



CÔNG TY CỔ PHẦN
AN DAT PHAT

Catalogue



 **SPEN**

Bền uy tín - Ươm tương lai

Giới thiệu chung

General introduction

Công ty Cổ phần An Đạt Phát là nhà sản xuất ống nhựa chuyên dụng bảo vệ cáp điện, cáp viễn thông.

Ống nhựa gân xoắn HDPE của chúng tôi, OSPEN, được sản xuất bởi công nghệ hiện đại nhất cho những sản phẩm tốt nhất với kích thước ống có đường kính từ 25mm đến 250mm.

So với các loại ống thông dụng khác như ống thép, ống nhựa pvc, OSPEN có nhiều ưu điểm vượt trội:

Độ dài liên tục, dễ dàng uốn cong, khả năng chịu lực lớn, kinh tế, tiết kiệm nhân công... OSPEN hiện đang thay thế các loại ống thông dụng khác và được sử dụng rất rộng rãi trong lắp đặt cáp ngầm.

OSPEN phù hợp với các công trình xây dựng khác nhau: đường, đường cao tốc, công viên, tòa nhà.

OSPEN cung cấp một giải pháp kinh tế nhất trong lắp đặt công trình điện, thuận lợi cho việc bảo dưỡng, thay thế cáp sau này.

An Dat Phat JSC specializes in manufacturing HDPE corrugated pipe for power and telecommunication cable protecting

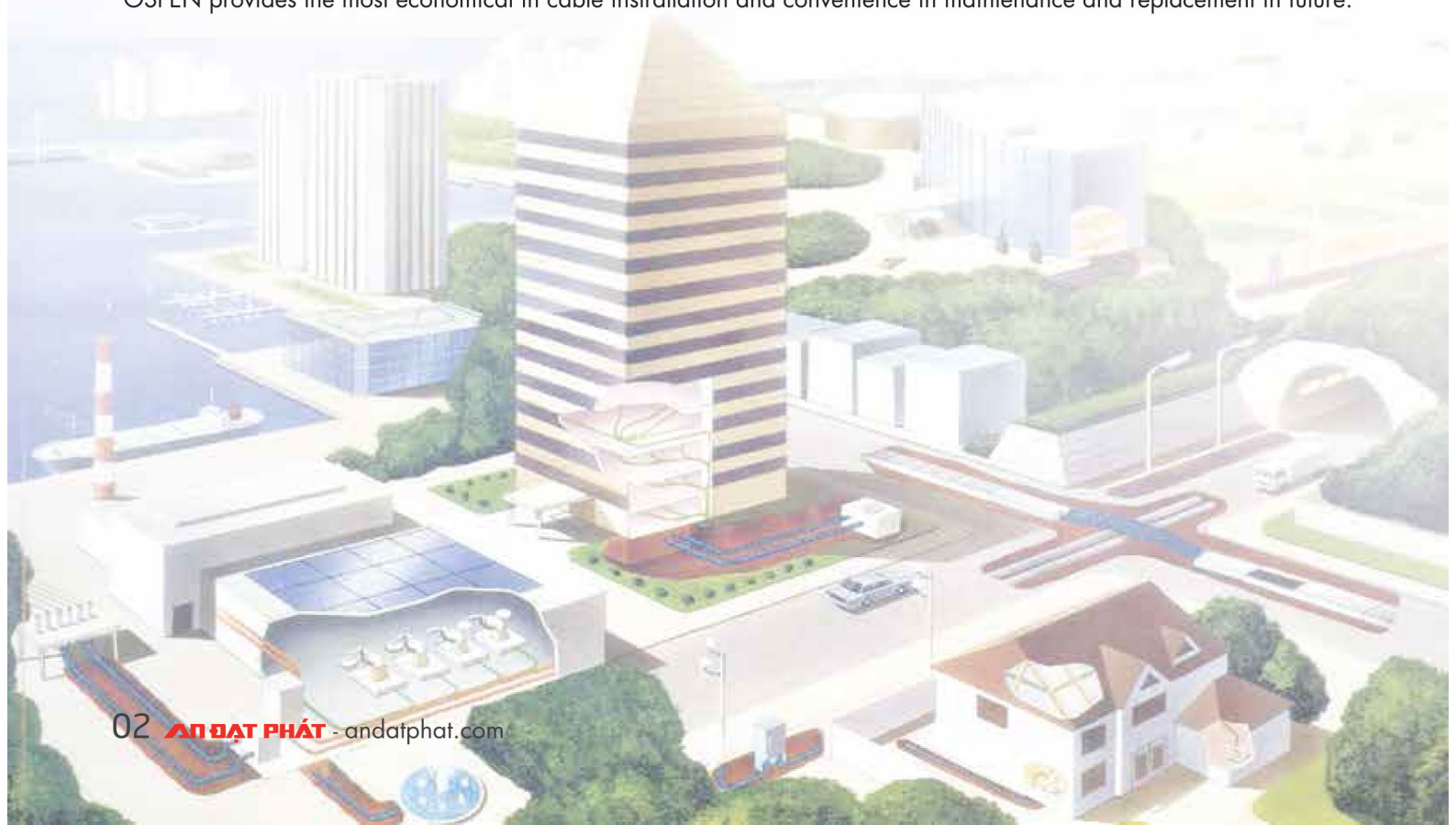
Our HDPE corrugated pipe, OSPEN is produced by the latest modern technology for the best products with size from 25mm to 250mm in diameter.

Compared to other ordinary pipes such as iron pipe, PVC pipe, OSPEN has several stronger advantages: continuously length with less connection, easy to bend, high-impact, economical, labor cost saving...

OSPEN is replacing conventional pipes and has been already used extensively in many underground cable installations.

OSPEN is suitable for a wide variety of construction sites: road, highway, park, building...

OSPEN provides the most economical in cable installation and convenience in maintenance and replacement in future.

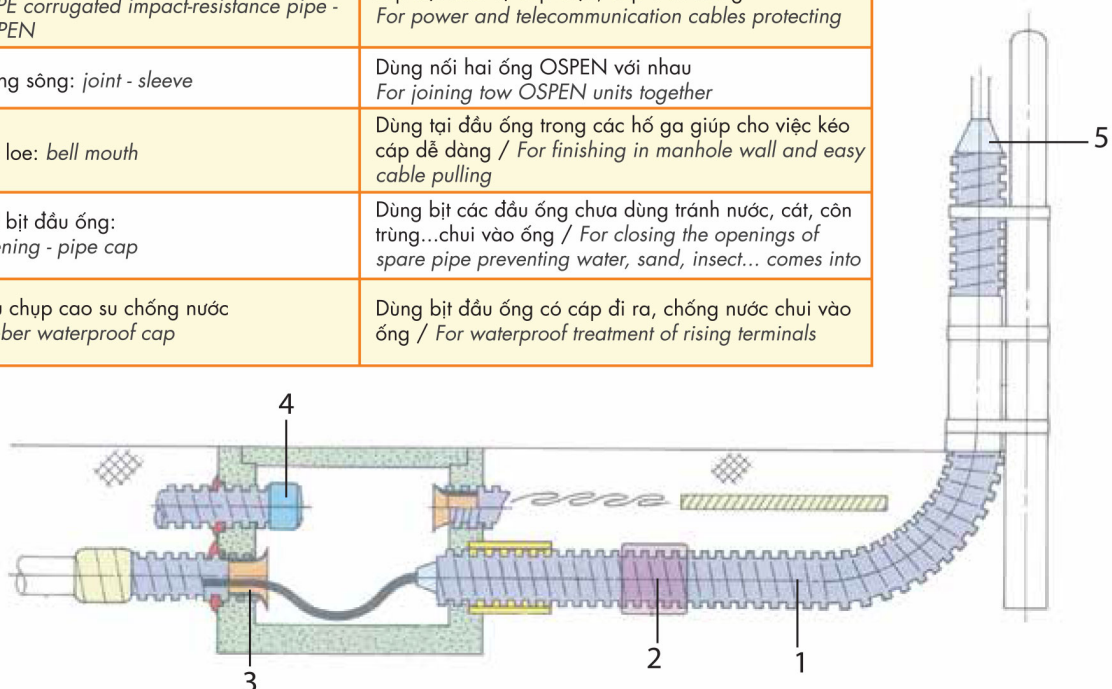


Ống nhựa gân xoắn chịu lực HDPE Sản phẩm và ứng dụng

Product and application



STT/NO	TÊN/NAME	CÔNG DỤNG/PURPOSE
1	Ống gân xoắn chịu áp lực HDPE OSPEN <i>HDPE corrugated impact-resistance pipe - OSPEN</i>	Lắp đặt bảo vệ cáp điện, cáp viễn thông <i>For power and telecommunication cables protecting</i>
2	Mãng sông: <i>joint - sleeve</i>	Dùng nối hai ống OSPEN với nhau <i>For joining tow OSPEN units together</i>
3	Nút loe: <i>bell mouth</i>	Dùng tại đầu ống trong các hố ga giúp cho việc kéo cáp dễ dàng / <i>For finishing in manhole wall and easy cable pulling</i>
4	Nút bịt đầu ống: <i>opening - pipe cap</i>	Dùng bịt các đầu ống chưa dùng tránh nước, cát, côn trùng...chui vào ống / <i>For closing the openings of spare pipe preventing water, sand, insect... comes into</i>
5	Đầu chụp cao su chống nước <i>Rubber waterproof cap</i>	Dùng bịt đầu ống có cáp đi ra, chống nước chui vào ống / <i>For waterproof treatment of rising terminals</i>



Ống nhựa gân xoắn chịu lực HDPE OSPEN & Ứng dụng

HDPE corrugated impact resistance PIPE – OSPEN and application

SẢN PHẨM VÀ TÍNH ƯU VIỆT CỦA SẢN PHẨM Products and outstanding advantages of product



A Dễ dàng uốn cong, lượn theo các vật cản
Freely bent to detour around obstacles



A Độ dài liên tục tới 500m, hạn chế mối nối
Available in continuous lengths up to 500m, reducing joints



