



**Welcome  
Bucharest !**

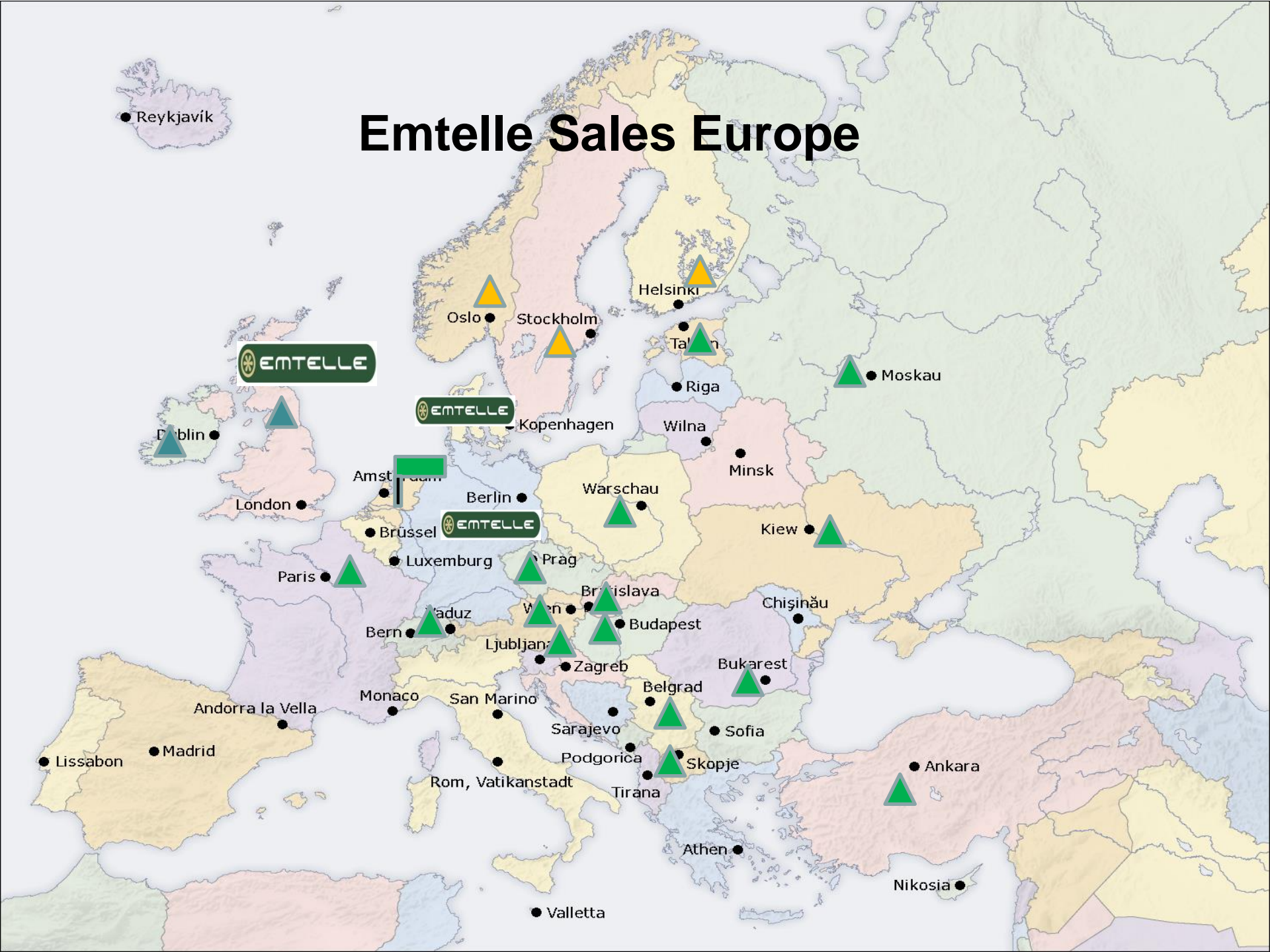
## **New developments in Duct Solutions and Cable Deployment Techniques**

# Background to EMTELLE

- 34 years experience in micro tube production
- Emtelle technology 
- About 1000 employees worldwide
- offices in UK, Central Europe, Asia, America
- Head Office in Hawick/Scotland
- Factories Scotland, Denmark, India
- Group Head Office in Geneva
- Group sales value US\$ 9 Bln.



