



**VIGNETOINOX<sup>®</sup>**

**POSTS, WIRES AND ACCESSORIES FOR VINEYARDS AND ORCHARDS**

*made in Italy since 1979*



# VIGNETINOX®

**CVX-49A24-ENG**

The data reported in the present catalogue may be subjected to change for the evolution and improvement of the accessories - Vignetinox



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Vignetinox Range of Accessories

Vignetinox





R&D, Patents

Vignetinox

Vignetinox Patents

Vignetinox has been the first company in Italy to get international patents for its accessories. Today it is the **benchmark in Europe for its wide and complete range of products.**

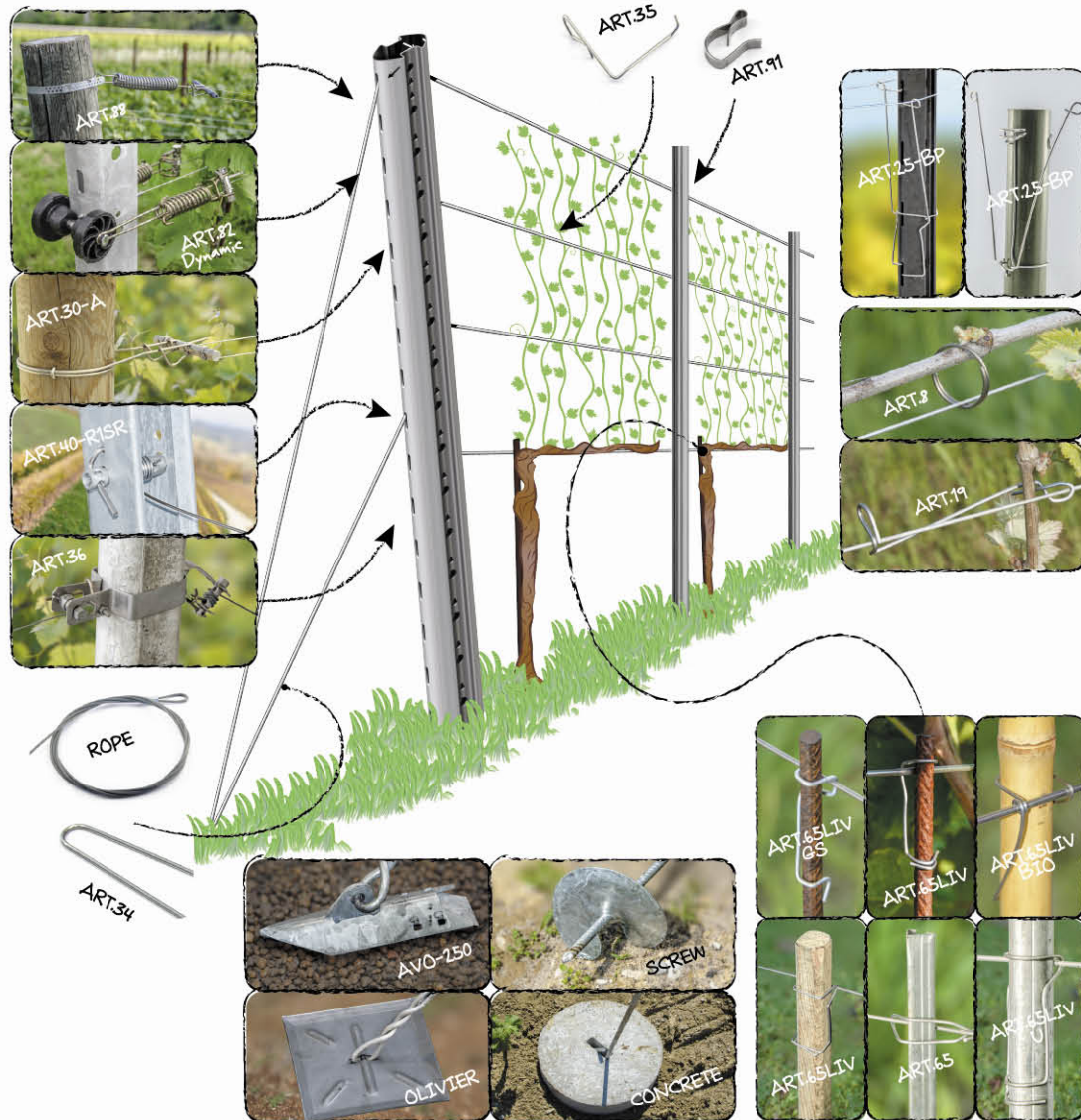
A range that is continuously growing in order to find the **best solutions for any technical problem** and in order to meet any specific customers request.

1980-1985  ART.10	2005  ART.65 LIVIO	2006  ART.23 Zava	2009  Tie for Wine Plants	2010  Binaries System
 "H" System	 ART.8	 ART.35	 Wire-Rope Cone	 ART.65T
 ART.19	 ART.41BIS	2008  Zava Hook	 Band Milano	 ART.54T
2003  ART.88			 Reverse Compensator	

2011  Knot Brace Wire	2012  ART.41/R1	2016  Blade grafting	2017  ART.88R-G	2019  Spring for anti-hail net	2023  Design ECLIPSE
 Dynamic	 Triacca	 America Hook	 Omega Support	2020  Clip per ECLIPSE	 PATENT PENDING
 Basilia	2013  External Dynamic	 Cesare Scissors	 Design INFINITY	 ART.65LIV-GS	 PATENT PENDING
	 Movable Stake	 Post for Cordon Wire	2018  America Hooks	2021  Compensators	 PATENT PENDING
			2018  Roll improved	RAPID 2022  Roller CRIC	

*ART.65 LIVIO designed by Vignetinox has been the object of several attacks from third parties opposing our European patent. The board of appel of the European patent office has **ESTABLISHED THE VALIDITY OF OUR PATENT** on April 23rd 2021.*

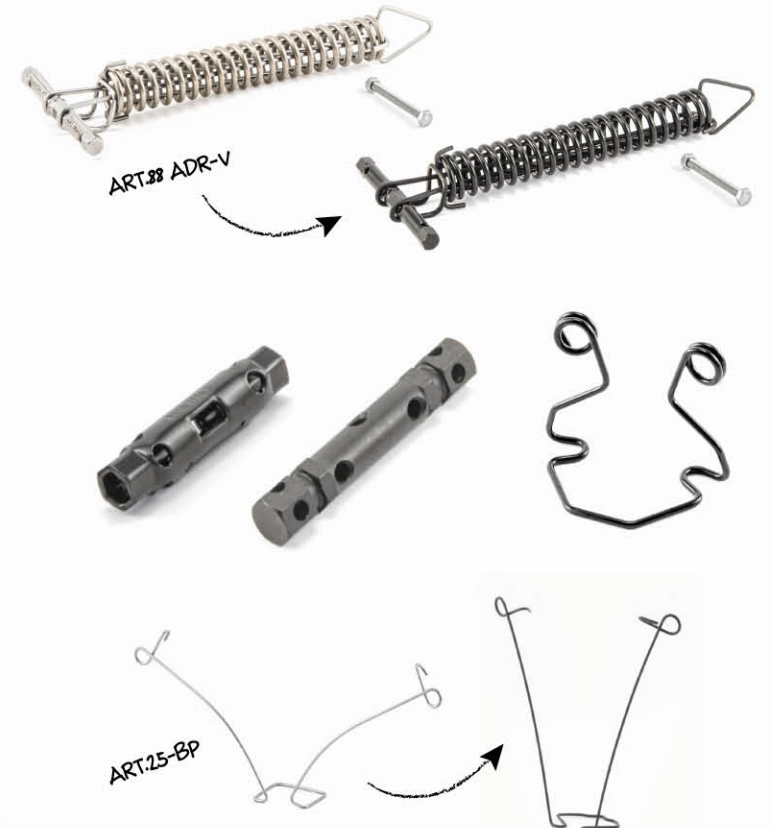
## Accessories for Vineyard



# BLACK line EDITION

**ORIGINALS**

**NEW LINE OF BLACKED ACCESSORIES**  
**Vignetinox "BLACK EDITION"**  
**FOR A LOWER VISUAL IMPACT IN THE VINEYARD**

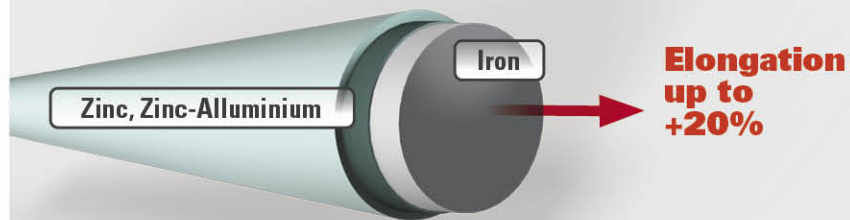


## Differences Between Galvanized and Stainless Steel Wires

Wires for Vineyards and Orchards

### Coated Wire

Coated wire with Zinc (Zn) or Zinc Aluminium (ZnAl).



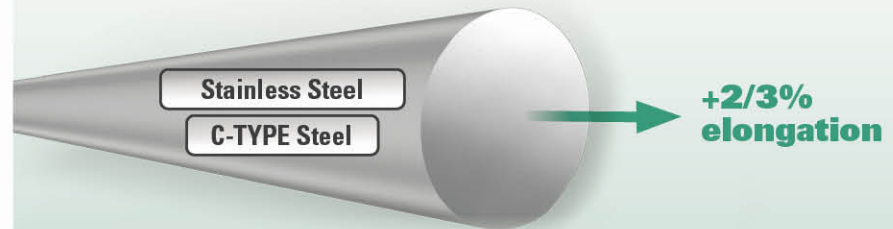
#### Characteristics/Properties:



- **Low Price /kg** ✓
- Lower tensile strength ✗
- High Elongation ✗
- Periodic Retensioning ✗
- Release of Zinc and/or Aluminium Residues - soil pollution ✗
- Limited Corrosion Resistance ✗
- Limited Lifetime ✗

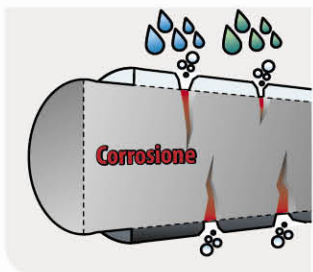
### Stainless Steel Wire

Surface and inner part made of the same material.

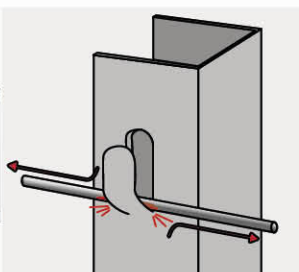


#### Characteristics/Properties:

- **Higher tensile strength** ✓  
*(Smaller diameter = greater efficiency)*
- **Allungamento ridotto** ✓  
*(No needed retensioning)*
- **No release of residues** ✓  
*(No environmental pollution)*
- **Resistant to corrosion** ✓  
*(Long lasting)*
- **No chemical reaction** ✓  
*(Suitable for the contact with grapes)*
- **Unlimited life span** ✓  
*(No deterioration caused by atmospheric agents)*



✗ Wire corrosion as a result of the coating break



✗ Abrasion



✗ Scraping of the Zn/Alu protection of the wire



✗ Zn/Alu wire after 8 years



✓ LEGAINOX® wire after 8 years.

✓ C-TYPE wire after 8 years.



# Stainless Steel Wire

## Type of Stainless Steels

**AISI 302:** Stainless Steel for vineyards and Orchards higher tensile strength, opaque surface.

*Application's conditions: no of use limitations.*

**AISI 304:** The standard Stainless Steel wire for Vineyards and Orchards.

*Application's conditions: no of use limitations.*

**LEGAINOX®** (Vignetinox Brand): For vineyards and Orchards with performances of the higher quality at a lower price than galvanized wires.

*Application's conditions: the wire has not to be preferentially used less than 15 km from the sea or in presence of saline environments.*

*It may change the surface appearance.*

### Pros of Stainless Steel Wire:

- Lighter for the same area ✓
- Installation time reduced ✓
- No maintenance ✓
- Long lasting ✓
- Greater convenience compared to covered wires ✓

	Galvanized Zn	Stainless Steel AISI 302-304	LEGAINOX®
<b>Load Capacity 500 Kg = Ø</b>	Ø 3,9 mm	Ø 2 mm	Ø 2 mm
<b>1Kg = m</b>	<b>10 m</b>	40 m	<b>40 m</b>
<b>Labour</b>			
<b>1m = \$</b>			

## Stainless Steel Wire Market

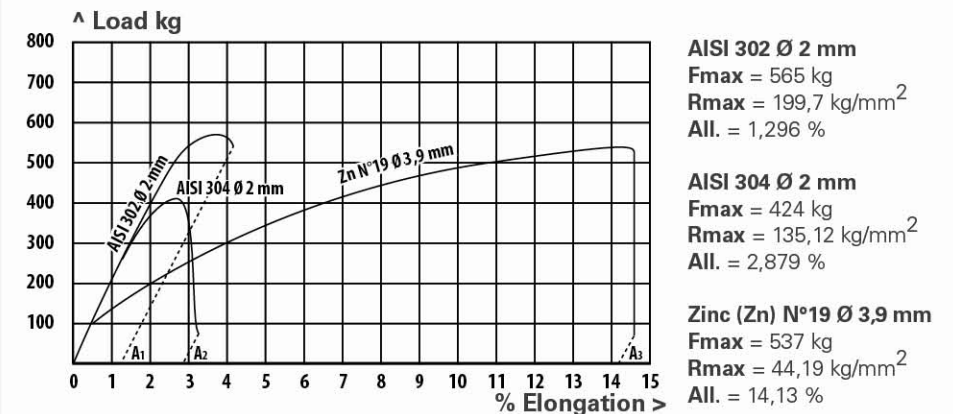
### The hidden risk of cheap products:

- Limited availability;
- Different characteristics even for wires coming from in the same lot;
- Inaccurate denomination: "Stainless Steel Wire", unknown sourcing;
- Certifications not always available or incomplete.

