

Solutions

**POLE LINE HARDWARE**





## Édito

The development of electricity led the foundations of the first telecommunications lines at the end of the 19th century. In the collective awareness, this moment is associated with the deployment of the telegraph across the American continent. This is probably the beginning of the wired telecommunications era. Since the early stages, overhead lines and wooden poles are used for the roll-out across territories. These aerial lines deployed on a succession of poles, commonly alongside roads, constitute the architecture that will be shared, in most of the cases, between telecommunications operators and power distributors. Cables and cable dead-endings are essential elements of a telecommunications network. However, all pole hardware enabling anchoring or suspension applications are just as important.

Pole line hardware is a product family that requires to take into consideration, from the design moment, the poles' nature (wooden, concrete, composite, steel,...), the network architecture and the climatic environment. Just as the anchoring and suspension solutions for telecom cables, pole line hardware is part of the Telenco Group's genes. For more than 20 years, Telenco Group has been providing pole hardware fittings such as pole brackets, steel plates, cross-arms,... throughout the world. The Group is constantly adapting its offer to the evolution of the telecommunications cables' structure so to ensure perfect product compatibility and to guide you in rolling out future-proof and high-end telecommunications networks.

Let's build tomorrow's networks, today !

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Installers and engineering offices will find in this brochure technical information on different pole line attachment solutions. These last ones vary so to meet a large number of criteria:

- The pole's nature (wooden, concrete, composite, steel, ...)
- The network typology

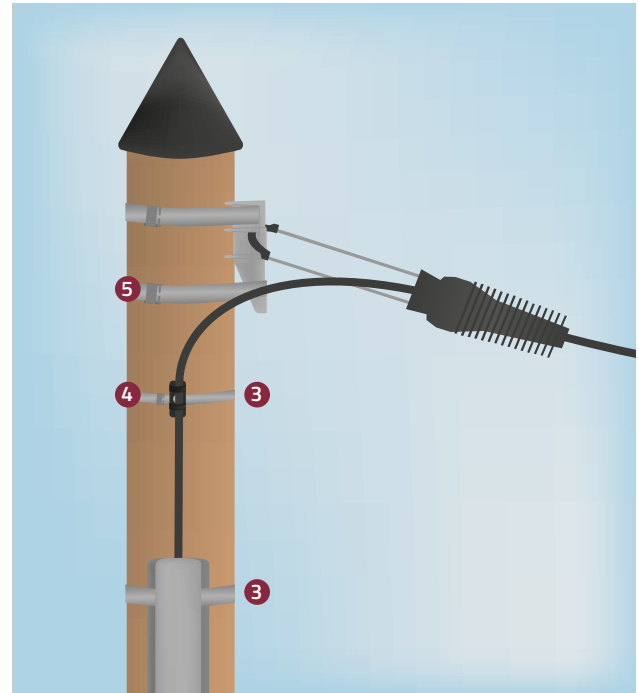
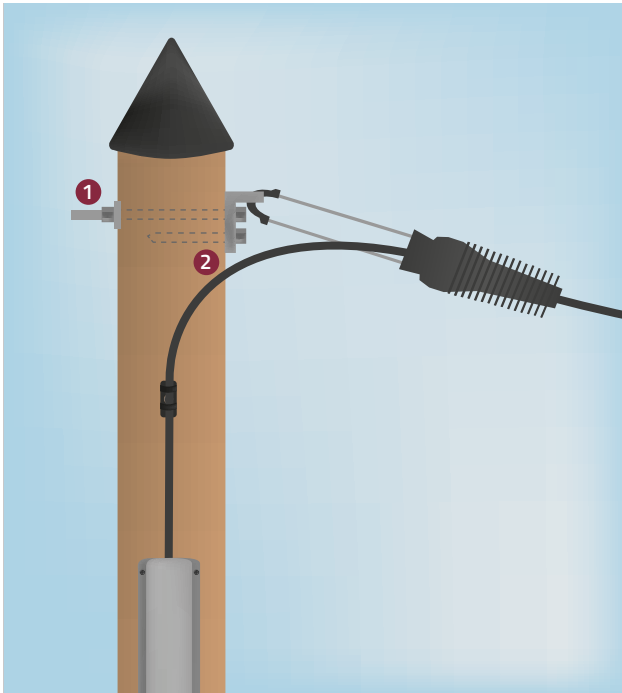
Indeed, telecommunications networks are deployed with the use of different pole line hardware solutions. Each product solution is developed so to adapt to the distribution or to the last mile access network segment, for pole mount or facade roll-outs, as well as to the cable's structure and the chosen transmission technology.

Finally, in the context of networks' evolution and their overlapping, the poles' overloading is a real issue. To adress this challenge, various pole reinforcement and cable protection solutions are available.

# POLE HARDWARE FITTINGS

The poles used for the roll-out of overhead telecommunications networks are diverse. This diversification requires a careful attention to the particularities of each type of support so to ensure a long-term network reliability as well as an enhanced ease of installation. Telecommunications poles, standard or reinforced, are intended for supporting only telecommunications cables. Their dedicated equipment is developed by meeting the deployment requirements of telecom operators and considering the needs of neighbouring networks.

Initially intended to support energy cables deployed by power companies, utility poles can also be used for the roll-out of telecommunications networks whenever the owner of this infrastructure authorises it. In this particular case, it is necessary to follow the engineering rules established by the owner in order to not disrupt the networks' reliability, the exploitation and maintenance of the power networks, while also ensuring the safety of field technicians. To equip a pole, two attachment methods can be used: performing pole banding applications or drilling the support. The choice between these two solutions must take into account the pole's characteristics, the mechanical stress exerted on the equipment to be installed, the environmental conditions and the engineering rules to which the pole is submitted.



## Pole head and pole coupling bolts ①

The Telenco® through bolts enable the attachment of most equipments. Depending on the model, they come equipped with curved or flat plates so to preserve the pole during the tightening. Available in a wide range of diameters, total lengths and thread lengths so to adapt to a large number of supports. The longest models are used for performing pole coupling applications.



- Equipped with curved or flat plates
- Available in various lengths and diameters

## Lag bolts ②

Like bolts, the Telenco® lag bolts are used to install pole line hardware on poles by using drilling methods but without passing through poles completely. The choice between lag bolts to tamper and lag bolts to screw is made depending on the needs of tear-off resistance.



