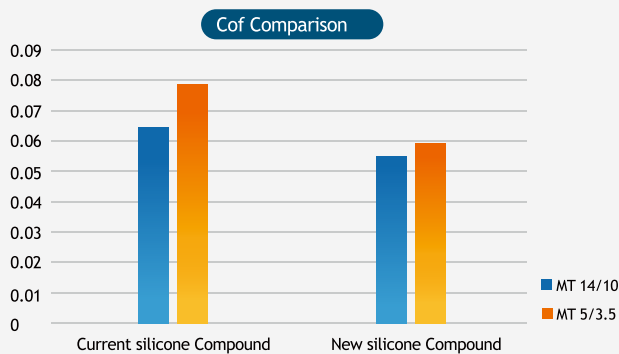
- Ribbed & Smooth Type
- Ripcords
- Trace Wire for the location detection
- Color and marking can be customized.

Enhanced Silicone Liner

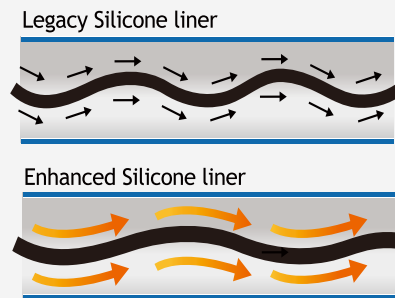
Air Blown Installations are done by an air blowing technique that reduces the risk of damage to the fiber cable, accelerates installation time and increases the installation distance.

Permanent solid lubricant is coated inside the tube of microduct. Knet introduces upgraded silicone liner to increase the speed and reduce the time on installation of the cable.

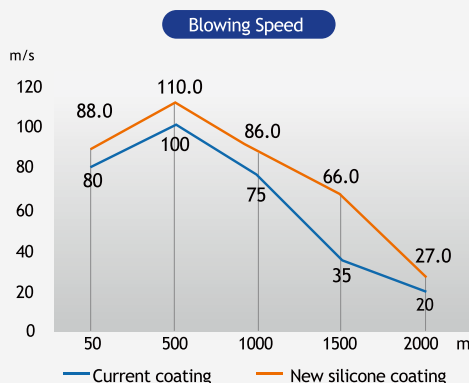
The graph shows the friction has been **decreased** by Avg. **20%**



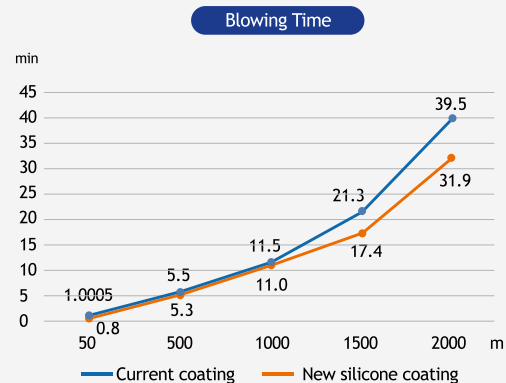
- Comparison of Coefficient of Friction using Microtube 14/10mm, 5/3.5mm
- Test method : GR 356 CORE (Telcordia)



Faster than Ever! Enhanced Silicone liner helps to speed up the blowing performance by reducing friction.



24% Faster!



19% Reduced!

| Blulight™ | Thick Walled Duct

THICK WALLED DUCT is designed for direct burial by having thicker inner tube. It has advantage for easy and fast termination with thin outer sheath. The thickness of each inner tube allows individual tubes to be used direct buried solution. This item is suitable for any construction sites such as open cut, Micro trenching, Mini trenching and HDD. This product is usually recommended to the site which requires fast and easy sheath cutting during fiber branch off from the FCP.

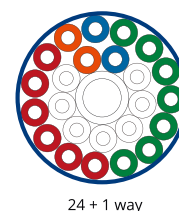
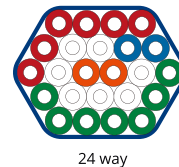
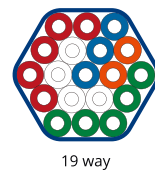
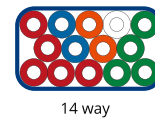
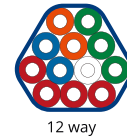


4/2.1mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	5.6	21	1,000	320
7way	13.6x12.5	92	2,000	40
12way	17.6x16.0	144	2,000	32
24way	25.6x19.5	263	1,000	32

7/3.5mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	9.0	52	2,000	104
2way	16.0x9.0	93	2,000	40
3way	16.0x15.1	128	2,000	32
4way	16.0x16.0	162	2,000	32
5way	23.0x15.1	195	2,000	24
6way	21.1x19.5	228	2,000	24
7way	23.0x21.1	258	2,000	21
12way	30.0x27.2	415	2,000	14
14way	37.0x21.1	485	2,000	14
19way	37.0x33.3	627	1,000	19
24way	44.0x33.3	777	1,000	14
24+1way	43.6x43.6	855	1,000	12

10/6mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	12.0	81	1,000	104
2way	22.0x12.0	149	2,000	32
3way	22.0x20.7	206	2,000	22
4way	22.0x22.0	264	2,000	21
5way	32.0x20.7	320	2,000	18
6way	29.4x27.0	374	2,000	14
7way	32.0x29.3	426	2,000	12

12/8mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	14.0	99	2,000	40
2way	26.0x14.0	182	2,000	24
3way	26.0x24.4	254	2,000	19
4way	26.0x26.0	325	2,000	18
5way	38.0x24.4	395	2,000	12
6way	34.8x32.0	463	2,000	12
7way	38.0x34.8	527	2,000	11



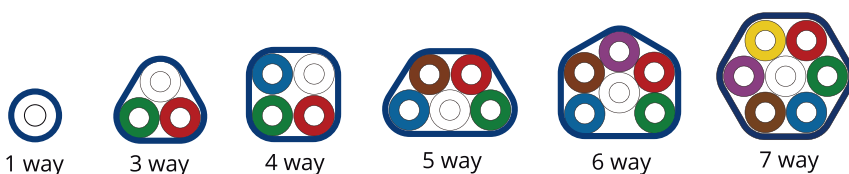


14/10mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	16.0	117		88
2way	30.0x16.0	216	2,000	21
3way	30.0x28.1	301	2,000	13
4way	30.0x30.0	386	2,000	12
5way	44.0x28.1	470	2,000	11
6way	40.2x37.0	551	1,000	13
7way	44.0x40.2	628	1,000	12

16/12mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	18.0	135	2,000	27
2way	34.0x18.0	250	2,000	19
3way	34.0x31.9	349	2,000	12
4way	34.0x34.0	448	2,000	11
7way	50.0x45.7	729	1,000	11

18/14mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	20.0	153	1,000	36
2way	38.0x20.0	283	1,750	18
3way	38.0x35.6	395	1,000	14
4way	38.0	508	1,000	12
6way	51.2x47.0	728	1,000	10
7way	56.0x51.2	828	1,000	10

20/16mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	22.0	170	1,000	33
2way	42.0x22.0	316	1,000	21
3way	42.0x39.3	443	1,000	12
4way	42.0	569	1,000	12
7way	62.0x56.6	929	500	11



Blulight™ | Flat Duct

FOR MICRO-TRENCHING with narrow width, Direct Bury Flat Duct is the most compatible item. The product itself can be placed vertically to fit on micro-trenching dimension.

The size of the product is relatively tiny which allows better shipping and handling with the smaller reel size. As Direct Bury Flat Duct has the same thickness of the Multi duct, customers can enjoy the same benefits of Multi duct.