### Wire coming from generic industrial applications:

- Materials designed for different fields than agriculture;
- Stock lots, discards or products of second/third choice;
- Irregular characteristics and performances;
- No guarantee of specialized support.

### Example: Wire tensile strength test



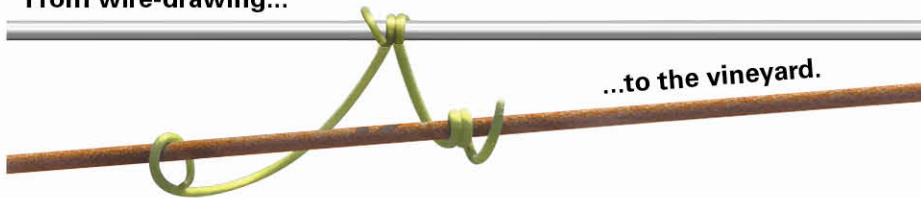
## C-TYPE wire

### Steel corten wire

Corten is a **steel alloys wire resisting corrosion** (CORrosion) specially under atmospheric conditions such as dryness/humidity/dryness cycles. Corten is also **highly mechanical resistant** (TENSil strenght). Corten properties are due to **micro alloys** among **Copper** (Cu), **Chrome** (Cr), **Phosphorus** (P) and **Nickel** (Ni) creating an **oxidised thin film**.

When subjected to the influence of the weather the layer protecting the surface develops and regenerates continuously isolating the steel from external oxidation. C-TYPE wire rust-like appearance and its chemical composition are in conformity to **European standards UNI EN 10025-5**.

From wire-drawing...



COR-TEN FORMS ITS **PROTECTIVE LAYER** IN THE FIRST **5/8 MONTHS**.



Wires for Vineyards and Orchards

### Mechanical characteristics:

- Highly resistance to **mechanic and atmospheric stress** ✓
- **Quick installation**, minimal retension and maintenance ✓
- **Resistance to wire cutting**, scratch and scraping ✓
- **The even surface reduces** friction and resistance to motion among post, wire and vegetation ✓
- **Environmentally friendly** ✓
- **Visual impact suitable** for vineyards and orchards landscape ✓

### C-TYPE wire diameter

JDP	Diameter mm	Development m/kg	Breaking strenght	Application
12	1,8	50	233 ÷ 285 kg	
13	2,0	40	288 ÷ 352 kg	catch wire
14	2,2	33	349 ÷ 426 kg	
	2,5	26	450 ÷ 550 kg	fixed wire
	2,8	21	565 ÷ 690 kg	cordon wire
17	3,0	18	648 ÷ 793 kg	
	3,6	13	934 ÷ 1141 kg	anchoring
	4,0	10	1153 ÷ 1409 kg	



Bar-code label for product traceability.

## Mechanic characteristics of Vignetinox's wires

Wires for Vineyards and Orchards

### Tensile strenght and elongation

The more the tensile strenght is important the more the elasticity of the wire is important. The wire is stretched but it **resumes its original size when dissambled**. It is a **100% repurposable wire**. High tensile strenght equals a smaller diameter of the wire and therefore low weight when installed.



### Surface hardness

The more the coating is hard the less it is likely to be scratched. Coated wires have a Zn and ZnAl layer on top of the in Carbon (FeC) wire core. This coating has a low hardness therefore the cutting and abrasion are more likely to affect the core (FeC).



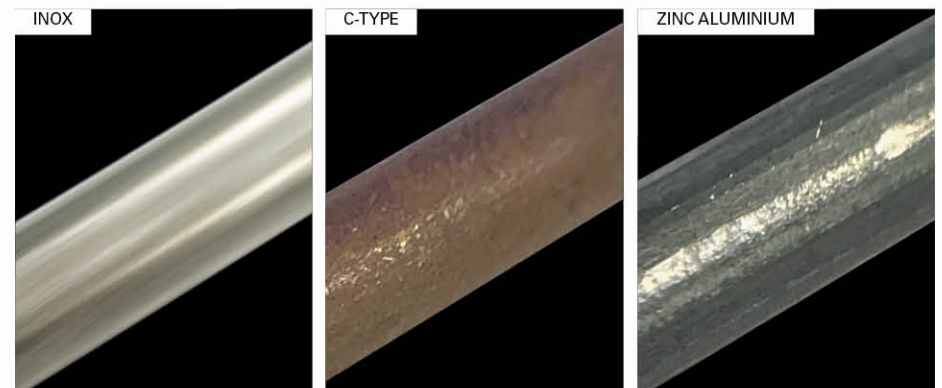
### Elongation of the wire

Inox 302/304, LEGAINOX and Serie 180 steels are used to produce "springs". **They will reassume their shape even after periods of mechanical stress:** gusts of wind and stress due to the mechanization.



### Surface roughness

A light surface roughness reduces the friction among wire, post and vegetation.



Wires comparison chart

Wires for Vineyards and Orchards

			VEGETATION WIRES					CORDON WIRES						
COATED WIRES	Coating classes UNI EN 10244-2	<b>ZN 50 C</b> (Commercial) <i>COATING</i> 100% Zn - <i>Class C</i>	Ø mm.	2,0	2,2	2,5	2,8	3,0	3,5	4,0	4,5		5,0	
			m/kg.	40	33	26	21	18	14	10	8		6	
			breaking load kg.	128 192	155 232	200 300	251 377	288 432	392 588	512 769	648 973		801 1201	
		<b>ZN 80</b> (Heavy zinc) <i>COATING</i> 100% Zn - <i>Class A</i>	Ø mm.	1,6	1,8	2,0	2,2	2,5	2,8	3,0	3,5			4,0
			m/kg.	63	50	40	33	26	21	18	14			10
			breaking load kg.	143 184	182 223	224 288	271 349	350 450	439 565	504 648	687 883		897 1153	
		<b>SERIE LAZ 80</b> <i>COATING</i> <b>LAZ 80 LAZ 80+</b> 95% Zn 90% Zn 5% Al 10% Al <i>Class A Class B</i>	Ø mm.	1,6	1,8	2,0	2,2	2,5	2,8	3,0	3,5			4,0
			m/kg.	63	50	40	33	26	21	18	14			10
			breaking load kg.	143 184	182 223	224 288	271 349	350 450	439 565	504 648	687 883		897 1153	
		<b>SERIE 120</b> <i>COATING</i> <b>ZN120 LAZ120 LAZ120+</b> 100% Zn 95% Zn 90% Zn <i>Class A 5% Al 10% Al Class A Class B</i>	Ø mm.		1,6		1,8	2,0	2,2	2,5	2,8	3,0		3,5
			m/kg.		63		50	40	33	26	21	18		14
			breaking load kg.		225 266		285 337	352 416	426 504	550 650	690 816	793 937		1079 1275
<b>SERIE 180</b> <i>COATING</i> <b>ZN180 LAZ180</b> 100% Zn 95% Zn <i>Class B 5% Al Class B</i>	Ø mm.		1,4			1,6	1,8	2,0	2,2	2,5	2,7	3,0		
	m/kg.		83			63	50	40	33	26	22	18		
	breaking load kg.		267 298			348 389	441 493	544 608	659 736	851 951	992 1109	1225 1369		
UNCOATED WIRES	Stainless Steel UNI EN 10088-3	<b>INOX 302/304</b> <i>STAINLESS STEEL</i>	Ø mm.	1,2	1,4			1,6	1,8	2,0	2,2	2,5	2,7	3,0
			m/kg.	113	83			63	50	40	33	26	22	18
			breaking load kg.	196 219	267 298			348 389	441 493	544 608	659 736	851 951	992 1109	1225 1369
	Chemic. Comp. EN 10025-5	<b>LEGAINOX®</b> <i>STAINLESS STEEL</i>	Ø mm.		1,3		1,5	1,7	1,9	2,1	2,4		2,8	3,1
			m/kg.		100		75	58	46	38	28		21	17
			breaking load kg.		230 284		306 378	393 486	491 607	600 741	738 876		1004 1193	1231 1462
Chemic. Comp. EN 10025-5	<b>C-TYPE</b> (New product) <i>NATURAL OXIDE</i>	Ø mm.		1,8		2,0	2,2	2,5	2,8	3,0	3,6	4,0		
		m/kg.		50		40	33	26	21	18	13	10		
		breaking load kg.		233 285		288 352	349 426	450 550	565 690	648 793	934 1141	1153 1409		

## Wire packaging

Wires for Vineyards and Orchards

### Packaging options

AISI 302/304, LEGAINOX®, C-TYPE and galvanized wires.



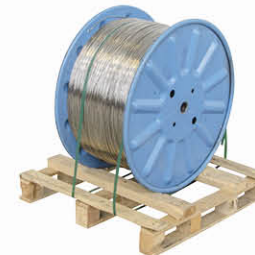
Pallet of approx. **990 kg\***  
**66 spools** of 15 kg ea.



**Coils of 25 or 50 kg** ea  
tied horizontal. Total **500 kg\***.



Pallet of approx. **500 kg\***  
**coils of 25 or 50 kg** ea  
Packed vertical.



**\*\*Pallet** with reel of  
approx. **500 kg\***.



**WIRE UNWINDER**  
from: **25, 50, 100 kg** and hydraulic  
drive winder.



**Spool** of 15 kg.



**Coil** of 25 kg.



**Coil** of 50 kg.



**\*\*Pallet** of about **1000 kg\*** with 2  
**wire spool** of about **500 kg**  
overlapped.



**REEL UNWINDERDA: 250,**  
**400, 500 kg** and unwind spools  
with hydraulic brake.

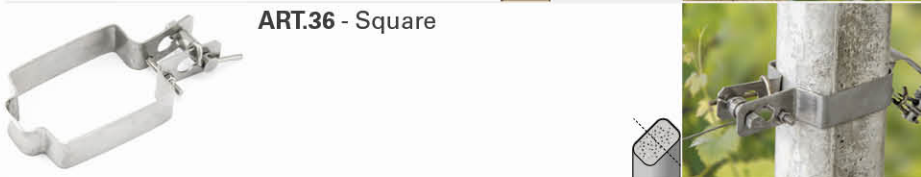
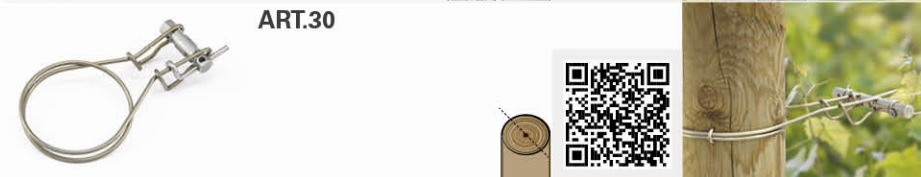
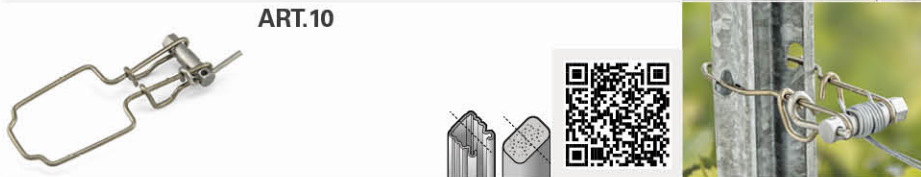
\*Minimum quantity required (500 / 990 kg).

\*\*Blue metal packaging must be returned within 6 months from delivery, otherwise it will be invoiced.

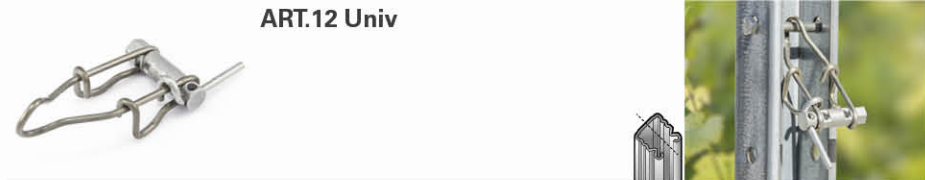
## Wire Tensioning

### Tension Clamps and Hooks

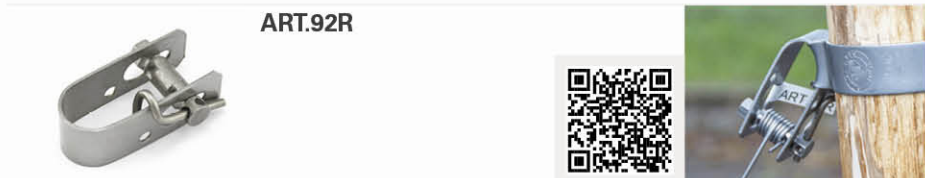
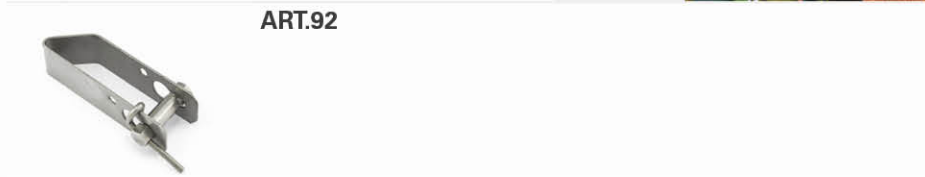
Tension Clamps for end posts, complete with tension roller.



