



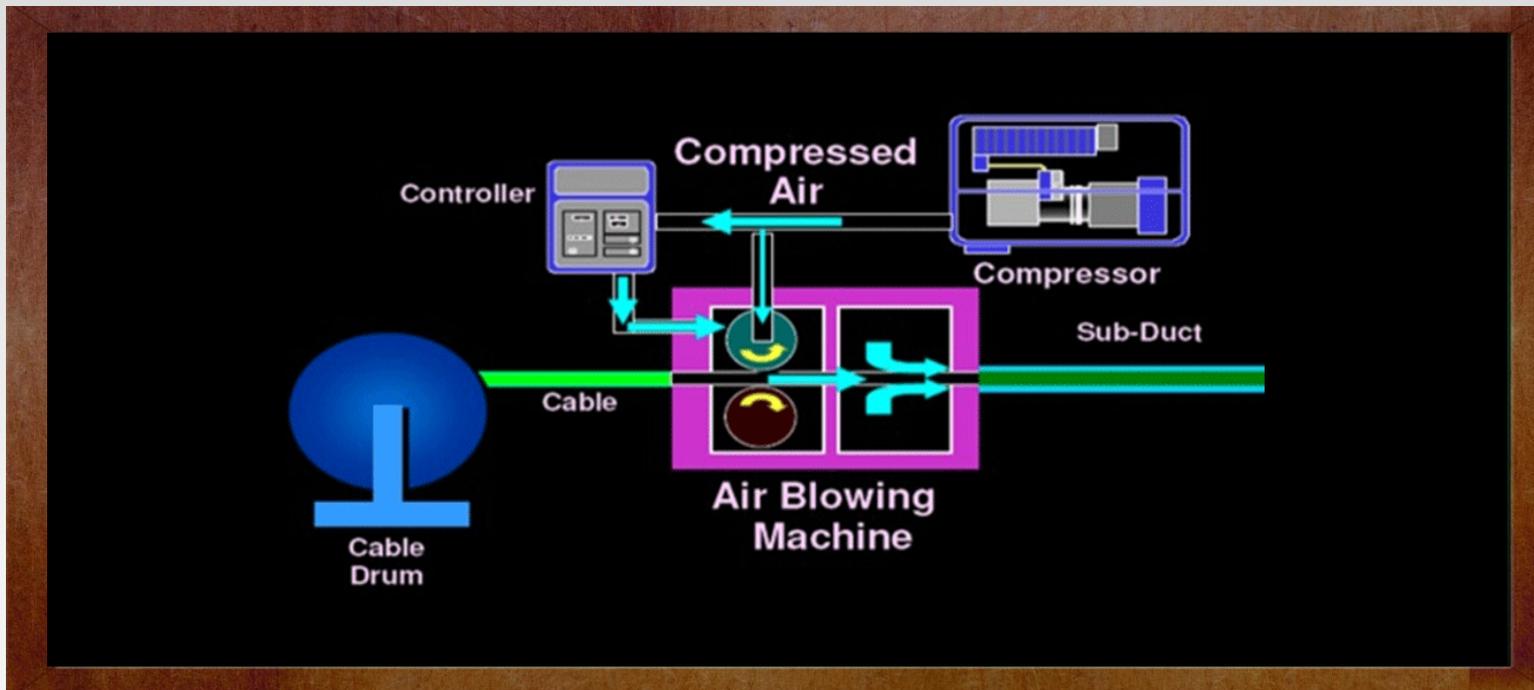
# AIR-BLOWN SOLUTION

COD . MICRO COD . MICRO DUCT

**OPTIROAD INC.**

## AIR BLOWN SYSTEM

- New method to install the optic cable into duct through the air pressure
- Micro Duct applied to ABC (Air Blown Cable) , ABF (Air Blown Fiber) with much smaller size than conventional duct



- Economical installation, based on the integrated single body type
- Availability for small air blown equipment based on weight lightening
- Easy Maintenance through the miniaturization of duct