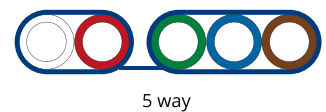
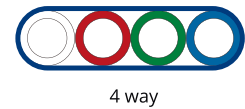
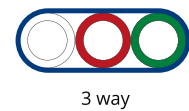
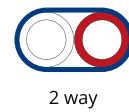


7/3.5mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
2way	16.0x9.0	93	2,000	40
3way	23.0x9.0	135	2,000	33
4way	29.6x8.6	162	2,000	32
5way	41.2x8.6	210	2,000	24
6way	48.2x8.6	248	2,000	22
7way	55.2x8.6	286	2,000	21

10/6mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
2way	22.0x12.0	149	2,000	32
3way	32.0x12.0	216	2,000	24
4way	41.6x11.6	264	2,000	21
5way	56.2x11.6	340	2,000	18
6way	66.2x11.6	403	2,000	13
7way	76.2x11.6	466	2,000	12

12/8mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
2way	26.0x14.0	182	2,000	24
3way	38.0x14.0	265	2,000	19
4way	49.6x13.6	326	2,000	18
5way	66.2x13.6	420	2,000	12
6way	78.2x13.6	498	1,000	18
7way	90.2x13.6	576	1,000	14

14/10mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
2way	30.0x16.0	216	2,000	21
3way	44.0x16.0	315	2,000	18
4way	57.6x15.6	388	2,000	12
5way	76.2x15.6	499	1,000	18
6way	90.2x15.6	592	1,000	13
7way	104.2x15.6	685	1,000	12



16/12mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
2way	34.0x18.0	250	2,000	19
3way	50.0x18.0	364	2,000	12
4way	65.6x17.6	449	2,000	11
5way	86.2x17.6	578	1,000	12
6way	102.2x17.6	686	1,000	12
7way	118.2x17.6	794	1,000	11

18/14mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
2way	38.0x20.0	283	1,750	18
3way	56.0x20.0	414	1,000	18
4way	73.6x19.6	511	1,000	13
5way	96.2x19.6	657	1,000	12
6way	114.2x19.6	780	1,000	10
7way	132.2x19.6	903	1,000	10

20/16mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
2way	42.0x22.0	316	1,000	21
3way	62.0x22.0	462	1,000	18
4way	81.6x21.6	571	1,000	12
5way	106.2x21.6	736	1,000	11
6way	126.2x21.6	873	800	11
7way	146.2x21.6	1,011	800	10



Blulight™ | Link Duct

LINK DUCT is a lucrative solution for distribution point. Easy tear down characteristic of tube makes branch off work in distribution point can be done without cutting the primary tube and connector. Thus, installer can save time and additional material cost as they can connect each connection point without mid-span or branch connection. Like Direct Bury-Flat Duct, Direct Bury Link Duct is perfect for micro trenching application, it can be placed vertically with narrow width of the trenching 10-30mm. Moreover, with the wall thickness same as the Multi duct, the customer can enjoy all the same benefit of Multi duct.



7/3.5mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
2way	20.2x8.6	95	2,000	37
3way	31.8x8.6	144	2,000	32
4way	43.4x8.6	193	2,000	24
5way	55x8.6	242	2,000	21
6way	66.6x8.6	291	2,000	19
7way	78.2x8.6	340	2,000	14
8way	89.8x8.6	389	2,000	13
9way	101.4x8.6	438	2,000	12



10/6mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
2way	26.2x11.6	151	2,000	25
3way	40.8x11.6	229	2,000	21
4way	55.4x11.6	306	2,000	18
5way	70x11.6	383	1,000	21
6way	84.6x11.6	461	1,000	19
7way	99.2x11.6	538	1,000	18



12/8mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
2way	30.2x13.6	185	2,000	24
3way	46.8x13.6	280	2,000	18
4way	63.4x13.6	375	2,000	13
5way	80.0x13.6	470	2,000	11
6way	96.6x13.6	564	1,000	14
7way	113.2x13.6	659	1,000	12



14/10mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
2way	34.2x15.6	220	2,000	21
3way	52.8x15.6	332	2,000	13
4way	71.4x15.6	444	2,000	11
5way	90.0x15.6	556	1,000	13
6way	108.6x15.6	668	1,000	12
7way	127.2x15.6	780	1,000	11





16/12mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
2way	38.2x17.6	254	2,000	18
3way	58.8x17.6	383	2,000	12
4way	79.4x17.6	513	1,000	14
5way	100.0x17.6	642	1,000	12
6way	120.0x17.6	772	1,000	11
7way	141.2x17.6	901	800	10

18/14mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
2way	42.2x19.6	288	1,750	14
3way	64.8x19.6	435	1,750	11
4way	87.4x19.6	582	1,000	12
5way	110.0x19.6	729	1,000	11
6way	132.6x19.6	876	1,000	10
7way	155.2x19.6	1,023	800	10

20/16mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
2way	46.2x21.6	322	1,000	21
3way	70.8x21.6	486	1,000	13
4way	95.4x21.6	651	1,000	11
5way	120.0x21.6	815	1,000	10
6way	144.6x21.6	980	800	10
7way	169.2x21.6	1,144	500	11



Blulight™ | DB-HS Duct

DIRECT BURY HIGH STRENGTH DUCT is designed to endure harsh environment with high crush resistance. Even though it is solid product, it is very easy to bend or fix the tube inside of cabinet by having thin inner tube. The extra layer (total 2 layers of the outer sheath) is added to protect the thin wall of inner tube from external ground pressure. Moreover, it is very strong against lightning and electrical surge.



5/3.5mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	12.0	98	2,000	44
2way	17.0x12.0	140	2,000	36
4way	19.1	200	2,000	29
7way	22.0	259	2,000	22
12way	27.9	385	2,000	18
19way	31.9	496	2,000	12
24+1way	37.5	639	1,000	14

8/6mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	15.0	140	2,000	36
2way	23.0x15.0	214	2,000	24
4way	26.3	320	2,000	19
7way	31.0	431	2,000	13
12way	40.4	680	1,000	12

10/8mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	17.0	166	2,000	32
2way	27.0x17.0	259	2,000	21
4way	31.5	410	2,000	12
7way	38.2	599	2,000	10

12/10mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	19.0	193	2,000	29
2way	31.0x19.0	305	2,000	19
4way	36.4	486	2,000	11
7way	44.2	712	1,000	12



1 way



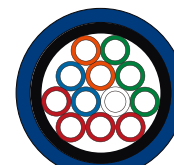
2 way



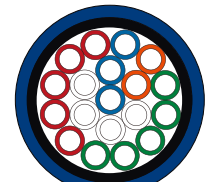
4 way



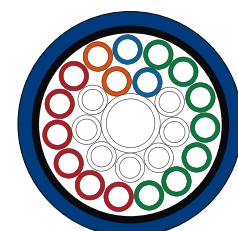
7 way



12 way



19 way



24+1 way

| Blulight™ | DB-AL Duct

AS A DIRECT BURY PRODUCT, Direct Bury Aluminum has the Aluminum tape which helps to block the water from the extreme wet soil condition. The outer sheath is made of rugged PE, providing excellent protection from the physical environment. Thanks to its characteristics, potential damages by crushing, external impact, etc. can be prevented.



Microproduct Product Line

5/3.5mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	12.4	112	2,000	40
2way	17.4x12.4	159	2,000	33
4way	19.5	227	2,000	29
7way	22.4	290	2,000	22
12way	28.3	425	2,000	18
19way	32.3	543	2,000	12
24+1way	37.9	691	1,000	14

8/6mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	15.4	159	2,000	36
2way	23.4x15.4	241	2,000	24
4way	26.7	358	2,000	19
7way	31.4	477	2,000	12
12way	40.8	741	1,000	12

10/8mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	17.4	189	2,000	32
2way	27.4x17.4	291	2,000	21
4way	32.9	506	2,000	12
7way	38.8	669	2,000	10

12/10mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	19.4	218	2,000	29
2way	31.4x19.4	342	2,000	19
4way	37.8	598	2,000	11
7way	44.8	795	1,000	12



1 way



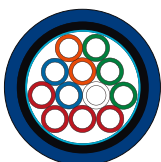
2 way



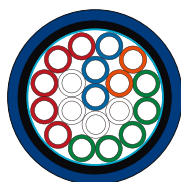
4 way



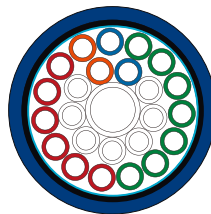
7 way



12 way



19 way



24+1 way



Blulight™ | DI-HS Duct

DIRECT INSTALL HIGH STRENGTH DUCT is designed for installation duct and subduct. This product will be installed in the existing infrastructure with relatively high crush resistance. Even though it is solid product, it is very easy to bend or fix the tube inside of cabinet by having thin inner tube. It is also strong against lightning and electrical surge.