Wire Tensioning



### Hooks for Anchoring Trellis Wire



# Wire Tensioning

## Rollers to tension wires

Wire roller tensioner (lock device included).



**ART.40RBTT-13-3**  
**ART.40-R1SR-55-3GM**



**ART.40RBTT-ZR2**  
**ART.40RBTT-ZR2S**



**ART.41/R1**



**ART.41R1SR**  
**ART.41R1SR-U**



## End Post Wire Joiners

Wire joiners and tensioners. Their load capacity corresponds to 90% of the total load capacity of the wire to tighten.

Wire Ø 2.5 mm = 883 kg. 90% di 883 kg = 794 kg.



**MORSE**



**BIMORSE**



## GRIPPLE



- Fast and easy to use ✓
- Limited load capacity, it does not exploit all the wires load capacity ✗
- Possibility of wire slipping ✗



**SMALL** = Ø 1.4 – 2.2 mm - Max. 300 kg;  
**MEDIUM** = Ø 2.2 – 3.25 mm - Max. 400 kg;  
**LARGE** = Ø 3.2 – 4.2 mm - Max. 600 kg;  
**JUMBO** = Ø 2.5 – 3.15 mm - Max. 600 kg.

## MAXTENSOR



- Fast and easy to use ✓
- Limited load capacity, it does not exploit all the wires load capacity ✗
- Possibility of wire slipping ✗



**MONO** = Ø 1.8 – 3.2 mm - Max. 400 kg;  
**DOPPIO** = Ø 1.8 – 3.2 mm - Max. 400 kg;

## Vine Support Stakes and Tutor Stake Locker

Tutor and stake locker

### ART.65LIV Tutor Stake Locker



Designed to be strong, simple and quick. Once installed, it keeps the stake stable under the influence of mechanical stress. The stainless steel version is reusable. It is available for any kind of stake. It's special design does not allow the growth of the canes between the stake and the tutor stake locker no sharp ends it is safe and easy to install.

Simple manual installation ✓ Reusable on other installations ✓  
Does not damage the vegetation ✓ Safe friendly user ✓

Section/Stake Type	Locker	Stainless	Legainox	Galvanized
diameter from 3,5 to 4,7 mm	ART.65LIV-3.5/4.7	X		
diameter from 6 to 8 mm	ART.65LIV-6/8	X	X	X
diameter from 6 to 10 mm	ART.65LIV-6/10	X	X	X
diameter from 10 to 16 mm	ART.65LIV-10/16	X	X	X
diameter from 15 to 20 mm	ART.65LIV-15/20	X	X	X
diameter from 20 to 22 mm	ART.65LIV-20/22	X		
diameter from 22 to 24 mm	ART.65LIV-22/24	X		
diameter from 25 to 30 mm	ART.65LIV-25/30			X
20 x 20 mm	ART.65LIV-20/20	X	X	X
25 x 25 mm	ART.65LIV-25/25	X		X
30 x 30 mm	ART.65LIV-30/30	X		X
Tutor R12	ART.65LIV-R12	X	X	X
Tutor U16	ART.65LIV-U16	X		

### Tools for easy application of "Livio Hook" ART.65LIV



ATT.65LIV-L  
Manual tool.



ATT.65LIV-RAPID  
Semiautomatic manual tool.



### DISPUTED PATENT RIGHTS ART.65LIV

ART.65 LIVIO designed by Vignetinox has been the object of several attacks from third parties opposing our European patent. The board of appeal of the European patent office has **ESTABLISHED THE VALIDITY OF OUR PATENT** on April 23rd 2021.

**Beschwerdekammern  
Boards of Appeal  
Chambres de recours**

Database for the decision of 23 April 2021

Case Number: T 1979/18 - 3.2.04

Application Number: 0489013.4

Publication Number: 1854118

IPC: A01G17/04, E1607/24

Language of the proceedings: EN

Title of invention: CLIPPING DEVICE FOR WIRE-LIKE BODIES

Patent Proprietor: HOLLIFICO BOUTOUZOS S.R.L.

Opponent: GR S.r.l.

Headword:

Relevant legal provisions: EPC Art. 34, 36

**Keyword:**  
Novelty - (yes)  
Inventive step - skilled person - (yes)

Order

For these reasons it is decided that:

- The decision under appeal is set aside.
- The case is remitted to the Opposition Division with the order to maintain the patent as amended in the following version:  
Claims: Claim 1 of the main request filed with the grounds of appeal dated 4 October 2019.  
Description: pages 1 to 5 filed in the oral proceedings before the Board.  
Drawings: Figures 1 to 14 of the published patent specification.

The Registrar: The Chairman:
















G. Mousliotis A. de Vries






Decision electronically authenticated



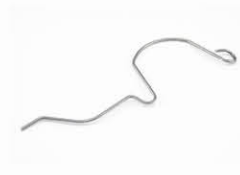

# Vine Support Stakes and Tutor Stake Locker

Tutor and stake locker

	<p><b>ART.65LIV</b> <i>FAST</i> <b>ART.65LIVGS</b></p>		
	<p><b>ART.55BL</b> <i>DOPPIO</i> <b>ART.55BL-DOPPIO</b></p>		
	<p><b>ART.65LIV-Bio</b> It does not fall when the stake dries.</p>		
	<p><b>ART.57</b></p>		
	<p><b>ART.58</b></p>		
	<p><b>ART.60</b></p>		

	<p><b>ART.61</b></p>	
	<p><b>ART.62 / ART.63</b></p>	
	<p><b>ART.64</b></p>	
	<p><b>ART.65 / ART.75</b></p>	

## Tie for the plant trunk and posts

	<p><b>ART.54</b> It can be either rounded or square shaped in different length. Usable also for posts fixing.</p>	
---	---	---

## Accessories for shoots and irrigation

### Ties for Vine Canes

Clip to tie vine canes **ART.19**, fast and easy to install. Be can reuse in any kind of trellis.

<p>100 mm</p>	<p><b>ART.19H</b></p>		
<p>95 mm</p>	<p><b>ART.19R</b></p>		
<p>90 mm</p>	<p><b>ART.19V</b></p>		
<p>80 mm</p>	<p><b>ART.19 Mini</b></p>		
<p>115 mm</p>	<p><b>ART.19 Maxi</b></p>		

Accessori per tralci



**ART.8** (for renewable canes)

Ø mm: 25, 27, 30, 33.

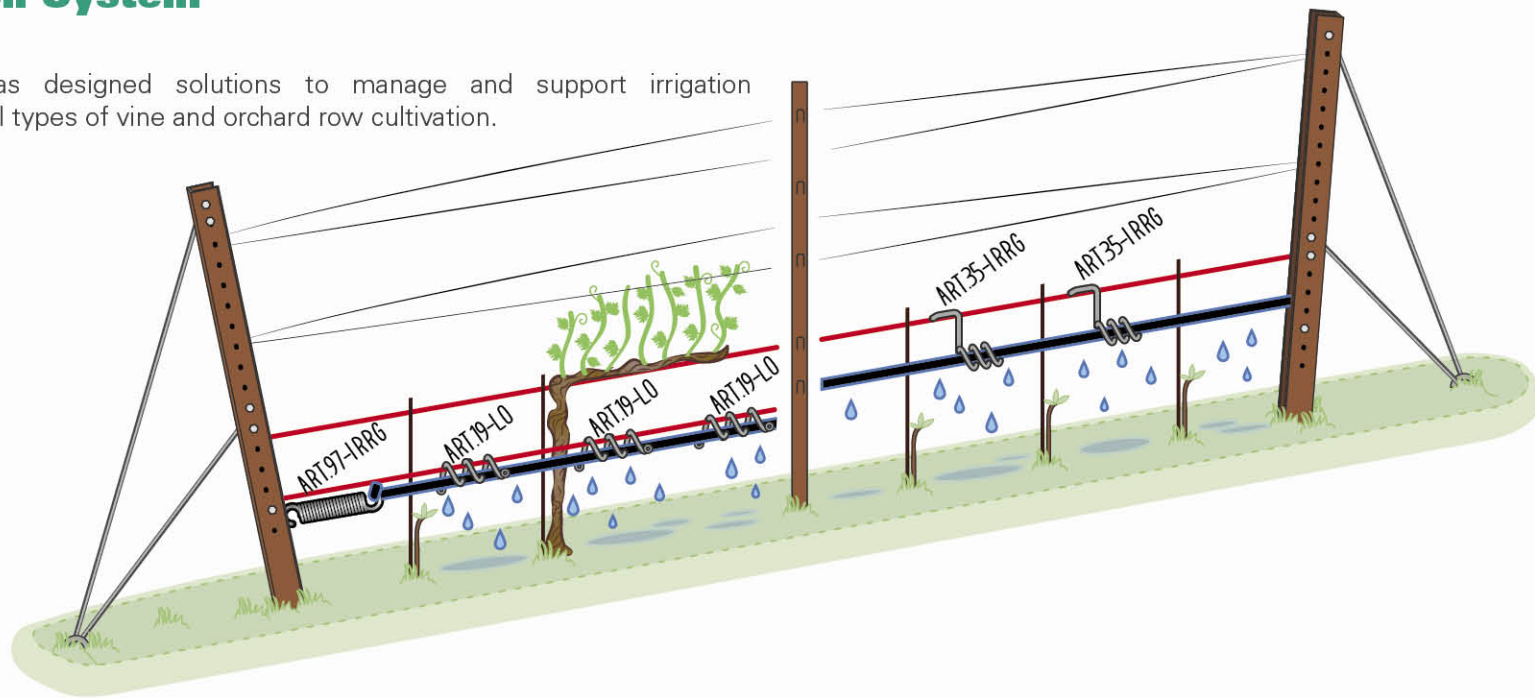
The tie ART.8 is a ring with pre-charged extremities. It is to use and reusable in any kind of trellis. It is ideal for mechanical harvesting.



# Irrigation System

Accessories for irrigation

Vignetinox has designed solutions to manage and support irrigation systems for all types of vine and orchard row cultivation.



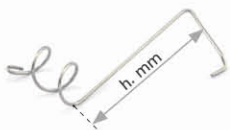
## Accessori per irrigazione



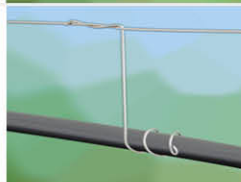
**ART.19LO-IRRIG**  
Hook for irrigation pipe.  
Pipe Ø: 16 and 25 mm.



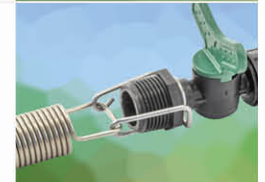
**ART.97-IRRIG**  
To compensate for the expansion of the irrigation pipe.



**ART.35-IRRIG**  
Hook for irrigation pipe applicable to the carrying wire.  
Pipe Ø: 16, 20 and 32 mm.  
h= 80, 100, 150, 200 and 250 mm.