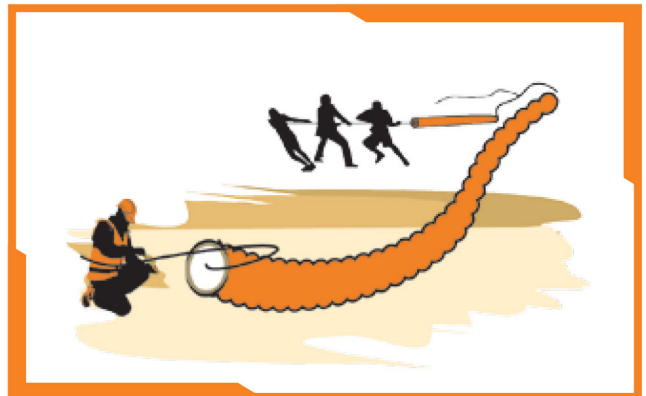
A Tiết kiệm tài nguyên, giảm thiểu vật liệu chế tạo nhưng vẫn bảo đảm chất lượng cao / Saving resource, minimizing material used while ensuring high quality



A Khả năng chịu ăn mòn và tác động khắc nghiệt của thời tiết
Highly resistant to severe corrosion and weathering



A Khả năng chịu hóa chất và nhiệt độ cao
Highly resistant to chemicals and high temperatures



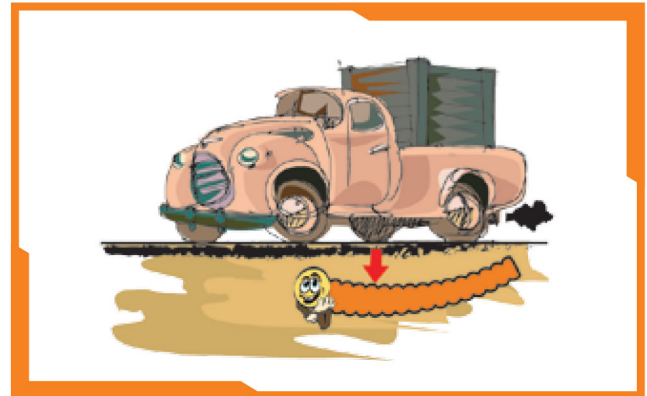
A Kéo cáp dễ dàng
Allows easy cable pull-in

Tính ưu việt của các sản phẩm

Product's outstanding advantages



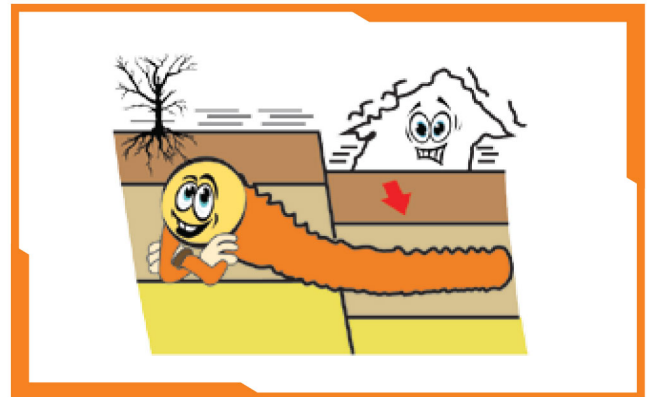
A Độ tin cậy cao
Highly reliable



A Khả năng chịu nén cao
High flattening strength



A Luôn cáp dễ dàng, có thể bố trí hố ga ở xa nhau hơn
Allows easy cable pull in and permits longer distances between handholes



A An toàn khi xảy ra động đất, sụt lún đất.v.v,...
Safely against earth quakes, ground subsidence, etc.



A Thuận lợi cho việc thay thế và bảo dưỡng sau này.
Best convenience for future replacement and maintenance works



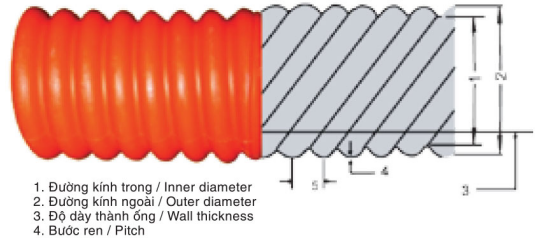
A Tính kinh tế cao
High economic efficiency

Thông số kỹ thuật ống Oспен

Oспен technical specification

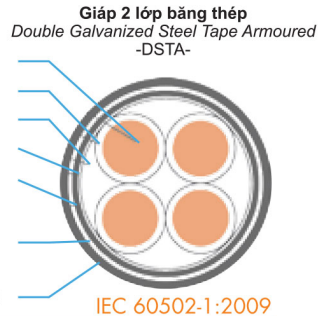
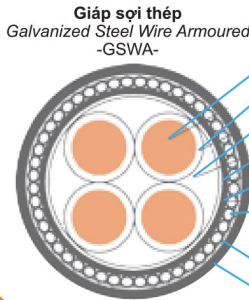
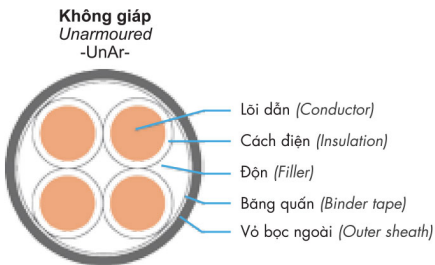
Loại ống Đường kính danh định Pipe size Nominal Diameter	Đường kính trong Inner diameter (mm)	Đường kính ngoài Outer diameter (mm)	Độ dày thành ống Wall thickness (mm)	Bước ren Pitch (mm)	Độ dài tiêu chuẩn mỗi cuộn Standard coll length (mm)	Bán kính uốn tối thiểu Min. Bending radius (mm)	Chiều cao và đường kính ngoài của cuộn ống (m) Standard height and outer diameter of a coll (m)
OSPEN 25	25 ± 2.0	32 ± 2.0	1.5 ± 3.0	8 ± 0.5	300 ÷ 500	90	0.60 x 1.20
OSPEN 30	30 ± 2.0	40 ± 2.0	1.5 ± 0.3	10 ± 0.5	300 ÷ 400	100	0.65 x 1.35
OSPEN 40	40 ± 2.0	50 ± 2.0	1.5 ± 0.3	13 ± 0.8	300 ÷ 400	150	0.65 x 1.40
OSPEN 50	50 ± 2.5	65 ± 2.5	1.7 ± 0.3	17 ± 1.0	200 ÷ 300	200	0.75 x 1.45
OSPEN 65	65 ± 2.5	85 ± 2.5	2.0 ± 0.3	21 ± 1.0	100	250	0.75 x 1.30
OSPEN 70	70 ± 2.5	90 ± 2.5	2.0 ± 0.3	25 ± 1.0	100	270	0.75 x 1.40
OSPEN 80	80 ± 3.0	105 ± 3.0	2.1 ± 0.3	25 ± 1.0	100	300	0.75 x 1.50
OSPEN 90	90 ± 3.0	110 ± 3.0	2.2 ± 0.3	25 ± 1.0	100	350	0.75 x 1.60
OSPEN 100	100 ± 4.0	130 ± 4.0	2.3 ± 0.4	30 ± 1.0	100	400	0.80 x 1.75
OSPEN 125	125 ± 4.0	160 ± 4.0	2.5 ± 0.5	38 ± 1.0	50 ÷ 100	400	0.80 x 1.80
OSPEN 150	150 ± 4.0	195 ± 4.0	2.8 ± 0.5	45 ± 1.5	50 ÷ 100	500	0.85 x 1.85
OSPEN 160	160 ± 4.0	210 ± 4.0	3.0 ± 0.5	50 ± 1.5	50 ÷ 100	500	0.85 x 2.00
OSPEN 175	175 ± 4.0	230 ± 4.0	3.5 ± 0.6	55 ± 1.5	40 ÷ 100	600	0.85 x 2.10
OSPEN 200	200 ± 4.0	260 ± 4.0	4.0 ± 0.8	60 ± 1.5	30 ÷ 100	750	0.90 x 2.15
OSPEN 250	250 ± 4.0	320 ± 5.0	4.5 ± 1.5	70 ± 1.5	30 ÷ 100	850	1.50 x 2.80

- 1 Các thông số kỹ thuật về sản phẩm có thể thay đổi trong quá trình phát triển sản phẩm. Để có thông tin cập nhật mới về sản phẩm vui lòng liên hệ trực tiếp với công ty.
The above technical indexes may be changed without prior notice with product development. For latest updated information about product or further request please contact us.
- 2 Khi mua sản phẩm OSPEN nên chọn ống có đường kính danh định gấp tối thiểu 1.5 lần so với đường kính ngoài của cáp cần bảo vệ.
When purchasing OSPEN, it is recommend that it's nominal diameter be more than 1.5 time bigger than the outer diameter of the cable to be accommodated.
- 3 Có thể đáp ứng những đơn hàng với yêu cầu độ dài cuộn ống lớn hơn tiêu chuẩn trên. Một số trường hợp yêu cầu không đáp ứng được nếu cuộn ống quá lớn quá kích thước phương tiện vận chuyển. Orders for dimension of length other than above standard are acceptable. But request for longer dimension cannot always be met due to transportation consideration.