# Emtelle Sales Europe



# Why cable blowing in tubes ???

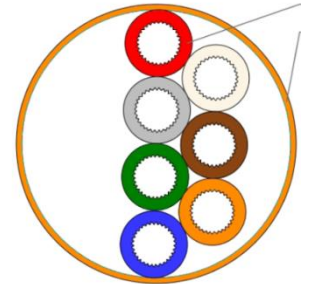


**Flexibility**



**Miniaturization**

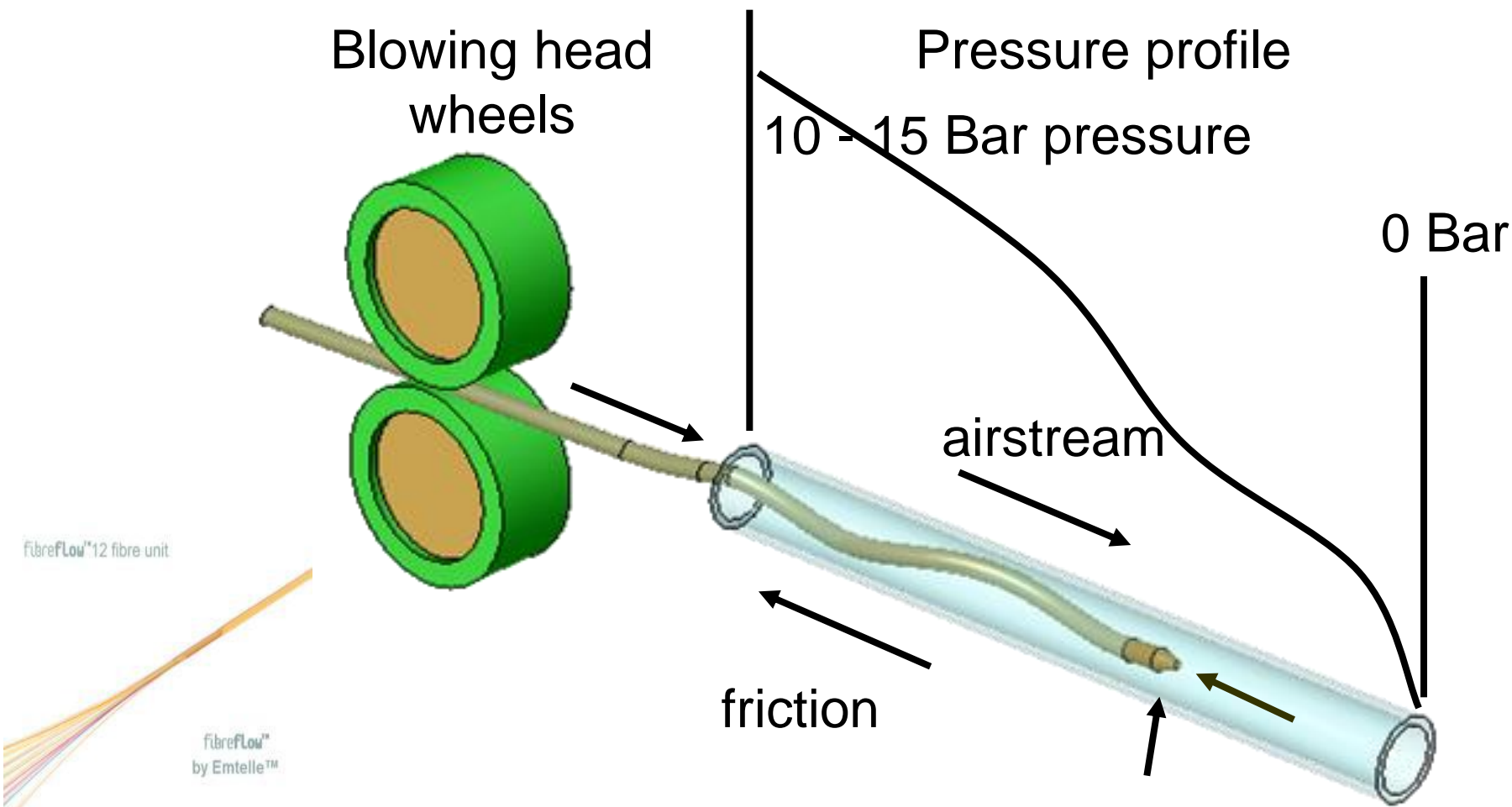
50mm subduct with 7-8 tubes

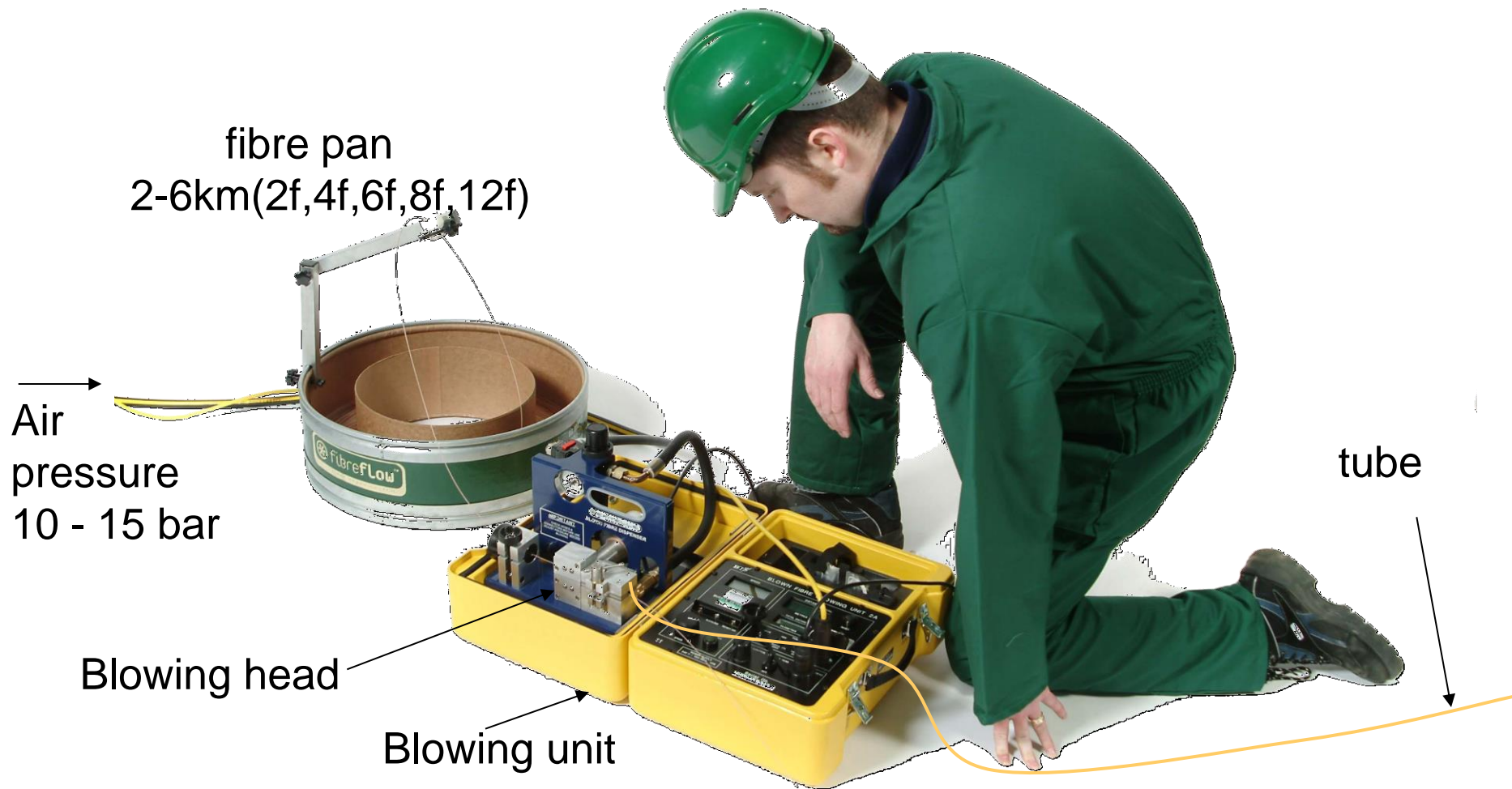


**Last digging, fast and effective**



# Blowing principle





# Primary Duct & Sub Ducts

## Trends

Quad, triple, double



## Sub Duct

Subduct with preinstalled tube bundles



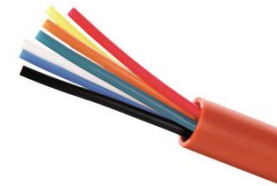
50mm, -> 40mm -> 32mm -> 25mm OD,  
with the ability to increase volume of  
sub duct in Duct