- Quick and easy to set up
- Lag bolts to screw compatible with impact wrench



### Stainless steel pole band 3

Stainless steel and deburred, the Telenco® pole band is available in three different grades to adapt to all installation environments. With an ergonomic and clear reel case dispenser made of recycled and recyclable plastics, it allows field technicians to keep an eye on the remaining quantity. While the SB20x is used for mounting pole hardware subject to permanent mechanical stress in association with reinforced stress buckles, the SB10x is suitable for fastening lightweight accessories not submitted to important loads such as protective cable covers or identification tags.

- Easy to install and deburred for safe fastening applications
- Environmental friendly
- Large selection choice of dimensions and grades

### Standard buckles 4

The Telenco® standard buckles B10 and B20 are used for fastening pole bands on poles. These stainless steel yokes are compatible with both pole bands of 10mm width (3/8") and of 20mm (3/4"). Made of a single piece of folded AISI430 stainless steel, these buckles are suitable to most of roll-out configurations.



- Fast and easy to install
- Compatible with pole bands of 10mm (3/8") and 20mm (3/4") widths

### Reinforced buckles 5

The Telenco® BIB buckles enable the locking of pole bands submitted to high mechanical stress. The 4 models included in this range are made of a single piece of AISI304 stainless steel cut without folds, ideal for fastening applications such as mounting dead-ending and suspension equipment.



- Ideal for deployments subject to high mechanical stress
- Compatible with pole bands of 10mm (3/8"), 1/2", 5/8" and 20mm (3/4") widths

## TECHNICAL FOCUS

### Pole banding or drilling: which functional differences ?

As a general rule, two attachment methods are possible to install pole hardware: by performing pole banding applications or by drilling the support. The choice between these two solutions is first of all made by considering the pole's characteristics. For non pre-drilled concrete, metal or composite poles, the pole line hardware can only be mounted by using pole band. However, on wooden poles, cross-arms or brackets can be installed at convenience either by using pole band or by performing drilling applications.

Due to its peripheral tightening, pole band does not alter the original structure of the support and allows the maintain of its exact mechanical properties. The different pole band dimensions and grades meet the various needs of mechanical and corrosion resistance.

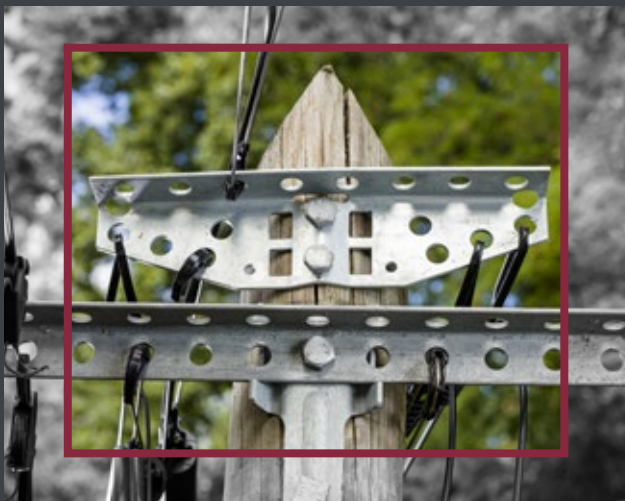
When a wooden pole is subject to harsh climatic conditions, its diameter can reduce to a smaller or higher extent. In this particular case, it is advisable to use the drilling method for mounting pole hardware. It is also important to respect a minimum spacing of 5cm between each hole, regardless of the pole's side and the length of the used material (pass through bolt or lag bolt)

Poorly performed drilled holes can reduce the mechanical resistance of a pole, endangering thus all the existant infrastructure as well as the direct neighbouring areas (pedestrians, houses, road crossings, ...).

# THE LAST MILE ACCESS NETWORK

The last mile is the part of the network where the most anchoring and/or suspension points can be observed on a utility pole placed in a high-density area. As the infrastructure is not shared, each subscriber has its own drop cable that runs over the poles in overhead configurations up to the connection point. To optimise the network roll-out at the local loop's level, it is essential to opt for compact equipment that can adapt to different type of poles and enable a reliable connection between the distribution box and the customer's premises. Pole hardware fittings for anchoring applications must enable the installation of drop cables in parallel configurations to the main network and in perpendicular layouts for reaching the premises.

DESIGNATION	FASTENING METHOD	COMPACT POLE HARDWARE CAPACITY	
		ANCHORING	SUSPENSION
CT8: Cross-arm steel plate with 8 holes <b>1</b>	Pole banding or drilling	Up to 16 drops	Up to 6 drops
FE: Drop anchoring plate <b>2</b>	1/12 bolt fasten onto the cross-arm	Up to 4 drops	-
DP20: Drop bracket FTTH/P <b>3</b>	Pole banding or drilling	Up to 3 drops	1
DP16U: Drop bracket <b>4</b>	Pole banding or drilling	Up to 2 drops	1
DRING: Drop wire ring <b>5</b>	Pole banding or drilling	Up to 4 drops	-
5/29: Drop plate for wooden pole <b>6</b>	Drilling	Up to 2 drops	1



## CT8 Cross-arm steel plate 8 holes **1**

Unlike other cross-arms requiring a compatible mounting bracket, the Telenco® CT8 cross-arm steel plate fixes directly onto the pole by using drilling methods (pass-through bolt and lag bolt) or banding (two pole bands of 20mm equipped with buckles). Thanks to its compact design and to its ease of installation, the CT8 is the ideal solution for multiple and multidirectional drop cable installation.

- Ideal solution for drop cables in dense area
- Up to 16 drops
- Direct mount on all type of poles by using pole band or drilling the support

## DP20 Drop bracket **3**

The Telenco® DP20 drop bracket is used for mounting anchor clamps for drop cables on all type of poles. Its specific design enables the anchoring of 3 drop cables rolled-out from this point or the passage of 1 drop cable laid out in overhead configuration.

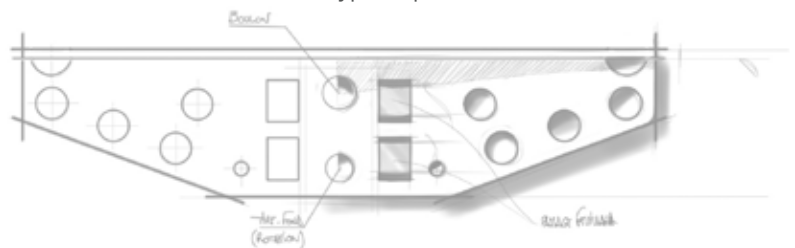
- Up to 3 drop clamps
- Installation with pole band or lag bolt



## DP16U Drop bracket **4**

More compact than the Telenco® DP20 version, the DP16U drop bracket enables the fastening of one or two anchor clamps on a pole. This pole line hardware mounts with a pole band equipped with a buckle, with a through bolt equipped with a curved plate or with a lag bolt equipped with a curved plate.