5/3.5mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	8.0	38	2,000	104
2way	13.0x8.0	62	2,000	88
4way	15.1	98	2,000	36
7way	18.0	139	2,000	32
12way	23.3	209	2,000	21
19way	27.3	293	2,000	18
24+1way	32.9	398	2,000	12

8/6mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	11.0	62	2,000	88
2way	19.0x11.0	106	2,000	33
4way	22.3	175	2,000	22
7way	27.0	257	2,000	18
12way	35.8	418	2,000	11

10/8mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	13.0	77	2,000	40
2way	23.0x13.0	132	2,000	30
4way	28.1	259	2,000	18
7way	34.2	383	2,000	12

12/10mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	15.0	91	2,000	36
2way	27.0x15.0	158	2,000	22
4way	33.0	310	2,000	12
7way	40.2	460	1,000	12



1 way



2 way



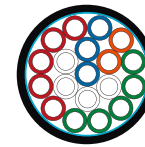
4 way



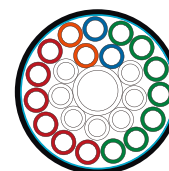
7 way



12 way



19 way



24+1 way

| Blulight™ | DI-AL Duct

DIRECT INSTALL ALUMINUM DUCT is for installation in existing duct and subduct. This product will be inserted into the existing infrastructure to maximize DI-AL advantage with the Aluminum tape which helps to block the water from the extreme wet soil condition.



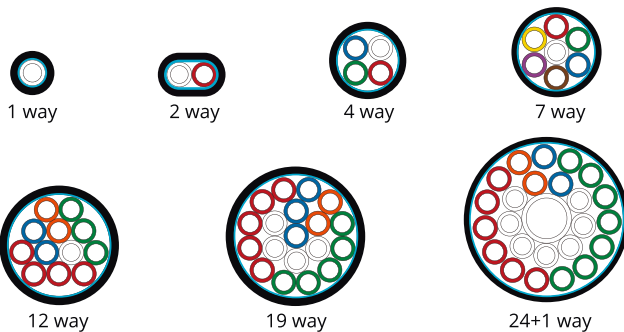
Microproduct Product Line

5/3.5mm	Nom. OD (mm)	Weight (kg/km)	Length/drrm (m)	Number of drums in 40'
1way	8.4	50	2,000	104
2way	13.4x8.4	78	2,000	44
4way	15.5	123	2,000	36
7way	18.4	168	2,000	32
12way	23.7	246	2,000	21
19way	27.7	337	2,000	18
24+1way	33.3	447	2,000	12

8/6mm	Nom. OD (mm)	Weight (kg/km)	Length/drrm (m)	Number of drums in 40'
1way	11.4	79	2,000	44
2way	19.4x11.4	130	2,000	33
4way	22.7	210	2,000	22
7way	27.4	301	2,000	18
12way	36.2	477	2,000	11

10/8mm	Nom. OD (mm)	Weight (kg/km)	Length/drrm (m)	Number of drums in 40'
1way	13.4	97	2,000	40
2way	23.4x13.4	161	2,000	29
4way	27.9	279	2,000	18
7way	33.8	398	2,000	12

12/10mm	Nom. OD (mm)	Weight (kg/km)	Length/drrm (m)	Number of drums in 40'
1way	15.4	115	2,000	36
2way	27.4x15.4	192	2,000	22
4way	32.8	335	2,000	12
7way	39.8	479	1,000	12



Blulight™ | Indoor Application LSZH

INDOOR APPLICATION requires the best quality of ducting pipe that can provide safety to the building. This method is the most appropriate for in-building infrastructure. Generally, the ducting pipe must comply with municipality and national authority standards and regulations on fire. The ducting pipe must be produced for retardant.



Benefits

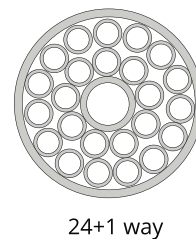
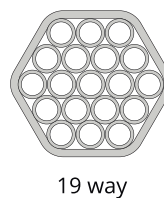
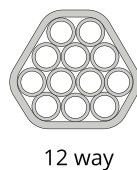
- Flame retardant
- Does not produce much smoke
- Has flexible sheaths
- Inner surface enables cable blowing
- Temperature resistance in very hot and cold area

LSZH

5/3.5mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	7.0	42	2,000	180
2way	12.4x7.4	80	1,000	130
4way	12.4x12.4	125	2,000	40
7way	17.4x16.1	184	2,000	32
12way	22.4x20.4	278	2,000	22
19way	27.4x24.7	400	2,000	18
24+1way	32.0x32.0	533	1,000	21

10/8mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	12.4	105	1,000	104
2way	22.4x12.4	183	2,000	32
4way	22.4x22.4	301	2,000	21
7way	32.4x29.7	460	2,000	12

12/10mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	14.4	120	1,000	96
2way	26.4x14.4	211	2,000	24
4way	26.4x26.4	348	2,000	18
7way	38.4x35.2	533	1,000	14



| Blulight™ | Indoor Application Hybrid LSZH

HYBRID LSZH is composed of LSZH outer sheath and PE inner tube. Hybrid LSZH is a cost effective and a fire protective solution. As an elastic product, it is convenient for installation and low smoke zero halogen characteristics that prevent smoking when fire occurred.

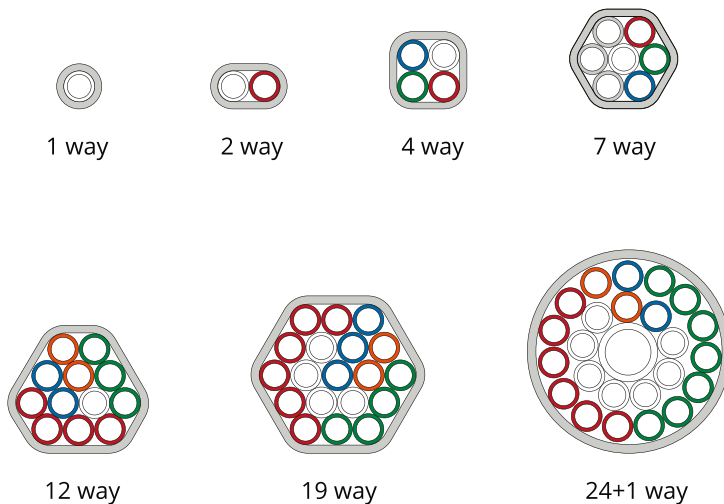


Microproduct Product Line

5/3.5mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	7.4	41	2,000	130
2way	12.8x7.8	77	2,000	44
4way	12.8x12.8	114	2,000	40
7way	17.8x16.5	161	2,000	32
12way	22.8x20.8	236	2,000	22
19way	27.1x27.1	330	2,000	18
24+1way	32.7x32.7	438	1,000	19

10/8mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	12.8	94	1,000	104
2way	22.8x12.8	159	2,000	32
4way	22.8x22.8	249	2,000	21
7way	32.8x30.1	366	2,000	12

12/10mm	Nom. OD (mm)	Weight (kg/km)	Length/drum (m)	Number of drums in 40'
1way	14.8	112	2,000	36
2way	26.8x14.8	190	2,000	24
4way	26.8x26.8	299	2,000	18
7way	38.8x35.6	441	1,000	18



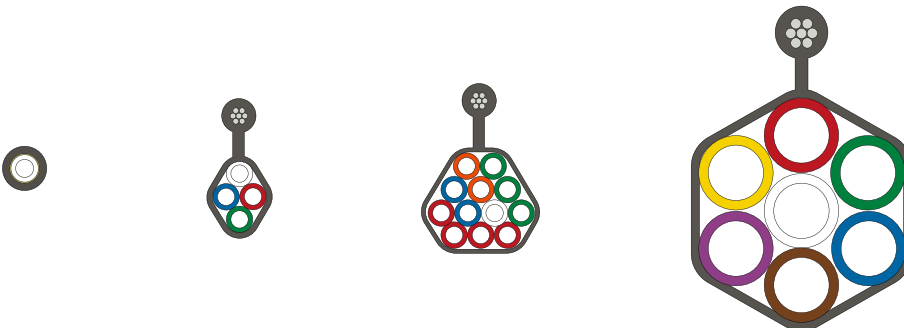
| Blulight™ | Aerial Application

AS AERIAL INSTALLATION PRODUCT, it can deploy cost effective network within a short time. It is very useful product and solution in case of installing existing telecommunication pole or power pole, if there is urgent construction due date and project owner cannot get road construction permit under special condition.