**GANC-ART-97**  
For fastening the irrigation pipe with a tap to the ART.97-IRRIG spring.

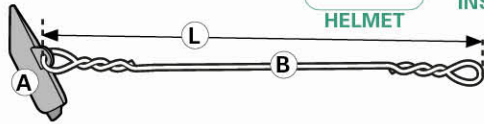


## Anchors

### AVO



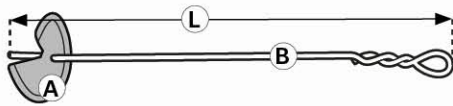
A: 160, 250 mm  
 B Ø: 10, 12 mm  
 L: 80, 100, 120, 150, 180 cm



### SCREW



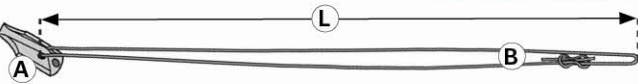
A Ø: 120, 140, 160, 180 mm  
 B Ø: 12, 14 mm  
 L: 80, 100, 120 cm



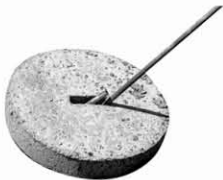
### INSERTION



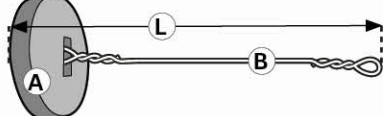
A Models: S4, S6, S8  
 B Ø: 3, 3.5, 4 mm - superior stainless steel  
 L: 80, 100, 120, 150 cm



### CONCRETE



A Ø: 30, 40 cm  
 B Ø: 12, 14, 16 mm  
 L: 100, 120, 150 cm

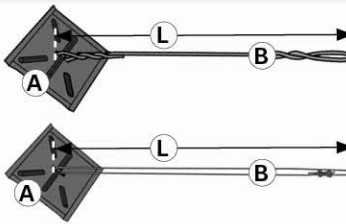


### OLIVIER



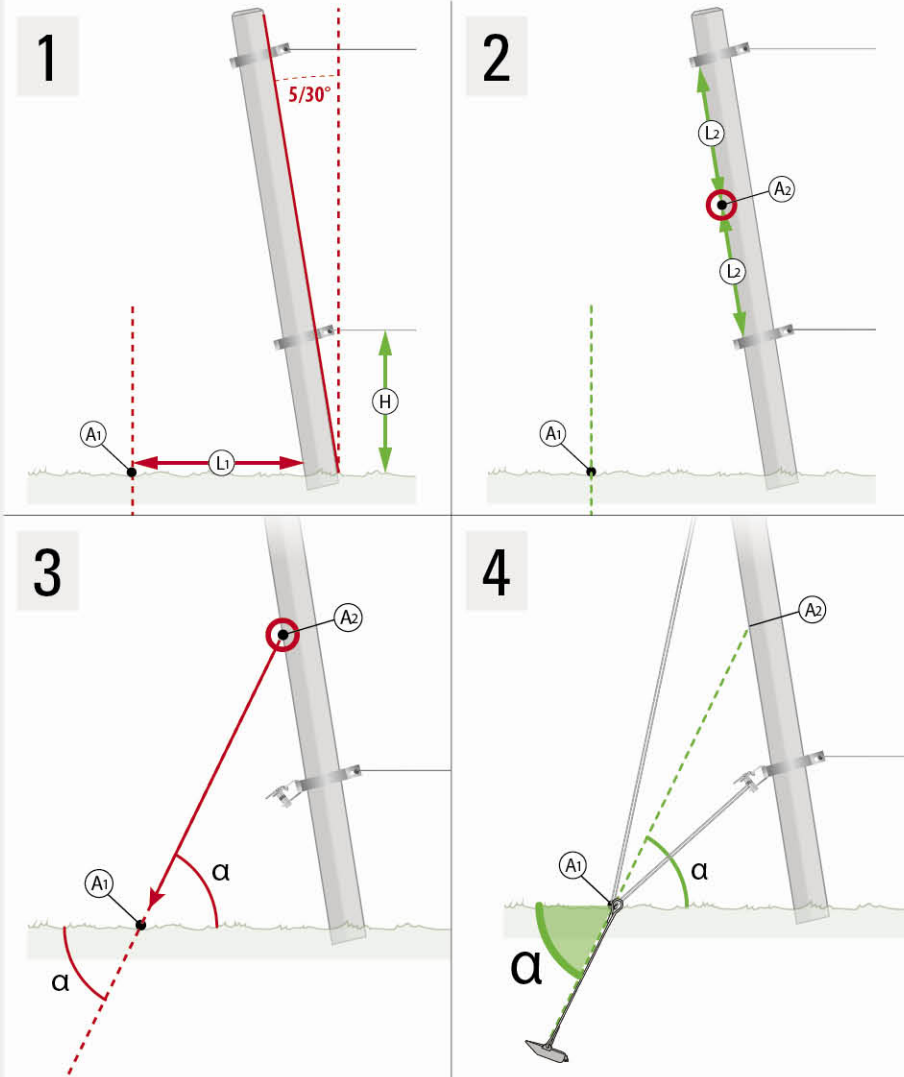
**Models "A"**  
 A: 25x25 cm  
 B Ø: 12, 14 mm  
 L: 100, 120, 150 cm

**Models "B"**  
 A: 25x25 cm  
 B Ø: 3, 3.5, 4 mm - superior stainless steel  
 L: 80, 100, 120, 150 cm

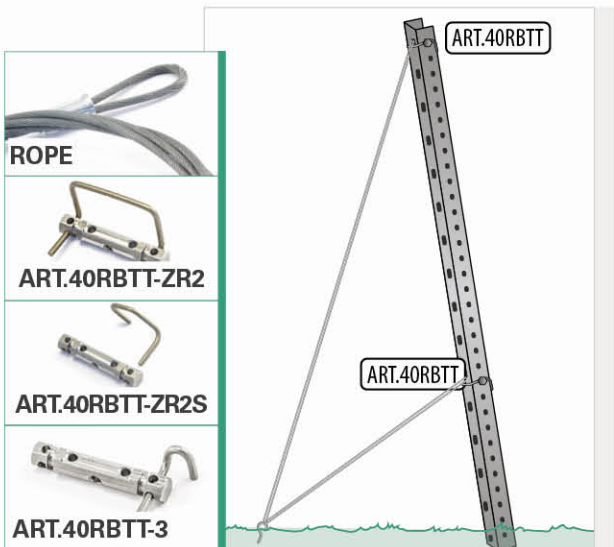
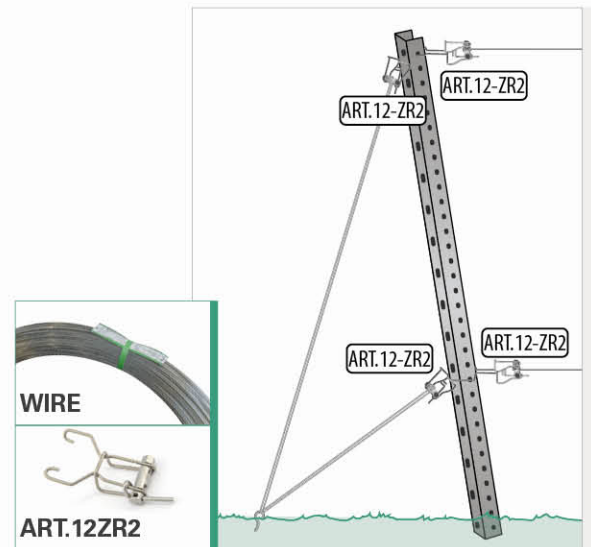
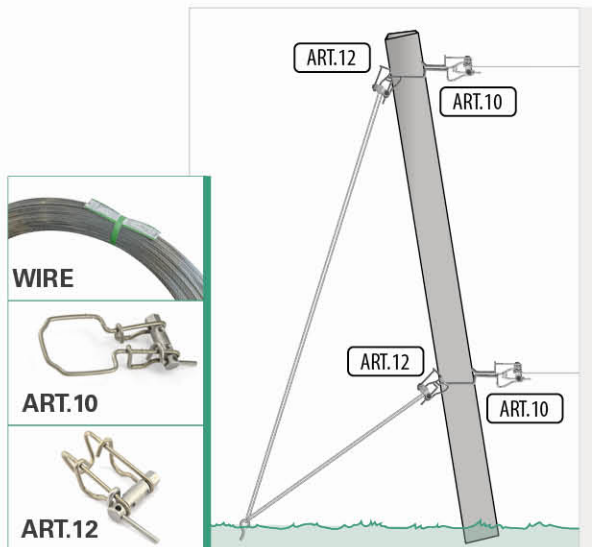
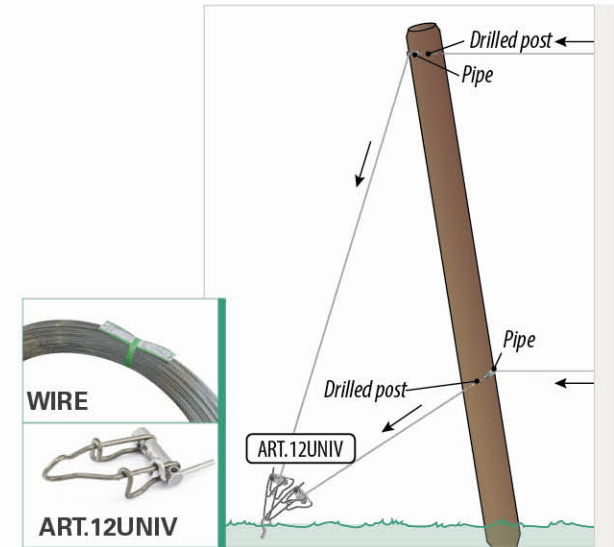
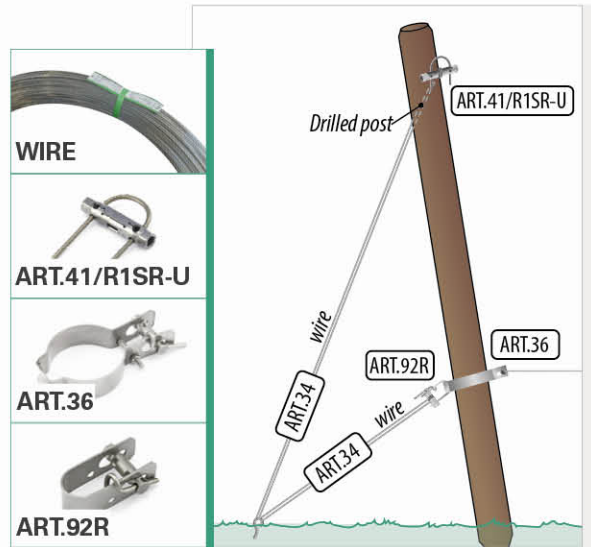
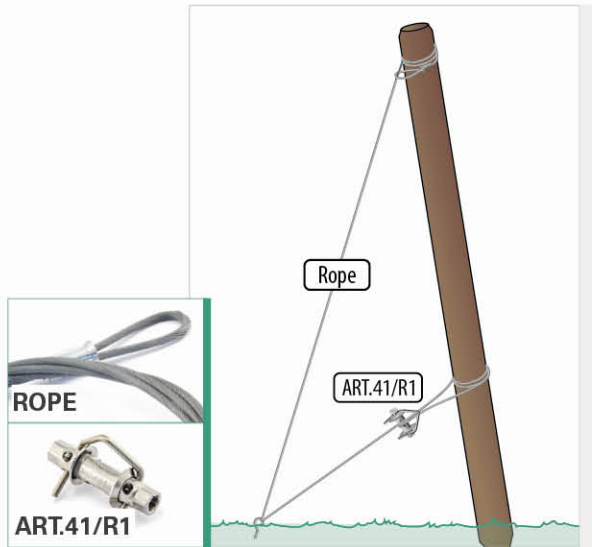


## Anchor installation

Calculation to obtain the distance (L1) from the end post and the inclination ( $\alpha$ ) of the anchor in the ground.  $L1 = H \times 1,2$  (hard ground),  $H \times 1,5$  (soft ground).