ABS

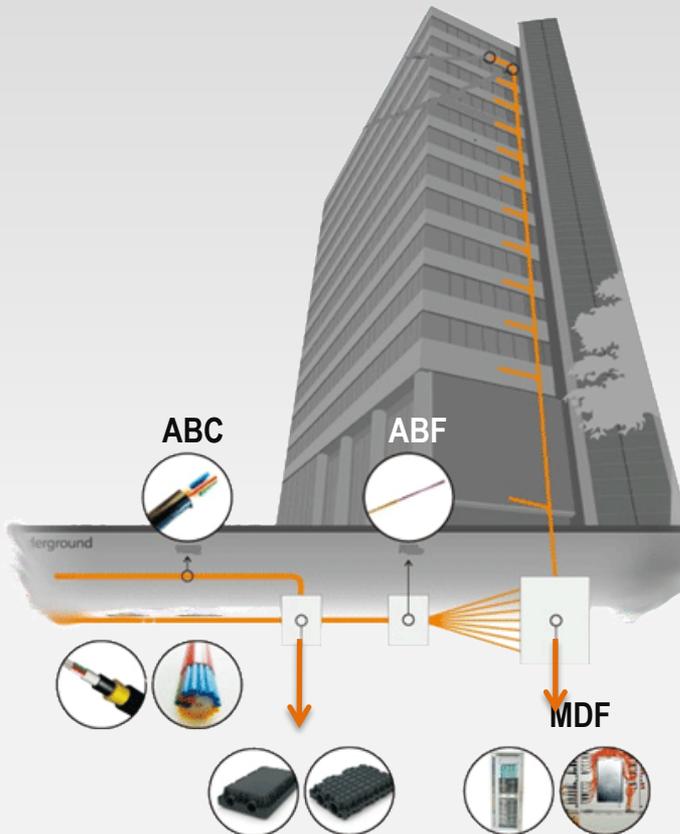
FEATURES

APPLICATION

STRUCTURE & DIMENSION

## AIR BLOWN SYSTEM

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### ✓ Easy & Fast Air-assisted Installation

- No More Friction Loss & Tensile Strength by Air blowing
- Longer cable length
- Reduction in Loss of cable
- Faster Installation Satisfying Market Demand

### ✓ Less Cost

- Less material Cost
- Lower manpower cost
- Shorter installation period

### ✓ Various Type & Specification

- **Available** for installation in the existing FC Line  
for direct burial  
for customer premises of apartment & skyscraper

### ✓ Superiority for the future expandability

- Flexible Response for the future expandability of networks

ABS

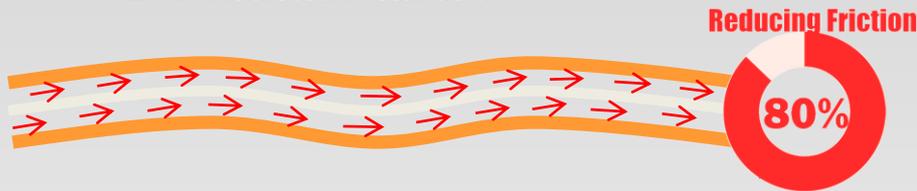
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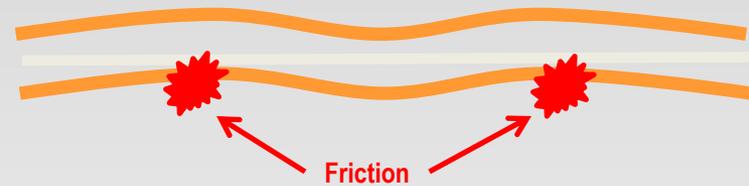
## AIR BLOWN CABLE

### ☑ Air Assisted Installation



- Minimization of friction loss between duct & cable

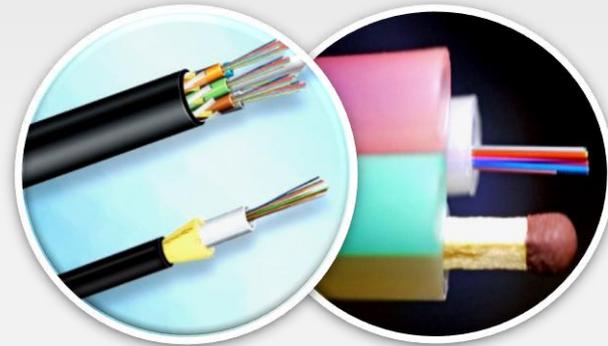
### ☑ Conventional Installation Method



- Damage might occur due to friction between duct & Cable

### ☑ Why Air Blown Cable ?

- Thin jacketing layer to protect Optical Fiber
- Smaller size & Lighter weight
- Use of the same Fiber / Economic design with low cost
- Low loss rate of property through Air Blown Installation



ABS

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## AIR BLOWN SYSTEM

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### COD



- OFC(Optical Fiber Cable) Protection
- Inner, Outer & Built-in Multiple Ducts
- 40% Cost Saving than PVC
- Flexible, Strong & Safer
- Suitable for Facility Construction

### Micro Duct



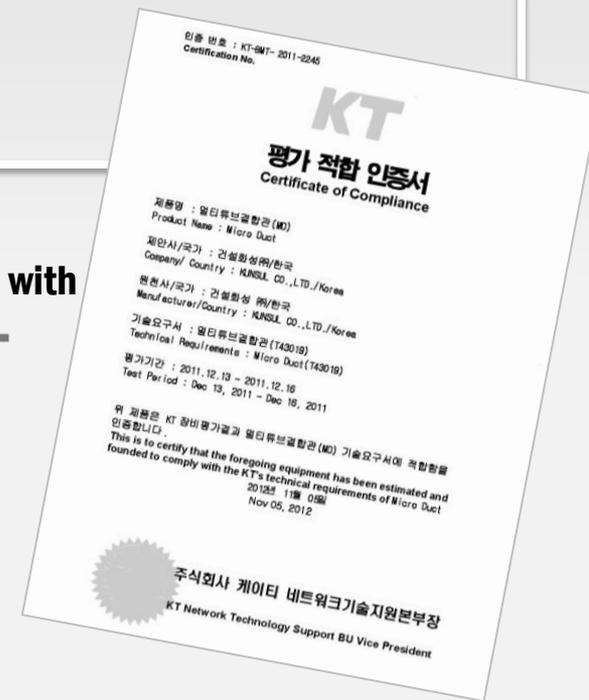
- Highly optimized for Fiber Cable
- ABC (Air Blown Cable)
- ABF (Air Blown Fiber)

