



MICRO COD

MICRO-SIZED CORRUGATED OPTICAL DUCT

**TOTAL SOLUTION
COMMUNICATION
PIPING SYSTEM**

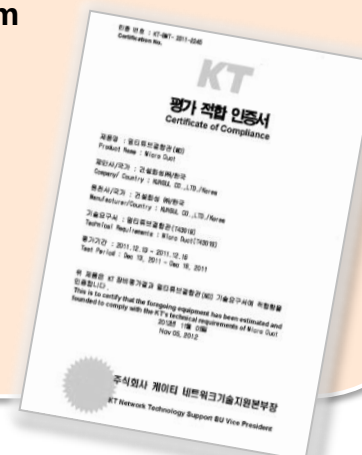




MICRO COD



- Korea Expressway Corp.
- Seoul Construction & Administration
- LG U+ Telecom
- Korea Rail Network
- Ministry of National Defense
- Korea Rural Community Corp.
- Korea Water Resource Corp.
- Korea Telecom
- KEPCO
- Hanaro Telecom
- Onsei Telecom
- SK Broad Band(Mobile)
- Huawei Telecom
- TCI
- Yachi Ecuador
- Panama Cannal
- C&T
- Saudi Telecom
- MTN





MICRO COD CONCEPT

- As the fiber cables are getting lighter, better “Constructability” and “Efficiency” required
- The MICRO DUCT occasionally leads defect-occurrences due to its less intensity
- OPTIROAD’s MICRO COD utilizes the strong facts of COD – “PHYSICAL STRENGTH” & “EXCELLENT CONSTRUCTABILITY”, but reduces SIZE and WEIGHT for the best work-efficiency.
- Protecting inner ducts from external pressures
- Against damages when peeling Outer-duct
- Integrated Structure - Cost-efficient Installation without additional inserting works
- Corrugated surface optimizing “Pressure Intensity” , “Flexibility” and “Constructability”

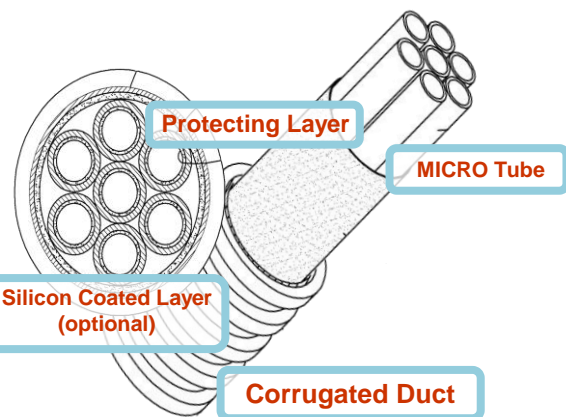


• **Color Customized available!**

Silicone Coated Inner Duct
“cables protected smoothly”



MICRO SPECIFICATION



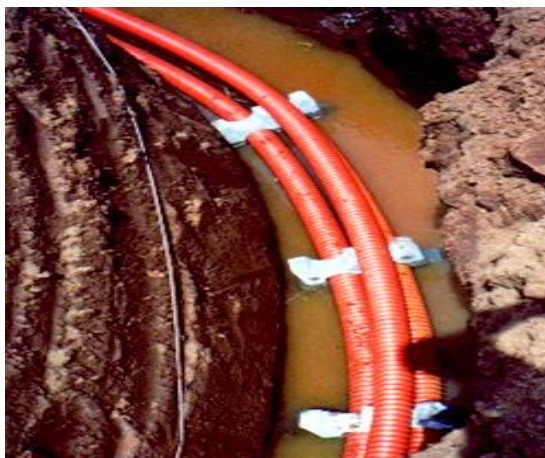
Standard	O.D	I.D	THK	O.D	No. Sub	Length
3.5mm x 14 channel	43.0	3.5	1.5	7.0	14	1500
10mm x 7.0 channel	43.0	10.0	1.0	12.0	7	1500
12mm x 4.0 channel	43.0	12.0	1.0	14.0	4	1500
3.5mm x 24 channel	53.0	3.5	1.5	7.0	24	1500
8.0mm x 19 channel	53.0	8.0	1.0	10.0	19	1500
10mm x 7.0 channel	53.0	10.0	2.0	14.0	7	1500
12mm x 7.0 channel	53.0	12.0	1.0	14.0	7	1500
10mm x 19 channel	77.0	10.0	2.0	14.0	19	1000

Development for more dimensions is now on-going.

Customized sizes are available upon request.



FEATURES



• Constructability & Safety

Easily inserted owing to

① “Multi Ducts in One”

→ **No additional work to insert inner ducts**

② “Coiled up to 1,500 Meters “

→ **No fittings required between Manholes**

Excellent flexibility does NOT require
EXTRA Manholes at the job site below.

