



**KUPP**  
PE PIPING SYSTEM

**AIR-BLOWN SOLUTION**

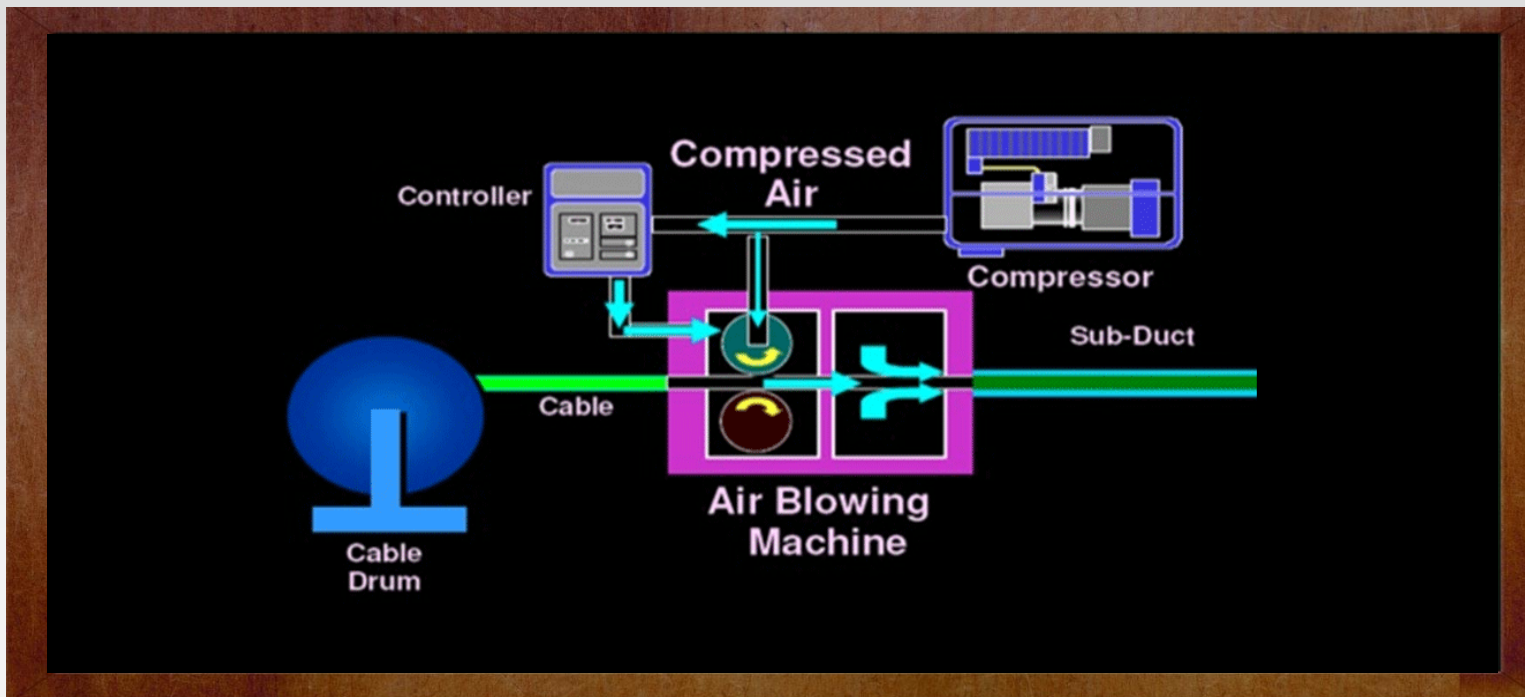
COD . MICRO COD . MICRO DUCT



**FAXMATEL**

## 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

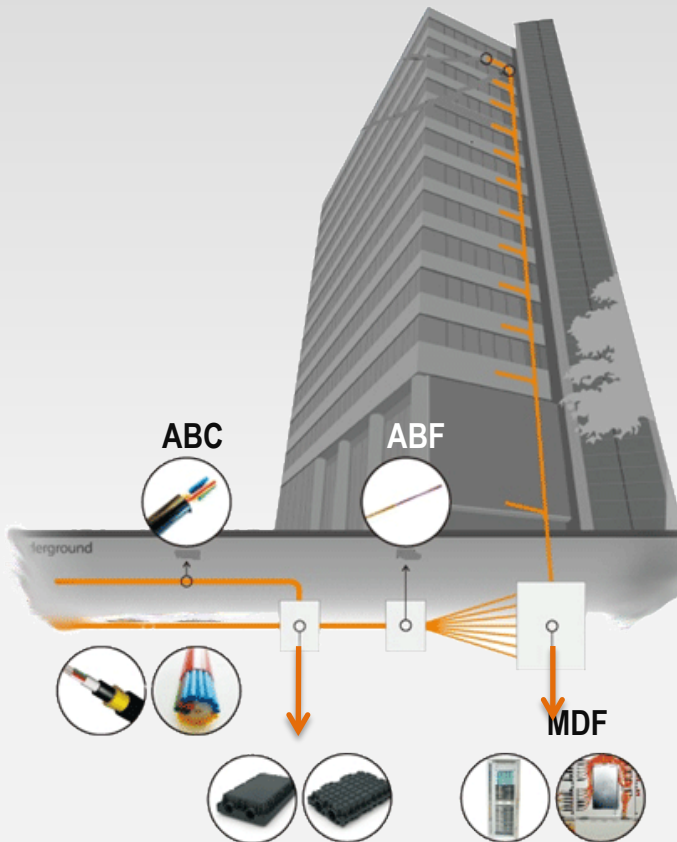
FEATURES

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

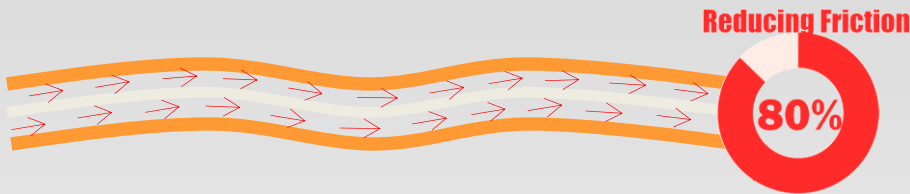
FEATURES

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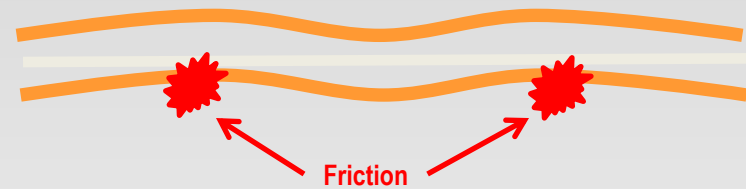