### Micro COD



- Micro Sized COD, Same Features but Thinner and Lighter
- Ideal Use for ABC (Air Blown Cable)

PROUDLY PARTNERED with



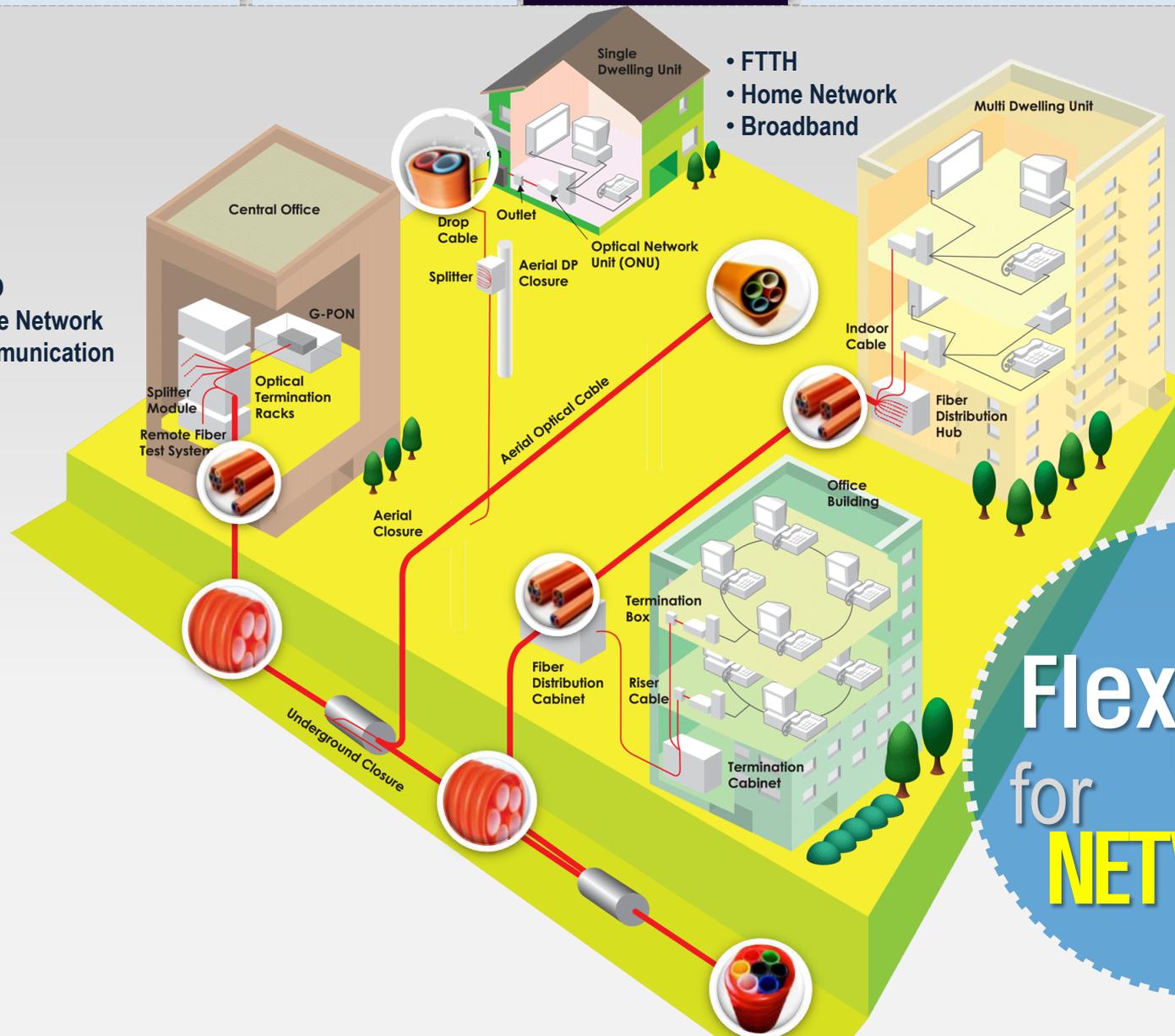
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STRUCTURE & DIMENSION