└ Aerial Figure-8 Duct

THE FIGURE-8 SELF-SUPPORTING AERIAL MICRODUCT is used for conditions where microduct cannot be installed to underground such as rocky mountain area, stream crossing or road crossing area and the area where the existing pole exist with cost saving. This microduct has high UV resistance with black polyethylene sheath for outdoor use and their strength member is galvanized wire strand with high tensile strength to withstand severe load.

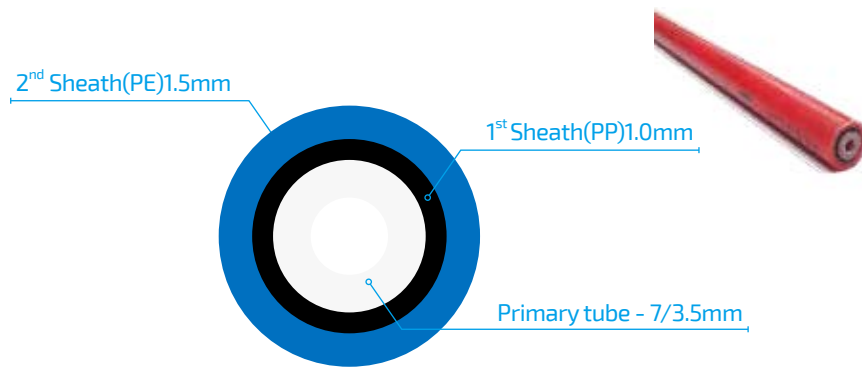


Blulight™ | Special Duct for Drop Area

Thick sheathed duct

THICK SHEATHED DUCT has 2.5mm thickness of jacket with 2 layer to enhance crush resistance in drop area.

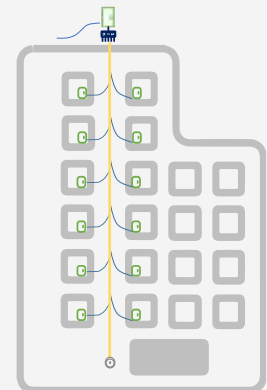
This product is very strong against external pressure and impact. Thanks to easy handling and installation, even unskilled workers can easily follow instructions and carry out Microduct laying and termination. It is designed for drop area which requires high crush resistance.



MDD(Micro Drop Duct)

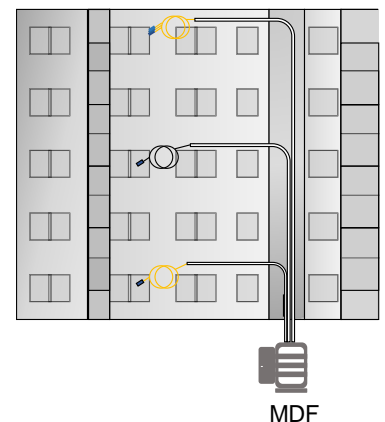
WHEN HIGH RISE BUILDING OR APARTMENT has no inside pathway, self –support with build-in wire can be easy solution for its deployment. Using knet Micro drop duct is to save the time and cost with 15 min installation for 13th stories building.

Korea Telecommunication Service provider piloted the solution prior to adapt their brown field. The flame retardant material used. With multiple microducts, easy to branch to each unit on building



LINK LSZH Duct

LINK LSZH DUCT is for indoor with flame retardant properties (IRC 60332 part 1&3) Each tube can be torn off easily. It does not need mid-span installation like conventional method.



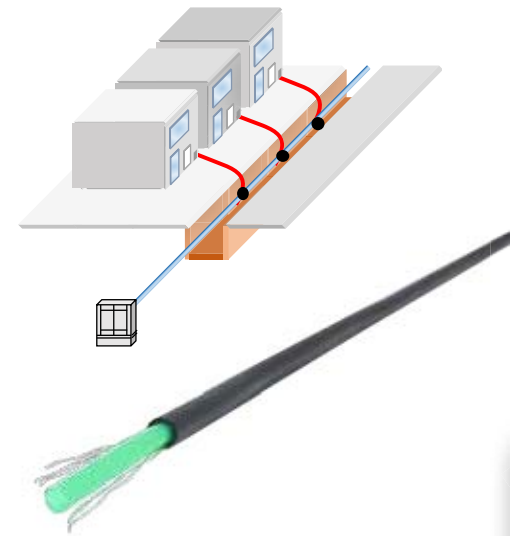
Blulight™ | Special Duct for Drop Area

Ruggedized Duct

Ruggedized Microduct is Brass coated steel wired duct to enhance crush resistance in drop area.

It is designed for drop area which requires high crush resistance. By deploying this product ISP can avoid unexpected cutting accidents in drop section. It can be installed in sidewalk, garden and schoolyard with soft trenching to save cost

- Easily installation with Soft trenching
- High crush resistance with brass coated steel wired
- Concrete wall, Wooden wall and Other fence Installation
- Side walk with GI pipe
- Cost Effective solution to installation time
- From the footpath or sidewalk to each MTU
- In case of wall or fence



Installation location Examples

- **City Street Shop** : From the footpath or sidewalk to each MTU, operator want to deploy more robust MICRODUCT solution
- **Rural Area** : More rigid MICRODUCT solution should be deployed to protect against frequent relocation of gardening fence .

Installation Method



Pre-installed cable Duct

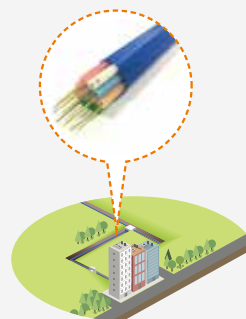
Deploying the duct and then installing cable can be costly and time-consuming. There is a solution to eliminate the installation of cable at job site to reduce the possibility of damage from handling. "Pre Cabled Microduct" is designed to save the cost & time. ABF/ABC is pre-installed during the microduct production.

KNET "Pre Cabled Microduct" Application

this product can be used in direct buried, directional boring, aerial placement , pre-existing pipe and indoor application. Knet provides wide and various microduct configuration depend on the application. Here are the application cases.



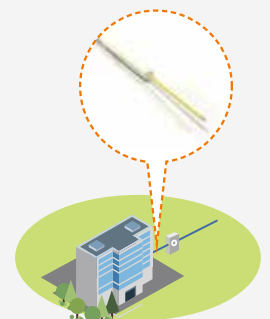
Installation Procedure	Pre-Cabled Microduct	TWD with Blowing
Deployment of Microduct	○	○
Mid-Span(Window cut or Round cutting)	○	○
Connector and End-cap	○	○
Subscriber Connection with Tube	○	○
ABF pushing to Subscriber	○	x
Compressor preparing (Using Truck)	x	○
Compressor move to each connection	x	○
Blowing machine setting	x	○
Air Test/DIT test/Ball test	x	○
Fiber Blowing	x	○



Direct Buried Application
TWD 24way/12way
ABF(EPFU) G652D, G657A1



Drop Application
Aerial Brass wire 7/4mm
ABF(EPFU) G652D, G657A1



Indoor Application
LSZH 5/3.5mm 1way
ABF(EPFU) G652D, G657A1

Microduct Accessories & Tools

Straight Connector

- The Push-fit straight connectors manufactured with high quality materials and transparent body assure easy and quick installation. The connector can be re-used 10 times remaining maintained the high performance requirements for air-blown installation systems.