## AIR BLOWN CABLE

### ☑ Air Assisted Installation



- Minimization of friction loss between duct & cable

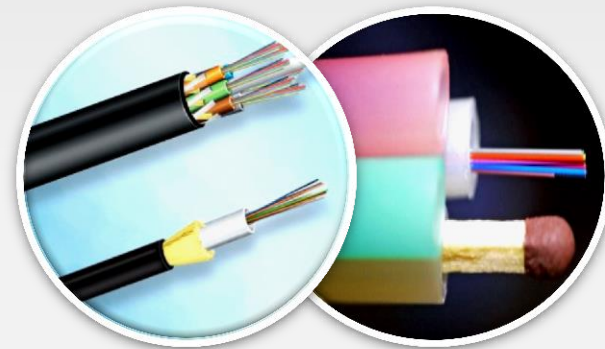
### ☑ Conventional Installation Method



- 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



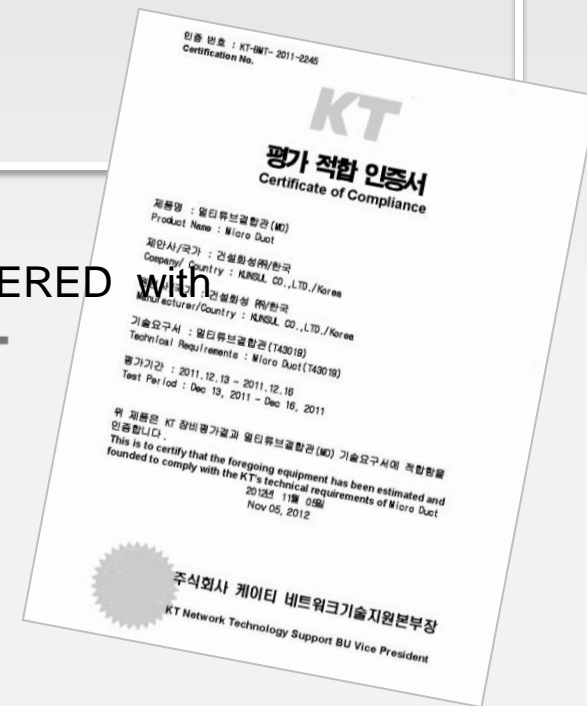
- Highly optimized for Fiber Cable
- ABC (Air Blown Cable)
- ABF (Air Blown Fiber)