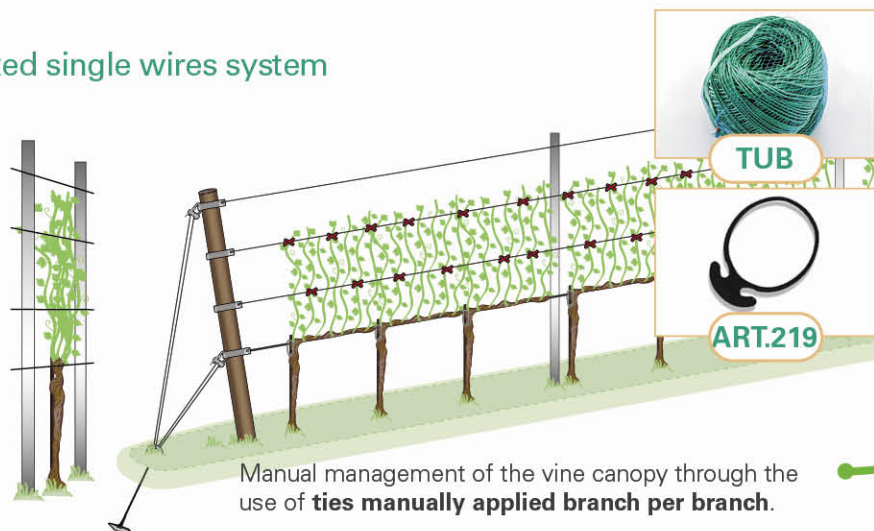


# Anchoring Systems

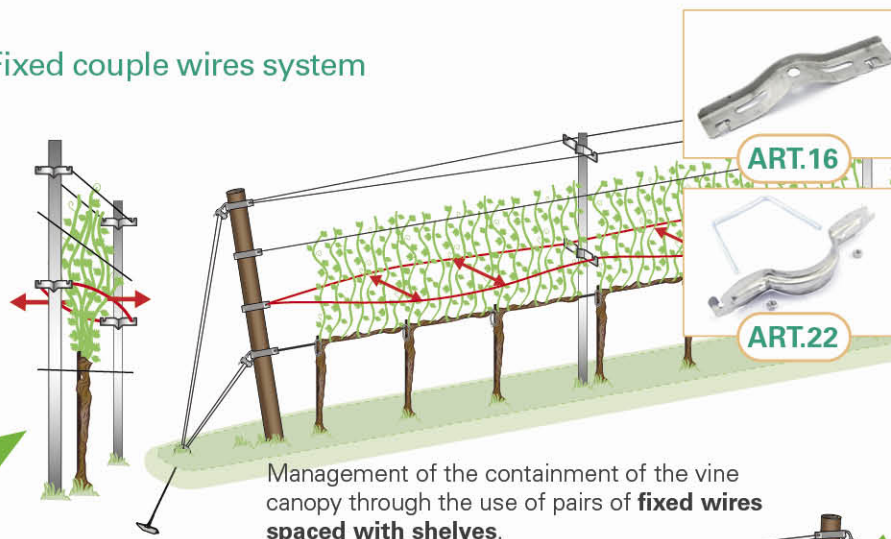


## Development of vineyard trellises: from fixed wires to moveable catch wires

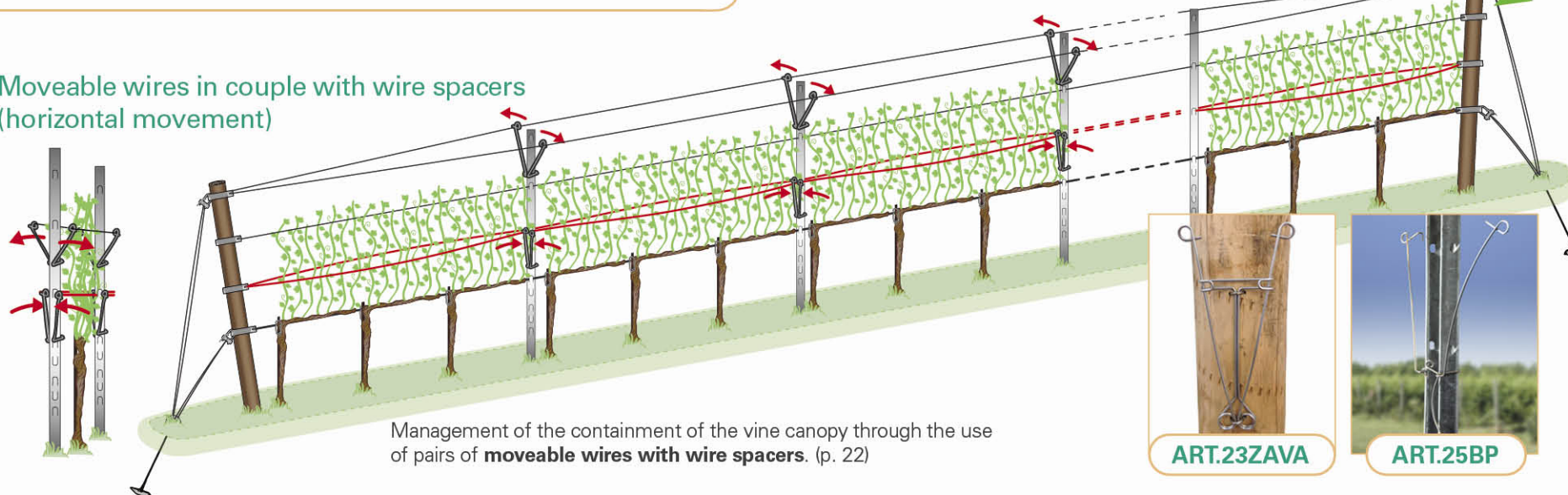
Fixed single wires system



Fixed couple wires system

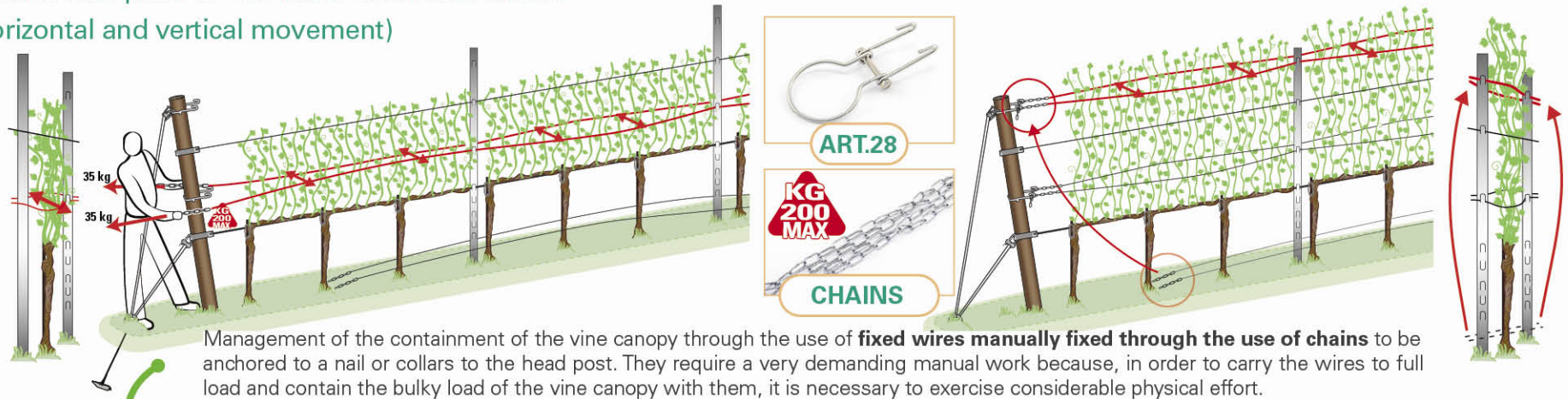


Moveable wires in couple with wire spacers (horizontal movement)

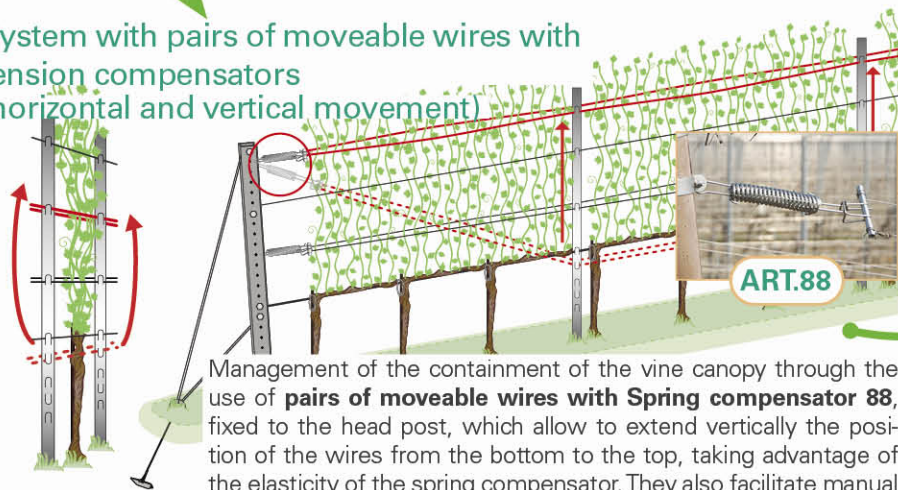


## Development of vineyard trellises: from fixed wires to moveable catch wires

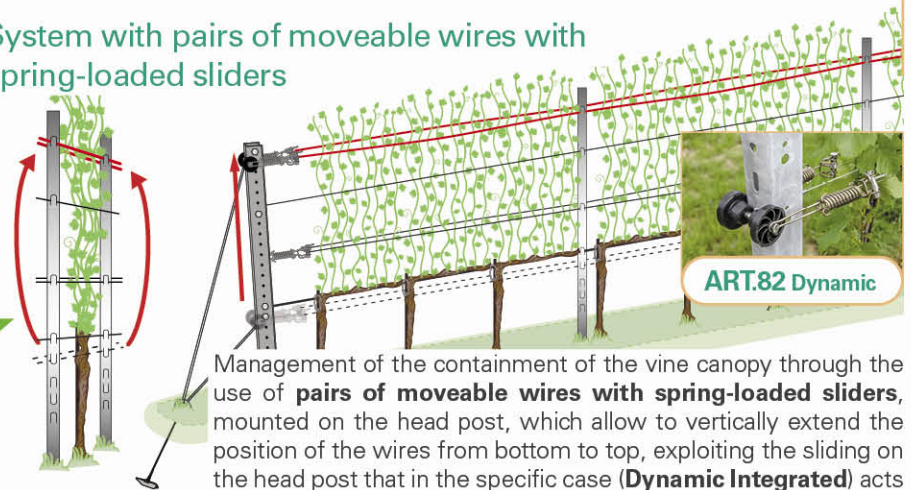
System with pairs of moveable wires with chains  
(horizontal and vertical movement)



System with pairs of moveable wires with tension compensators  
(horizontal and vertical movement)




System with pairs of moveable wires with spring-loaded sliders



Wire spacers

Wire spacer ART.23 for wood post

**ART.23**  
Fixed to the post with two harpoons  
ART.32 or ART.33




**ART.23C**  
Fixed to the post with one harpoon  
ART.32 or ART.33




**Piastrina**  
Combinable with ART.23




**ART.29**  
Combinable with ART.23

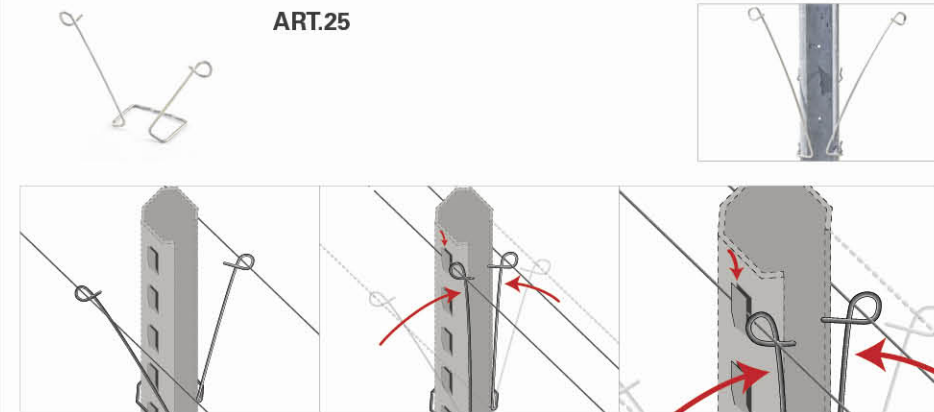



**ART.23ZAVA**  
fixed to the post with two harpoons ART.32 or ART.33



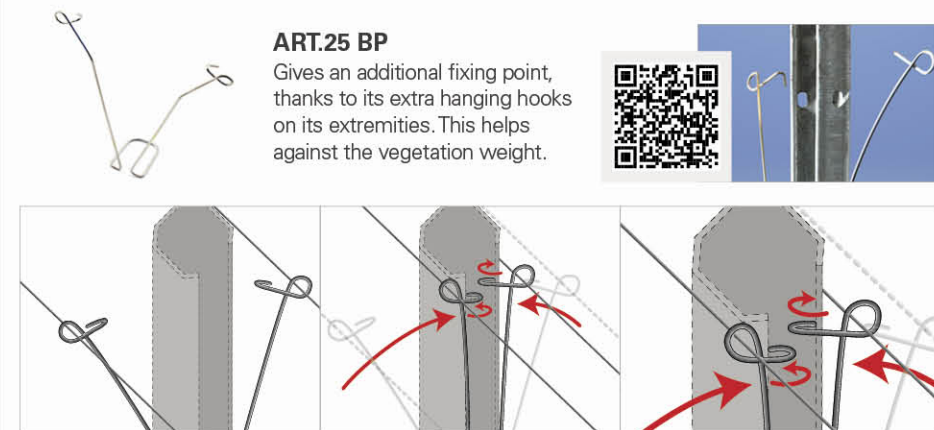

Wire spacer for metal post and other materials ART.25

**ART.25**



ART.25 BiPlus with two fixing points

**ART.25 BP**  
Gives an additional fixing point, thanks to its extra hanging hooks on its extremities. This helps against the vegetation weight.





## Wire spacers

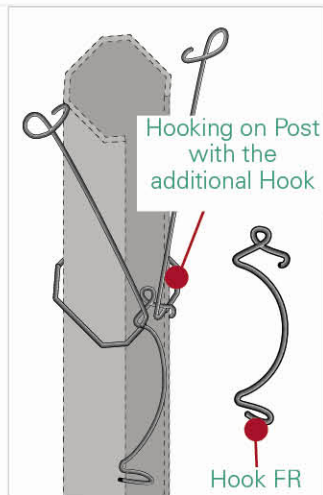
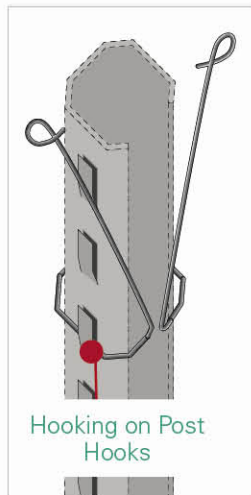
### ART.25 combined with FR hook on open shaped metal posts.

The spring spacer ART.25 can also be installed on metal posts using an additional hook (FR hook) at any height of the post.



#### Hook FR

Hook for spring spacer ART.25 on metal post.