*Examples:*

5 x 31mm OD -> 110mm

8 x 25mm OD -> 114mm





fibreFlow™ TUBE BUNDLE

**Direct Bury  
metal free (DBmf)**



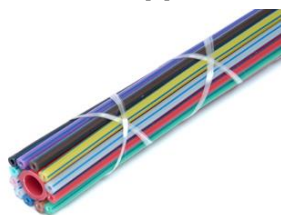
**1 DBmf PIFU**



**DBmf heavy wall**



**DBmf Wrapped**



**Direct Install**



**Aerial**



**Low Fire Hazard**



**Plenum**

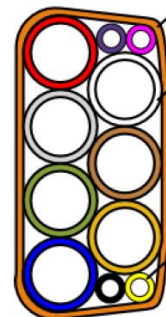


**DB Rodent  
Resistant**

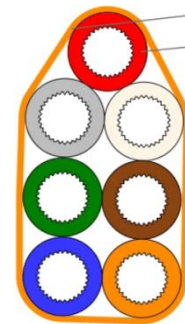


INNOVATION AND FLEXIBILITY

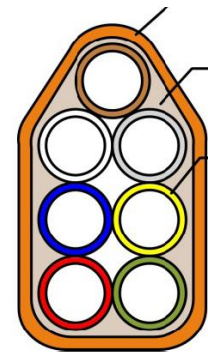
# Slot-Cut products



CP1650



CP1651



CP1653

These products will fit into a 30mm wide slot-cut.

Emtelle's partner Stirling Lloyd can provide details on in-fill & road repair:

[www.stirlinglloyd.com](http://www.stirlinglloyd.com)

# Closures

- Tube Distribution Closure
- Y Branch Closure
- 24 Way Tube Distribution Manifold
- Customer Lead In
- Indoor Tube Flexibility Point
- Blown Fibre Closure 3A
- Hellermann Closures for Tube Flexibility Point



# Development of Cable solutions



- Full range of minicable configuration

12,24,48,72,96,144f G.652d

- blowing fibre 2,4,8,12f with optimized fibre

G.657a,OM1,OM2,OM3,OM4

# Tube size / Fibre count combinations

- Feeder

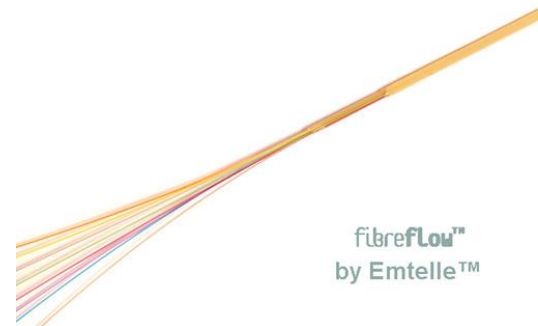
- |           |                                |
|-----------|--------------------------------|
| – 10/6mm  | 12-24F micro-cable 2.8mm OD    |
| – 12/8mm  | 12-72F mini-cable 5.8/6.1mm OD |
| – 14/10mm | 12-96F mini-cable 7.3mm OD     |
|           | 144F mini-cable 7.8mm OD       |
| – 16/12mm | 144F mini-cable 7.8mm OD       |
| – 18/14mm | 288F mini-cable 10.5mm OD      |



fibreflow™ 12 fibre unit

- Distribution

- |                 |                    |
|-----------------|--------------------|
| – 5/2.1mm       | 2/4FU (1,2mm OD)   |
| – 7/3.5 + 7/4mm | 2-12FU ( 1,6mm OD) |
| – 8/3.5         | 2-12FU (1,6mm OD)  |



# Blowing parameters

Blowing speed

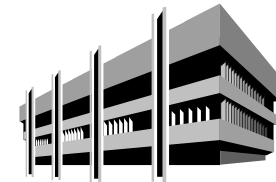
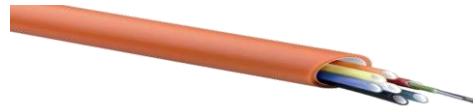
60m/min – 20m/min