- Up to 2 drop clamps
- Installation on all type of poles





### FE Drop anchoring plate 2

This pole line hardware is compatible with all cross-arms. The Telenco® FE drop anchoring plate mounts at the cross-arm's extremity in order to enable the departure of 4 drop cables. These last ones will further route in overhead configurations up to the dwelling or the premises to be connected.

- Optimises networks by making the most out of the cross-arms' extremity
- Compatible with all Telenco® cross-arms

### DRING Drop ring 5

The DRING drop ring from Telenco® is engineered as a bended galvanised steel wire. Its circular shape enables simple or double anchoring applications and up to 4 drop departures in spread out overhead configurations. This pole line hardware mounts with pole band secured by buckle, with a through bolt equipped with a curved plate or with a lag bolt and a curved plate.



- Up to 4 drop clamps
- Installation on all type of poles

### 5/29 Drop plate for wooden pole 6

Suitable exclusively for wooden poles, the Telenco® 5/29 drop plate pegs directly into the pole by using a sledgehammer. Once installed, this drop plate enables to set up to 2 drop clamps or 1 compact suspension device (as for example, Telenco® DS2-4-6).



- Up to 4 drop clamps
- Installation on all type of poles

## TECHNICAL FOCUS

### How to optimise the last mile access network ?

Thanks to compact anchoring solutions, the space that a fibre optic cable takes on a pole is often minimal. However, the accumulation of all drop cables on a support in a high-density area can have a much greater impact. To prevent all risks of network saturation it is therefore important to create anchoring points that are not only adapted for the present network configuration but also meeting the needs of the future one.

Pole hardware solutions such as cross-arms enable to organise several cables into parallel layouts and to accommodate anchoring and suspension devices. Highly suitable for high-density areas, cross-arms also ease maintenance and identification applications.

Smaller than cross-arms, solutions such as pole brackets are ideal for the roll-out of one or two drop cables in areas with low-density or in case of a very congested pole that does not allow the installation of parallel cable layouts.





# THE DISTRIBUTION NETWORK

The distribution segment of an aerial network can be very different from one geographical area to another, considering the population density, the environmental constraints, the networks already in place, ... The equipment installed on poles must be able to meet different requirements by adapting to each existing or projected configuration. Multipurpose equipment makes possible to avoid the management of a high number of products, while also guaranteeing an easy and fast installation, even in a variety of sectors.

DESIGNATION	FASTENING METHOD	COMPACT POLE HARDWARE CAPACITY		ASSOCIATED CROSS-ARMS <sup>4</sup>
		ANCHORING	SUSPENSION	
DAB: Double anchoring bracket <sup>1</sup>	Pole banding or drilling	Up to 2	-	5/07 - 5/14
UPB NG: Universal pole bracket <sup>2</sup>	Pole banding or drilling	Up to 5	-	5/07 - 5/14 - 5/15
UPB: Universal pole bracket <sup>2</sup>	Pole banding or drilling	Up to 5	-	5/07 - 5/14
REFO3: Universal extension bracket square tube <sup>3</sup>	Pole banding or drilling	-	-	5/07 - 5/14 - 5/15
LOV300 storage bracket <sup>5</sup>	Pole banding	-	-	-



## DAB Double anchoring bracket <sup>1</sup>

The Telenco® DAB is an aluminum alloy bracket used for enabling double anchoring. This pole hardware is engineered to meet the challenges of overloaded pole heads. Thanks to its compact design, the DAB bracket enables two anchoring points or the mounting of a cross-arm 5/07 or 5/14 type. It can be mounted on wooden, metal, composite or concrete poles by using pole band or a through bolt.

- Easy and fast installation on congested pole heads
- Used alone or as a support for installing a cross-arm
- Compact and lightweight model compatible with wooden, metal or concrete poles

## REFO3 Universal extension bracket square tube <sup>3</sup>

The Telenco® REFO3 universal extension bracket is the ideal product solution for raising the challenges of congested pole heads. This pole hardware enables the installation of a cross-arm above the congested pole head. The REFO3 also makes it possible to preserve the pole's mechanical properties by limiting the added offset. The oblong holes enable the installation of a cross-arm 5/07, 5/14 or 5/15 with two assembly bolts. All fastening items are to be ordered separately.



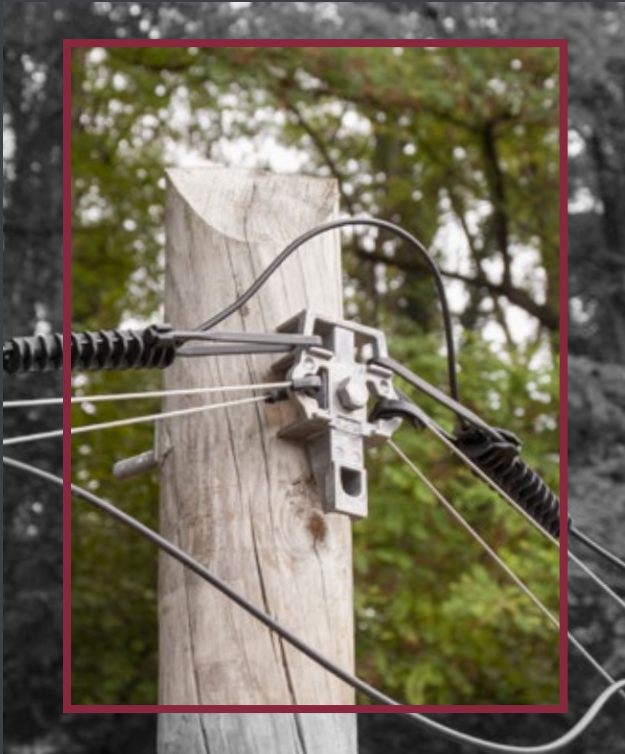
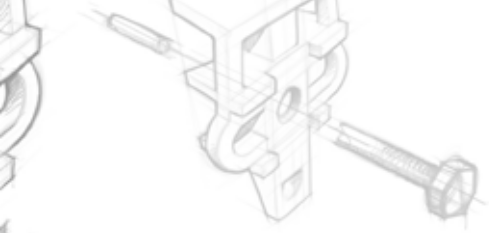
- Enables to unload a telecom pole
- Installation on all type of poles: wooden, metal, composite,...