① Curved Sections

② High and Low levels in a tough places

UV protection to avoid cracking ducts



• Material for Strength

Corrugated surface, strong enough for external pressures, made from HDPE, the most UNCRACKABLE material.

Shrink proof and Excellent endurance

Against heavy soil load

More than 4 times higher than MICRO Duct
in Compression Strength



• Other Excellent Points

Better use of a space by integral Multi-Ducts

Under tough conditions such as “Curved” or “U-Turn”, Air-blown installation is available over 12Km

Various combination of Sub-ducts upon request

Not allowing for twisting of inner ducts

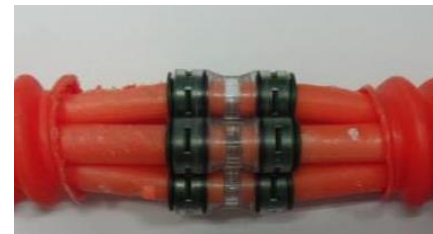


CONNECTOR

- Easy to adjust the length of Connector by One-touch connectors



☑ Coupler



☑ Connector (Waterproof)

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

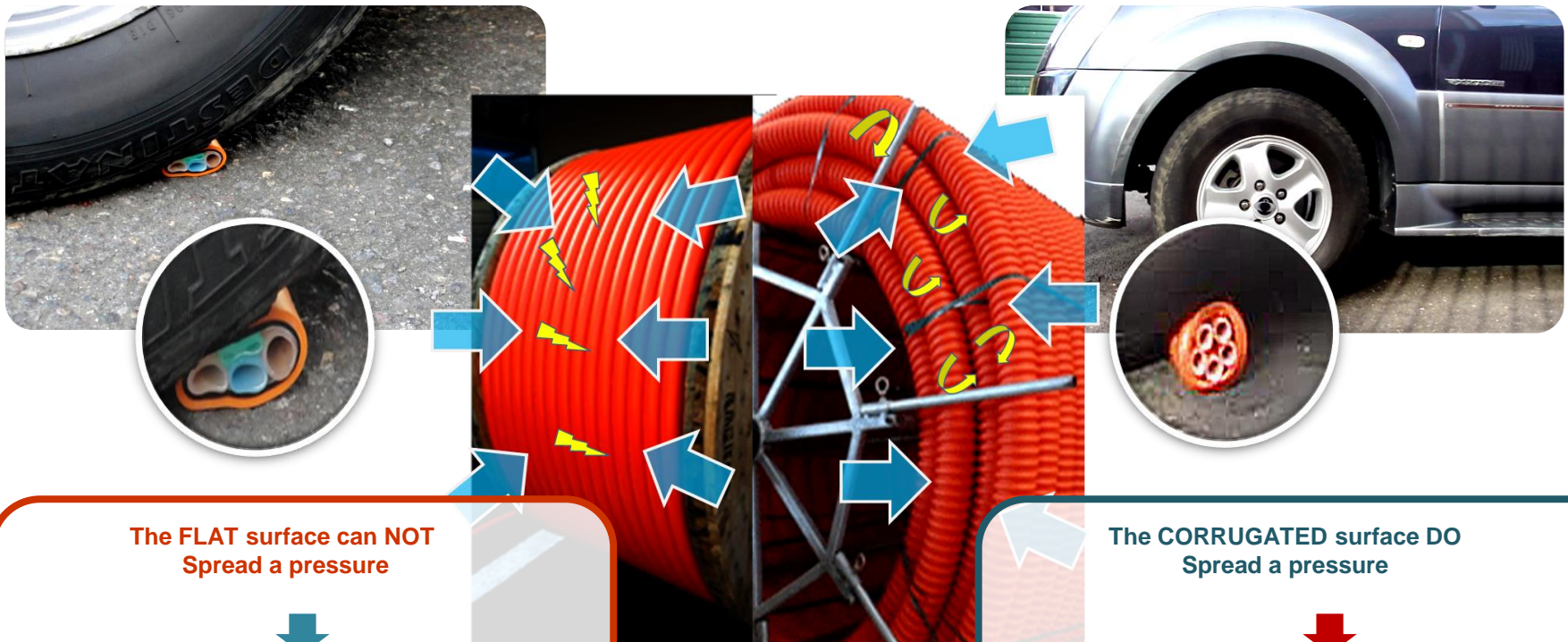




AGAINST EXTERNAL LOAD

The corrugated surface of the outer duct actually spreads the pressure over empty spaces

→ Inner ducts protected from a pressure when bending on a drum or even under the highest ground-pressure