Blowing distance

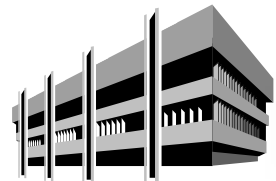
Accessnet 800m – 1000m



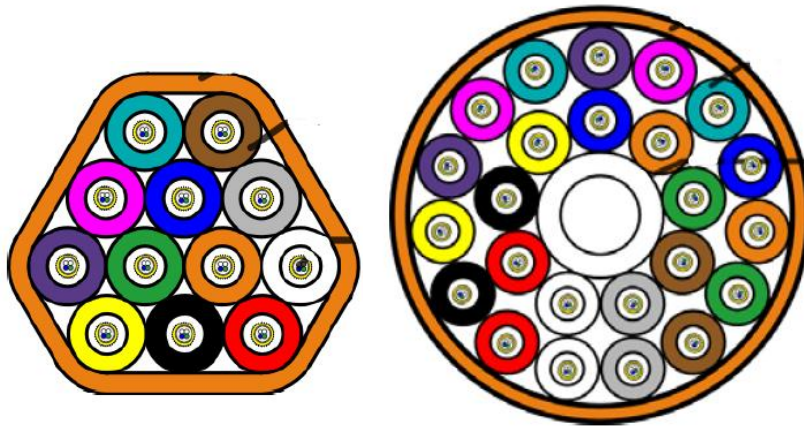
Backbone 1,5 – 2km



for longer distances **midblowing**



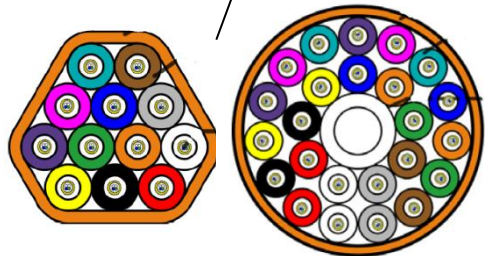
# Multi FU solution



- 12 WAY or 24 WAY
- 4/2.1mm, 5/2.5mm, 7/4mm
- Populated with 2f,4f,6f, 8f or 12f (12f only 7/4-system)
- Tube population 100% or customized
- All used tubes direct buried
- Tube colours on demand (Standard DIN VDE 0888 part 3)

# Accessnet Elements

DP



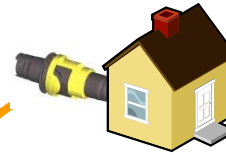
12-way or 24-way Multi FU  
DBmf 4/2.1mm populated with  
2fu G.657A



fibreFlow™  
by Entelle™



fibreFlow™  
by Entelle™



Direct buried connector/reducer  
For house drop connection



fibreFlow™  
by Entelle™



fibreFlow™  
by Entelle™



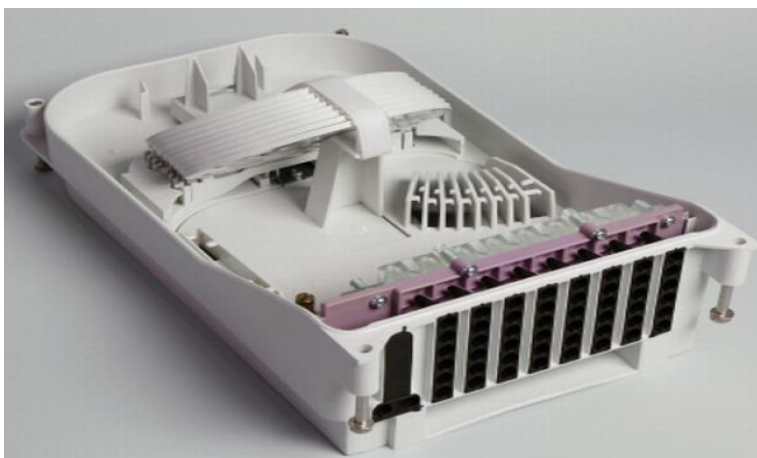
Drop tube 7/4mm HDPE

Gasblock 7mm

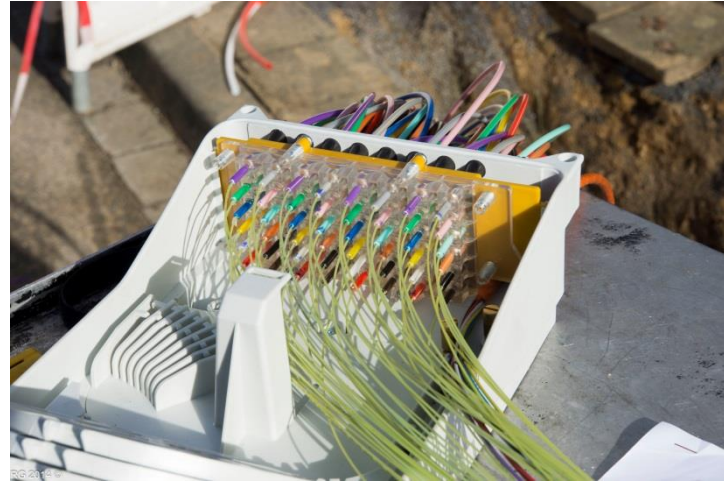
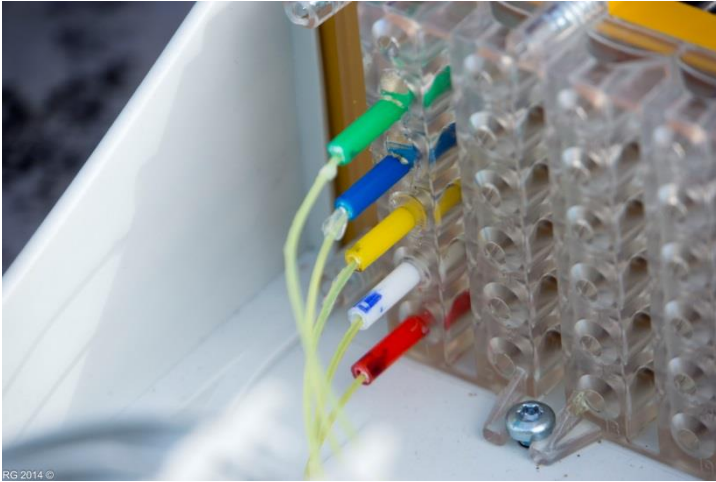
# Attema Splice closure