## Cross-arms <sup>4</sup>

These metal angle bars of 40 x 40mm in galvanised steel are used on the pole's top to enable anchoring or suspension points. Requiring the use of a fastening bracket (except for metal poles already equipped with a slot for mounting a cross-arm), the various models of Telenco® cross-arms are engineered so to allow installers to meet the roll-out challenges in terms of capacity, compactness and offset.



- Rugged construction
- Enables to offset overhead lines from the pole



## UPB & UPB NG Universal pole brackets <sup>2</sup>

Popular among installers for many years, the Telenco® UPB line improves with the coming of Telenco® UPB NG model. This new generation of universal pole bracket maintains all the much-appreciated functional features over the years and offers in plus an optimised installation ease. In addition to accommodating the Telenco® 5/07 and 5/14 cross-arms, this pole bracket enables also the installation of a Telenco® 5/15 cross-arm, particularly used in dense areas. Its unique and patented design has been developed to offer an universal fastening system meeting all installation needs, on wooden, metal, composite or concrete poles.

- Equipped with anti-rotation lugs for optimal fastening of Telenco® 5/07, 5/14 and 5/15 cross-arms
- Aluminum alloy bracket providing an increased mechanical strength
- Multipurpose pole hardware: cross-arm bracket enables simple and double anchoring, stay wire or cable roll-out applications using pulley
- Lightweight model compatible with wooden, composite or concrete poles

## LOV300 Mounting bracket for FO closures <sup>5</sup>

The Telenco® LOV300 brackets enable the installation of fibre optic closures on poles, while also facilitating the cable management. This model is an all-plastic cable storage bracket used for the management of cable slack in overhead configurations. Compatible with most optical closures, the Telenco® LOV300 enables to avoid the piston effect on ADSS aerial cables. The Telenco® LOV300 offers flexibility on field. A LOV300 kit can be used to secure one splice protection closure presenting 4 fixing points onto a pole (example: BPEO size 1, see picture 1) or two splice protection closures built with 2 fixing points (example: BPEO size 0/ Eline® PBO Outdoor size 1, see picture 2).



- Compact and discreet design
- Installation on all type of poles, on facade or in manhole
- Compatible with most splice protection closures



## TECHNICAL FOCUS

### Which cross-arm for which application ?

Each cross-arm presents a technical specificity enabling to meet the issues of parallel layout overhead lines. The Telenco® 5/07 cross-arm presenting 5 holes is the most compact product solution. Engineered with a 40mm spacing between each hole, this cross-arm is ideal for enabling customer connections in low-density areas and at the end of the network. As for the Telenco® 5/14 cross-arm with 11 holes, this accommodates up to 19 drop clamps or 9 anchor clamps for feeder or distribution networks while occupying a reduced width. Finally, the Telenco® 5/15 cross-arm displays 13 holes with a 60mm spacing for accommodating up to 23 drop clamps or anchoring devices for feeder or distribution network segments. Its greater length enables the creation of an offset reinforced by a Telenco® 5/14 cross-arm.





# POLE HARDWARE FOR UTILITY POLES

Initially intended for the deployment of energy cables of power companies, utility poles can also accommodate telecommunications networks whenever the owner of these poles authorises it. In this particular case, it is essential to acknowledge and comply with the engineering rules imposed by the latter in order not to jeopardize the reliability, operation and maintenance of the power network and to guarantee thus the safety of technicians.

Telenco® has developed a range of specific pole hardware for the deployment of telecommunications networks on Medium Voltage and Low Voltage infrastructures.

POLE HARDWARE FOR DEAD-ENDING APPLICATIONS				
MODEL	FASTENING METHOD		MTL*	EYELET TYPE
	POLE BAND	DRILLING	HORIZONTAL	
① CA1500	●	●	1500daN	Closed
① EDA2000	●	●	2000daN	Closed

POLE HARDWARE FOR SUSPENSION APPLICATIONS				
MODEL	FASTENING METHOD		MTL*	EYELET TYPE
	POLE BAND	DRILLING	VERTICAL	
② BQC14x300		●	1500daN	Open
② BQC12x50 + EDS	●		500daN	Open
③ CSF FOP 400 T	●	●	32 - 40daN	Open
③ CSF FOP 500 T	●	●	40 - 50daN	Open
③ CSF FOP 630 T	●	●	50 - 63daN	Open
③ CSF FOP 800 T	●	●	63 - 80daN	Open
③ CSF FOP 1000 T	●	●	80 - 100daN	Open
③ CSF FOP 1250 T	●	●	100 - 125daN	Open
③ CSF FOP 1600 T	●	●	125 - 160daN	Open
③ CSF FOP 2000 T	●	●	160 - 200daN	Open

CROSS-ARM BRACKET				
MODEL	FASTENING METHOD		POLE TYPE	RECOMMENDED CROSS-ARMS
	POLE BAND	DRILLING		
④ CPB	●	●	Wooden, round	5/19 ⑤
④ 5/39	●		Square	5/19 ⑤
④ 5/39R	●		Square	5/19R ⑤

MOUNTING BRACKET FOR CLOSURES				
MODEL	FASTENING METHOD		POLE TYPE	CABLE SLACK MANAGEMENT
	POLE BAND	DRILLING		
⑥ BEV180	●		Square	No
⑥ BEV300	●		Square	No
⑥ BEV420	●		Square	No
⑥ 2/12	●	●	Round, hexagonal	No
⑥ LOV300	●	●	All type	Yes

\* Maximum Tension Load

## Anchoring pole hardware for MV poles 1

The Telenco® CA1500 and EDA2000 pole hardware fittings are used for creating a simple or double anchoring point on a MV pole. Their high mechanical strength enables the installation of anchoring fittings subject to high mechanical loads. They mount on any type of poles with pole bands (which can be doubled) equipped with buckles or with through bolts.

- High mechanical strength up to 2000daN
- Fastening with pole band or through bolt



CA 1500



EDA 2000

## Suspension pole hardware for MV poles 2

These pole hardware can be used on equidistant intermediate poles in alignment configurations so to accommodate suspension clamps instead of double anchoring solutions. The Telenco® BQC14x300 pigtail hook bolt mounts directly on pre-drilled concrete poles while the EDS double suspension pole bracket equipped with a BQC12x20 mounts with two pole bands equipped with buckles.