BẢNG TRA KÍCH THƯỚC ĐƯỜNG KÍNH CÁP ĐIỆN / Table of size cable diameter

CÁP 3.5 LỖ CÁCH ĐIỆN XLPE 0.6/1(1.2)KV / 0.6/1 (1.2)KV 3.5-Core XLPE Insulated cables



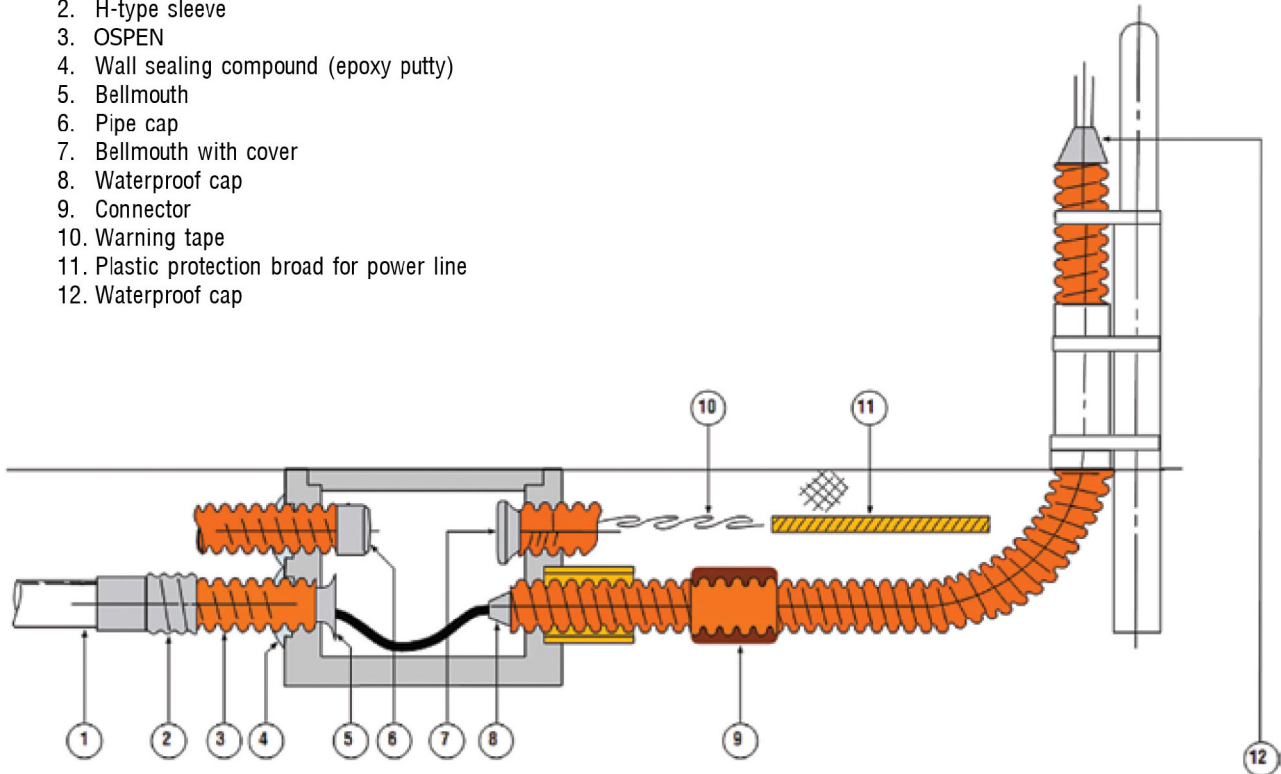
CONSTRUCTIONAL DATA (NOMINAL VALUES)																									
Tiết diện danh định (Nominal Area)	Đường kính lõi (Nominal conductor)	Chiều dày tiết diện danh định (Nominal thickness insulation)	Chiều dày bọc trong (Thickness inner sheath)		Đường kính sợi giáp (Diameter Wire Armour)	Chiều dày băng giáp (Thickness Tape Armour)		Chiều dày danh định vỏ bọc (Nominal Thickness Outer sheath)			Đường kính cáp gần đúng (Approx. Overall Cable Diameter)			Khối lượng cáp gần đúng lõi ruột đồng (Approx. Weight Copper conductor)			Khối lượng cáp gần đúng lõi ruột nhôm (Approx. Weight Aluminium conductor)			Chiều dài đóng gói tiêu chuẩn (Nominal Drum Length)					
			GSWA	DSTA		GSWA	DSTA	UnAr	GSWA	DSTA	UnAr	GSWA	DSTA	UnAr	GSWA	DSTA	UnAr	GSWA	DSTA	UnAr	GSWA	DSTA			
mm ²	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1.5	1.56	0.8	1.0	-	0.9	-	1.8	1.8	-	12	16	-	180	465	-	-	-	-	-	-	1500	1500	-	-	
2.5	2.51	0.8	1.0	-	0.9	-	1.8	1.8	-	13	17	-	240	540	-	-	-	-	-	-	1500	1500	-	-	
4	2.55	0.8	1.0	1.0	0.9	0.2	1.8	1.8	1.8	15	20	18	350	790	530	-	-	-	-	-	1000	1000	1000	-	
6	3.12	1.0	1.0	1.0	1.25	0.2	1.8	1.8	1.8	17	21	20	440	940	640	260	660	490	1000	1000	1000	1000	1000	-	
10	4.05	1.0	1.0	1.0	1.25	0.2	1.8	1.8	1.8	18	23	21	610	1.160	830	360	770	570	1000	1000	1000	1000	1000	-	
16	4.65	1.0	1.0	1.0	1.6	0.2	1.8	1.8	1.8	21	27	24	880	1.650	1.130	480	1.250	720	1000	1000	1000	1000	1000	-	
25	5.9	1.2	1.0	1.0	1.6	0.2	1.8	1.8	1.8	25	31	28	1.280	2.190	1.580	650	1.580	965	1000	1000	1000	1000	1000	-	
35	6.9	1.2	1.0	1.0	1.6	0.2	1.8	1.8	1.9	27	34	31	1.700	2.720	2.030	830	1.850	1.160	500	500	500	500	500	-	
50	8.0	1.4	1.2	1.2	2.0	0.2	1.9	2.1	2.1	31	40	36	2.250	3.730	2.670	1.100	2.620	1.540	500	500	500	500	500	-	
70	9.8	1.4	1.2	1.2	2.0	0.5	2.0	2.2	2.2	36	44	42	3.220	4.790	4.010	1.460	2.930	2.360	500	500	500	500	500	-	
95	11.4	1.6	1.4	1.4	2.5	0.5	2.1	2.4	2.4	31	51	48	4.270	6.660	5.330	1.940	4.330	3.000	500	500	500	500	500	-	
120	12.8	1.6	1.4	1.4	2.5	0.5	2.3	2.5	2.5	45	56	52	5.320	7.820	6.420	2.340	4.890	3.490	500	500	500	500	500	-	
150	14.2	1.8	1.4	1.4	2.5	0.5	2.4	2.6	2.6	50	61	57	6.550	9.350	7.750	2.870	5.720	4.140	500	500	500	500	500	-	
185	15.8	2.0	1.6	1.6	2.5	0.5	2.6	2.8	2.8	55	67	63	8.200	11.300	9.550	3.530	6.760	5.020	500	500	500	500	500	-	
240	18.1	2.2	1.6	1.6	2.5	0.5	2.8	3.0	3.0	63	74	71	10.740	14.150	12.200	4.570	8.170	6.200	500	500	500	500	500	-	
300	20.4	2.4	1.8	1.8	3.15	0.5	3.0	3.2	3.2	69	81	78	13.340	18.000	15.000	5.600	9.920	7.500	500	500	500	500	500	-	
400	23.2	2.6	1.8	1.8	3.15	0.5	3.3	3.6	3.6	78	87	89	17.100	22.500	18.810	7.120	12.600	9.200	500	500	500	500	500	-	

UnAr = Unarmoured / Không giáp
 GSWA = Galvanized Steel Wire Armoured / Giáp sợi thép
 DSTA = Double Steel Tape Armoured / Hai giáp băng thép
 16mm² ~ 400mm² are Circular compacted / Lõi 16mm² ~ 400mm² là lõi nén tròn

Phụ kiện

Accessories

1. Pipe of other types
2. H-type sleeve
3. OSPEN
4. Wall sealing compound (epoxy putty)
5. Bellmouth
6. Pipe cap
7. Bellmouth with cover
8. Waterproof cap
9. Connector
10. Warning tape
11. Plastic protection board for power line
12. Waterproof cap



List of accessories and materials				
No	Name	Designation	OSPEN	Use
1	Joint sleeve	MS		As conduit caps and for straight joining
2	H-type sleeve	NH		For connecting OSPEN with other pipes
3	Reduction connector	CT		For joining OSPEN of different sizes
4	Waterproof cover	MB		To prevent water penetration
5	Composite connector	MNC		To join OSPEN in underground 110 kV and 220 kV power cable installations
6	Plastic connector	MNP		To join OSPEN of the same size
7	Y-shaped connector	RN		For dividing a OSPEN conduit into two conduits
8	Bellmouth	NL		To prevent cables during pulling them in OSPEN
9	Pipe cap	NB		To prevent foreign matters from entering OSPEN during transportation and storage
10	Waterproof cap	NC		To prevent water ingress when OSPEN are fixed to a manhole or are installed outdoor
11	OSPEN clamp	KE		To join OSPEN with panel boxes
12	Buffer	GD		To support and maintain distances between conduits
13	Test rod	QT		To check OSPEN conduits for straightness and internal void
14	Pilot wire	DM		To draw cable-pulling wires through OSPEN conduits
15	SVP tapes	SVP		For sealing joints in OSPEN conduits
16	Warning tape	BCB		For warning there is a power line below
17	Protection board for power lines	TBV		Plastic boards for protecting an underground HV power line passing below

Phụ kiện

Accessories

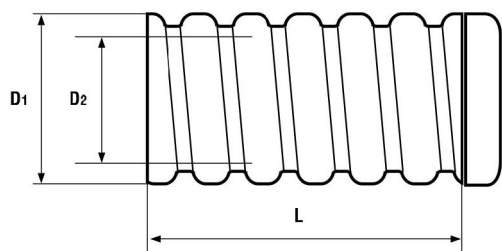
JOINT SLEEVE

Designation: MS-

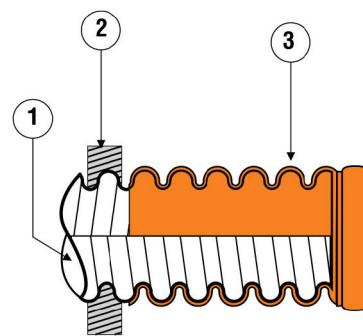
For straight joining (tight joining type) AnDatPhat HDPE Flexible Pipes, of sizes from OSPEN $\varnothing 32/25$ to OSPEN $\varnothing 320/250$.

Please specify in your order as: MS-.....