- FTTO
- Office Network
- Communication Infra



- FTTH
- Home Network
- Broadband

- Community Network
- Public Information
- Broadcasting
- Mobile / Telecom

Easy.  
Flexible.  
Useful.  
for  
**NETWORK**

ABS

FEATURES

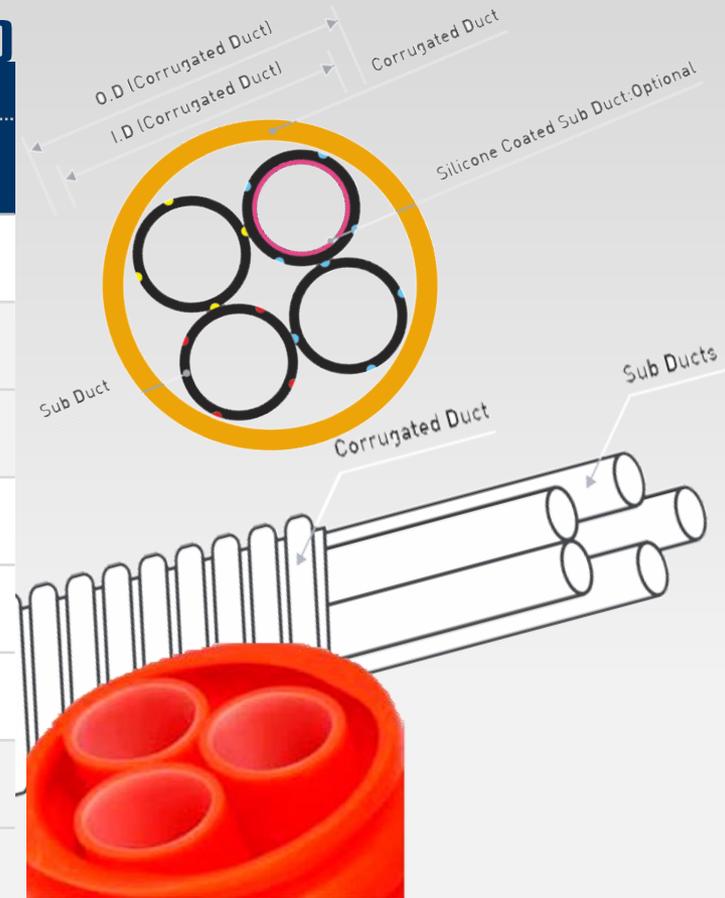
APPLICATION

STRUCTURE & DIMENSION

## COD

(mm)

MODEL	Outer Duct O.D	Sub Duct			Number of Ducts
		O.D	THK	I.D	
90-28x3	90.0	33.0	2.5	28.0	3
100-28x4	100.0	33.0	2.5	28.0	4
100-32x3		38.0	3.0	32.0	3
110-36x3	110.0	42.0	3.0	36.0	3
110-32x4		38.0	3.0	32.0	4
110-28x5		33.0	2.5	28.0	5
120-36x4	120.0	42.0	3.0	36.0	4
160-50x3	160.0	59.0	4.5	50.0	3



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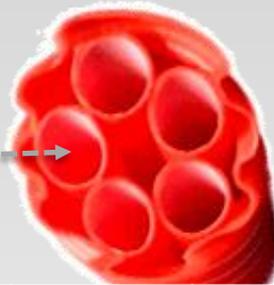
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STRUCTURE & DIMENSION

## MICRO COD

• Silicone Coated Sub Duct (HDPE)



• Corrugated Outer Duct (HDPE)



MODEL		OUTER O.D	SUB O.D	SUB I.D	UNIT (M/REEL)	STRUCTURE
12/10 mm	5 lines	50.0	12.0	10.0	1500	
12/10 mm	7 lines	55.0	12.0	10.0	1300	
14/12 mm	4 lines	50.0	14.0	12.0	1500	
14/12 mm	5 lines	55.0	14.0	12.0	1300	
14/12 mm	7 lines	60.0	14.0	12.0	1000	
16/14 mm	5 lines	60.0	16.0	14.0	1000	

ABS

FEATURES

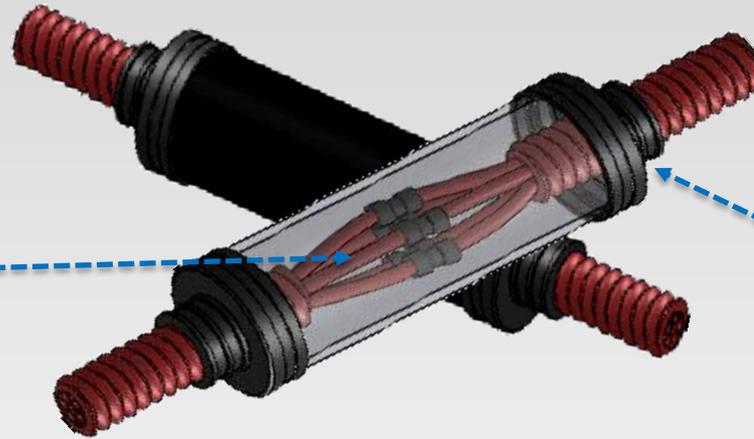
APPLICATION

STRUCTURE & DIMENSION

## MICRO COD CONNECTION

### ☑ Inner Duct

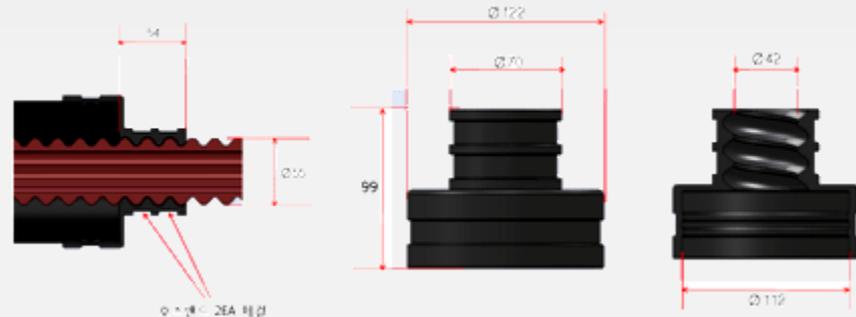
- Socket of Micro Tube



### ☑ Outer Duct

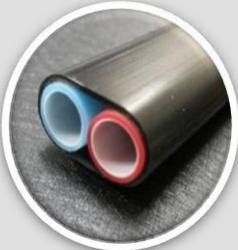
- PE straight pipe with sealing of water proof cover
- The cover length : Free adjustable