- High mechanical strength up to 2000daN
- Installation with pole band or through bolt
- Open eyelet at the extremity enabling a fast and easy installation of all suspension devices



BQC 12 x 40



BCQ 14 x 300

## Suspension fuse bracket for MV utility poles 3

Due to the densification of overhead networks and to FO cables that are sometimes heavier and thicker than power cables, MV poles can reach their permissible load limit. To enable reliable deployment on these supports, Telenco has developed a fuse bracket: the Telenco® CSF FOP. Easy to identify thanks to their coloured covers, these fuse brackets are available in different models so to meet various fuse ranges. The suspension device corresponding to the cable diameter must be ordered separately.

- Enables the deployment on intermediate poles at the allowable load
- 8 fuse ranges from 32 to 200daN, easily identifiable
- Installation with pole band or through bolt



## Brackets for LV poles 4

The Telenco® 5/39 cross-arm brackets mounts on square poles with two pole bands equipped with buckles (two brackets are necessary to install a cross-arm), while the Telenco® CPB bracket fastens with the use of a lag bolt or with pole bands equipped with buckles for round poles. The 5/39 cross-arm bracket is also available in a reinforced version: the 5/39R model.

- Two available models to adapt to different utility poles
- Quick installation of a cross-arm with two Telenco® 1/12 assembly bolts



## Cross-arm for LV poles 5

The Telenco® 5/19 cross-arm has been developed to create parallel cable layouts in overhead configurations. These angled bars are to be mounted on utility poles. They guarantee a 20cm spacing between the pole and the telecommunications cables in order not to impede with the maintenance of power networks. Available also in a reinforced version: Telenco® 5/19R.

- Installation with pole band or through bolt



## Brackets for mounting FO closures on LV poles 6

These brackets enable the fastening of drop clamps on utility poles. The offset generated by them enables the cable passage at the rear side of the closure and eases the cable input while also respecting its bending radius. The Telenco® BEV brackets with variable spacing mount on square poles with pole band, while the Telenco® 2/12 bracket is to be installed on round or hexagonal poles by using pole bands or drilling applications. The LOV300 cable storage bracket mounts on all type of poles and enables the installation of a splice protection closure, as well as the securing of the cable slack wrapped around so to avoid the phenomenon of piston effect.

- 3 available solutions for mounting FO closures on all type of utility poles
- 3 versions of Telenco® BEV to adapt to various pole widths
- LOV300, ideal solution for eliminating piston effects on long cable sections



BEV



2/12

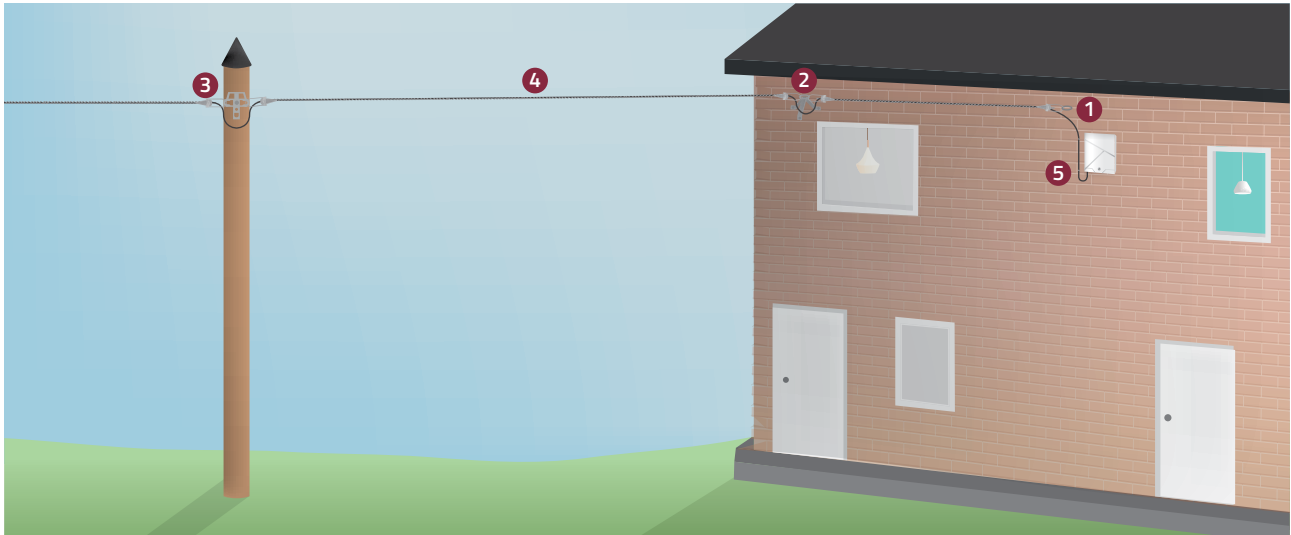


LOV300



# ROLL-OUT ON FACADE

Similar to overhead line deployments on poles, facade routes consist into rolling out cable spans parallel to walls. This method is used to limit the number of holes and to control the length of the spans, according to the buildings' layout. Depending on the tension exerted on the cable and the nature of the supports, Telenco® includes various network equipment especially developed to enable anchoring points and adapted to each network configuration.



## Anchoring hook 1

The Telenco® pole anchoring hooks, available in diameters from 5 to 8mm, enable to create fast anchoring points for installing drop cables on a facade. The DWS range, made of stainless steel, and the DWSG, in galvanised steel, are equipped with an open hook so to install directly into wooden surfaces such as carpentry. They can be used together with expansion anchors for an installation into a cavity wall. DCS stainless steel anchoring hooks with closed eye are ideal for solid type of walls such as concrete. Equipped with a metal expansion anchor, these anchoring hooks guarantee an increased pull-out resistance.



- Range meeting the needs of installation into various types of facade
- Different diameters and materials to match with environmental constraints

## Automatic clamp for stay wire 3

The Telenco® SWC63Y automatic clamp for stay wire is an anchoring device based on the conical clamping technology and used for the anchoring of a 7x2.1mm stay wire. The stay wire is inserted through the narrowed end of the body and comes through the bail side. The removable bail enables an easy installation on all type of pole hardware.