Example: Specify joint sleeves $\varnothing 100$, to join OSPEN $\varnothing 130/100$, as: MS-100

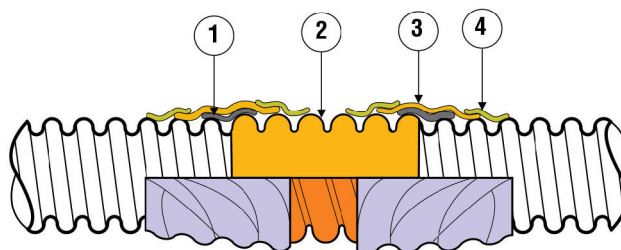


Designation	D1	D2	L
MS- $\varnothing 25$	38	25	60
MS- $\varnothing 30$	47	30	65
MS- $\varnothing 40$	61	40	85
MS- $\varnothing 50$	72	50	110
MS- $\varnothing 65$	91	65	135
MS- $\varnothing 80$	111	80	165
MS- $\varnothing 100$	142	100	215
MS- $\varnothing 125$	174	125	230
MS- $\varnothing 150$	204	150	260
MS- $\varnothing 200$	267	200	275
MS- $\varnothing 250$	328	250	300



Used as a conduit cap

1. Joint sleeve
2. OSPEN
3. Concrete



Used for straight joining

1. Joint sleeve OSPEN
2. Sealing tape
3. Vul-co tape
4. PVC tape



Phụ kiện

Accessories

COMPOSITE CONNECTOR

Designation: MNC-

Specialized products for straight joining OSPEN in underground 110 kV and 220 kV power cable installations.

Please specify in your order as: MNC-.....

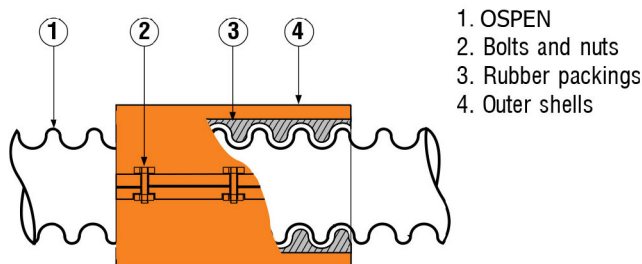
Example: Specify composite connectors to be fitted with OSPEN $\varnothing 260/200$ as: MN-200. The material of bolts and nuts shall be specified.



Unit: mm					
Designation	H	L	W	Bolt size	Quantity of bolt
MN-175	128	350	375	M16	6
MN-200	128	350	375	M16	6

Note:

- Composite connector sets MN-175 and MN-200 have the same outer shells. Their rubber packings, however are of different dimensions to match with OSPEN to be fitted with.
- Connector for other pipe, please contact order dept. Available in 30 days after placing order.



- OSPEN
- Bolts and nuts
- Rubber packings
- Outer shells

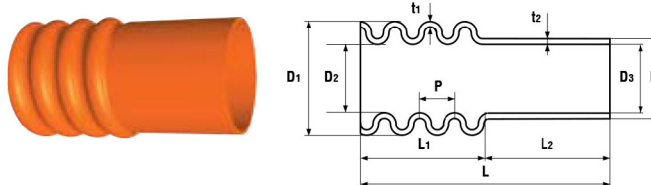
H-TYPE SLEEVE

Designation: NH-

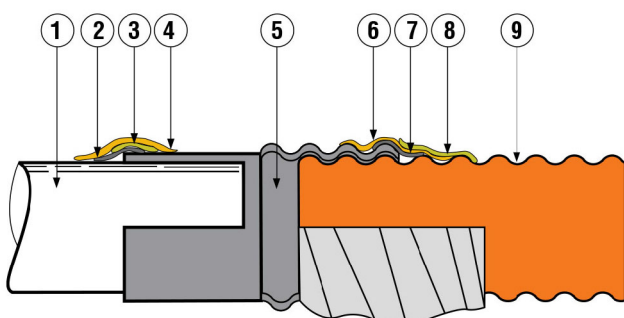
For connecting with other pipe. Imported only on order. Available in 14 days after placing order.

Please specify in your order as: NH-.....

Example: Specify H-type sleeves to join a OSPEN $\varnothing 130/100$ with a steel pipe, as: NH-100



Basic dimensions of H-type sleeves										
Unit:mm										
OSPEN	Corrugated portion					Plain portion				Total Length
	D ₁	D ₂	t ₁	L ₁	P	D ₃	D ₄	t ₂	L ₂	L
OSPEN $\varnothing 130/100$	130	124	3	150	30	115 ± 4	140	2,5	150	300
OSPEN $\varnothing 160/125$	158	148	3,5	165	38	135 ± 5	175	3,0	165	330
OSPEN $\varnothing 195/150$	180	172	4	180	45	165 ± 5	210	3,5	180	360
OSPEN $\varnothing 230/175$	207	198	4,5	200	55	205 ± 5	245	4,0	200	400
OSPEN $\varnothing 260/200$	240	230	5	230	60	230 ± 5	280	4,5	230	460



Procedure of joining pipes using H-type sealing gaskets

- Wipe water and dirt off the surface of OSPEN and the plain pipe (take particular care with corrugated portions).
- Screw the H-type sleeve onto OSPEN
- Loosen the collar and push the plain pipe into the sleeve until it fits into OSPEN
- Screw the collar into the sleeve. Cover the portion with sealing tape, vul-co tape and PVC water-resistant tape, as for straight joining.

- H-type sleeve
- Sealing tape
- Vul-co tape
- PVC tape
- H-type sleeve
- Sealing tape
- Vul-co tape
- PVC tape
- OSPEN

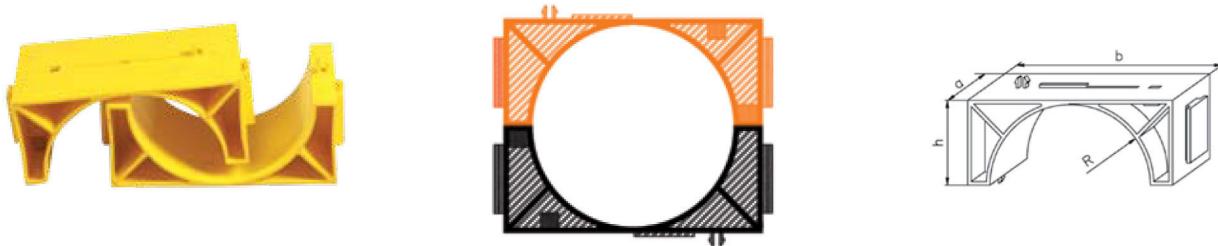
Phụ kiện

Accessories

BUFFER

Designation: GD-

To support and maintain distances between conduits. Single-conduit buffers and multi-conduit buffers are available. Concrete 3-conduit buffers should be used in installing underground 110 kV, 220 kV cable lines, to maintain fixed distances between phases.



4.5. PILOT WIRE

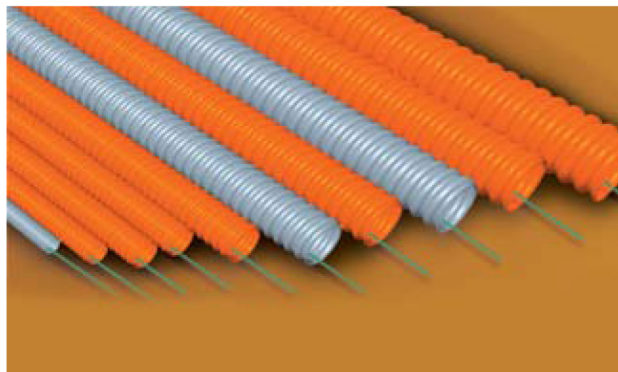
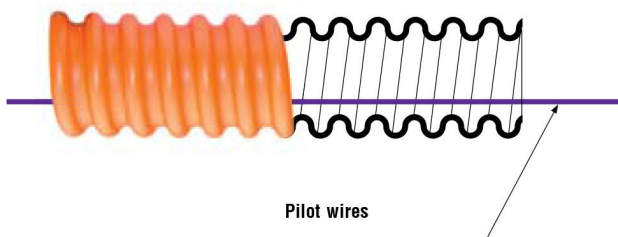
Designation: DM -

Pilot wires are supplied free of charge.

For OSPEN of a diameter up to 80 mm, a steel wire 1.6 mm covered with a plastic layer at least 0.2 mm thick is provided inside. For OSPEN of a diameter of 100 mm and larger, a steel wire of 2.0 mm covered with a 0.3 mm plastic layer is provided inside.

Some note on pilot wires readily provide in OSPEN

- Using the provided pilot wire only for pulling in power cables of an outer diameter up to 20mm (see Table 9)
- If the outer diameter of the power cable is larger than 20mm, but smaller than 50mm, use a nylon cord with a diameter of 6mm or larger, instead of the provided pilot wire, to put the power cable in.
- In case the outer diameter of the power cable is larger than 50mm, please use a PVC-covered fine steel cable of a diameter of $\varnothing 3\text{mm}$ to $\varnothing 16\text{mm}$, depending on the weight of the power cable to be accommodated.
- For underground 110kV or 220kV installation, please contact AN DAT PHAT and order PVC-covered fine steel be used as pilot wire cables to



Pilot wires of diameters of 1.6 mm, 2 mm and 3.2 mm are available, for different OSPEN conduit size:

Conduit	Pilot wire	Pilot wire
OSPEN $\varnothing 32/25$ ÷ OSPEN $\varnothing 85/65$	$\varnothing 1,6$ mm (*)	200 N (20kgf)
OSPEN $\varnothing 105/80$ ÷ OSPEN $\varnothing 195/150$	$\varnothing 2$ mm (*)	400 N (40kgf)
OSPEN $\varnothing 230/175$ & OSPEN $\varnothing 260/200$	$\varnothing 3,2$ mm or $\varnothing 4$ mm (*)	700 N (70kgf)
OSPEN $\varnothing 175$ & OSPEN $\varnothing 200$ (110kV-220 kV)	PVC-covered fine steel cable $\varnothing 3$ mm (**)	7370 N (737 kgf)
	PVC-covered fine steel cable $\varnothing 4$ mm (**)	12500 N (1250kgf)

Note:

(*) Pilot wires are not intended for pulling power cables.

(**) AnDatPhat supplies imported from Korea PVC-covered fine steel cables as pilot wire, on customers' order.

Phụ kiện

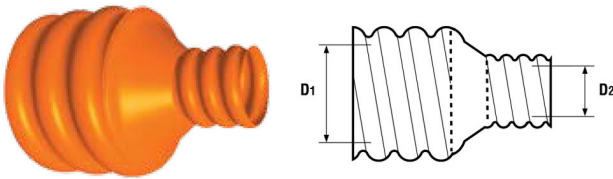
Accessories

REDUCTION CONNECTOR

Designation: CT -

For joining two AnDatPhat HDPE Flexible Pipes of different sizes. Please specify in your order as: CT-.....