### Micro COD



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

PROUDLY PARTNERED with



FAXMATEL

# PRODUCT INFORMATION

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FEATURES

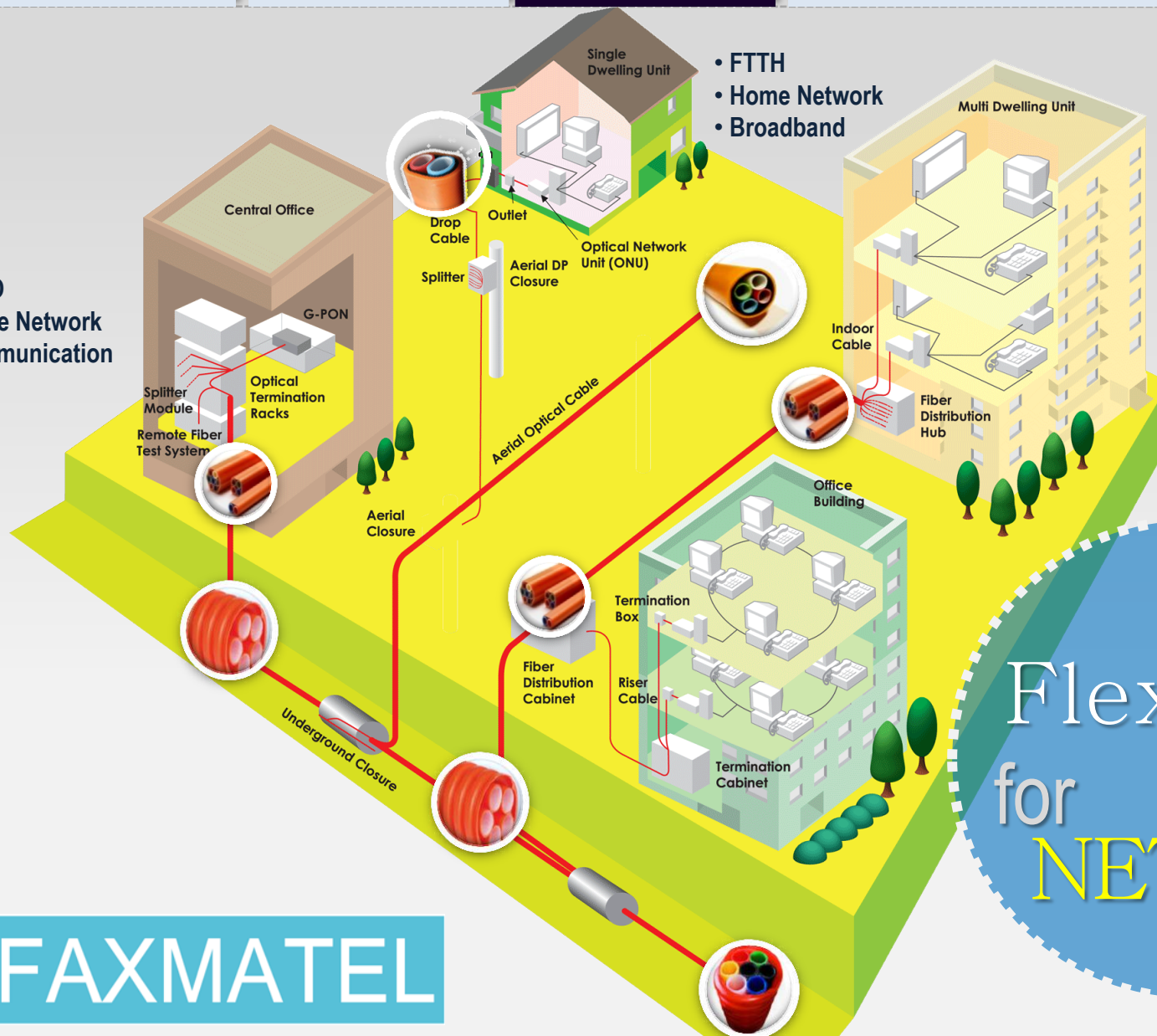
APPLICATION

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

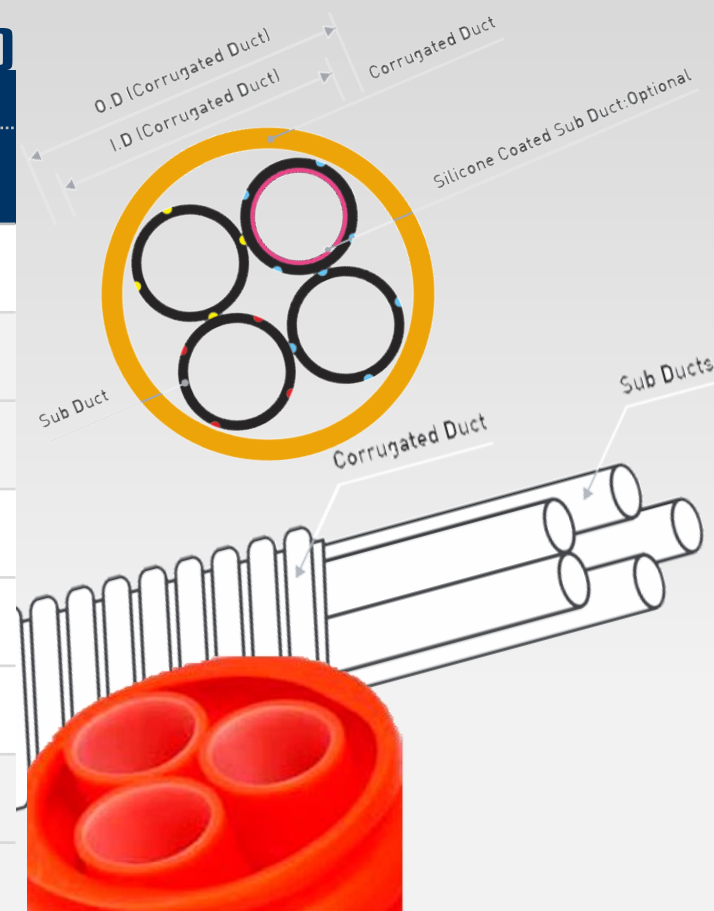
APPLICATION

STRUCTURE & DIMENSION

## COD

(mm)

| MODEL    | Outer Duct O.D | Sub Duct |     |      |                 |
|----------|----------------|----------|-----|------|-----------------|
|          |                | O.D      | THK | I.D  | Number of Ducts |
| 90-28x3  | 93.0           | 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               |



ABS

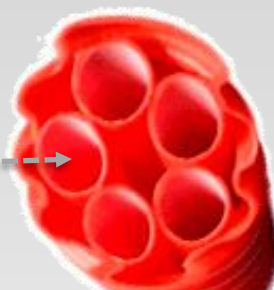
FEATURES

APPLICATION

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/ROLL) | STRUCTURE |