- Automatic clamping
- Tensile strength up to 2700daN

## Dead-end bracket 2

The Telenco® CB600 2-arm bracket enables the dead-ending of a distribution cable on a facade (housing, cliff,...). Made of galvanised steel, this bracket withstands to forces up to 375daN. The 3-arm CT600 model is used for the dead-ending and the double anchoring of a distribution cable with a tensile strength of up to 625daN.



- Delivered with lag bolts and wall plugs
- Resistance performance: up to 625daN

## Stay wire 4

The Telenco® 32/21 stay wire is made of 7 strands of galvanised steel Ø2.1mm forming a Ø6.3mm wire. Packaged in a 100m reel, this stay wire enables the fixing between facades so to suspend a distribution cable that cannot be anchored directly in overhead configuration.



- Built with twisted strands for optimised anchoring applications
- Tensile strength: up to 1600daN

Facade roll-outs can be performed also by clamping cables onto the walls. This method is particularly used when there are no underground pipes available for the dwelling to be connected. Used for the installation of cables or tubes, this method enables the network distribution to various dwellings, in parallel with the power network. The material presented hereafter is used in particular at the exit of a protective cover during an aerial-underground transition or between an anchoring point placed on the facade and the entry point into the dwelling.



### Cable clip 5

The cable clip is a cable mounting accessory equipped with a nail for securing round cables onto facades. As it does not require prior drilling, the cable clip can be installed every 30cm by driving the nail into the wall. Available in two different versions: polypropylene round clip with hardened steel nail or stainless steel round clip equipped with a concrete nail.



- Quick and easy clamping of individual round cables Ø 4-20mm, without prior drilling
- Resistant to salt air, UV, chemical and atmospheric oxidation

### Plastic clip wall plug 6

The TED Equipement® plastic clip wall plug is a cable mounting accessory developed with an integrated wall plug for enabling the mounting of round cables on facades. Set out every 30cm, it is suitable for hard materials such as concrete or stone and to ensure strong and durable mounting.



- Quick and easy clamping of individual round cables Ø 4-11mm
- Dielectric solution, resistant to UV, chemical and atmospheric oxidation
- Available in black or ivory

### Saddle tie mount to screw 7

The TED Equipement® M7 saddle tie mount to screw enables to fix cables, tubes or cable strands by using cable ties with maximum 9mm width. Depending on the nature of the support, this saddle tie mount to screw can be fixed by means of knock-in screw, wood screw or screw with expansion anchor (5mm screw).



- Multi-support installation of all types of cables, cable strands or tubes
- Resistant to UV, chemical and atmospheric oxidation

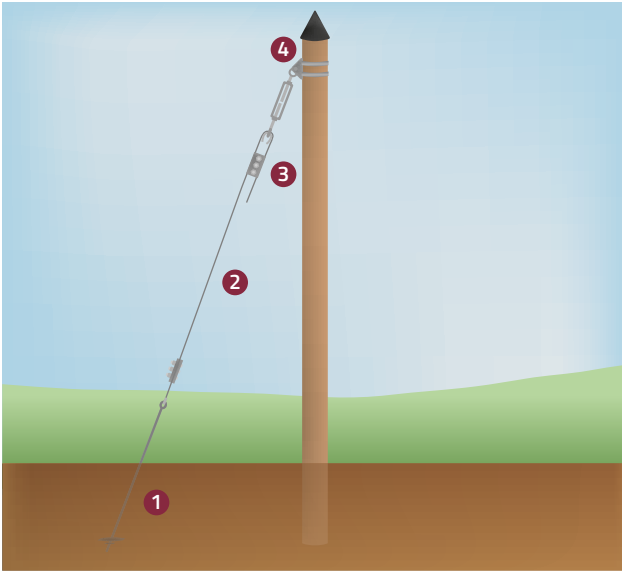
### Masonry cable tie mount 8

The TED Equipement® masonry cable tie mount is used for fixing tubes, cables or cable strands by using cable ties with maximum 9mm width. This dielectric mounting solution is adapted for installation into hard materials such as concrete or stone.



- Dielectric solution, resistant to UV, chemical and atmospheric oxidation
- Enables the fixing of cable strands

# POLE REINFORCEMENT SOLUTIONS



With the increasing number of cables supported at the top of poles, it has become more and more common that their allowable load values to be reached or exceeded. In addition to replacing poles or seeking ancillary solutions, poles can be reinforced when the overhead line is developing or, if they are already in place, whenever the engineering rules to which they are submitted allow it. Installing a stay wire is one of the existing solutions. Requiring little floor space and enabling the adjustment of the necessary resistance according to the installation angle in relation with the pole's top, stay wire is an effective solution for configurations implying transverse pulling forces.

## Anchor rod and plate ①

The anchor rod and plate enables the creation of a reinforcement point on the ground so to increase the pole's resistance to tearing. In stay wire configuration, the eyelet placed at the rod's extremity is used for accommodating the stay wire or the anchor device that helps maintaining it. In low anchorage configuration, the eyelet mounts directly on the fitting fixed at the foot of the element to be reinforced. The anchor plate is to set out at the opposite of the eyelet, above the plate in place. Two anchor plate sizes are available so to adjust the pull-out resistance. These plates can also be used as support or shim for poles during their installation.

- Resistance/compact design optimal ratio
- Resistance superior to 1600daN



## Flexible stay wire ②

The Telenco® 32/21 stay wire is made of 7 strands of Ø 2.1mm forming a stranded wire with a total Ø 6.3mm. Packed in reels of 100 meters each, this galvanised steel manually foldable stay wire is used for the reinforcement of round poles.



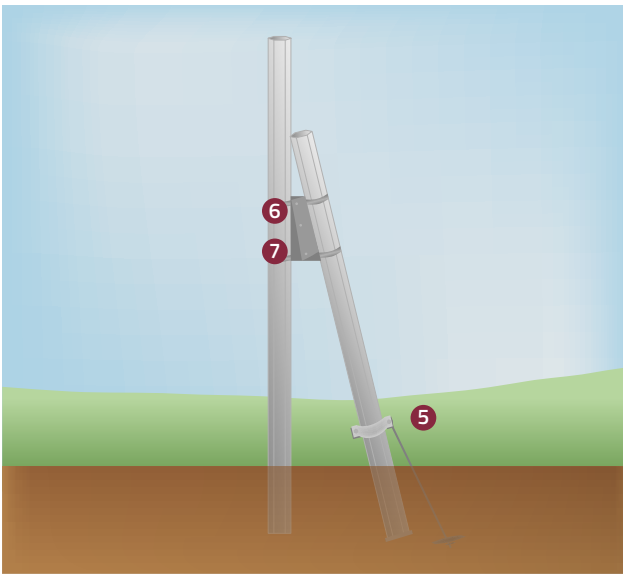
- Quick and easy installation
- Resistance superior to 1600daN



## Anchor solution for stay wire ③

To anchor a stay wire onto a mounted pole hardware or an anchoring rod, different items are required. The Telenco® 30/04 turnbuckle is used as a link between the pole hardware and the stay wire. This accessory enables to adjust the tension after installation. The Telenco® 30/03 thimble protects the stay wire strands against friction with eyelets that may cause their breakage. The Telenco® 31/01 parallel groove clamp with 3 bolts is used to fasten the stay wire anchor loops. All these above mentioned galvanised steel fittings can be replaced by a Telenco® SW63Y automatic clamp to install on every eyelet (see page 12).