Size (mm)		Product Codes
OD	ID	
3	2.1	RC3AU
4	2.1	RC4AU
5	3.5	RC5AU
7	3.5	RC7AU
8	6	RC8CU
10	8	RC10BU
12	10	RC12BU
12	8	RC12AU
14	12	RC14CU
14	10	RC14AU
16	12	RC16AU
18	14	RC18AU

Connector Cover

- The connector cover is typically used in place of a duct closure to protect the connector and the end cap for direct burial



Size (mm)	Product Codes
5	RCC5U
7	RCC7U
8	RCC8U
10	RCC10U
12	RCC12U
14	RCC14U
16	RCC16U
18	RCC18U

End Cap

- The end cap for permanent or temporarily sealing of unused microducts to prevent obstacles such as water, mud, dust and so on. The body is transparent for easy fault location and fix the problem easily during installation.



Size (mm)	Product Codes
3	RE3AU
4	RE4AU
5	RE5AU
7	RE7AU
8	RE8AU
10	RE10AU
12	RE12AU
14	RE14AU
16	RE16AU
18	RE18AU

Reducer Connector

- The Reducer allows interconnection between microducts that are difference in outer diameters. Usually, this is used in the point of transition from DB to DI microducts entering the office, house



Size (mm)		Product Codes
7/4	4/2.1	RR74AU
7/3.5	5/3.5	RR75BU
10/6	8/6	RR10GU
12/10	5/3.5	RR12AU
12/10	10/8	RR12HU
14/10	12/8	RR14FU
14/10	12/10	RR14HU
16/12	14/10	RR16DU

Gas Block Connector

- The design of Gasblock is to prevent the gas leaking at the point where the connection between a duct and fiber optic cable inside. Gasblock connector can be installed at home, office, inside building not to allow the inflow of materials which has the harmful gas, water and dust.



Size (mm)		Product Codes
MD	Cable	
5	1-2.5	RGAAU
7	1-2.8	RGBAU
12	3-6	RGFAU
12	6-8	RGFBU
12	8-10	RGFCU
14	3-6	RGHAU
14	6-8	RGHBU
14	8-10	RGHCU
14	10-12	RGHDU
16	3-6	RGJAU
16	6-8	RGJBU
16	8-10	RGJCU
16	10-12	RGJDU

Bulkhead Connector

- The Bulkhead Connector is used for distributing and arranging the inner tubes of bundled microduct on the frame combined by Mounting Rack and Patch Panel, which is mostly installed in MDF room of the building. The structure of bulkhead is to fix the connector the hole of the Patch Panel. It's also suitable to apply in Air Blown System.



| Tube patch panel |

Size (mm)	Product Codes
5/3.5	RBC5U

I/Y, T Branch Closure

- It is designed by modular method to change the length of closure and branch direction. It is possible to assemble or dis-assemble without any special tools. I/Y & T-branch closure is available and maintenance can be done without cutting the ducts, and can be completed only by reopening upper modular part. I/Y & T-branch closure is designed to connect two microducts and to branch-off tubes without any interruption of connectivity.

Product Codes	Product	Size (mm) W x H	Application Duct	Weight (g)
RTYXK	I/Y Type	400 x 113 x 76	Max. Φ 45	584
RTTXK	T Type	310 x 195 x 80	Max. Φ 36	656
RTDXK	D Type	400 x 161 x 114	Max. Φ 50	830



Microduct Cutter



- Microduct Cutter is used for precise cutting of PP and PE pipes with minimum effort. Knife blades deliver clean and straight cuts on pipe diameters up to 63 mm and especially for all the current plastic types used in installation. The aluminum construction guarantees precise operation and long professional service use.

Product Code	Model	Duct Size (mm)	Dimension (mm)	Weight (g)
TDC3R	TC 63	0 – 63	285 x 140 x 25	700

Microduct Sheath Remover (Slitter)



- The Microduct Sheath Remover(Slitter) is used when dismantling the outer sheath of a double-sheathed microduct (direct buried)

Product Code	Dimension (mm)	Stripping Capacity (mm)	Weight (g)
TSLAX	16 x 40 x 150	> 25	165

Microduct Round Cutter



- This Telescopic ratchet pipe cutter is used for precise cutting of PP, PE pipes as well as sound-insulated drain pipes.

Product Code	Model	Duct Size (mm)	Cutting depth (mm)	Weight (g)
TDC3R	TC 67 PL	6 - 67	7	700

Microduct Tube Cutter



- The Microduct Tube Cutter is used in the situation of cutting a tube cleanly 90° in order to make a connection with another tube perfectly.

Product Code	Tube Size (mm)	Dimension (mm)	Weight (g)
TDCBC	3 – 14	79 x 24 x 33	32



Microduct Cutter



Slitter



Microduct Round Cutter



Microduct Tube Cutter

Blowing Machine



The Microjet PRM-196 is designed for the installation of FO fibers and cables into microducts, either by the push-pull method, or by pulling with a traction line.

- Applicable outer diameter of ABF or ABC : 0.8 ~ 8(mm)
- Applicable outer diameter of duct : 3 ~ 14(mm)
- Size (L x W x H) : 285 x 250 x 335mm
- Weight : 6.7kg



The MINIJET is designed for the laying of FO cables into ducts with the jetting or floating methods. These methods are combined with an additional mechanical pushing force, giving the best blowing performance.

- Applicable outer diameter of ABF or ABC : 4 - 16(mm)
- Applicable outer diameter of duct : 7 - 42(mm)
- Size(L x W x H) : 520 x 293 x 373mm
- Weight : 20kg



The ULTIMAZ pusher is designed for the installation of FO fibers and cables into microducts using a pushing, push-pull or jetting method.

- Applicable outer diameter of ABF or ABC : 0.8 - 4(mm)
- Applicable outer diameter of duct : 3 - 12.7(mm)
- Size(L x W x H) : 210 x 100 x 148mm
- Weight : 3.85kg

Compressor



The M17 compressor is specifically for use with the MINIJET, MICROJET cable blowing machines.

- Air production volume : 1000 liters/min(35.3cfm)
- Max. pressure : 15bar
- Power source : Gasoline engine
- Size (L x W x H) : 1390 x 800 x 790mm
- Weight : 192kg



The Premium compact 160/4w is suitable for blowing cable on small building sites with Ultimaz blowing machine.

- Air production volume : 160 liters/min
- Max. pressure : 20bar
- Power source : Gasoline engine
- Size (L x W x H) : 350 x 560 x 560mm
- Weight : 31kg

Fiber Fusion Splicer



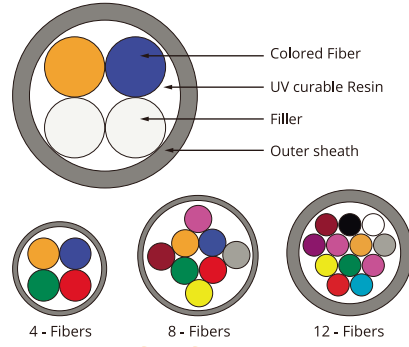
Core-alignment splicer is one of the most needed fusion splicers in the market using Digital Analysis Core Alignment System (DACAS). By double-tapping the screen, users can zoom in and out the fiber image during the connection. This splicer also is compatible with SOC (Splice-On-Connectors) with maximum work efficiency through the fast heating time of 13s. Moreover, the 3 LED lights provide bright splice condition to the users working under dark environment. This splicer is the new industry standard of core-alignment splicer in the telecommunications industry.

Air Blown Cable & Fiber

Blulight™ | Air Blown Cable & Fiber

Air Blown Fiber

It is a type of cable that has 2-12 cores with 1.2mm ~ 1.6mm of outer diameter and also can be installed in microduct by air blowing method. there are two types of outer sheath. one has outer sheath attached with beads (EPFU Type), and the other has smooth sheath (EPSU Type).