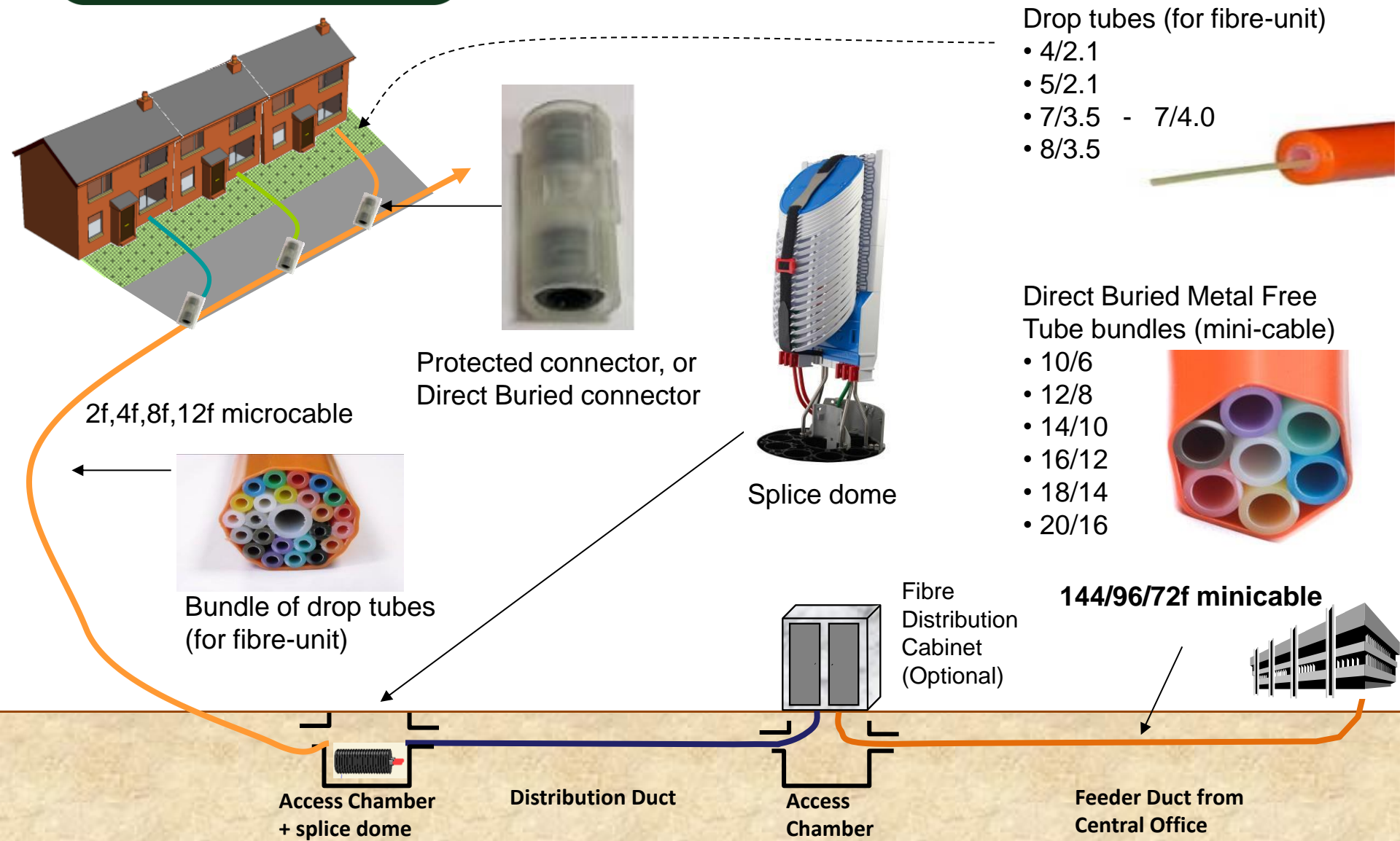


- Very massive closure body with splice tray inside
- For tube size 4/2.1mm, 5/2.5mm and 7/4mm
- fibre Management up to 144 f
- Space for fibre reserve