|----------|---------|-----------|---------|---------|---------------|-----------|
| 12/10 mm | 5 lines | 50.0      | 12.0    | 10.0    | 1500          |           |
| 12/10 mm | 7 lines | 55.0      | 12.3    | 10.0    |               |           |
| 14/10 mm | 5 lines | 55.0      | 14.0    | 10.0    |               |           |
| 14/10 mm | 7 lines | 60.0      | 14.0    | 14.0    |               |           |
| 14/12 mm | 5 lines | 55.0+     | 14.0    | 10.0    |               |           |
| 14/12 mm | 7 lines | 60.0+     | 14.0    | 14.0    |               |           |

ABS

FEATURES

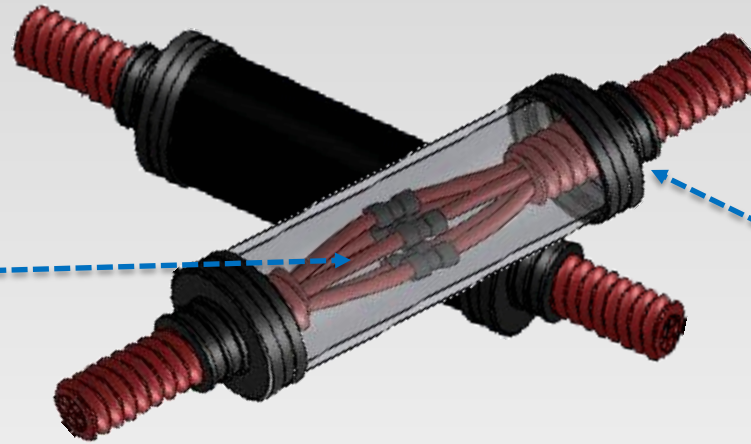
APPLICATION

STRUCTURE & DIMENSION

## MICRO COD CONNECTION

### ☑ Inner Duct

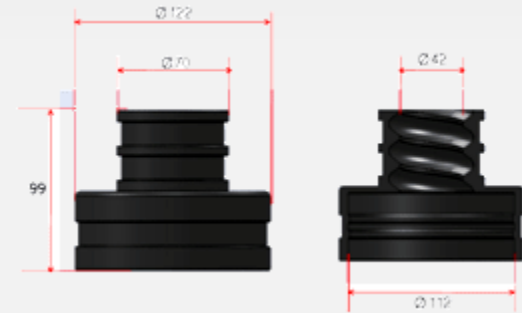
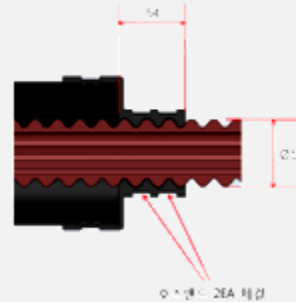
- Socket of Micro Tube