Fiber bundle for maximum blowing performance

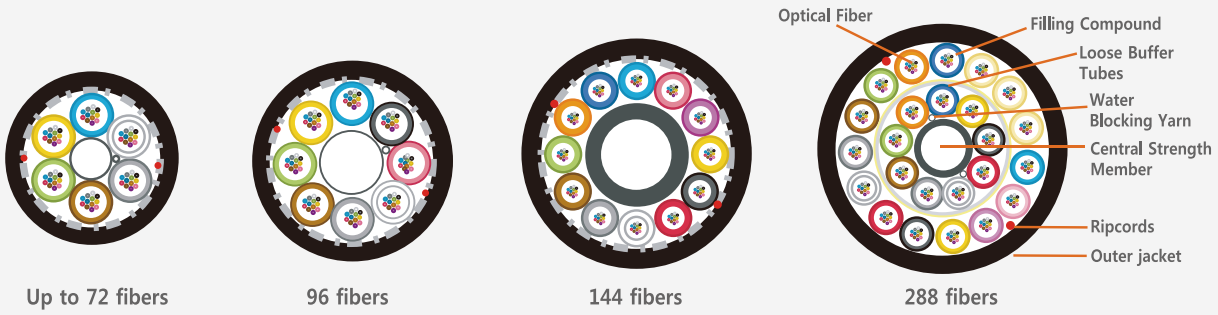
- 1) For distribution or drop network
- 2) Lightweight & flexible without strength member
- 3) G.651, G.652, G.657 or mixed
- 4) 2, 4, 8, 12core with 1~1.6mm diameter

Available for 2 different types of surface

- 1) UV cured resin with glass bead
- 2) PE sheath with surface groove

Air Blown Cable

It is a type of cable that is installed by air blowing method in a microduct. There are various types of Air Blowing Cables that can be applied according to the inner diameter of the micro duct, and 200um of outer sheath is also possible to be applied for materializing the multi cores of cables.



Compact & lightweight structure

- 1) For feeder or distribution network
- 2) G.651, G.652, G.655 or mixed
- 3) GRP central strength member(CSM)
- 4) Up to 288core with 6~11mm diameter

Available for 2 different types of sheath

- 1) PE sheath
- 2) Nylon sheath

Recommended Tube Size

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

Fiber	250μm, G65D/G657A1			200μm, G657A1			
	Fiber Count	Cable Diameter	Tube Size (ID)	Fiber Count	Cable Diameter	Tube Size (ID)	Fiber Count
Fiber Count	Up to 72	96~216	288	Up to 96	144	288	396
Cable Diameter	5.8±0.2mm	6.5~8.0±0.2mm	10.2±0.2mm	5.1~6.0±0.2mm	6.4±0.2mm	7.9±0.2mm	11.0±0.2mm
Tube Size (ID)	8mm	10mm	12mm	8mm	10mm	10mm	14mm

| Blulight™ | Air Blown Cable & Fiber

Structure of Cable



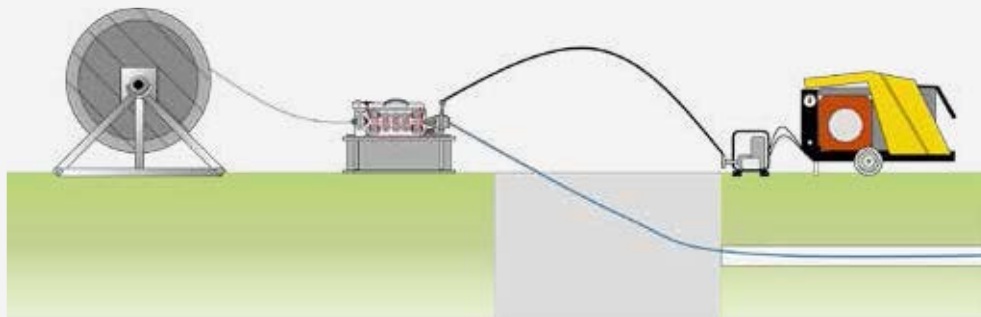
| Standard Cable |



| Air Blowing Cable |

Number of Fibers	Cable	72c	96c	144c	192c	216c	288c
Cable Diameter (mm)	Air Blown Cable	5.2	6	7	8.1	8.1	9.4
	Conventional Cable	11	13	16	18	18	18
Approx. Cable Weight (kg/km)	Air Blown Cable	21	32	41	51	51	77
	Conventional Cable	129	174	257	342	342	342

Cable installation



Difference in installation method

- 1) Install the cable with compressed air from the equipment.
- 2) No cable is installed physically, and no core disconnection occurs.

Lightweight

- 1) It is light and thin and is suitable for pneumatic installation.
- 2) It is easier to handle than conventional cables.

Scalability

- 1) It is possible to install in several ducts because cable outer diameter is small.
- 2) It can be used with existing cables.

Conventional	Division	Air Blown Solution
6~8 Person	Required number of people	2~3 Person
250m	Maximum installation distance	2,000m
1~10m/min	Speed	60~100m/min
Men-Power	Installation method	Air Blowing

Advantages of Micro Cable



Smaller Ducts & Handholes



Smaller Reels (or more cable on a standard reel)



Designed for the blowing

Connectivity Product & Accessories /Tools

MDU/SDU Solution

KNET passive connectivity solution enable to fast fiber connection throughout the Building & House. Reduce the Installation time by guarantee high quality and performance

Solution Feature

- Push cable and related connectivity can be applicable.
- Pre-installed Duct and Pre-Connectorized cable can be combined
- Mid-span solution and Flame retardant material.

Here are the products

High capacity and compact size street cabinet, Optical Distribution Frame, Plastic manhole, Splice Closure (Dome & Rectangular type), PLC Splitter, Optical outlet, Optical patch cord, Field assembled connector.



Various Microduct

MDD(Micro drop duct) Link LSZH, DI HS and Pre-Installed LSZH, Ruggedized duct and dual layer drop duct.



Aerial Solution

KNET aerial connectivity solution is designed for an optimized deployment of FTTH access networks. It can be customized based on customer requirement for complicated last mile.

Solution Feature

- Various options are available upon site condition
- More Robust and durable product
- Various Fitting product can be provided upon customer request

Here are the products

Wall Mount Box, Splice Closure (Dome & Tap type), PLC Splitter, Optical outlet, Optical patch cord, Field assembled connector, Aerial installation accessories (Dead end for ADSS cable, Universal pole bracket, Steel band etc)



Various Microduct

Aerial Duct, Pre cabled Aerial duct, ruggedized duct

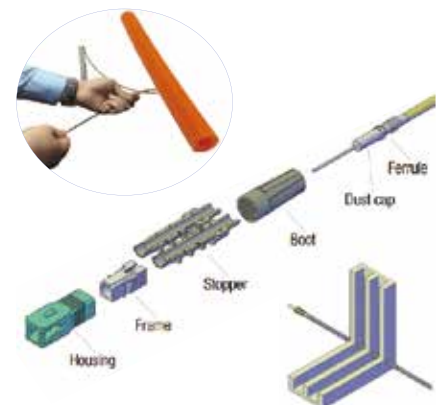


Drop push Solution

KNET specially design Push cable with factory ferruled connector. Besides, All related passive components can be provided to maximize push solution

Solution Feature

- Fast and easy Installation with push cable and its suitable Microduct.
- Pre-Connectorized option can be applicable
- Push performance are guaranteed



Plastic Manhole



- High-strength, light weight modular chamber
- A large amount of fiber traffic is required in the manhole
- Retrofitting on existing lines where a split unit is required
- Easy to install and to handle – Due to lightweight
- Fast installation in a day and cost savings
- Low-skill level required
- Versatile–Can be quickly adapted to PVC and HDPE ducts requirement.