# Attema Closure

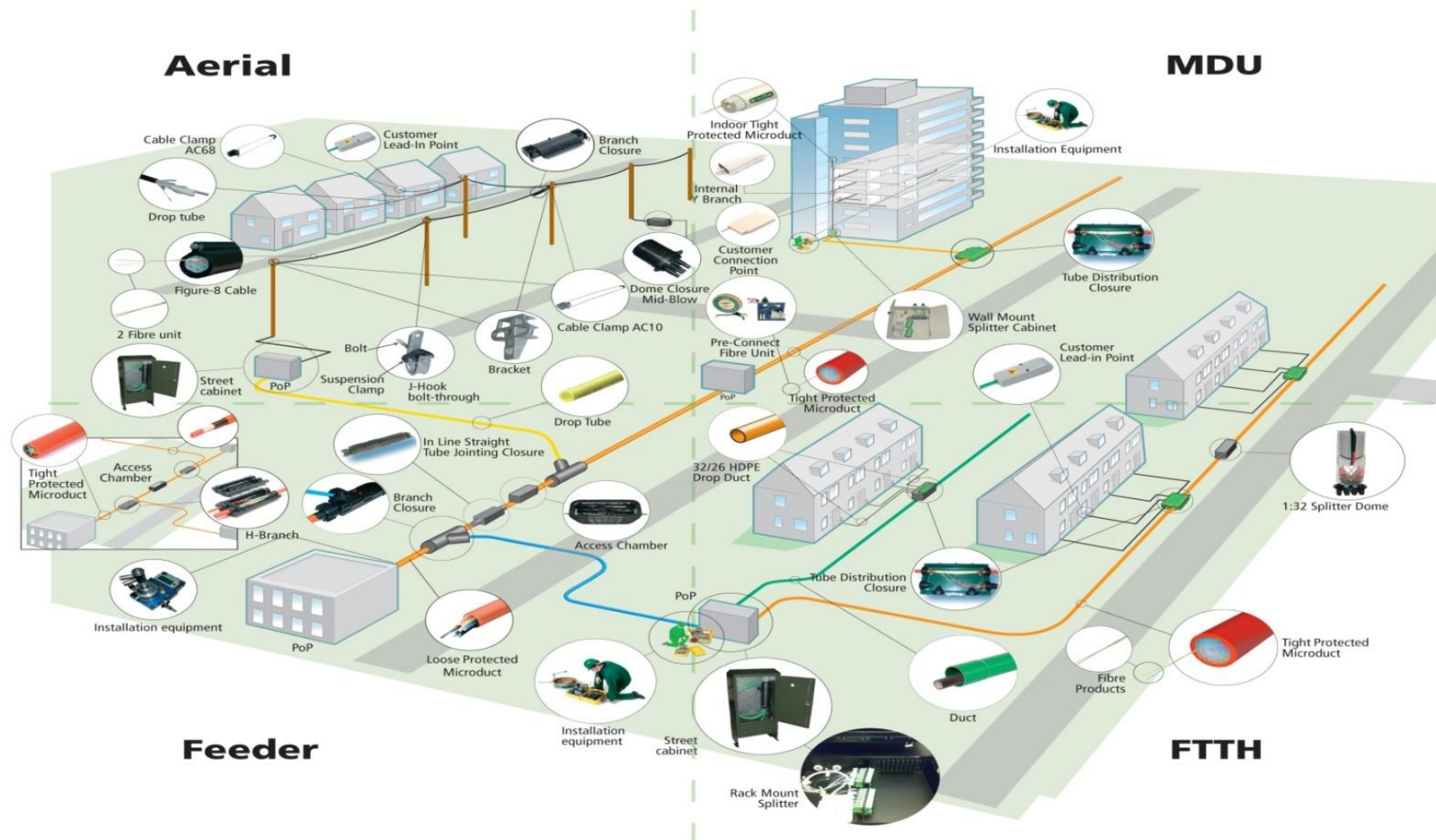




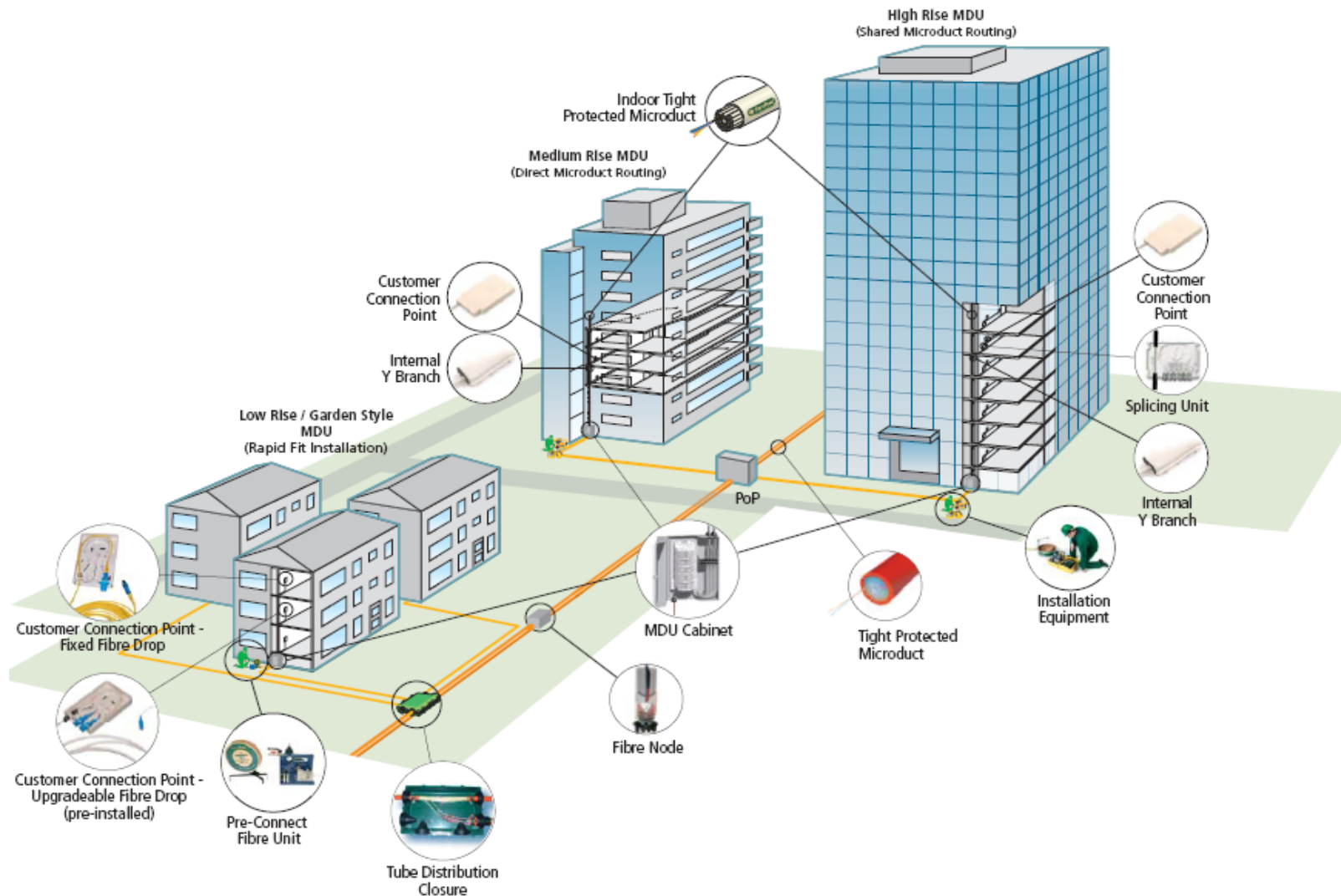
## Chamber, plug, closure



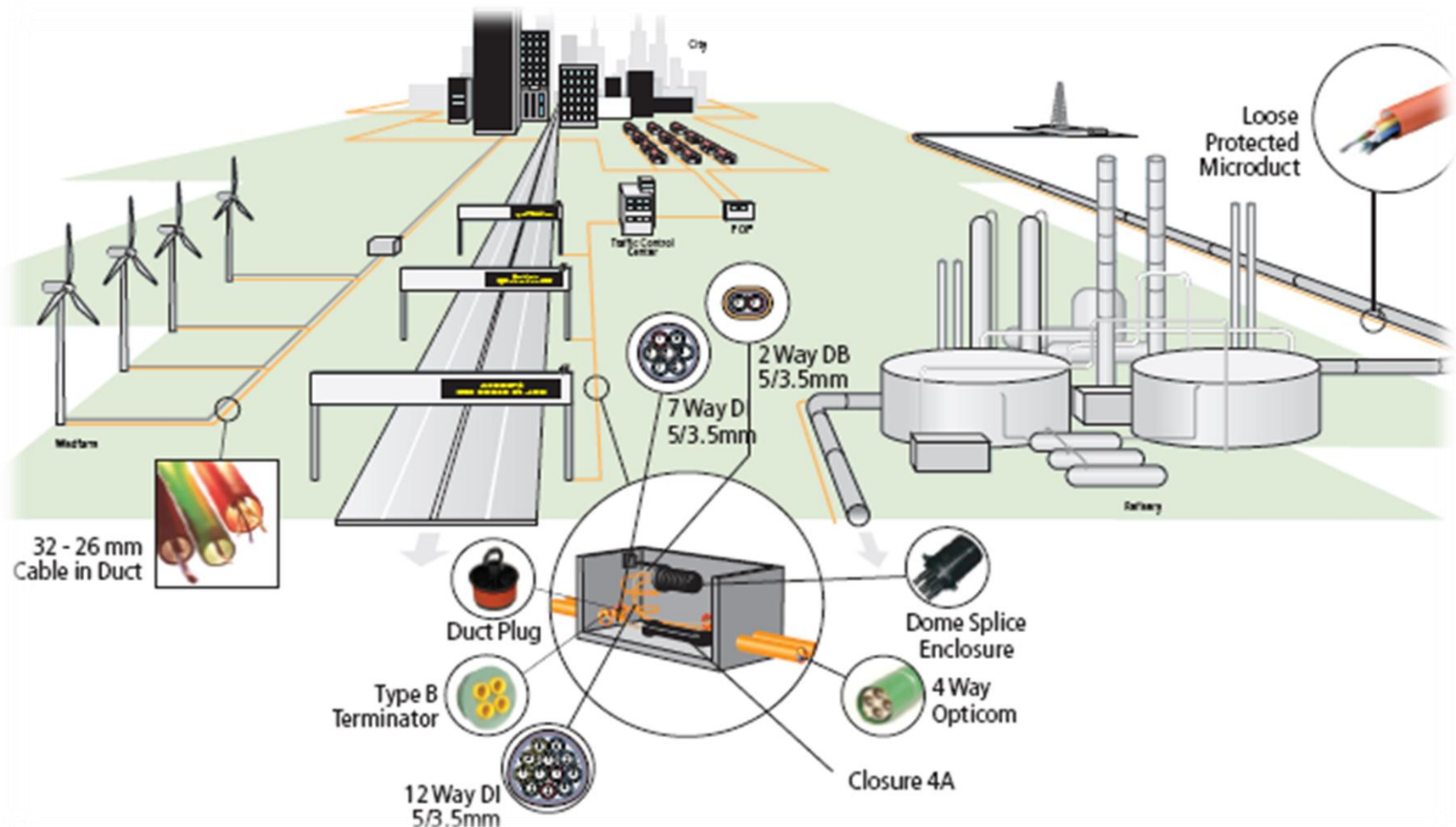