### ☑ 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

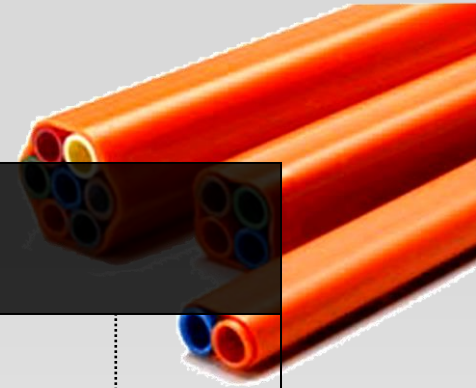






## TYPE OF MICRO DUCT



| Items                             | DI (Direct Install)   | DB (Direct Burial)  | Thick Walled  |
|-----------------------------------|---|---|---|
| Material<br>(Inner & Outer Tube)  |   | Polyethylene(HDPE)  |   |
| Sheath                            | Single Sheath   | Double Sheath   | Single Sheath   |
| Composition                       | Inner tube (Aluminum)<br>Ripcord<br>Outer Sheath (Black)                            | Inner tube (Aluminum)<br>Ripcord<br>Inner Sheath(Black)<br>Outer Sheath (Orange)      | Ripcord<br>Outer Sheath (Orange)  |
| Size of Inner Tube<br>(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 |     |       |      |       |        |        |
|--|----------|----------------|-----|-------|------|-------|--------|--------|
| <br>1way  | location | 1              |     |       |      |       |        |        |
|  | Color    | White          |     |       |      |       |        |        |
| <br>2way  | location | 1              | 2   |       |      |       |        |        |
|  | Color    | White          | Red |       |      |       |        |        |
| <br>4way  | Location | 1              | 2   | 3     | 4    |       |        |        |
|  | Color    | White          | Red | Green | Blue |       |        |        |
| <br>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

## ELEMENTS OF COMPOSITION

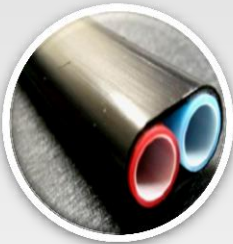
Micro Tube



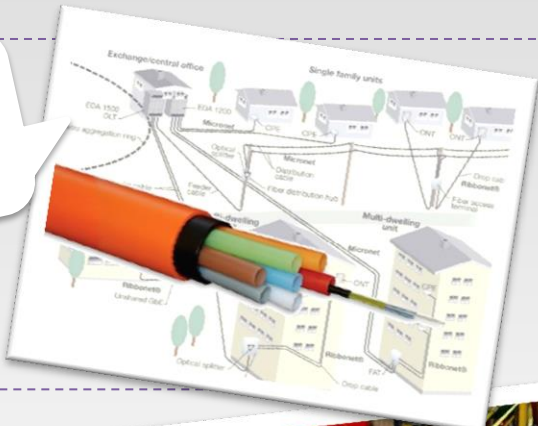
| Applied Cable           | 1~12core  | 12~72core | 96~144core |
|-------------------------|-----------|-----------|------------|
| Size of air blown Cable | 1.0~2.0mm | 5.6mm     | 6.8~8.0mm  |
| Size of Inner Tube      | 5/3.5mm   | 10/8mm    | 12/10mm    |



D,I (Direct Install)



For existing duct line,  
apartment, inside of  
building



D,B (Direct Burial)



Thick Walled )