Example: Specify reduction connectors from OSPEN $\phi 160/125$ down to OSPEN $\phi 130/100$ as: CT-125-100



Note: Only reduction connectors CT-125-100 and CT-100-50 are readily available. Please place order for other sizes. Available in 20 days after placing order.

Table 12

Designation	Larger OSPEN D ₂	Smaller OSPEN D ₁
CT-80-50	OSPEN $\phi 105/80$	OSPEN $\phi 65/50$
CT-100-50	OSPEN $\phi 130/100$	OSPEN $\phi 65/50$
CT100-80	OSPEN $\phi 130/100$	OSPEN $\phi 105/80$
CT-125-100	OSPEN $\phi 160/125$	OSPEN $\phi 130/100$

WATERPROOF CAP

Designation: NC -

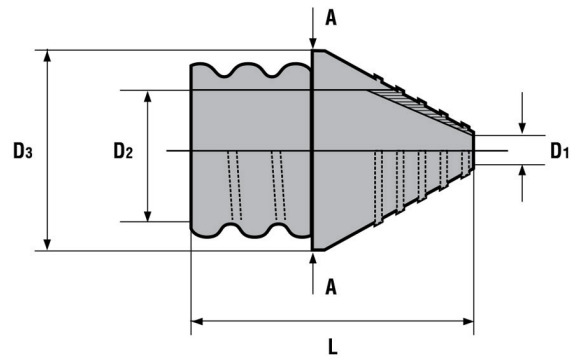
To prevent water ingress when OSPEN is fixed to a manhole or is installed outdoor.

Please specify in your order as: NC-.....

Example: Specify waterproof caps to be fitted with OSPEN $\phi 130/100$, as: NC-100



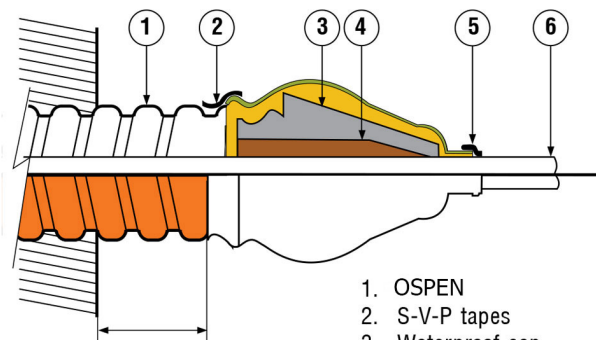
Designation	D ₁	D ₂	D ₃	L
NC-25	10	18	35	43
NC-30	10	25	43	56
NC-40	10	35	55	75
NC-50	10	40	68	82
NC-65	10	55	88	116
NC-80	20	70	108	118
NC-100	20	90	135	162
NC-125	20	110	163	172
NC-150	30	132	198	212
NC-175	30	150	233	252
NC-200	30	160	265	284
NC-250	35	175	330	310



See "Preventive measures against water ingress, against fire and fire expansion" for application procedure. Cut the head of the waterproof cap to the suitable hole dimension for the cable.

Application procedure

Insert waterproof cap (3) (refer to Waterproof cap, "Fittings and Materials") into the end of OSPEN and cover it with waterproof compound (4) or sealing tape. Wrap vull-co tape around it and secure its end with PVC tape. The end of the waterproof cap should be cut beforehand to get a hole which matches the outer diameter of the cable. If OSPEN is fixed to a manhole, its protruding length should match that required for tapping it before fixing it to the manhole.



1. OSPEN
2. S-V-P tapes
3. Waterproof cap
4. Epoxy compound
5. S-V-P tapes
6. Cable

Phụ kiện

Accessories

TAPES

Designation: S-V-P-

For sealing joints between OSPEN between OSPEN and another kind of pipe, or between OSPEN and fittings. Refer to Table For tapes and quantities of tape rolls needed for a joint. Guidance to each particular application can be found in this section.

BaAn supplies:

- Vulcanized rubber tape (V tape) 40 mm x 10 m;
- Water-resistant PVC tape (P tape) 40 mm x 10 m and 80 mm x 10 m;
- Sealing tape (S tape) 50 mm x 2.2 m;

Please specify in your order as: S tape, V tape or P tape.

Example: Specify PVC water-resistant tape roll of 40 mm x 10 m, as: roll of P 40x10.



Vulcanized rubber tape (Vul-co tape)



Water-resistant PVC tape



Sealing tape (Unvulcanized rubber tape)

Table 14

Tapes and quantity of rolls needed for a joint

OSPEN	Tape size/ Quantity W(mm) x L (m)*	Sealing tape W(mm) x L (m)	Vul-co tape W(mm) x L (m)	PVC tape W(mm) x L (m)	Unit
OSPEN Ø40/30	Tape size	30 x 0,25	30 x 5	30 x 10	1 set
OSPEN Ø50/40	Number of rolls	1	1	1	1 set
OSPEN Ø65/50	Tape size	30 x 0,25	30 x 5	30 x 10	1 set
	Number of rolls	2	1	1	1 set
OSPEN Ø85/65	Tape size	40 x 0,55	30 x 5	30 x 10	1 set
OSPEN Ø105/80	Number of rolls	2	2	1	1 set
OSPEN Ø130/100	Tape size	50 x 1,25	40 x 5	40 x 3	1 set
	Number of rolls	2	2	2	1 set
OSPEN Ø160/125	Tape size	50 x 1,9	40 x 7,5	40 x 7,5	1 set
OSPEN Ø195/150	Number of rolls	2	2	2	1 set
OSPEN Ø230/175	Tape size	50 x 2,2	40 x 9	40 x 9,5	1 set
	Number of rolls	2	2	2	1 set
OSPEN Ø260/200	Tape size	50 x 2,5	40 x 10	40 x 11,5	1 set
	Number of rolls	2	2	2	1 set

(*) W (mm) x L (m): Width (mm) x Length (m)

PROTECION BOARD FOR POWER LINES

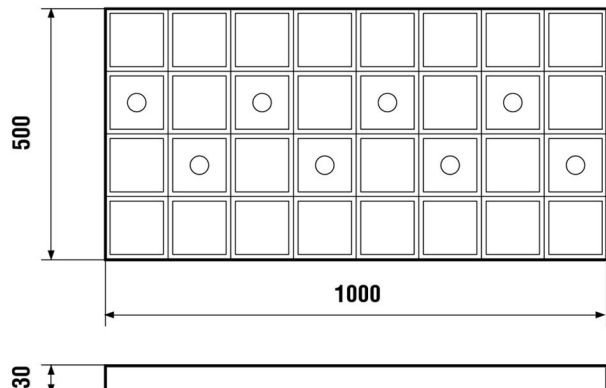
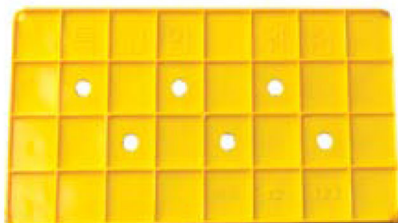
Designation: TBV-

Plastic boards for protecting an underground HV power line passing below.

Size: Long x Wide x High: 1000 x 500 x 30 (mm)

Improted from Korea, available in 14 days after placing order.

Please specify in your order as: TBV-1000



Phụ kiện

Accessories

PLASTIC CONNECTOR

Designation: MNP-

For straight joining OSPEN of the same size

Please specify in your order as: MNP-.....

Example: Specify plastic connector set, to be fitted with OSPEN Ø130/100, as: MNP-100. The material of bolts and nuts shall be specified.

Note:

- Stainless bolts and nuts may be tightened once only.
- Galvanized steel bolts and nuts may be tightened and loosened many times.

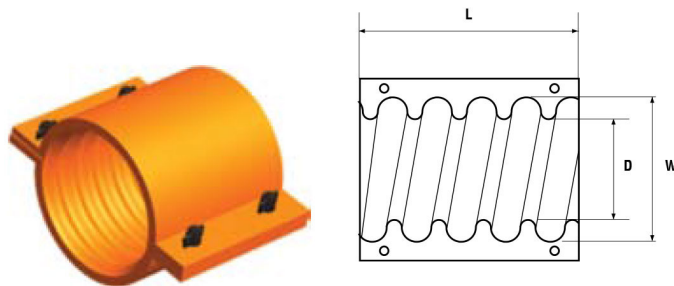
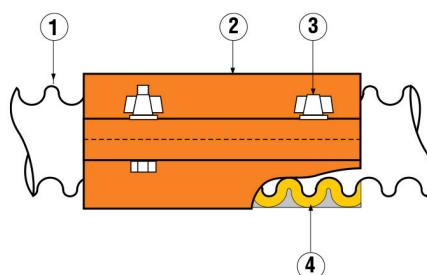
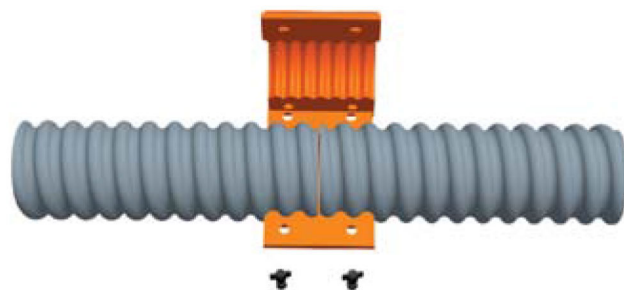


Table 15				Unit: mm
Designation	Normal diameter (D)	Width (W)	Length (L)	Bolts
MNP-25	25	70	55	M8
MNP-30	30	87	60	
MNP-40	40	110	75	
MNP-50	50	140	115	
MNP-65	65	145	120	
MNP-80	80	150	145	M12
MNP-100	100	190	190	
MNP-125	125	220	215	
MNP-150	150	270	235	M14, 16
MNP-200	200	360	270	
MNP-250	250	440	335	



1. Bolt and nut
2. Plastic shell
3. OSPEN
4. PVC waterproof tape

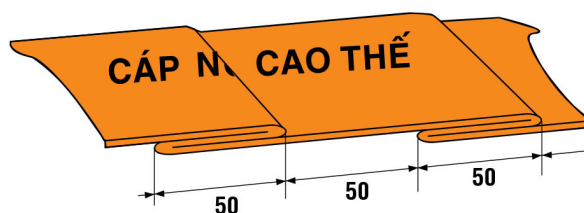
WARNING TAPE

Designation: BCB-

For warning there is a power line below. This 30cm wide tape is made of PP (polypropylene) cloth, then folded and simply stuck to make folds every 5cm along its length (see the picture). Thanks to these folds, when laid length in cable trenches and the covered with soil, the tape would not break under the soil load or later, under outer forces, because these folds can be easily released, resulting in length extension.