### ☑ Connector of Sub Duct + Cover of Outer Corrugated Duct

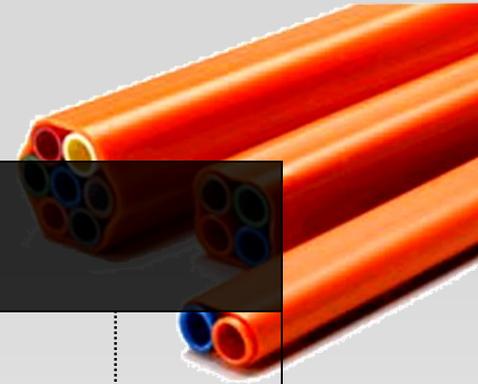


## TYPE OF MICRO DUCT



Items	DI (Direct Install)	DB (Direct Burial)	Thick Walled
Material (Inner & Outer Tube)	Polyethylene(HDPE)		
Sheath	Single Sheath	Double Sheath	Single Sheath
Composition	Inner tube Ripcord Outer Sheath (Black)	Inner tube Ripcord Inner Sheath(Black) Outer Sheath (Orange)	Ripcord Outer Sheath (Orange)
Size of Inner Tube (O.D / I.D)	10mm/8mm , 12mm/10mm	10mm/8mm , 12mm/10mm	14mm/10mm
Thickness of inner tube	0.75mm / 1mm	0.75mm / 1mm	2mm
Thickness of Outer Sheath	1.5 mm	3.5 ~ 4.0 mm	1mm
Appearance			

## IDENTIFICATION



Item		Identification						
 1way	location	1						
	Color	White						
 2way	location	1	2					
	Color	White	Red					
 4way	Location	1	2	3	4			
	Color	White	Red	Green	Blue			
 7way	location	1	2	3	4	5	6	7
	Color	White	Red	Green	Blue	Brown	Purple	Yellow

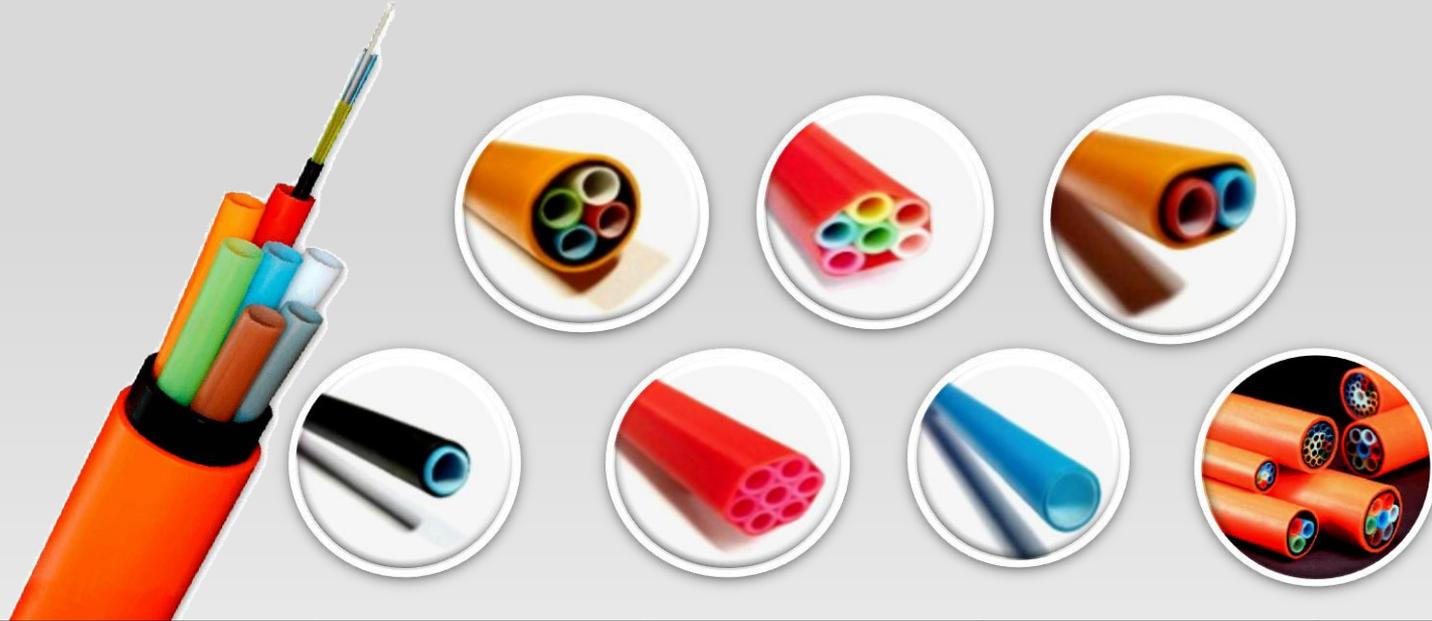
- Outer Tube (Double Sheath) : Orange
- Outer Tube (Single Sheath) : Black
- Inner Tube : ① White ② Red ③ Green ④ Blue ⑤ Brown ⑥ Purple ⑦ Yellow
- Configuration of Inner tube for DI, DB, Thick walled is the same