The **FLAT** surface can **NOT**
Spread a pressure



“ **DAMAGED INNER DUCTS** ”
- Reeled only with a wooden drum

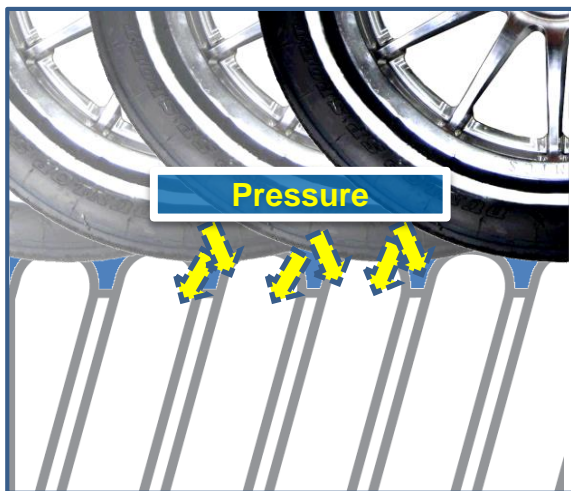
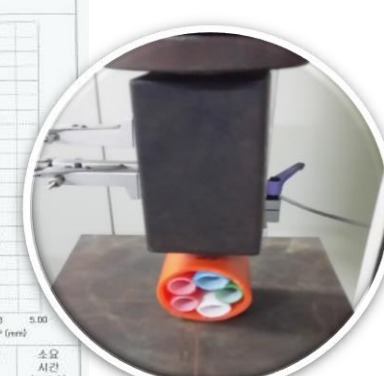
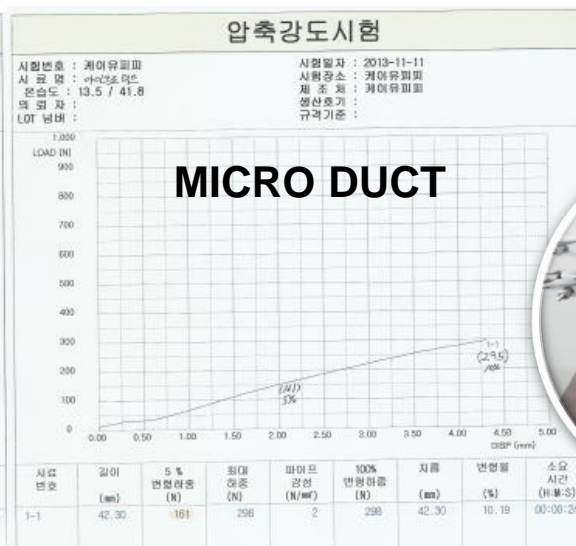
The **CORRUGATED** surface **DO**
Spread a pressure



“ **PERFECTLY PROTECTING INNER DUCTS** ”
- Reeled with a steel reel stay



AGAINST EXTERNAL LOAD

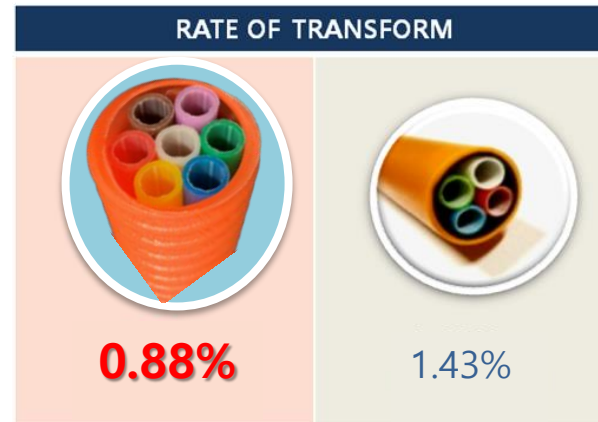
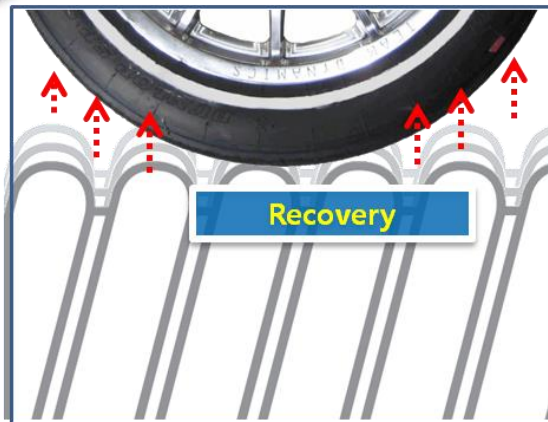
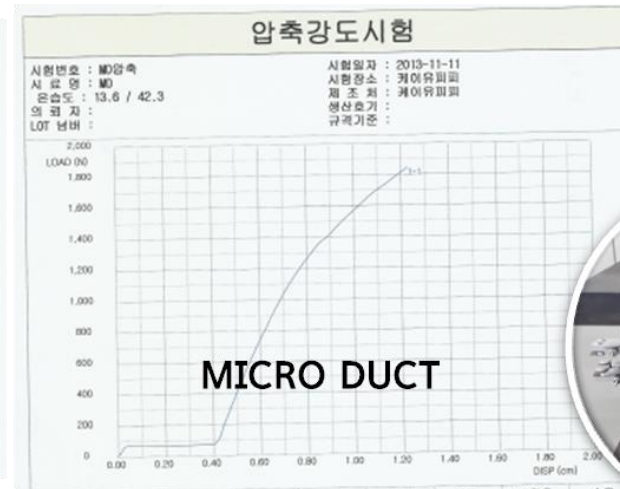
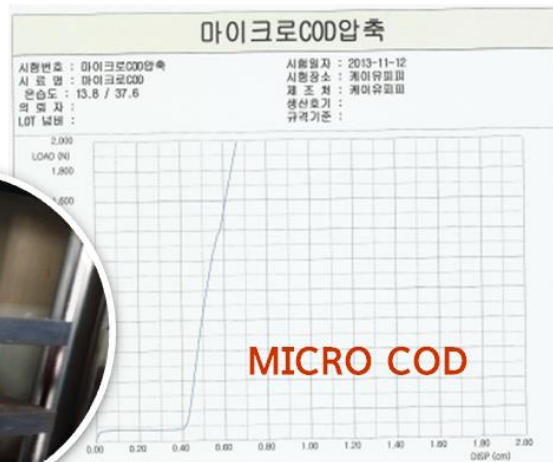