1. BCB-1: warning tapes are imported from Korea
2. BCB-2: warning tapes (without folds) are made in Vietnam

Table 16: BCB-1		
Width	Thickness	Tape length per coil
330mm	0,15mm	50m



Y-SHAPED CONNECTOR

Designation: RN-

For dividing a BaAn HDPE Flexible Pipe conduit into two conduits of the same size.

Please specify in your order as: RN-.....

Example: Specify Y-shaped connectors, to be fitted with OSPEN Ø130/100, as: RN-100

Note: Only Y-shaped connectors RN-100 are readily available. Please place order for other sizes. Available in 30 days after placing order.

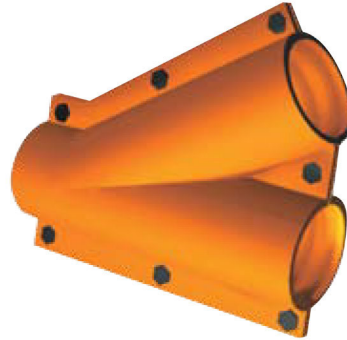
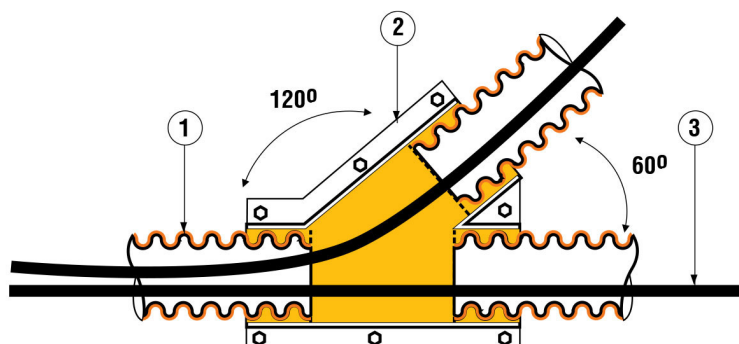
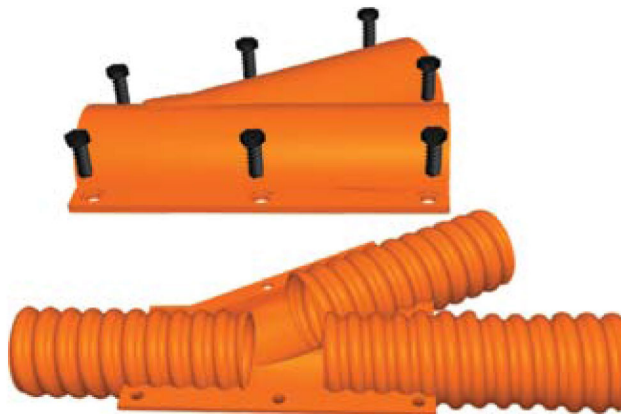
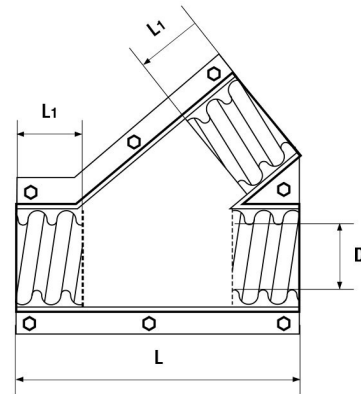


Table 17		Unit: mm		
Designation	D	L1	L	Bolts
RN-100	98	95	310	M12
RN-125	120	110	350	M16
RN-150	145	130	400	M16



Phụ kiện

Accessories

TFP CLAMP

Designation: KE-

To join OSPEN with panel boxes

Please specify in your order as: KE-.....

Example: Specify OSPENclamps to be fitted with OSPEN \varnothing 40/30, as: KE-30

Note:

The diameter of the hole made on the wall of the panel box shall match with that of the OSPEN clamp (see Table 16). Special tools should be used in making these holes in panel box wall.

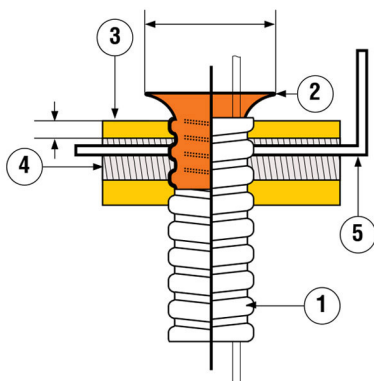
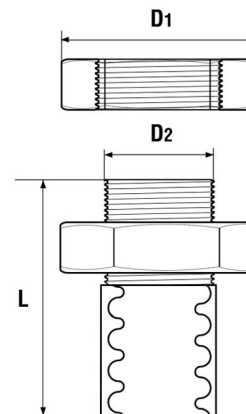
OSPEN \varnothing 125 ÷ OSPEN \varnothing 250 doesn't clap but using bellmouth correspondence (see bellmouth at page in Accessories)

OSPEN clamps are made on orders.

Available in 20 days.

Nominal diameter of OSPEN (mm)	Hole diameter on the wall (mm)
25	33,3 (39)
30	42,7 (46)
40	60,4 (54)
50	76,0 (70)
65	88,7 (82)
80	102,7 (92)
100	115,4 (104)

Designation	Nominal diameter D1	Bushing		Connecting tube L2
		D2	L1	
KE-25	25	39	11	52
KE-30	30	51	13	77
KE-40	40	71	16	96
KE-50	50	88	18	113
KE-65	65	101	20	135
KE-80	80	114	22	150
KE-100	100	131	24	178



1. OSPEN clamps
2. Rubber packing
3. Bellmouth
4. OSPEN
5. Panel box

Phụ kiện

Accessories

BELLMOUTH

Designation: NL-

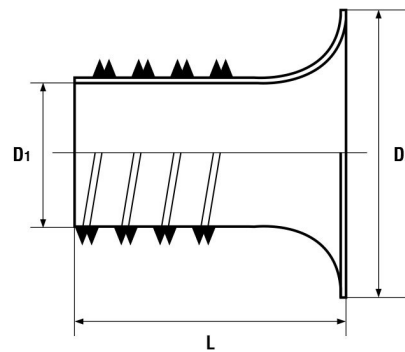
Bellmouths should be screwed into the end part of OSPEN previously, to prevent the cables from being scratched or damaged when being pulled in.

Please specify in your order as: NL-.....

Example: Specify bellmouths to be fitted with OSPEN \varnothing 130/100, as: NL-100



Table 20		Unit: mm	
Designation	D1	D2	L
NL-25	40	21	35
NL-30	50	26	40
NL-40	65	36	50
NL-50	78	45	60
NL-65	97	60	75
NL-80	115	74	85
NL-100	144	93	105
NL-125	176	116	130
NL-150	205	141	150
NL-200	272	189	185
NL-250	335	235	200



WATERPROOF COVER

Designation: MB-

To prevent water from ingressing into OSPEN at places the conduit goes through walls (building, manhole walls, etc.).

Please specify in your order as: MB-...

Example: Specify waterproof covers, to be fitted with OSPEN \varnothing 130/100, as: MB-100

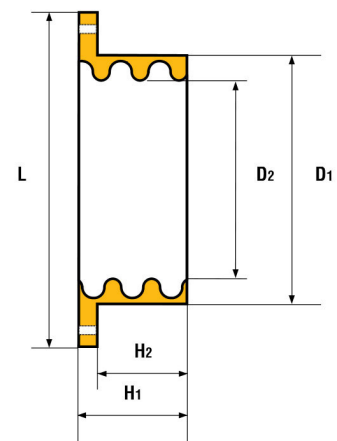
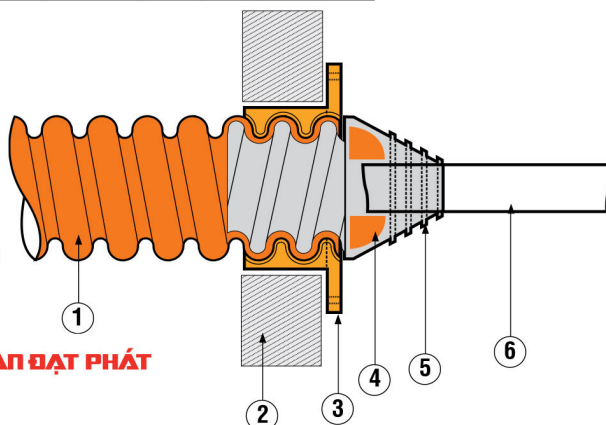


Table 21		Unit: mm				
Designation	Nominal diameter (D)	L x L	H2	H1	D1	D2
MB-80	80	218x218	83	77	108	88
MB-100	100	218x218	97	91	136	120
MB-150	150	218x218	97	91	188	158

1. OSPEN
2. Wall
3. Waterproof cover
4. Waterproof compound
5. Waterproof rubber cap
6. Cable



Phụ kiện

Accessories

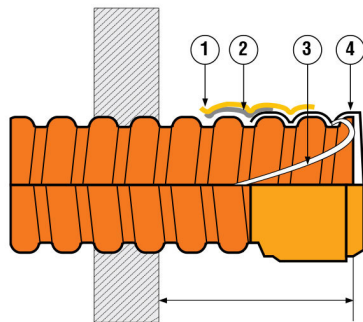
PIPE CAP

Designation: NB-

To prevent foreign matters from entering OSPEN during transportation and storage. When OSPEN is fixed to a manhole or is installed outdoor, additional wrapping of vul-co tape and PVC water-resistant tape shall be needed.

Please specify in your order as: NB-.....