# Choice for Mass Market Roll Out of FTTH from POP to the Wall Outlet



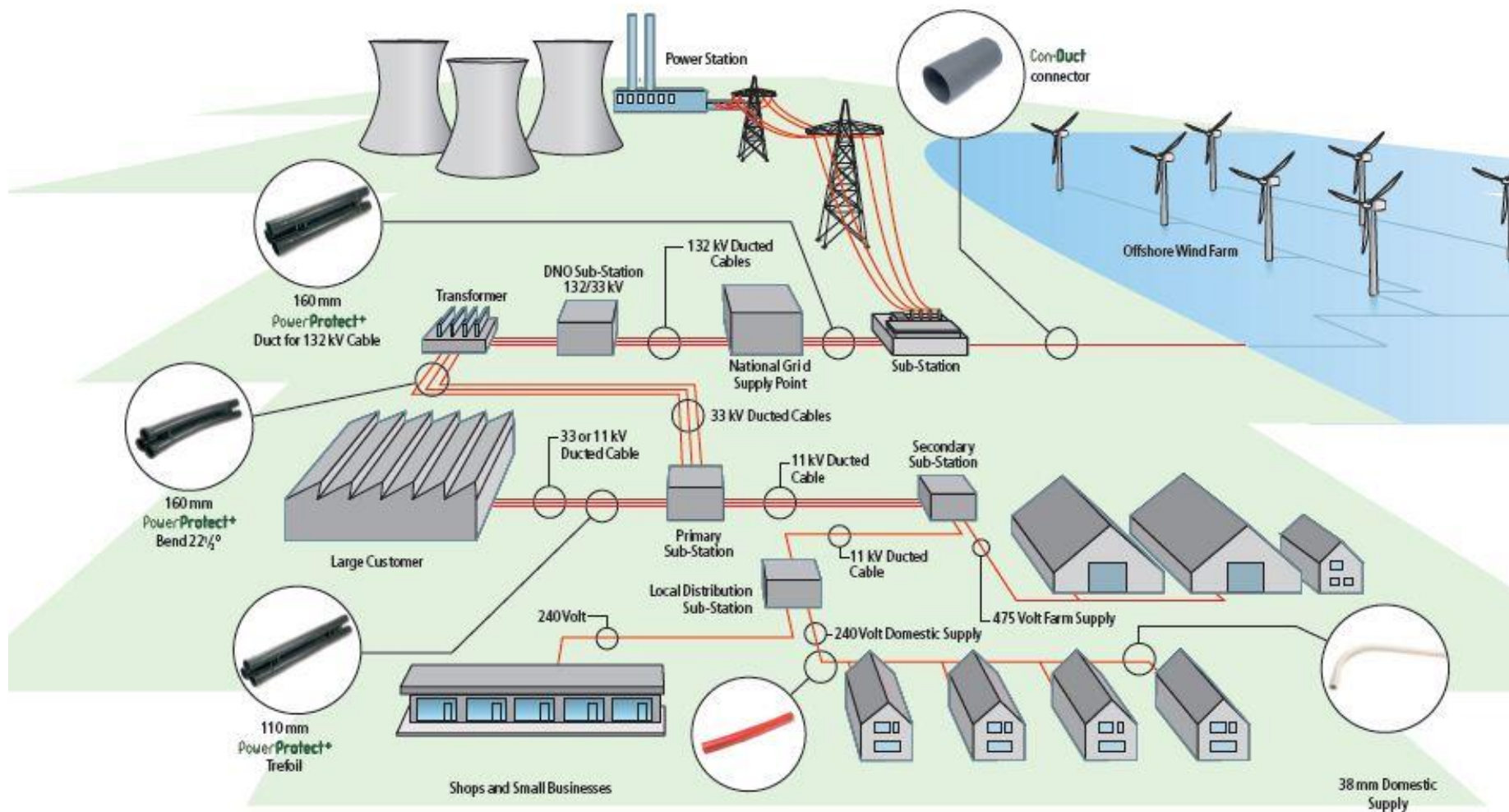
# Inhouse solution (MDU)