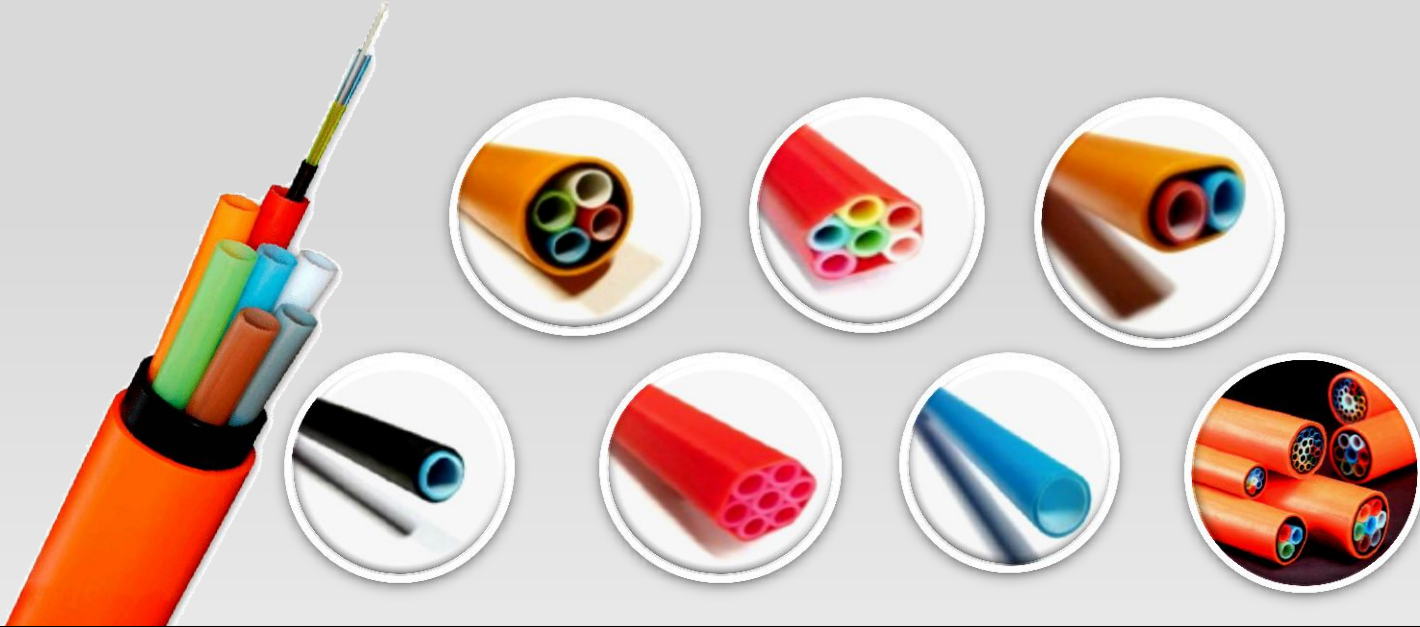
For direct burial  
In ground

## Product Spec. & Structure

| Model         | Outer |           | Inner |    | Structure |  |  |  |  |
|---------------|-------|-----------|-------|----|-----------|--|--|--|--|
|               | OD    | Thick.    | OD    | ID |           |  |  |  |  |
| DI<br>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<br>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<br>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<br>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<br>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        |  |

# CLASSIFICATION



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

## FITTINGS



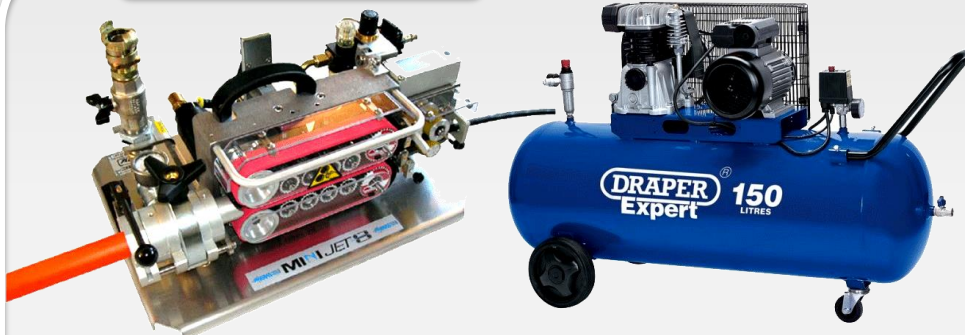
- Socket & End-Cap for connection part
- Size :12 / 10mm, 10 / 8mm, 5 / 3.5mm