Example: Specify pipe cap to be fitted with OSPEN ϕ 130/100, as: NB-100



1. Pipe cap
2. Pilot wire
3. Vulco tape
4. PVC tape

TEST ROD

Designation: QT-

To check for straightness and internal void of OSPEN conduits. Test rods should be selected according to the size of OSPEN (refer to Table 20). Passing of test rods is recommended in provisional burying and when OSPEN systems are laid completely.

Please specify in your order as: QT-.....

Example: Specify a test rod of an outer diameter of 20 mm, and 400 mm long, to be used for checking OSPEN ϕ 40/30 conduits, as: QT-20x400.

For choosing a test rod of appropriate, please refer to table 14

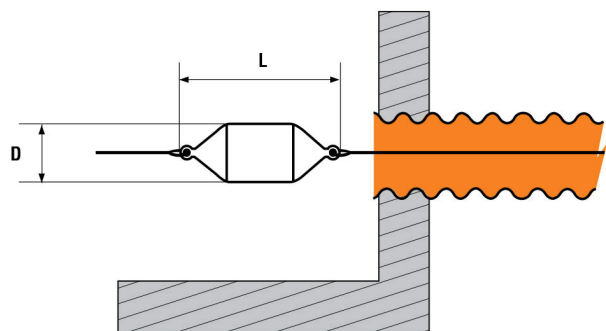


Table 22: Size of test rods												Unit: mm
Nominal OSPEN diameter	25	30	40	50	65	80	100	125	150	175	200	250
Outer test rod diameter(D)	18	20	30	40	55	60	80	105	130	160	180	220
Test rod length (L)	400					600						

Hướng dẫn lắp đặt

QUY TRÌNH NỐI ỐNG DÙNG MĂNG SÔNG / Connecting 2 pipes with joint sleeve



01

Vặn hết măng sông vào một đầu ống cần nối theo chiều kim đồng hồ, dùng cưa cắt nắp của măng sông nếu có.
Fasten completely a joint-sleeve to the end of the pipe (which is needed to be connected) by turning it clockwise, then cut the cap if available



02

Đưa đầu ống thứ 2 cần nối vào sát đầu ống đã vặn măng sông. Xoay măng sông ngược chiều kim đồng hồ cho đến khi điểm tiếp xúc giữa 2 đầu ống nằm giữa măng sông / Drive the end of the second pipe closely to end of the first pipe with joint-sleeve. Turn the joint-sleeve counterclockwise until the contact point of two pipes is right in the middle of the joint-sleeve.



03

Dùng búa cao su quấn chặt chỗ tiếp xúc giữa măng sông với ống.
Wrap tightly the gap between the joint-sleeve and the two pipes by using rubber tape.



04

Sử dụng đèn khò để khò nóng chảy băng cao su.
Using heating torch to melt the rubber tape.



05

Dùng băng PVC chịu nước cuộn chặt bên ngoài lớp băng cao su.
Wrap water-resistance PVC tape outside of rubber tape



06

Mối nối hoàn thiện.
Complete joint.

CÔNG TRÌNH TIÊU BIỂU / Typical projects



PHU QUOC INTERNATIONAL AIRPORT

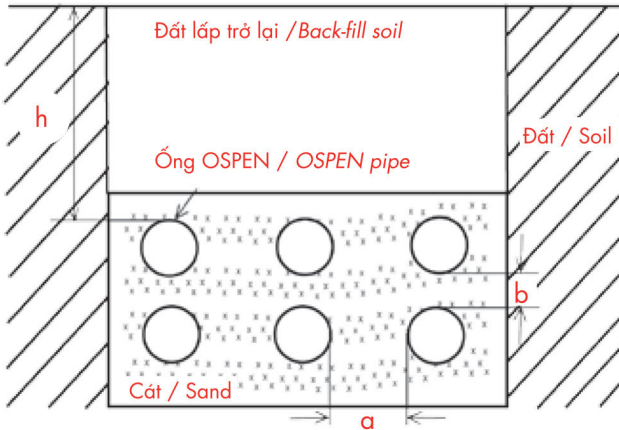


ECOPARK



DA NANG INTERCONTINENTAL

THI CÔNG LẮP ĐẶT VỚI CÁP NGẦM / Underground cable installation



- a: Khoảng cách giữa hai ống OSPEN trái và phải
Distance between right and left OSPEN
- b: Khoảng cách giữa hai ống OSPEN trên và dưới.
Distance between upper and lower OSPEN

Loại ống / Pipe size	a/b (mm)
OSPEN 25, 30, 40, 50, 65, 70	50
OSPEN 80, 90, 100, 125, 150, 160	70
OSPEN 175, 200, 250	100

- h: Khoảng cách giữa mặt nền tới ống chôn dưới đất
Distance from OSPEN to ground

- Tối thiểu 0,6m trong tr ường hợp thông thường
At least 0,6m in normal condition
- Tối thiểu 1,2m trong trường hợp chịu áp lực
At least 1,2m in under pressure

HƯỚNG DẪN ĐANG THI CÔNG / Installation guide

1. Đào rãnh / Trenching

Độ rộng của rãnh đào được quyết định bởi số lượng ống dự kiến đặt nhằm đảm bảo khoảng cách an toàn giữa các ống. Độ sâu của rãnh phải đảm bảo ống ở vị trí trên cùng cách mặt nền lớn hơn độ sâu h, ống dưới cùng không được đặt trên nền đá cứng hoặc đá cuội. Nên để ống trên lớp cát nền đã được làm phẳng và đầm chặt.

The trenching width is determined by the number of OSPEN laid to ensure to the safety distance between pipes. The trenching width is depth must ensure that the distances from upper-most OSPEN pipes to ground are suited to h, the lower-most OSPEN should not be directly laid on rocks or pebble. It is recommended to be laid on leveled and compacted sand.

2. Rải ống / Pipe laying

Khi rải ống phải làm cẩn thận để tránh đất, sỏi, đá và nước chui vào ống. Ống OSPEN nên được rải ra bằng cách lăn cuộn ống dọc theo rãnh. Nếu chỉ kéo ống không lăn tròn cuộn ống sẽ làm ống bị xoắn.

It should be carefully to laid OSPEN to prevent soil, pebble and water entering it. OSPEN should be laid by rolling along the trenched ground. If pull along without rolling, OSPEN will twist.

3. Cố định ống và lấp rãnh / Arrangement and back filling

Khi có hơn 2 ống OSPEN đặt song song với nhau, khoảng cách giữa các ống phải thỏa mãn tiêu chuẩn như hình trên. Có thể dùng dướng làm bằng gỗ hoặc dây thép để cố định ống. Dướng sẽ được tháo ra sau khi ống đã được lấp cát.

When 2 or more OSPEN are to be laid in parallel, distance between pipes should be suited to the standard as shown in above figure. It could be use a gauge to straighten the laid OSPEN. The gauge should be removed after OPEN are held in place with sand.



COD - Corrugated Optical Duct

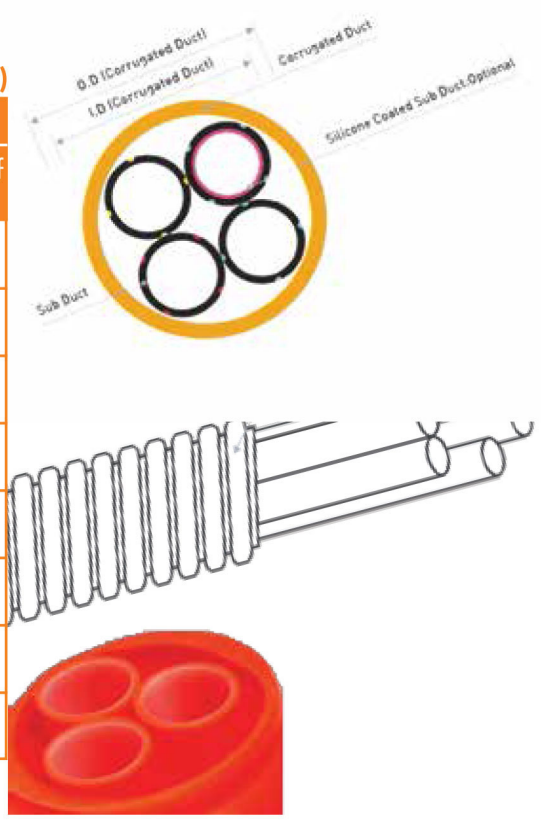


CẤU TRÚC VÀ KÍCH THƯỚC / Structure and Dimension

COD

(mm)

MODEL	Outer Duct O.D	Sub Duct			
		O.D	THK	I.D	Number of Ducts
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



Model: Mẫu ống - Outer duct: Ống ngoài
Sub duct: Ống lõi - Number of ducts: Số lượng lõi

SẢN PHẨM MỚI VÀ ỨNG DỤNG

New production application

MICRO COD - MICRO Corrugated Optical Duct

MICRO COD CONNECTION

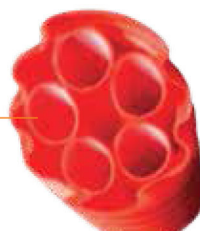


- ▶ Inner Duct: Bên trong mối nối
- ▶ Socket of micro tube: Giắc nối dây nhỏ bên trong
- ▶ Outer Duct: Bên ngoài mối nối
- ▶ PE straight pipe with sealing of proof cover: Ống nhựa PE được bịt chống nước ở 2 đầu
- ▶ The cover length: Free adjustable - Độ dài ống nối: Có thể điều chỉnh được
- ▶ Connector of Sub Duct + Cover of Outer Corrugated Duct: Giắc nối dây nhỏ + Phần bọc phía ngoài mối nối

CẤU TRÚC VÀ KÍCH THƯỚC / Structure and 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	5 lines	55.0	12.0	10.0	1300	
14/10 mm	5 lines	50.0	14.0	12.0	1500	
14/10 mm	5 lines	55.0	14.0	12.0	1300	
14/10 mm	5 lines	60.0	14.0	12.0	1000	
16/10 mm	5 lines	60.0	16.0	14.0	1000	

Silicone coated sub duct (HDPE) bọc ống lõi silicone / Corrugated outer duct ống xoắn bên ngoài - Model mẫu - Structure/Cấu trúc