## Product Spec. & Structure

Model	Outer		Inner		Structure	
	OD	Thick.	OD	ID		
DI 10/8mm	1-way	13.4	1.5	10	8	
	2-way	23.4X13.4	1.5	10	8	
	4-way	27.9	1.5	10	8	
	7-way	33.8	1.5	10	8	
DI 12/10mm	1-way	15.4	1.5	12	10	
	2-way	27.4X15.4	1.5	12	10	
	4-way	32.8	1.5	12	10	
	7-way	39.8	1.5	12	10	
TW 14/10mm	2-way	30.0X16.0	1.0	14	10	
	6-way	40.0X37.0	1.0	14	10	
	7-way	40.0X40.0	1.0	14	10	

Model	Outer (2nd)		Outer (1st)		Inner Duct		Structure	
	OD	Thick.	OD	Thick.	OD	ID		
DB 10/8mm	1-way	17.4	2.0	13.4	1.5	10	8	
	2-way	27.4X17.4	2.0	23.4X13.4	1.5	10	8	
	4-way	32.9	2.5	27.9	1.5	10	8	
	7-way	38.8	2.5	33.8	1.5	10	8	
DB 12/10mm	1-way	19.5	2.0	15.4	1.5	12	10	
	2-way	31.4X19.5	2.0	15.4X27.4	1.5	12	10	
	4-way	36.5	2.0	32.8	1.5	12	10	
	7-way	43.5	2.0	39.8	1.5	12	10	



Size (OD/ID)	Configuration 1	Configuration 2	Application	Installation Method
10 / 8 mm	1-way	ABC (96core)	Access Network & Backbone Network	ABC (Air Blown Cable)
12 / 10 mm	2-way	ABC (120core)		
14 / 12 mm	4-way	ABC (144core)		
	7-way			

## FITTINGS



- Socket & End-Cap for connection part
- Size :12 / 10mm, 10 / 8mm, 5 / 3.5mm

## ACCESSORIES

- Housing type for 4 or 6 Branch
- Application for the section of manhole
- Waterproof for the housing itself