- Adjustment of the stay wire tension during and after installation
- Resistance of the mounted fittings superior to 1600daN



Strut pole configuration consists of a vertical pole (also called main pole) and a reinforcement tilted pole (also called strut). These two elements are fixed together with a brace selected in accordance with the nature of the pole.

Unlike the stay wire, which must be installed at the opposite of the pulling direction, the strut pole can be either installed at the opposite side of the pulling direction (pull-out resistance) or in the pulling direction (compression resistance). Requiring however more floor space, the strut pole reinforcement method is particularly adapted to pole alignment configurations characterised by asymmetrical spans.

#### Pin type bracket 4

The Telenco® 7/05 pin type bracket is used as a link between the pole and the anchor rod or a stay wire dead-ending solution. For pole reinforcement applications, this bracket is to be mounted by using two doubled pole band strips secured with reinforced buckles. Compatible with all type of poles, the pin type bracket can however be replaced on wooden poles with a Telenco® 7/00, 7/01 or 7/02 pole clamp.



- Compatible with all type of poles
- High mechanical strength and compact design

#### Pole clamps for wooden post 5

The Telenco® 7/00, 7/01 and 7/02 pole clamps for wooden posts set up around poles and fix by tightening two peripheral bolts. In case the diameter of the wooden pole or its reinforcement reduces due to environmental conditions, these bolts enable the readjustment of the tightening even after installation.



- Pole mounting without additional material
- Different available models to meet various pole diameters

#### V brace 6

The Telenco® V brace allows two wooden poles used as a reinforcement solution to be joined. Made of galvanised steel, this V brace mounts between the two poles with pole head bolts equipped with plates.



- Mounts with pole coupling bolts
- Design guaranteeing an optimal reinforcement angle for an increased mechanical resistance

#### Adjustable brace 7

The Telenco® 20/11 adjustable brace mounts on metal poles so to create a strut configuration. Also in galvanised steel, this brace fixes between the two poles with 8 pole bands equipped with reinforced buckles. The adjustment of the center distance makes possible the accommodation of the angle of the strut between 11 and 19 degrees so that the required mechanical strength to be reached.



- Mounts with pole band equipped with reinforced buckles
- Adjustable reinforcement angle for optimised mechanical strength

# CABLE PROTECTION

The roll-out of telecommunications cables requires numerous network configurations. It is essential to ensure that cables are not exposed to any damage risks throughout their installation and notably at transition points. Whether at the output of an underground conduit, for cable routing alongside a support or for span configurations, it is important to anticipate the situations when cables may be exposed to various type of damage and provide them with suitable protective equipment.



## Spiral cable protection cover 1

The PVC black spiral cable protection cover is used for the mechanical protection of cables against wear, caused by friction movements with tree branches, pole hardware fittings, the pole,... Wrapped around the cable from the point to be protected, this spiral cable protection cover is also used for a figure-8 cable whose messenger has been separated and stripped off so to be anchored to a clamp. Compatible with round and figure-8 cables, these profiles delivered in 1m lengths can be mounted both during cable installation and maintenance operations.

- Round and figure-8 cable protection providing UV, chemical and atmospheric resistance
- Quick and easy installation
- Versatile use



## Galvanised steel protective cover 2

These galvanised steel protective covers of Ø 35mm and 3m long offer an increased shock resistance. The Telenco® GPCG35 model is omega-shaped and mounts with pole band or screw. The U-shape of Telenco® 67/01 protective cover enables the pole mounting by using pole bands. For pole or facade mount by drilling it is necessary to use Telenco® BRI67/01 mount brackets.

- Increased shock resistance
- Cable protection on 3m long
- Resistant to UV and atmospheric oxidation



### PVC protective cover ③

The Telenco® GPC protective covers are used for ensuring the preservation of cable down-leads on poles or facades. Available in various shapes and with different internal diameters so to adapt to the large number of cables to be protected. Resistant to impacts and UV rays, these protective covers come in three different colours and fasten with pole band or screw.

- Cable protection on 2.75m (except the GPC12 version: 2m)
- Resistant to UV, impact and atmospheric oxidation
- Available in different dimensions and colours



### Aluminum protective cover ④

Just like the GPC PVC protective covers, the Telenco® GPCA are used to protect cable routes on poles or facades. These omega-shaped aluminum protective covers with a length of 2.75m mount by using pole bands or screws.

- Cable protection on 2.75m
- Resistance to UV, impacts and atmospheric oxidations
- Available in different dimensions



### Duct reducer sleeve ⑤

Used for aerial-underground transitions, the duct reducer sleeve enables the protection of cables routing out of ducts. Its specific design allows it to fit into a an underground duct Ø 45mm and to insert at the same time into a protective cover with minimum Ø 28mm.

- Cable protection at the ground level against brushcutting and vandalism
- Protection against duct obstruction
- Set up on ducts Ø 45mm at the foot of a facade or a pole



### Cable down-lead pole mount without tie ⑥

Equipped with two slots for enabling its mounting with pole band of maximum 9mm width, the Telenco® BIC not only protects cable sheaths, but also guides and secures cable down-leads on poles. This pole mounting accessory installs both with pole band and by using screws and is compatible with all type of poles.

- Mounts on any type of pole
- Resistant to UV and atmospheric oxidation



### LOV300 storage bracket

Designed for cable storage and protection, this pole hardware accessory is used for the management of fibre optic cable overlengths on poles, in manholes or on walls/facades. The LOV300 storage bracket enables to avoid the piston effect on aerial cables with ADSS structure. This product solution allows to perform splicing applications at convenience, either at height or at the ground's level.