400% stronger than the same weight MICRO Duct



EXCELLENT FLEXIBILITY

Amazing shape recovery ratio comes from excellent flexibility.
To compare with same weight MICRO Duct, less transforming rate up to 40% !

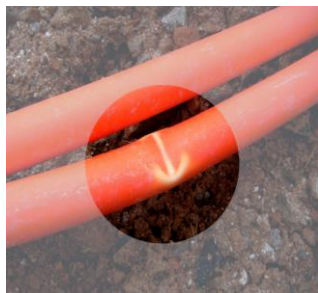




EXCELLENT FLEXIBILITY



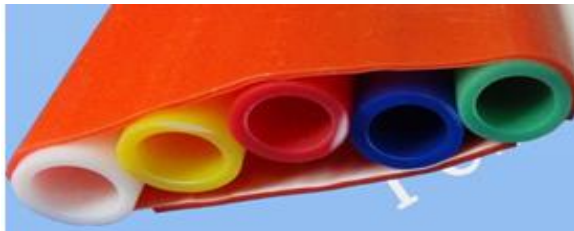
“TOO MUCH BENT DUCT ”
may occur **SERIOUS DAMAGES** to
the inner optical cable



40%
Higher curvature
Ratio than
MICRO DUCT
(over 20 times
of O.D)



“GOOD TO CURVE” makes it
easier to use
AIR-BLOWN SYSTEM at **ANY**
JOB SITE !






Outer Duct is NOT
capable to
Maintaining the
out-shape





COMPARISON OF DUCTS

Description	COD	MICRO COD	MICRO DUCT
Structure	 Unity of out and subduct	 Unity of out and subduct	 Unity of out and subduct
Outshape	Corrugated	Corrugated	Smooth Wall
Material	100%HDPE	100%HDPE	100%HDPE
	Inside of Subduct is silicone coated (under 0.1coefficient of friction)		
Cable installation system	Airblowing or pulling rope	Airblowing	Airblowing
Available subduct	22mm,25mm,28mm,32mm,36mm	Various	Various
Length	Max1,000m/Roll	1,000m~2,000m/Roll	500m~2,000m/Roll
Cables	GeneralOFC 12Core~288Core	ABC(AirBlownCable) 96Core~144Core	ABC(AirBlownCable) ABF(AirBlownFiber) 96Core~144Core
Outdiameter	80mm~120mm	Order made	Order made



COMPARISON OF DUTCS

TEST METHOD		MICRO COD 12x5	MICRO DUCT 1Layer(DI) 12x4	MICRO DUCT 2Layer(DB) 12x4
Anti Compression Strength	5%Deflection	34.2kgf/cm ²	7.5kgf/cm ²	13.6kgf/cm ²
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



WHY MICRO COD?

EXCELLENT FLEXIBILITY

- High Performance of Bending Radius / Flexural
- Installation on Curved and Slope

EXCELLENT STRENGTH

- Corrugated Duct will be dispersion of External Pressure
- Corrugated Duct + safety Layer → Double Protection

EXCELLENT COST SAVING

- Lower Weight and Producing cost down
- Shorten Working time (Swallow depth and narrow width Trenching)

EXCELLENT COMBINATION

- Advantages of COD and MICRO DUCT ► “MICRO COD”