## EQUIPMENT



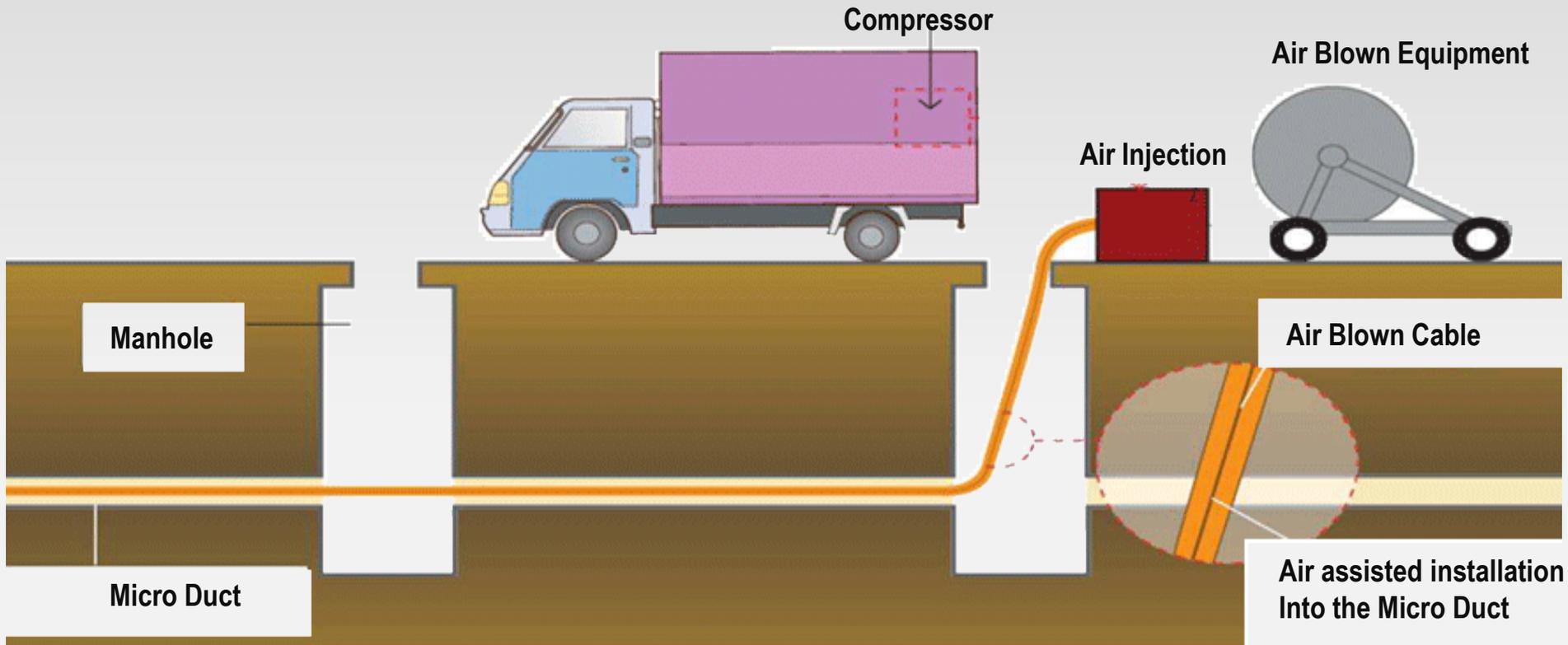
• Fiber Blowing Machine

• Compressor

- Applicable Cable O.D : 1 ~ 8mm
- Tube Size: 5 ~12mm
- Cable Speed: 62m / Min
- Max. Pressure : 15Bar
- Voltage :220/110V
- Size 470x340x490mm
- Weights: 40kg (Including Case)

## AIR-ASSISTED FIBER OPTIC CABLE INSTALLATION

- Basic Diagram for air-assisted installation is below figure
- Maximum length up to 2 Km
- Cable installation Speed is 64m/Min (Max. 100m / Min)
- Advantages with faster installation period and less friction loss compared to conventional method



## AVAILABLE CABLES

### General OFC Cable

- Cables : 12core~288core
- Installations : Pulling rope / Air blowing
- Using sub duct :  
COD 22mm, 25mm, 28mm

### Air Blown Cable

- Cables : 96core~144core
- Installation : Air blowing
- Using sub duct :  
Micro COD / Micro Duct  
10mm, 12mm



Fiber Count	COD		Micro COD / Micro Duct	
	General OFC	Available sub duct	Air Blown Cable	Available Micro duct
12~72	11.8	22mm	-	-
96	13.5		6.8	10mm
144	18.8	25mm	9.0	12mm
288	22.1	28mm	-	-

## REPAIR WORK

Damaged ?  
Easier to Repair with  
Simple Kit !



Micro Duct  
Repair Socket



**1** Peel off outer sheath of MD after cutting off the impaired part



**2** Insert the MD repair socket and reconnect the cable

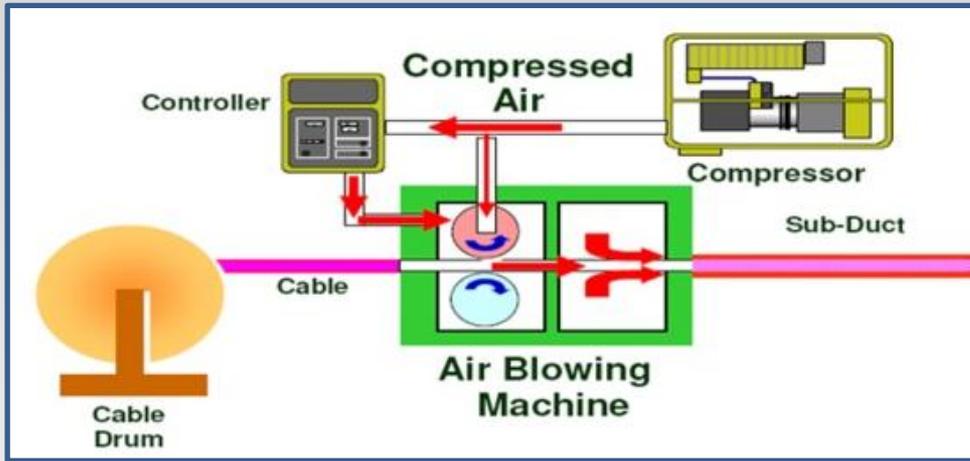


**3** Completed

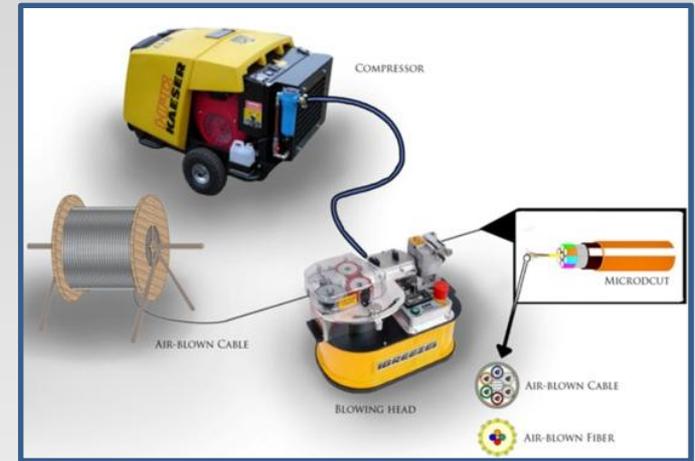
## INSTALLATION SITE



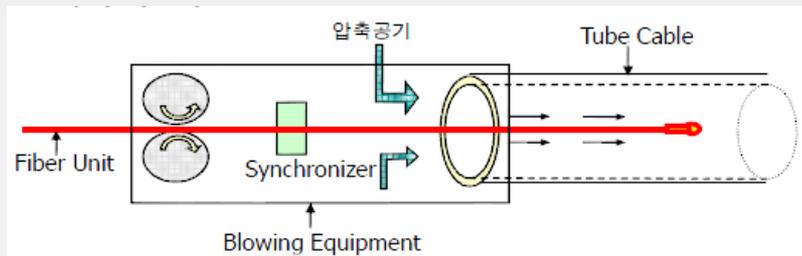
## INSTALLATION SYSTEM : MICRO COD & MICRO DUCT