Product Codes	Model	Size (mm) W x H	Weight (kg)	Main Material	Loading (kg)
RMPMC	600HD	Φ770 x 760	115	DMC, PP	4,000
RMPQC	900HD	Φ1070 x 1081	340	DMC, PP	13,500

Dome Splicing Closure



- Dome configuration, IP68
- Holding up to 144 fiber splices
- Allowing both fusion splicing
- Fitted to buried, underground
- Simple re-entry system with O-ring clamp mechanism
- No additional tools required

Product Codes	Size (mm) W x L x H	Max. Capacity	Weight (kg)	No. of Tray	IP
RXADA	169.5 x 169.5 x 315	48	2.5	4	68
RXAFA	185 x 185 x 531	96	4.2	4	68
RXAGA	185 x 185 x 531	144	4.4	6	68
RXAKA	305 x 305 x 680	576	8.7	8	68

Square Splicing Closure



- In-Line, Bolt-In Type, IP 68
- Holding up to 288 fiber splices
- Allowing both fusion and mechanical splicing
- Fitted to buried, underground and aerial applications
- Simple re-entry system with bolt-in mechanism
- Self-stacking hinged tray with modular splice holder

Product Codes	Size (mm) W x L x H	Capacity	Weight (kg)	No. of Tray	IP
RXBAA	200 x 170 x 80	12	0.94	1	68
RXBBA	200 x 170 x 90	24	1.08	2	68
RXBDA	330 x 195 x 125	48	2.2	4	68
RXBEA	510 x 230 x 110	72	3.8	3	68
RXBGA	510 x 230 x 145	144	4.4	6	68

Aerial Drop Closure



- IP 68
- Two types of cable holder according to cable diameter
- Separation of main cable working space and drop cable working space (front/rear)
- The cable inlet consists of main cable 6 port and drop cable 16 ports.
- The operation for mid-span branching is possible

Product Code	Size (mm) W x L x H	Weight (kg)	Drop inlet port	No. of Tray	Capacity	IP
RXDCV	300 x 210 x 140	2.2	16	2	48	68

Fiber Distribution Hub



- Specialized in PON network and Microduct
- Termination panel can be moved freely and is easy for maintenance
- Light body due to its made-up of Aluminum material

Product Codes	Size (mm) W x L x H	No. of Adapter	No. of Splice tray	Capacity
RNCTSW	900 x 300 x 1150	288	28	288



- Installation of termination cable is efficient for labor cost saving
- The doors are at both sides
- Various installation, such as Pole type or Vault Type

Product Codes	Size (mm) W x L x H	No. of Adapter	No. of Splitter	Capacity
RNCTCW	468 x 496 x 500	288	9(1:32)	288

Optical Distribution Cabinet



- Cabinet is made of high-strength stainless steel or SMC
- Expandability for fiber distribution
- Protection class is IP65
- Enclosed cabinet structure prevents optical fiber cable from accidental damage
- Cable entrance at the bottom and be fixed together with grounding system

Product Codes	Size (mm) W x L x H	Cable Output Port	No. of Unit	Connection Capacity
RNAUW	845 x 600 x 1150	16(PG16)	15	144
RNATW	845 x 600 x 1551	16(PG16)	24	288

Modular ODF with Modular Card



- 3-Unit rack mount type
- Up to 144 fiber capacity
- Housing fiber termination
- Accommodating patching of fiber links and splicing
- Convenient connector access
- Modular construction and easy to grow

Product Codes	Size (mm) W x L x H	Fiber Splice Capacity	No. of Modular Card
RMODAR	435 x 225 x 133	72	6
RMODBR	435 x 225 x 133	96	8
RMODCR	435 x 225 x 133	144	12

Optical Fiber Distribution Frame

- Housing fiber termination
- Accommodating patching of fiber links and splicing
- Storing excess fibers
- Convenient connector access
- Modular construction and easy to grow
- 19" standard rack, 21", 23" racks are available upon request



Product Codes	Size(mm) W x L x H	Weight (kg)	Fiber Splice Capacity	No. of Tray
ROS1AA (Swing-Out Base)	300 x 198 x 44.5	3.40	12	1
ROS2AA (Swing-Out Base)	482.6 x 310 x 44.5	4.48	24	2
ROD2AA (Slide-Out Tray)	482.6 x 310 x 44.5	4.62	24	2
ROD4AA (Slide-Out Tray)	482.6 x 310 x 88.5	5.40	48	2

Product Codes	Size (mm) W x L x H	Weight (kg)	Fiber Splice Capacity	No. of Tray
ROO6AA	482.6 x 310 x 178	7.40	96	6
ROO7AA	482.6 x 310 x 178	8.00	144	6
ROO8AA	482.6 x 310 x 311.5	12.00	288	12

LGX Box Splitter with Chassis



- 19" Rack mount type – 4U
- LGX type Splitter installable
- Easy to Install
- Max 12pcs of LGX Box installable
- Up to 1x8 SC/APC
- Compact Design

Product Codes	Rack Mount Model	Size (mm) W x L x H	Weight (kg)	Capacity
RMODDR	4U Rack Chassis	480 x 250 x 176	6.5	12 slot
RLBAR	LGX Box Splitter	130 x 157 x 29	0.8	1:2
RLBBR	LGX Box Splitter	130 x 157 x 29	0.8	1:4
RLBCR	LGX Box Splitter	130 x 157 x 29	0.8	1:8

Rack Mounted PLC Splitter



- Low insertion loss, PDL, Uniformity
- Wide range of operating wavelengths
- Ultra small size suitable to all equipments
- Passed GR-1209&1221-CORE Test
- Pre-terminated input/output fiber cables with SC/APC connector

Product Codes	Size (mm) W x L x H	Weight (kg)	Capacity
RSSDAR	480 x 250 x 44.4	4.5	1:16
RSSEAR	480 x 250 x 44.4	4.9	1:32

1 x N Optical Splitter

- Low Insertion loss
- Low PDL
- Compact Design
- Good channel-to-channel uniformity
- Wide Operating Wave length : From 1260nm to 1650nm
- Wide Operating Temperature : From -40°C to 85°C
- High Reliability and Stability



Product Codes			RSPAAA	RSPBAA	RSPCAA	RSPDAA	RSPEAA	RSPFAA
Unit			1x2	1x4	1x8	1x16	1x32	1x64
Operating Wavelength	nm		1260 ~ 1650					
Insertion Loss(without connector)	Max	dB	4.00	7.40	10.50	13.80	16.80	20.00
Insertion Loss(with connector)	Max	dB	4.20	7.60	10.80	14.00	17.00	20.50
Uniformity	Max	dB	0.5	0.6	0.8	1.2	1.5	2.0
PDL(Polarization Depending Loss)	Max	dB	0.2	0.2	0.3	0.3	0.3	0.4

Optical Termination Box



- Basic Type, Outdoor (Pole, Wall) application, IP 65
- Managing up to 48 connections
- Built-in fiber splice tray
- Mid-span access option
- Fitted to outdoor environment
- Allowing both fusion and mechanical splices
- Weather-tight grommets
- Security lock attached

Product Codes	Size (mm) W x L x H	Weight (kg)	No. of Adapter	IP
RWLANA	270 x 322 x 100	1.6	8	65
RWMANA	270 x 322 x 100	1.7	16	65
RWNANA	270 x 322 x 100	1.8	32	65
RWKASA	198 x 245 x 66	0.8	4	65
RWLASA	198 x 245 x 66	0.8	8	65

Product Code	Size (mm) W x L x H	Weight(kg)	No. of Adapter	Connection Capacity	IP
RWMANR	225 x 300 x 110	1.2	16	24	65

Optical Outlet



- Compact size takes up less wall space for installation
- Accepts standard SC, LC connectors
- Removable sliding cover for easy access to complete box
- Protects fiber connection from accidental contamination or movement allowing long term
- Cost effective passive solution protects each connection without driving project over budget

Product Code	Size (mm) W x L x H	Fiber Splice Capacity	Material	Port Capacity (SC / LC)
RPAA1	86 x 24 x 86	2	ABS	2 / 4
RPAAB	162 x 108 x 35	4	ABS	2 / 4

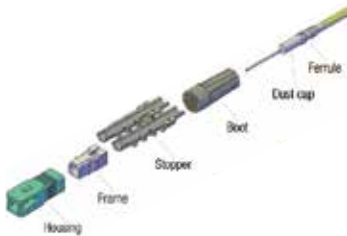
Field Assembly Optical Connector



- Field Assembly Optical Connector(FAOC) is designed for fast and simple field termination of FTTH Drop cable and Indoor cables without any extra manufacturing process like polishing and epoxy on the ferrule.