## ACCESSORIES

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



## EQUIPMENT



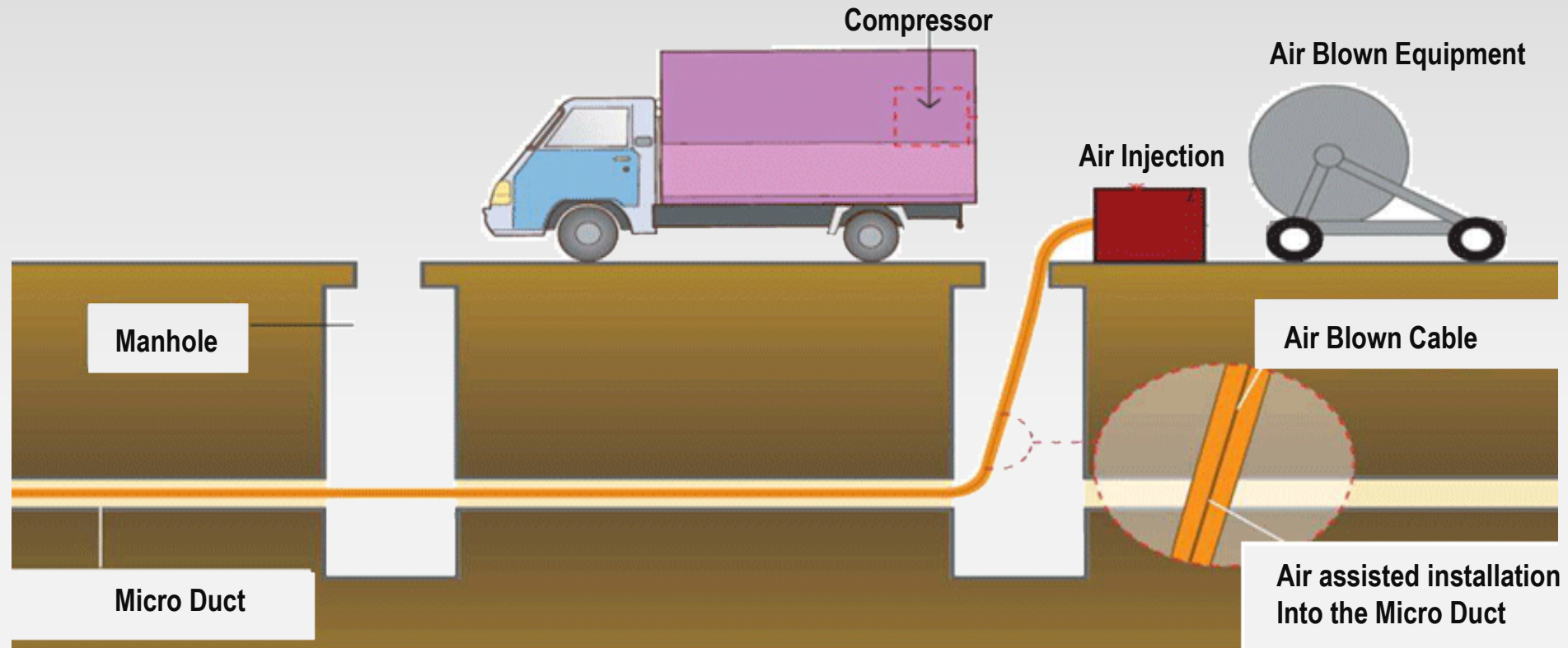
• Fiber Blowing Machine

• 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

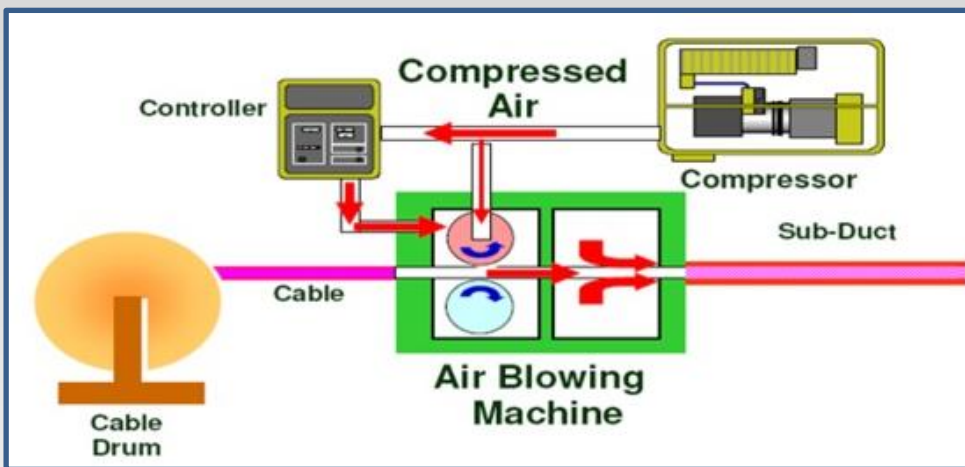


**3** Completed

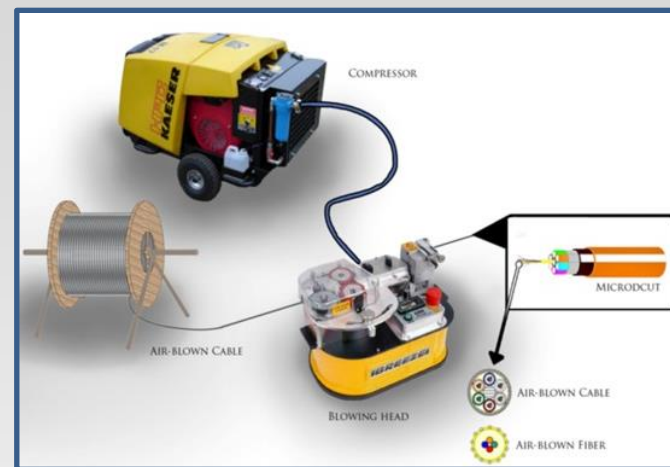
## INSTALLATION SITE



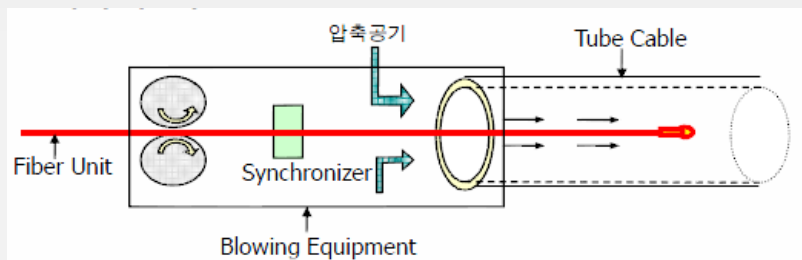
## INSTALLATION SYSTEM : MICRO COD & MICRO DUCT