<Air Blowing System>

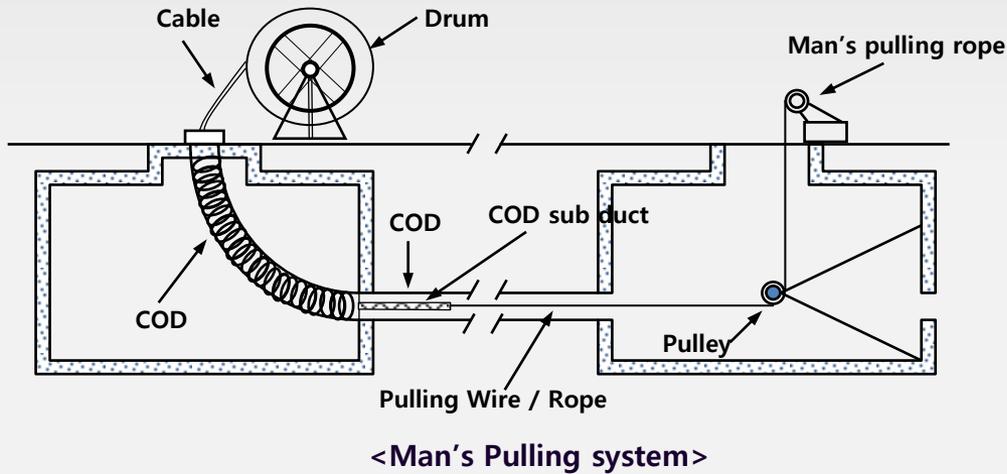
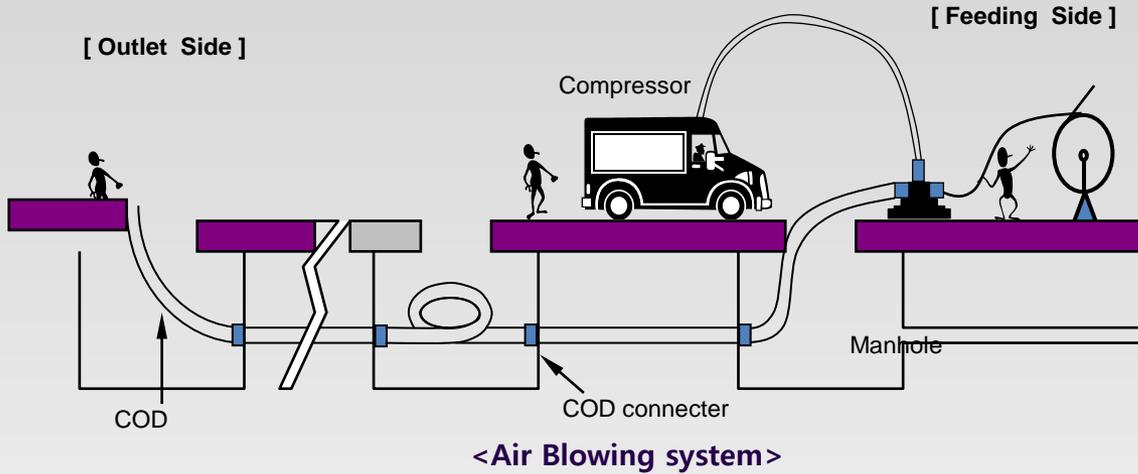


<Air Blowing Equipment>



<Available conduit>

## INSTALLATION SYSTEM : COD



## COMPARISON OF DUCTS

	COD	Micro COD	Micro Duct
Structure			
	Unity of out and sub duct	Unity of out and sub duct	Unity of out and sub duct
Out shape	Corrugated	Corrugated	Smooth Wall
Material	100% HDPE	100% HDPE	100% HDPE
	Inside of Sub duct is silicone coated (under 0.1 coefficient of friction)		
Cable installation system	Air blowing or pulling rope	Air blowing	Air blowing
Available sub duct	22mm, 25mm, 28mm, 32mm, 36mm	10mm, 12mm	10mm, 12mm
Length	Max. 1,000m/Roll	1,000m~1,500m/Roll	500m~2,000m/Roll
Cables	General OFC 12Core~288Core	ABC(Air Blown Cable) 96Core~144Core	ABC(Air Blown Cable) ABF(Air Blown Fiber) 96Core~144Core
Out diameter	80mm~120mm	50mm~60mm	18mm~48mm

## COMPARISON OF DUCTS

TEST METHOD		MICRO COD 12x5	MICRO DUCT 1 Layer (DI) 12x4	MICRO DUCT 2 Layer (DB) 12x4
Anti Compression Strength	5% Deflection	34.2kgf/cm <sup>2</sup>	7.5kgf/cm <sup>2</sup>	13.6kgf/cm <sup>2</sup>
Compression Restoration : IEC61386-1	Rate of transform	0.88%	3.82%	1.43%
Unit weight per meter	kg/m	0.550	0.298	0.583

# THANK YOU

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