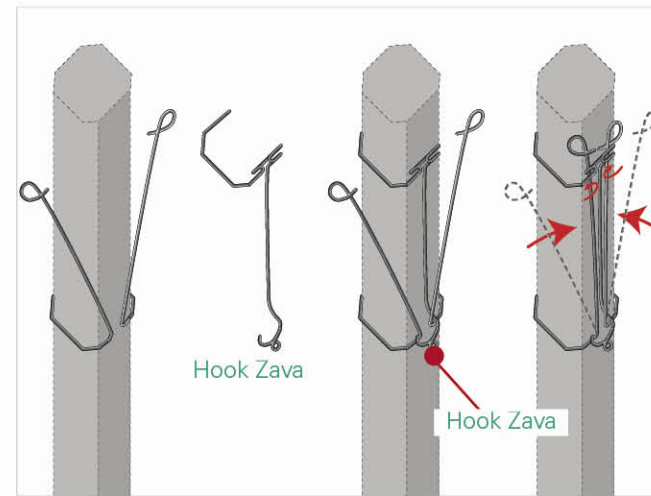
### ART.25 combined with ZAVA hook on concrete and pipe shaped posts.

The spacer ART.25 can be fixed with a Zava hook on any height of a profiled closed post, its hooks allow to fix its two extremities.



#### Gancio Zava

Hook for spring spacer ART.25 on concrete post.



## Tension compensator system

### Wire tension guide **ART.88ADR**

shock-absorbing wire guider with double-adjustable roller



**ART.88ADR-V**  
Applicable with screw and nut on metal posts.



**ART.88ADR-INFINITY**  
For INFINITY end-post.



**ART.88ADR Square section.**  
For square section end-post.



**ART.88ADR Round section.**  
For round section end-post.



**ART.88ADR-V + BAND Square**  
For square section end-post with reinforced collar (band collar).



**ART.88ADR-V + BAND Round**  
For round section end-post with reinforced collar (band collar).



**ART.88ADR-SU**  
For irregular section end-post.



**ART.88ADR-V + annealed wire**  
For irregular section end-post.

### Wire tension guide **ART.88X**

Shock-absorbing wire guider with clamp adapters.

Shock-absorbing wire guider with Gripple.



Shock-absorbing wire guider with MAXTENSOR.



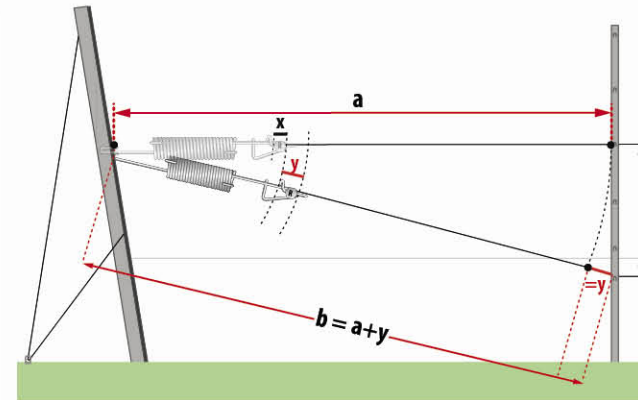
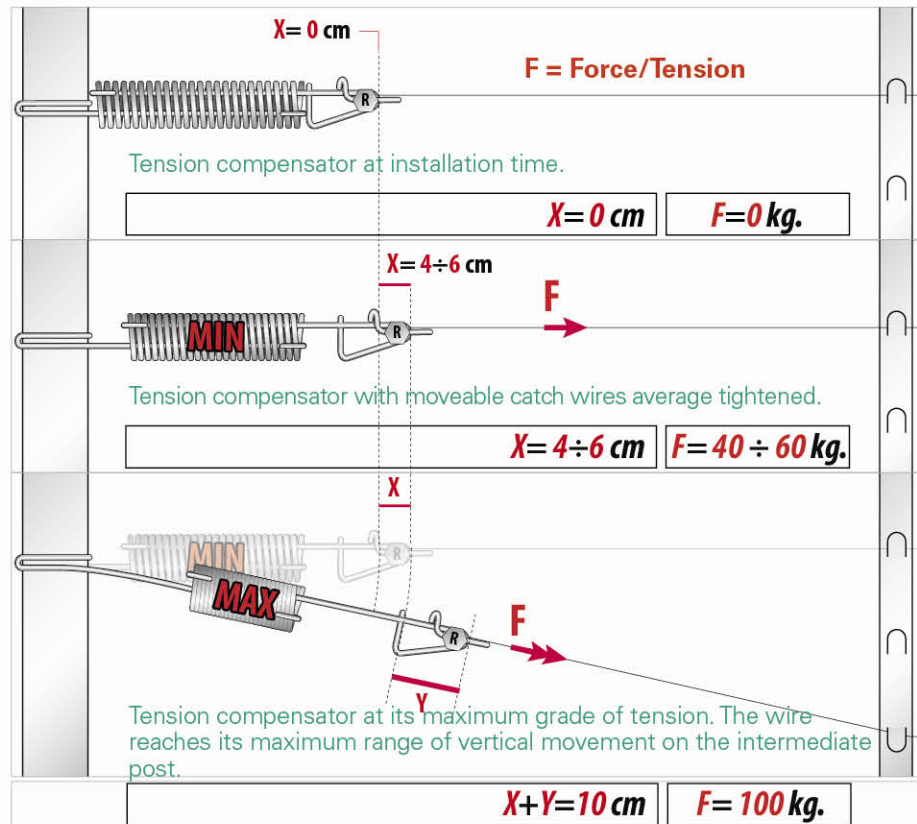
# Tension compensators system

## Application of tension compensators

Tension compensators are used to tighten catch wires. This permits to stretch the wires in order to move them to different heights. This operation allows the leaf canopy growth.

### Targets:

- 1) catch wires tightening to contain the leaf canopy;
- 2) regulation of the spring tension in order to balance the wire elongation while pulling them up during the vegetation growth.



**x** = compensator tightening;  
**a** = space between end post and first intermediate post;  
**c** = vertical range needed for the catch wires;  
**y** = additional grade of the compensator to reach the height (c) of the catch wires on the first intermediate post.

Table of the standard heights for the vertical movement of the catch wires in rows equipped with tension compensators:

x	y	F	a	c	x	y	F	a	c	x	y	F	a	c
cm	cm	kg	cm	cm	cm	cm	kg	cm	cm	cm	cm	kg	cm	cm
4	6	40	300	60,3	5	5	50	300	55	6	4	60	300	49,2
			350	65,1				350	59,4				350	53,1
			400	69,5				400	63,4				400	56,7
			450	73,7				450	67,3				450	60,1
			500	77,7				500	70,9				500	63,4
			550	81,5				550	74,3				550	66,5
			600	85,1				600	77,6				600	69,4

### How to calculate the grade (x) of the tension compensator:

**a** = 400 cm (spacing between posts)  
**c** = 70 cm (range movement of catch wires) } data

$$b = a + y$$

$$\sqrt{a^2 + c^2} = \sqrt{400^2 + 70^2} = 406 \text{ cm}$$

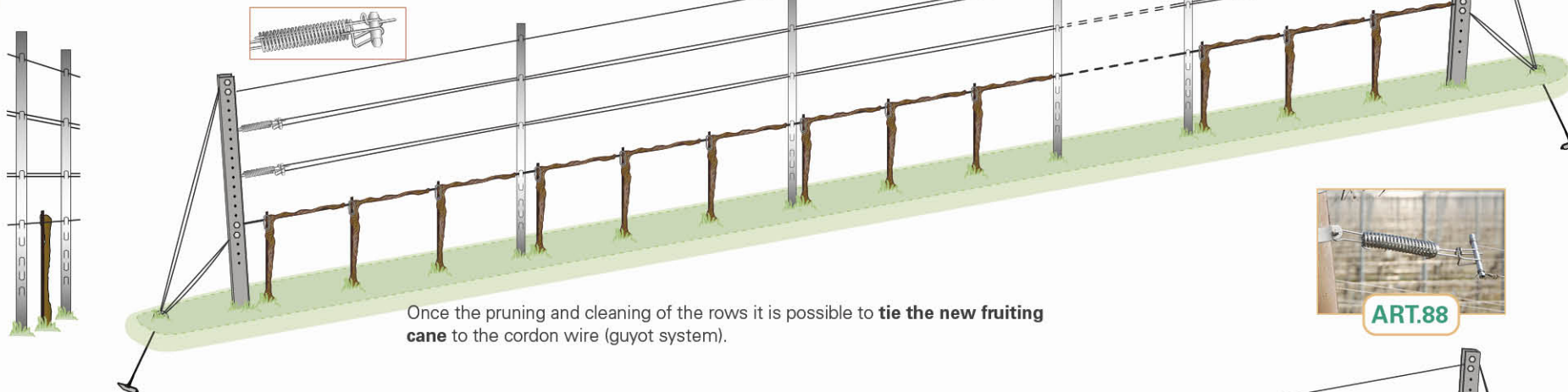
**y** =  $b - a = 406 - 400 \text{ cm} = 6 \text{ cm}$  (stretching grade of the tension compensator in order to move to "c" position)

**x + y** = 10 cm  $\Rightarrow$  **x** =  $10 - y = 10 - 6 = 4 \text{ cm}$  (tightening of tension compensator)

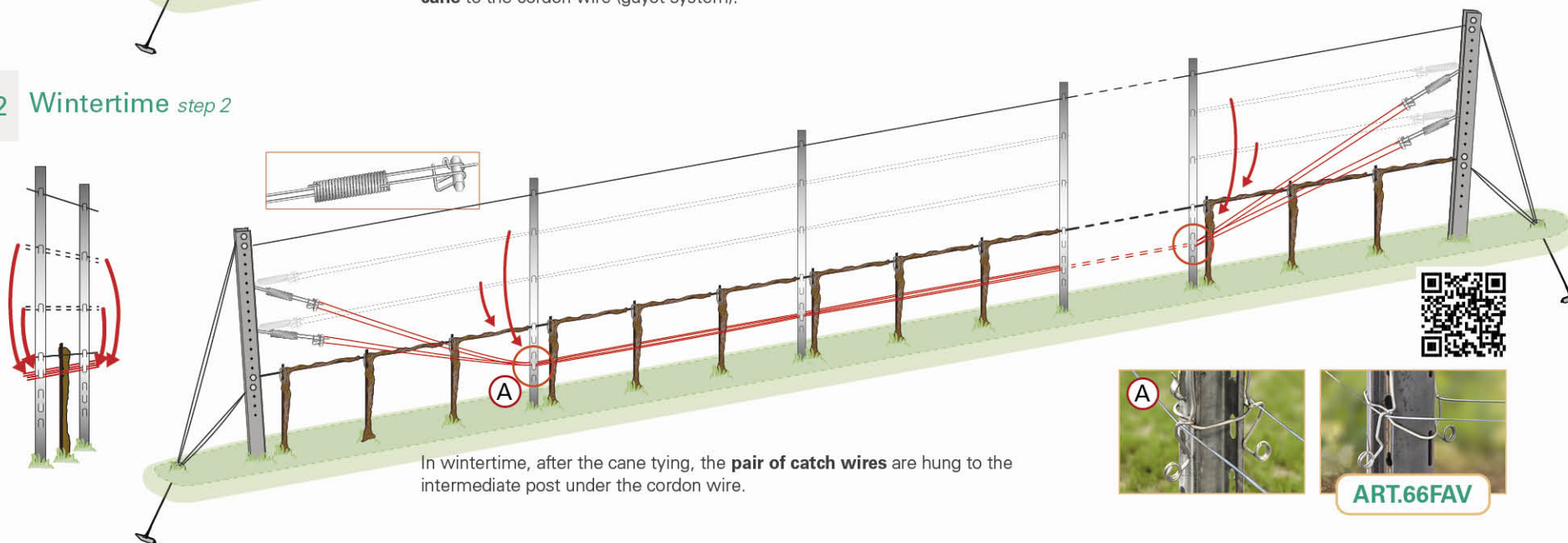
**x** = 4 cm  $\Rightarrow$  **F** = 40 kg (force/load applied by the spring of the tension compensator on catch wires)  
 1 cm **x** = 10 kg **F**