<Air Blowing System>

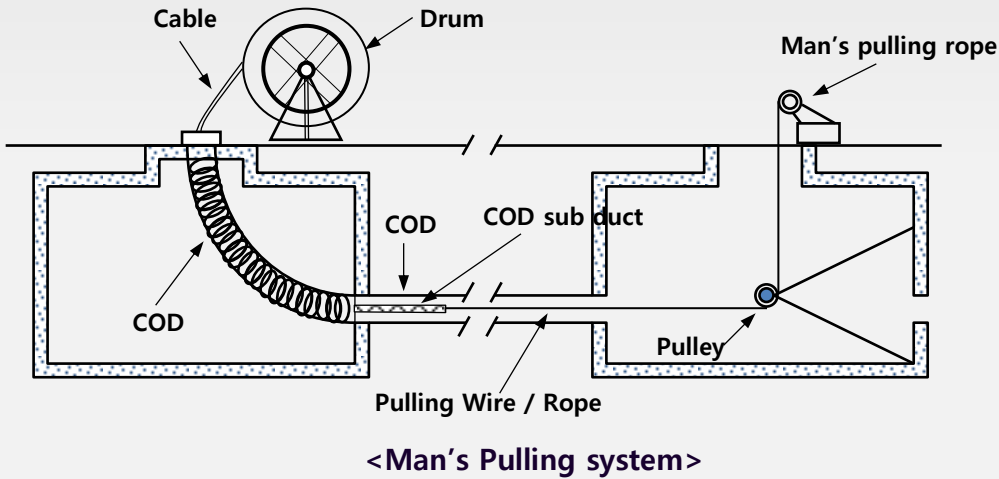
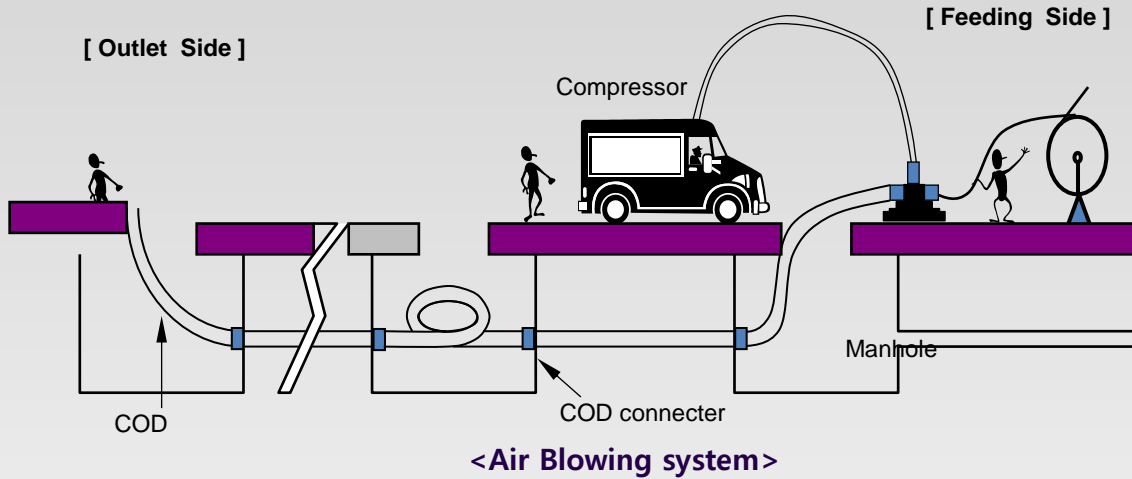


<Air Blowing Equipment>






<Available conduit>

## INSTALLATION SYSTEM : COD



## COMPARISON OF DUCTS

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

## COMPARISON OF DUCTS

| TEST METHOD                             |                   | MICRO COD<br>12x5       | MICRO DUCT<br>1 Layer (DI)<br>12x4 | MICRO DUCT<br>2 Layer (DB)<br>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<br>: IEC61386-1 | Rate of transform | 0.88%                   | 3.82%                              | 1.43%                              |
| Unit weight per meter                   | kg/m              | 0.550                   | 0.298                              | 0.583                              |

## OFFLINE

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## ONLINE

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[ventas@faxmatel.com](mailto:ventas@faxmatel.com)

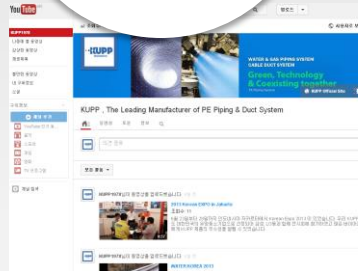
[www.KUPP.co.kr](http://www.KUPP.co.kr)

## SNS

**THANK  
YOU**



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