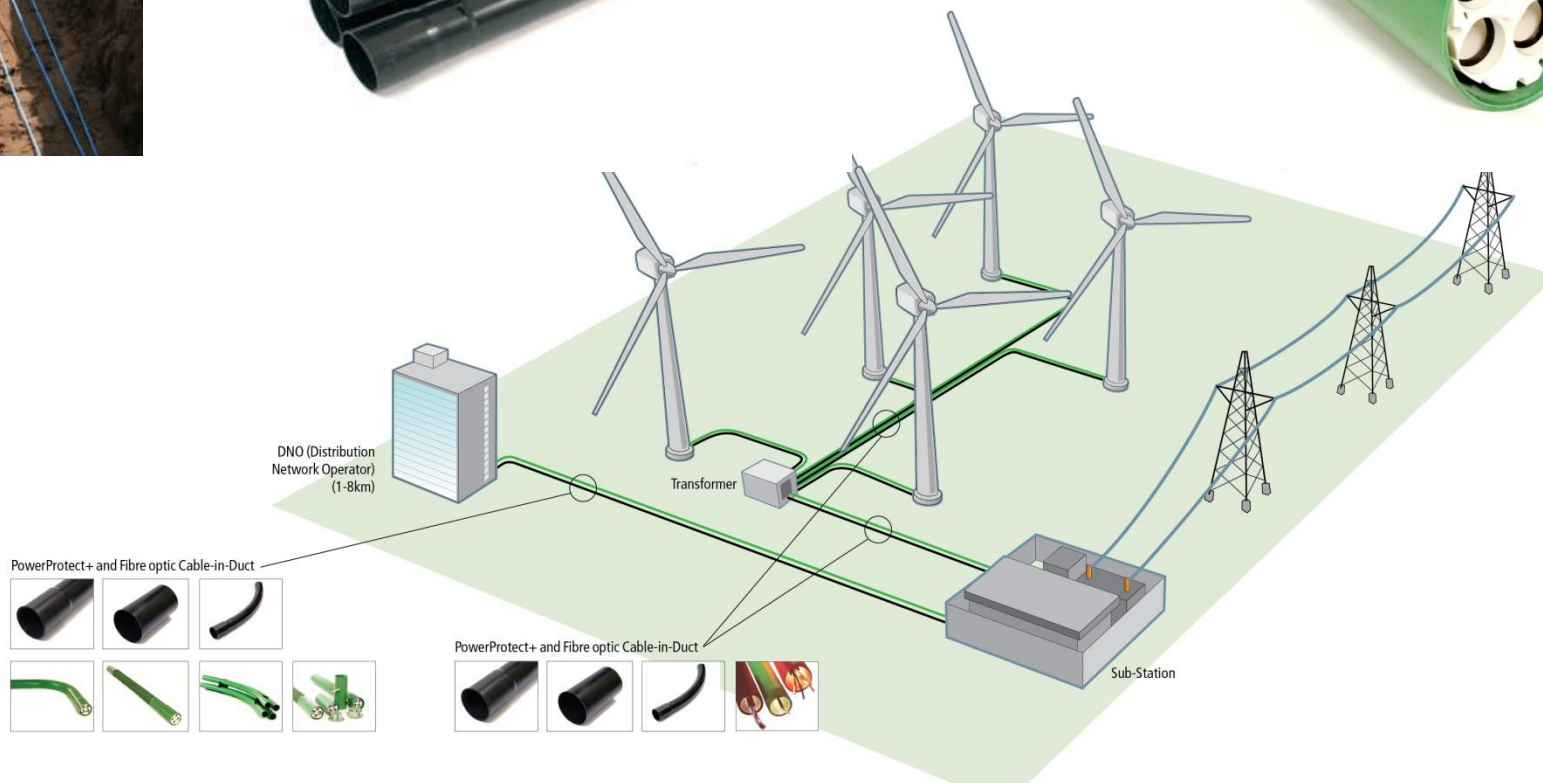
# Intelligent Transportsystem



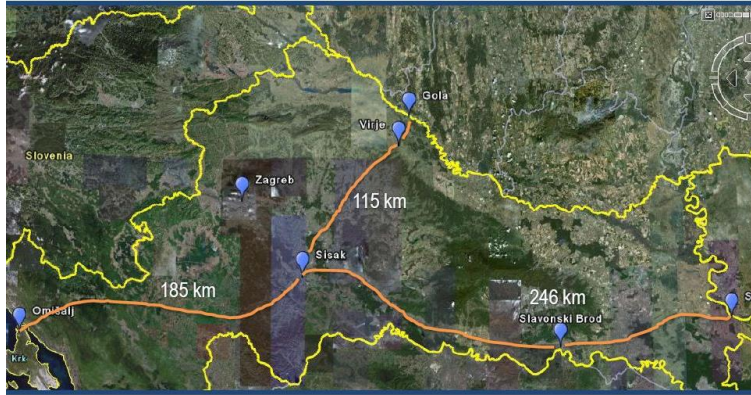
# Powerline-System



# Wind parks



# Specialist Experience in Long Distance / ITS Applications



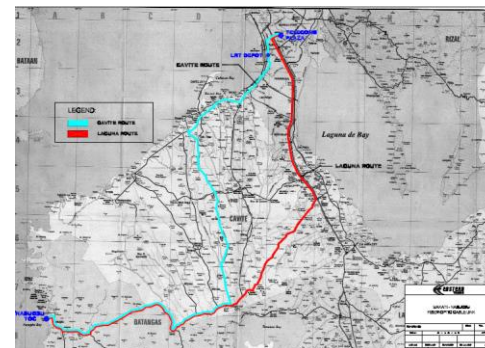
Janaf pipeline, Croatia



SANRAL



Perth – Bunbury Highway, Australia



Makati-Nasugbu backhaul Network, Philippines

# Emtelle Vision

We will create value and make a difference everywhere we engage with customers by  
**listening,  
understanding,  
innovating and  
Adapting !**

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