## Tension compensators system:

### 1 Fruiting cane tying *step 1*

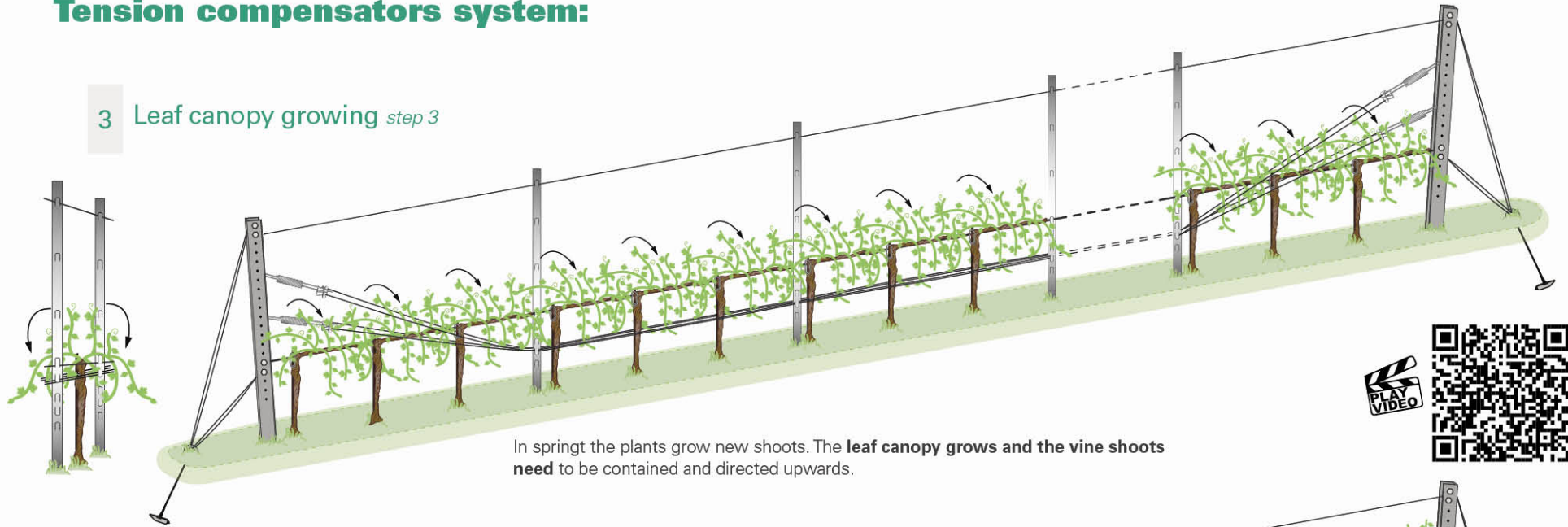


### 2 Wintertime *step 2*



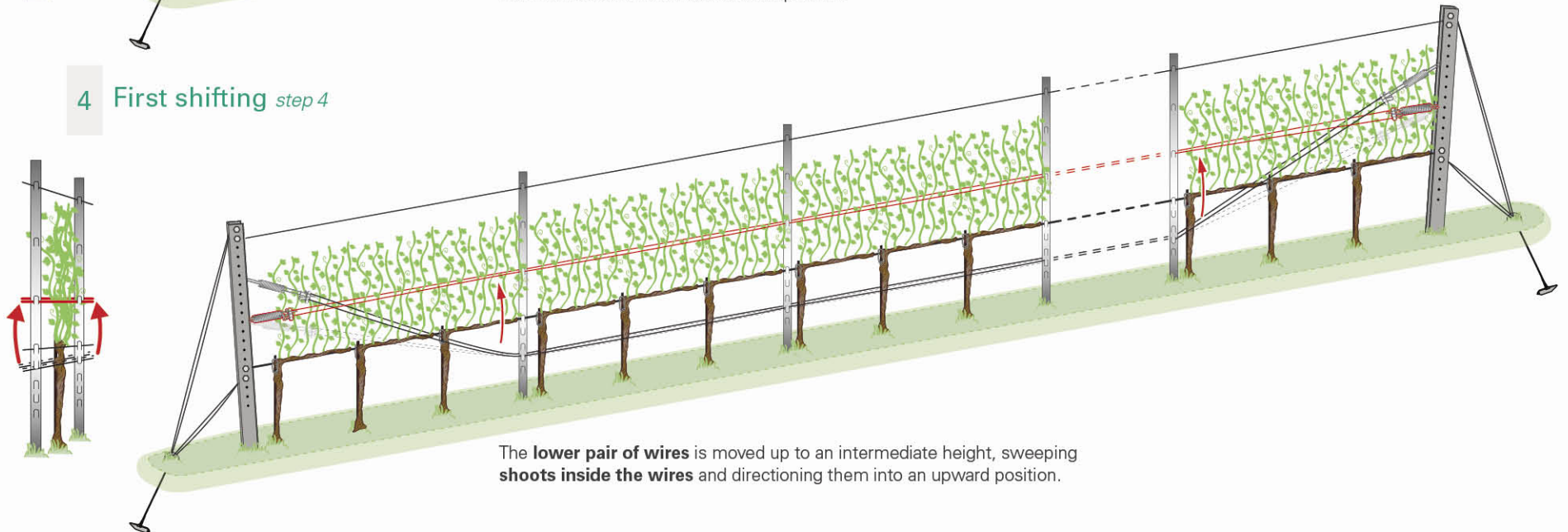
## Tension compensators system:

### 3 Leaf canopy growing *step 3*



In spring the plants grow new shoots. The **leaf canopy grows** and the **vine shoots need to be contained and directed upwards**.

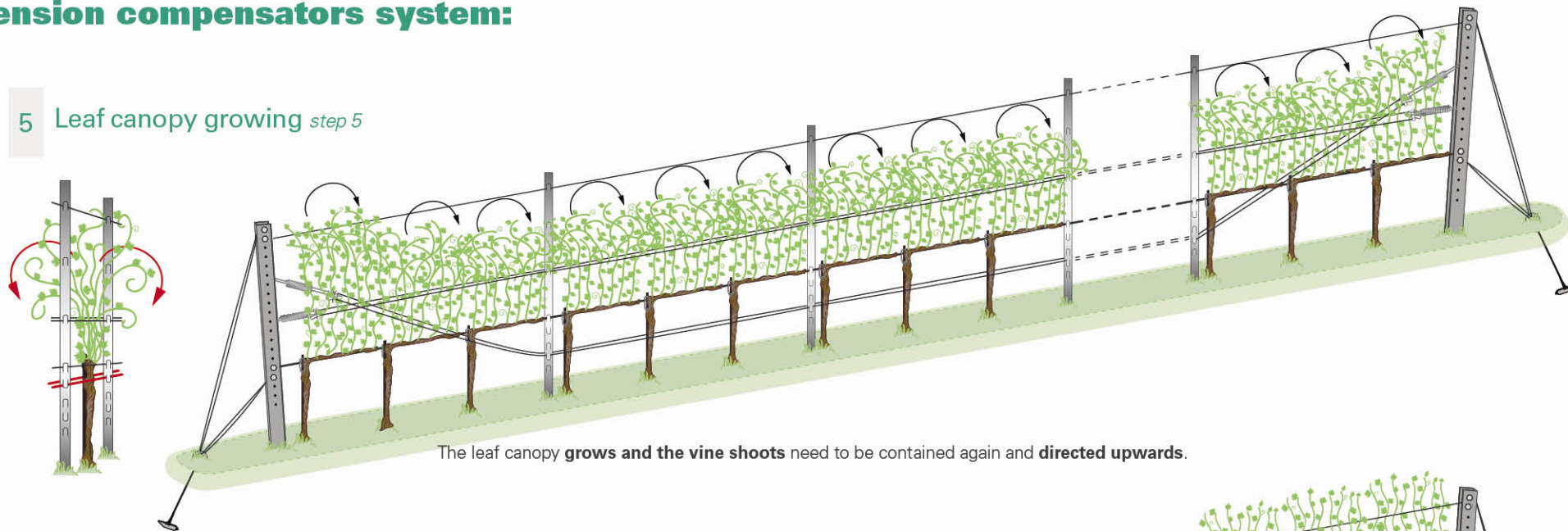
### 4 First shifting *step 4*



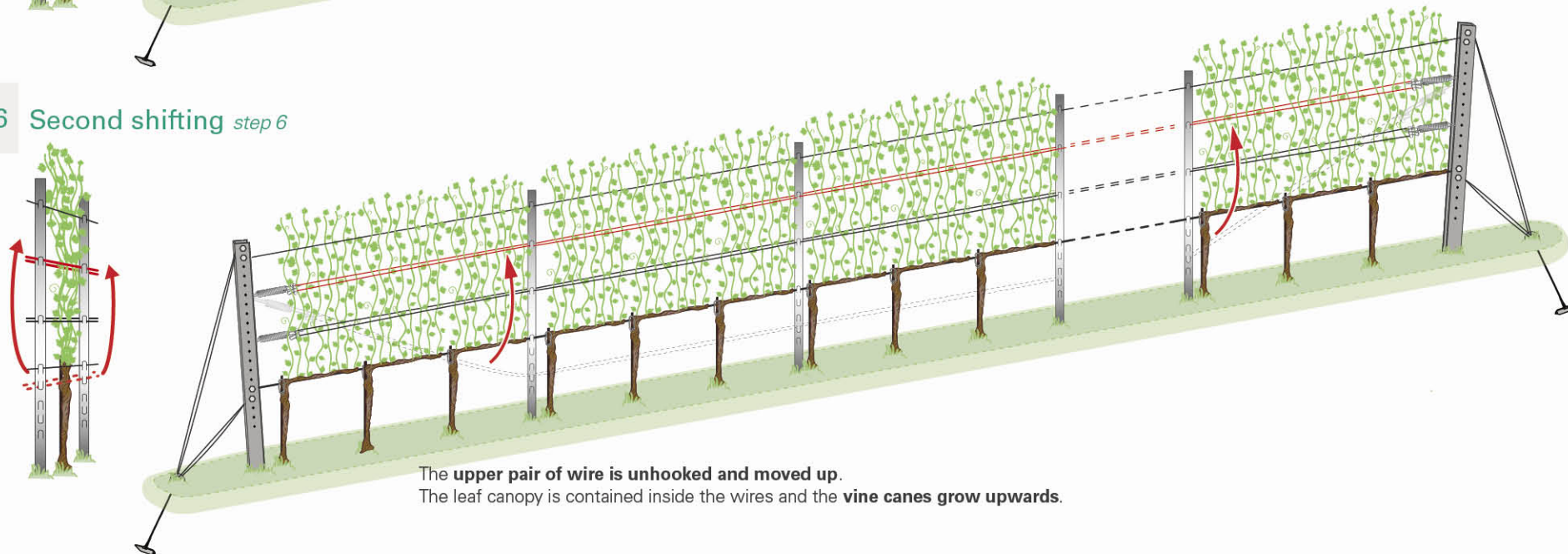
The **lower pair of wires** is moved up to an intermediate height, sweeping **shoots inside the wires** and directing them into an upward position.

## Tension compensators system:

### 5 Leaf canopy growing *step 5*

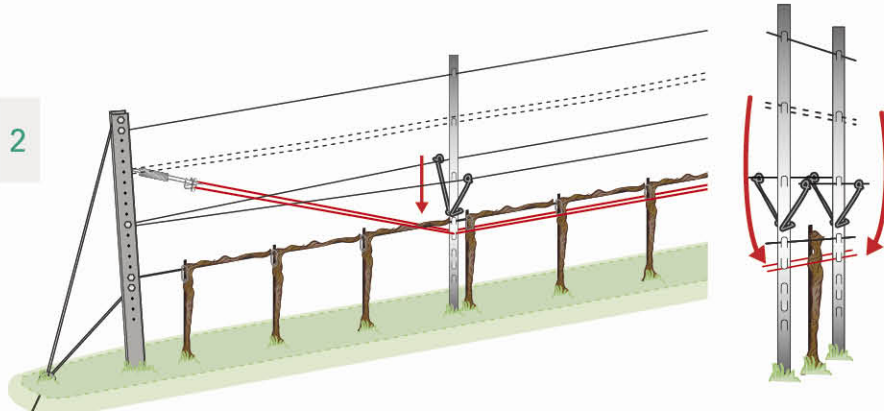


### 6 Second shifting *step 6*



## Spacers and tension compensators system

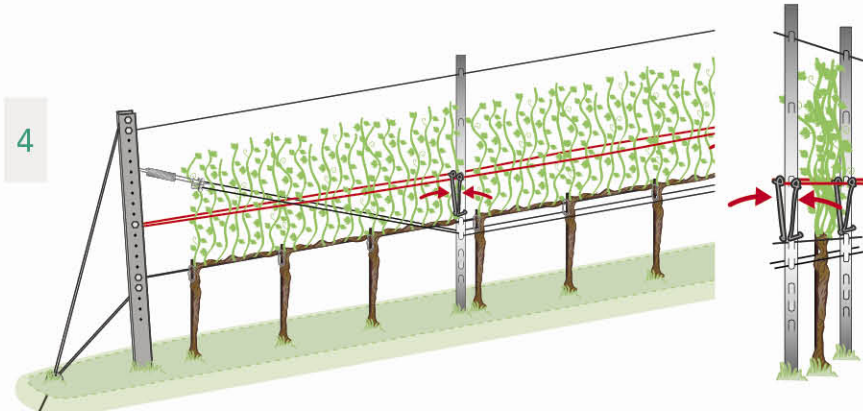
2



### Wintertime *step 2*

In wintertime, after tying the renewable cain the **pair of wires** tightened by the **tension compensator** are pulled down the cordon wire.

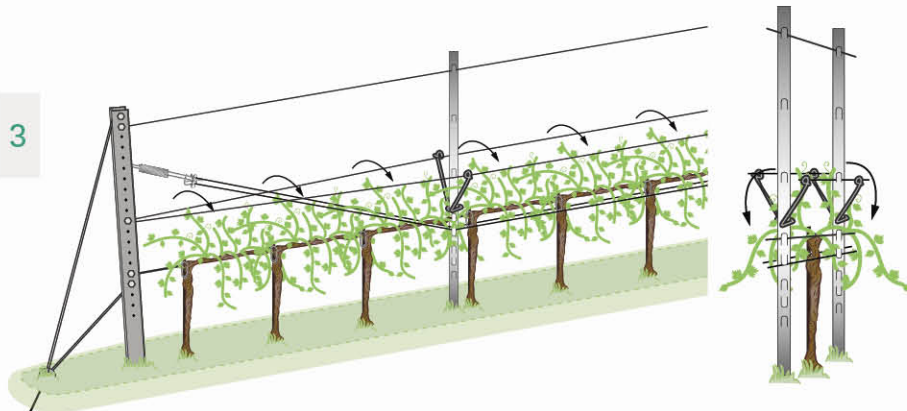
4



### Spacers closing *step 4*

The **spacers** of the middle catch **wires** are closed in order to **contain the leaf canopy** and to direct it upwards.