**SẢN PHẨM MỚI
VÀ ỨNG
DỤNG**

New production application

**MICRO
DUCT**



CẤU TRÚC VÀ KÍCH THƯỚC / Structure and Dimension

PRODUCT SPEC. & STRUCTURE

Model	Outer		Inner		Structure		
	OD	Thick.	OD	ID			
DI 10/8mm	1-way	13.4	1.5	10	8		
	2-way	23.4 x 13.4	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	27.4 x 15.4	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	30.0 x 16.0	1.0	14	10		
	6-way	40.0 x 37.0	1.0	14	10		
	7-way	40.0 x 40.0	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	27.4 x 17.4	2.0	23.4 x 13.4	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	31.4 x 19.5	2.0	15.4 x 27.4	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	

Model: mẫu/mô hình - Outer: đường kính ngoài lõi - Inner: đường kính trong lõi // Thick: độ dày - Structure: cấu trúc

SẢN PHẨM MỚI VÀ ỨNG DỤNG

New production application



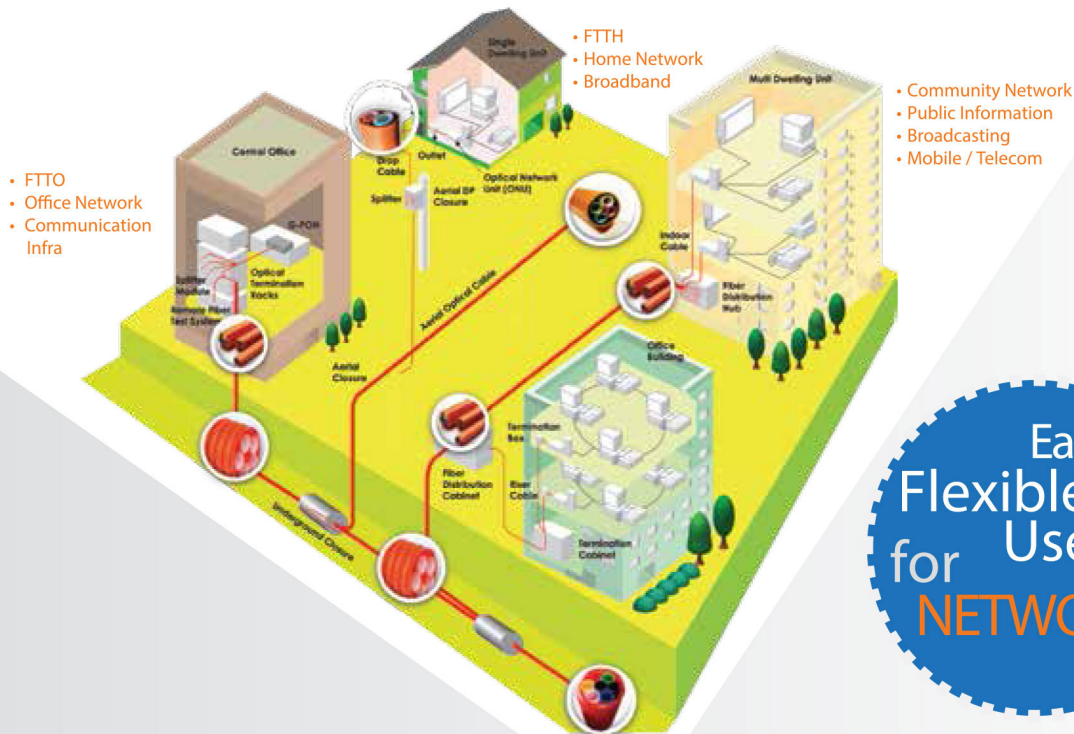
Clear-access + soft-witch
Broad-access
Gigabit Ethernet
Resilient ring transmission

ABS

FEATURES

APPLICATION

STRUCTURE & DIMENSION



- FTTO
- Office Network
- Communication Infra

- FTTH
- Home Network
- Broadband

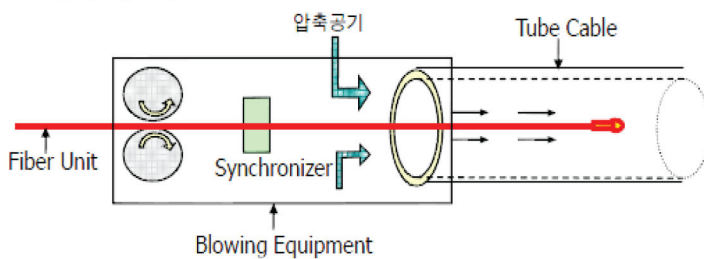
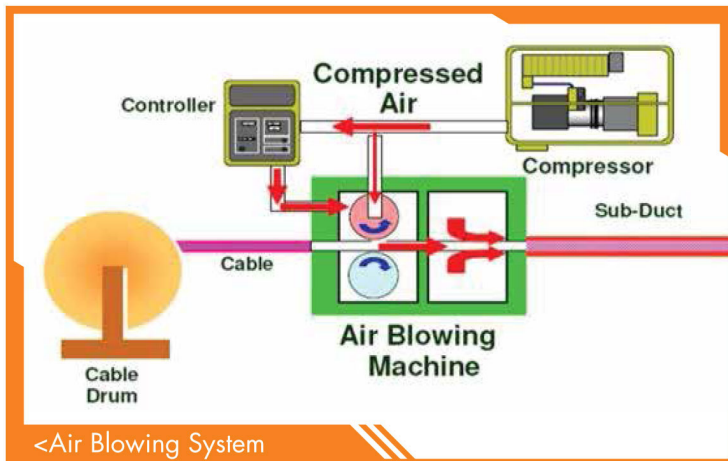
- Community Network
- Public Information
- Broadcasting
- Mobile / Telecom

Easy.
Flexible.
Useful.
for
NETWORK

- ▶ Office network: Mạng văn phòng
- ▶ Communication infra: Cơ sở hạ tầng thông tin
- ▶ Central office: Hệ thống trung tâm
- ▶ Splitter module: Bộ chia
- ▶ Remote fiber test system: Hệ thống kiểm tra từ xa
- ▶ Optical termination racks: Kệ kết nối đầu cuối thiết bị quang
- ▶ Underground closure: Hộp kết nối ngầm
- ▶ Aerial optical cable: Cáp quang trên không
- ▶ Single dwelling unit: Khu chung cư
- ▶ Indoor cable: Cáp đi trong nhà
- ▶ Fiber distribution hub: Bộ phân phối quang
- ▶ Office building: Tòa nhà văn phòng

- ▶ Termination box: Hộp kết nối thiết bị đầu cuối
- ▶ Termination cabinet: Tủ kết nối thiết bị đầu cuối
- ▶ Fiber distribution cabinet: Tủ phân phối quang
- ▶ Community network: Mạng công cộng
- ▶ Broadcasting: Quảng bá
- ▶ Mobile/Telecom: Mạng di động/ Mạng cố định

Hướng dẫn lắp đặt MICRO COD & MICRO DUCT



Air Blowing system/ Hệ thống thổi khí

- ▶ Controller/ Máy điều khiển
- ▶ Compressed air/ Khí nén
- ▶ Compressor/ Máy nén
- ▶ Cable drum/ Cuộn cáp
- ▶ Air Blowing machine/ Máy thổi khí
- ▶ Sub-duct/ Ống lõi

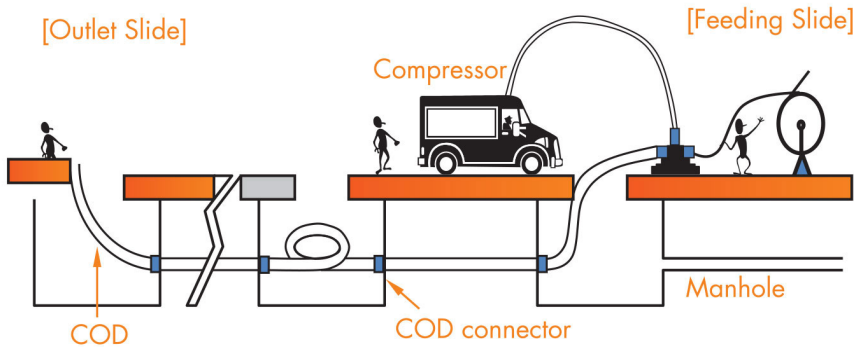
Air Blowing Equipment/ Thiết bị thổi khí

- ▶ Tube cable/ Ống luồng cáp
- ▶ Fiber unit/ Sợi cáp
- ▶ Synchronizer/ Đồng bộ hóa

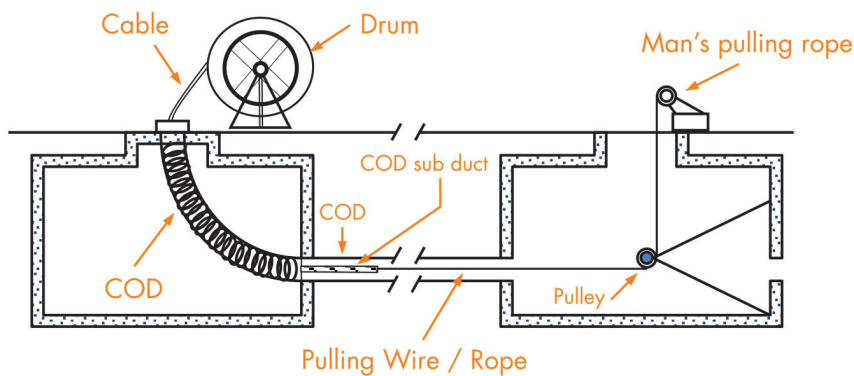
Available conduit/ Ống dẫn có sẵn

Hướng dẫn lắp đặt COD

Installation system: COD



<Air Blowing system>



<Man's Pulling system>



Air Blowing system/ Hệ thống thổi khí

- ▶ Outlet side/ Phía đầu ra sợi cáp
- ▶ Compressor/ Máy nén
- ▶ Feeding side/ Phía đầu vào sợi cáp
- ▶ Manhole/ Hố ga
- ▶ COD connector/ Nối ống COD
- ▶ Man's pulling system/ Hệ thống kéo

Cable drum/ Cuộn cáp

Man's pulling rope/ Dây kéo cáp

COD sub duct/ Lõi ống COD

Pulley/ Ròng rọc

Pulling wire/ rope/ Dây kéo cáp