- Compatible with different type of splice protection closures
- Lightweight, compact and discreet design
- Equipped with multiple cable pass-through openings for an optimal cable slack management
- Installation on poles, facades or in manholes



# TELENCO: INNOVATION AT THE SERVICE OF WORLDWIDE NETWORKS

Telenco is a group of entities specialised in the design, manufacture and global marketing of future-proof solutions for telecom and connectivity infrastructures. Since 1999, the Group has organized its business activity on offering innovative solutions meeting the field challenges of each specific market.

## A PROVEN EXPERTISE

### DESIGN



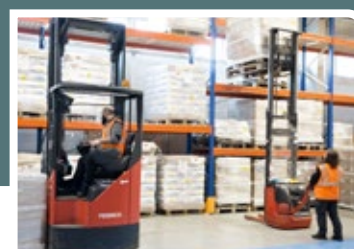
Over **20 years** of R&D expertise and an integrated test laboratory

### MANUFACTURE



**18 000 m<sup>2</sup>** of production units in Europe and Tunisia

### LOGISTICS



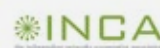
**21 000 m<sup>2</sup>** of storage area in the world

## A CERTIFIED INDUSTRIAL PLAYER...

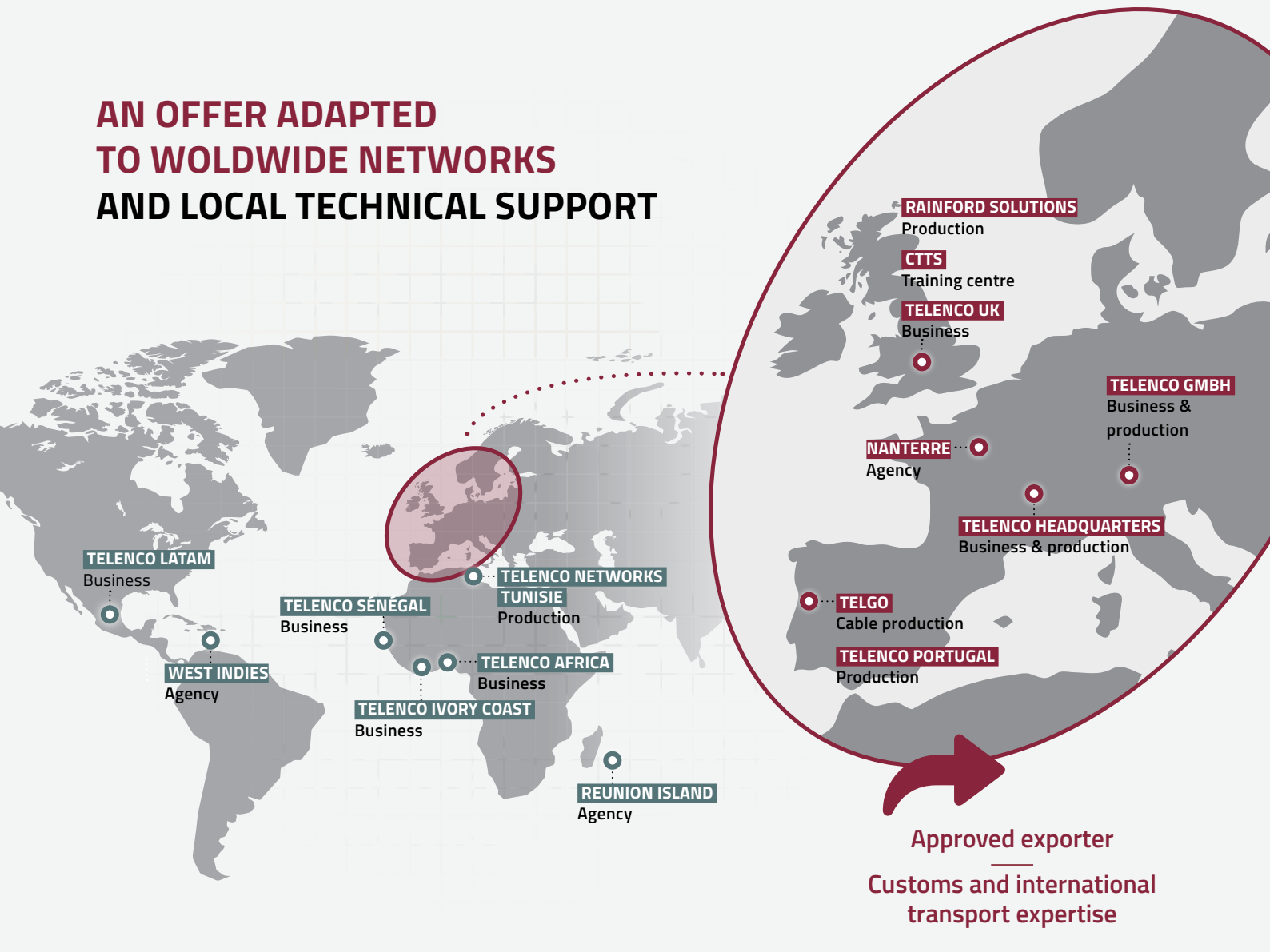


## ...AT THE CORE OF A NETWORKS OF EXPERTS IN TELECOMMUNICATIONS

Member of ARCEP expert committee



# AN OFFER ADAPTED TO WOLDWIDE NETWORKS AND LOCAL TECHNICAL SUPPORT



## A RESPONSIBLE & SUSTAINABLE COMPANY

Committed to its employees, the environment and social inclusion

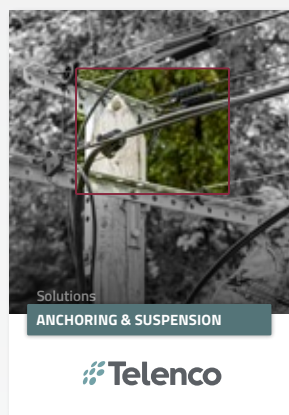
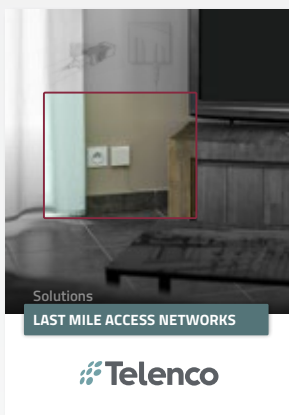


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