Product Codes	Size (mm) W x H x L	Weight (g)	Connector Type	Cable Size (mm)
RFA9AO	8.98 x 7.38 x 50	4	SC/UPC	0.9
RFB9AO	8.98 x 7.38 x 50	4	SC/APC	0.9
RFA2AO	8.98 x 7.38 x 51.2	5	SC/UPC	2.0
RFB2AO	8.98 x 7.38 x 51.2	5	SC/APC	2.0
RFA3AO	8.98 x 7.38 x 51.2	5	SC/UPC	3.0
RFB3AO	8.98 x 7.38 x 51.2	5	SC/APC	3.0

Drop Assembly Connector



- Drop assembly solution is designed with factory ferruled connector and quick and easy assembly can be done without splicing in the field. It is also possible to install by drilling small hole and assemble the connector after passing through the hole and minimize interior damage. This ferruled connector is applicable for push cable solution in order to save time and cost.

Product Code	Connector Type	Packing Method
SPFN	SC	Knet Standard package

※Fiber type, Cable structure and length can be customized upon customer request.

Pre-Connectorized ABF Cable



- Pre-connectorized ABF cable is composed of ABF cable and factory terminated connectors. Depending on customer demand, cable length and connector type can be customized. This solution is suitable for last-miles connection (SDU, MDU) where we can save splicing time and cost.

Product Code	Connector Type	Packing Method
SPPT	SC / LC	Reel-in Box package

※Fiber type, fiber counts and length can be customized upon customer request.

Tool Box



- Tool Box contains 13 kinds of tools in total. It consists of Microduct special tools and other durable tools which can be efficiently used in installation site. This portable tool box is an essential item for Microduct cutting, branching and termination.

Product Codes	Size (mm) W x L x H Outer	Application	Gross Weight (kg)
TTBAMS	460 x 330 x 120	Duct cutter and 12 different kinds of tools	6.5

Eastern of Canada - Telecommunication Service Provider



Broadband Network - Canadian Tier 1 service provider was using Knet microduct to provide high speed service to end subscribers. Drilling had been used as one of their major installation method.



Metro Area- Micro trenching for FTTH, New York



New York City specifies 7way (7 tubes). The infrastructure owner is using couple of tubes and the extra tubes are available for City agency or other providers later. The better solution needed for busy street with less disruption and ended up to chose micro trenching. Only one lane out of 3 were blocked for the job and the residents in neighbor gave the complimentary on how the construction goes so well without disturb.

The international oil and gas company's digital technologies, USA



To manage the stability of pipeline infrastructure is driving to adapt the digital technologies such as smart sensors, cloudy systems which makes real time data collect from oil field. Drilling optimization, detecting leakage faster and reducing repair response times are now possible to use telecommunication infrastructure. Using microduct , it is possible for energy company to deploy fiber optic cable easily along with their own energy (gas or oil) pipe line



Business Park New Development, Costa Rica



The Business park was just 60mins away from the ports(Air/Sea) in Costa Rica. For building a new business complex, an optimized fiber pathway was a MUST. The developer had already installed a 4 inches duct with four 1.25 inch sub-ducts (OD 31mm). In order to maximize the capacity of cable, microduct solution was used.



Smart City OSP infrastructure, Free Zone Colón, Panama



Due to excessive amount of cables on the power line poles, the telecommunications regulator did not allow to install anymore aerial FO cables in the city. The service provider decided to investigate the option to go underground and the conclusion was to do mini trench and use microducts .



Global Mining company - Fiber Optic cable installation, Brazil



The fibers, which will serve the automation, telephone and internet systems of the new mine, are being installed by means of micro ducts. a rigid cable formed by small grouped ducts, through which the optical microfibers pass. The network can be both aerial and underground.



Network Expansion in North Europe, Sweden & Finland



Telecommunication Service Providers has been building its network in North European regions, mainly for metropolitan area of Sweden and Finland. KNET's air blown solution has been applied since 2014 and thousands kilometers of Microducts were supplied to the local partner. Thick-walled Duct with easier operation advantage and proved resistance of low temperature makes the expansion more efficient. Up till now, the basic network of metropolis is almost fulfilled and some rural areas are being installed according to their increasing demand for fiber network connection.

Fast and Flexible Distribution Network Expansion, Germany



The demand for subscribers connection has been increasing which causes network provider and ISP companies to expand network and FTTH coverage for better services with reasonable cost. Accordingly, Microduct and Air Blown Solutions have been adopted in order to save initial installation cost. Additionally, service providers need solutions for flexible distribution network depending on subscribers' request with minimal time and installation. For these purposes, small size of Microtube has been widely deployed for distribution network.

Turksat Project in Golbasi, Turkey



Turksat project was the first project to implement the microduct technology in Golbasi, Turkey. After mini trenching (50mm Width & 400 mm Depth), the microduct (Microduct TWD 14/10mm 4way and 7/3.5mm 12way) was laid before cable installation. The installed distance of cable was 90 meter per min by air blowing. We had finished 1Km with less than 30 min and consequently we got Turkey KMO project.

National Broadband Network, Greece



Almost fully occupied Manhole and the necessity of migration from copper cable to fiber optic cable stimulates the demand of applying Microduct Solution. Direct Buried Duct is deployed by Micro-trenching method and Direct Install Duct is installed into existing PVC ducting system.

Fast Deployment for Mobile Tower connection : Myanmar



The new Myanmar mobile operators needed to build the backhaul connection in a very short period of time. The expansion of its coverage was essential to increase the market share in this emerging market. Network providers can manage their networks easily since the fiber/ cable was shared with individual inner tube compare to conventional case. It's suitable for mobile backhaul connection since Tower provider or Network Provider can easily set up cost effective infrastructure with expandable network. (By blowing empty tube when customer request service)

Telecommunication Service Provider, Korea



Telecommunication companies such as KT and SKT and utility companies such as KEPCO are focusing on how to efficiently utilize existing infrastructure for network expansion. As a solution, we have installed DI Microduct in existing outer ducts and bundle ducts in existing subducts. It makes subscribers connection faster and time and cost saving for civil work comparing to the conventional installation method.

Prevent risk of damage to existing underground utilities, Philippines



Since required fast deployment for 3rd Mobile Telco launching and avoiding high risk of causing damage to existing underground facilities, micro duct is the efficient solution to satisfy the customer's needs.

MEA Common Ducting & Underground Migration, Thailand



In order to improve the aesthetic view of Bangkok, government own organization, Metropolitan Electricity Authority (MEA), raise 5 years project plan to bring down aerial cable and replace with underground Microduct total distance 500 km. KNET solution is to deploy a common ducting, Thick Walled Duct 4way 14/10mm + 4way 12/8mm inside existing underground MEA's PVC duct to accommodate fibers and serve to population in Bangkok city.

SINGAPORE In Building Solution



The government subsidiary policy for non-residential buildings offered opportunity for KNET LSZH Microduct supply, which got UL Certificate to guarantee the function of flame-retardation. KNET, aiming at being a total solution provider, also developed customized Mounting Rack and Patch Panel for tube arrangement with bulkhead connector in MDF room



The Municipality's Leading Open Access Network, Indonesia



The Bandung city mayor declared to stop the fiber optic infrastructure deployment since there were a lot of issues and sprawling network constructions from the several operators. Moreover, the municipality did not allow random excavation anymore, mainly due to severe traffic jam. Thus, the infrastructure needed to be shared by the operators and construction had to be done in a short time. Micro trenching was the best solution to minimize traffic disruption and the operator were able to use the extra tube from microduct bundled without additional excavation to comply with municipality's policy.



Nationwide End-to-End Microduct Network, New Zealand



This project has been designed with the microduct from the backbone area to the drop. To complete the project, the owner of the project had to find the manufacturer who could supply the whole product portfolio. KNET was one of the very few suppliers having capabilities to satisfy the demands for providing the wide range of the configuration Various types of customized Microducts to meet subscribers' environment have been suggested and deployed



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Internationally Certified with KNET

KNET has met and maintains the rigorous standards required to become a certified by ISO9001, ISO14001 and TL9000.
KNET Microduct has been rigorously tested by Telcordia Technologies and found to be compliant with Telcordia GR-3155-CORE



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