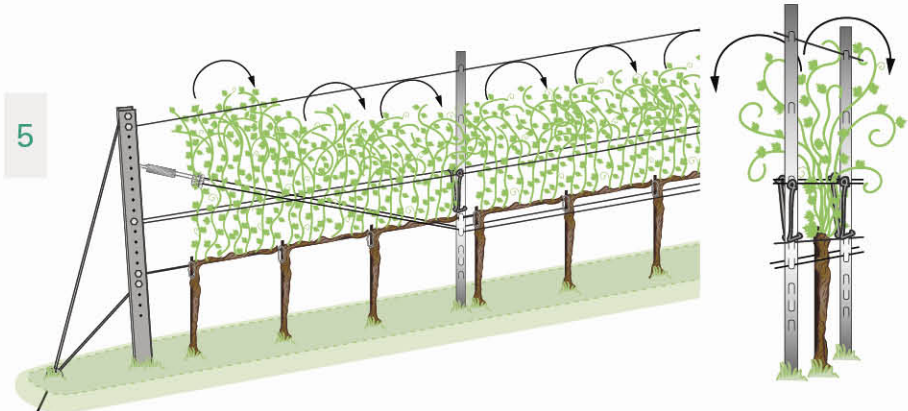
3



### Leaf canopy growing *step 3*

In spring the plants grows **new shoots**. The **leaf canopy grows** and the vine shoots need **to be contained** and be directed upwards.

5

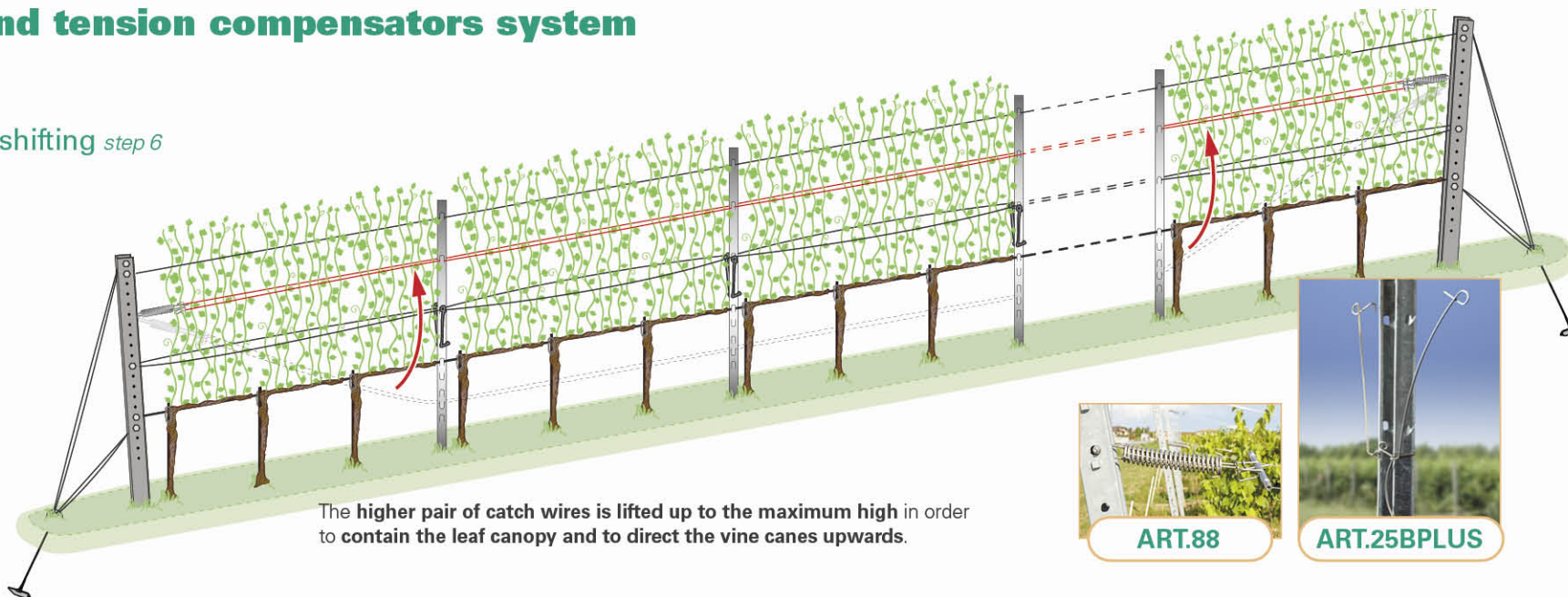
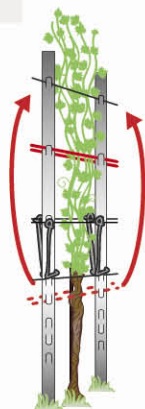


### Leaf canopy growing *step 5*

The **leaf canopy grows** and the vine shoots need **to be contained again** and directed upwards.

## Spacers and tension compensators system

6 Second shifting *step 6*



The higher pair of catch wires is lifted up to the maximum high in order to contain the leaf canopy and to direct the vine canes upwards.



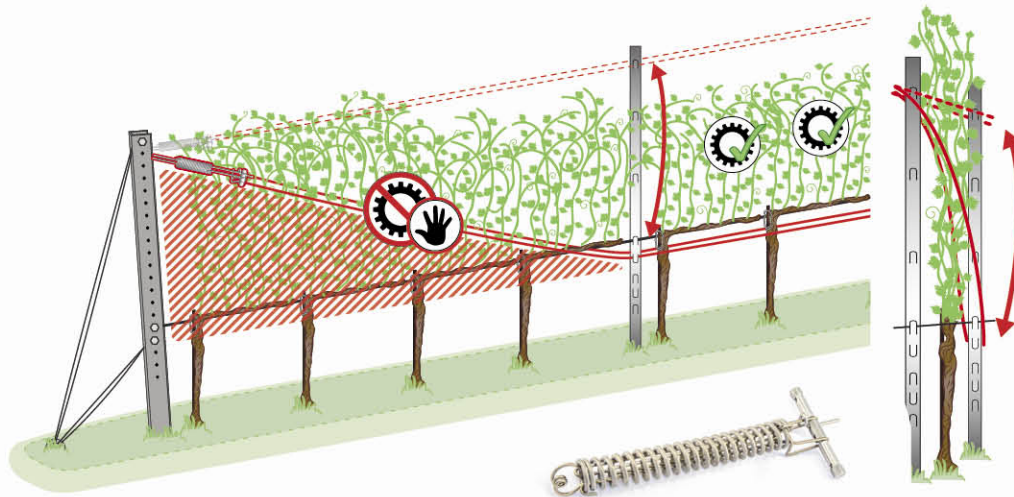
ART.88



ART.25BPLUS



## From "fixed" tension compensator to "Dynamic" system



### Fixed tension compensator system



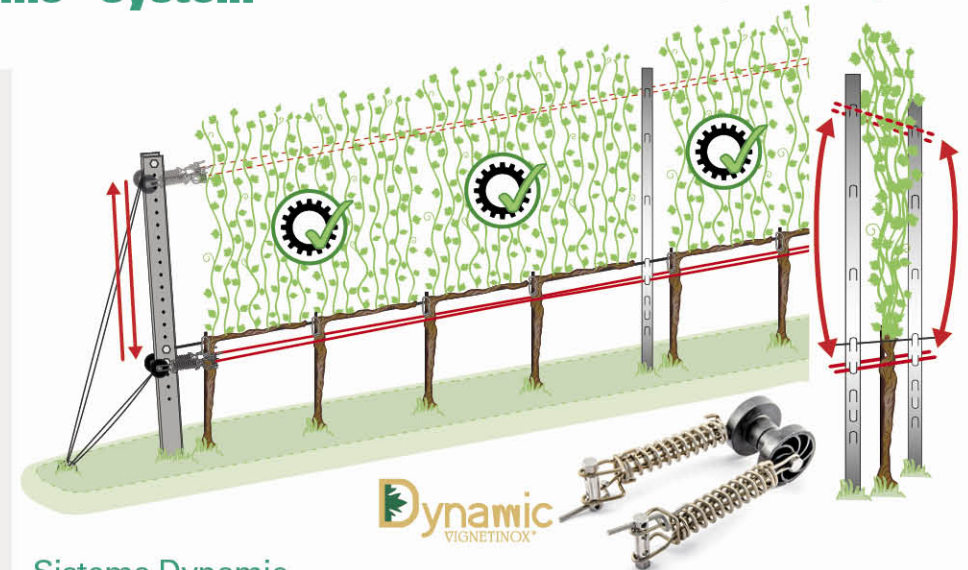
#### Mechanized area

The function of the tension compensator is to compensate the amount of wire needed to pull it down and hang it under the cordon wire. Thanks to the spring, the wire remains always tensioned during these operations. By lifting the catch wires up, the vine canes remain inside the couple of wires. Therefore, no labour is needed to put the vine canes inside the catch wires.



#### Manual work area

Using tension compensator ART.88 means working manually from the end-post to the first intermediate post. Thus, in this area, you need to put the vine canes inside the catch wires manually.



### Sistema Dynamic



#### Mechanized area

Using Dynamic System (Vignetinox®) means acting with machines on the whole vineyard area, including nearby the end-post. Springs 82 Dynamic permit to pull the wires down the cordon wire for the entire row length. This means to have the wires at the same level from one end-post to the other. Consequently, by lifting the catch wires up all the fruit canes are directed upwards (no need to put the canes inside the couple of wires manually). Thanks to its sliding wheels, tension compensators 82 Dynamic help any kind of mechanical action in the whole row structure.

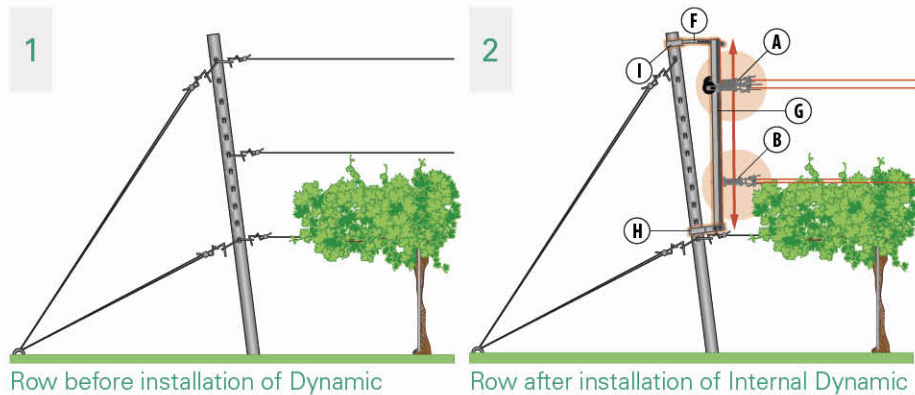
#### Advanced technology for the vegetation management

- Optimal management of canopy growth; ✓
- Can be installed in any type of post; ✓
- Best arrangement for the mechanized dry pruning; ✓ (p.41).
- Easy movement of catch wires both manually and automatically; ✓
- Possibility to change the height of the cordon wire or of the catch wires; ✓
- Renovation of existing vineyards built according to traditional technologies to cutting-edge, technology Dynamic with very small and non-invasive interventions ✓




## Amortized Dynamic system

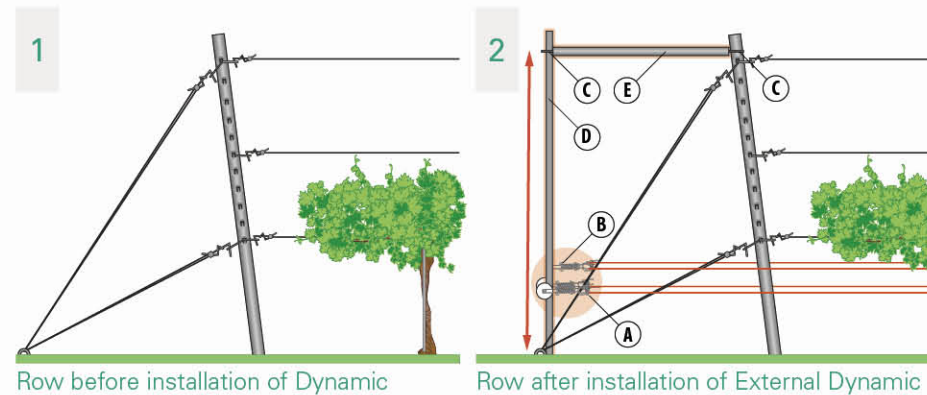
### Renewal of the vineyard with Dynamic system

Internal Dynamic and External Dynamic.






It is possible to install the Internal Dynamic System, on a traditional row, even with fixed wires without changing head post and anchorage. All the fixed wires will be removed, excluding the supporting (main) wire.

-  Dynamic Structure
-  Tensioner sliding area
-  Pair of moveable wire Dynamic
- (A)** Spring sliding tensioner for external guide
- (B)** Spring sliding tensioner for internal guidance
- (F)** Adjustment arm for guide
- (G)** Sliding guide
- (H)** Lower support for guide
- (I)** Upper support for guide



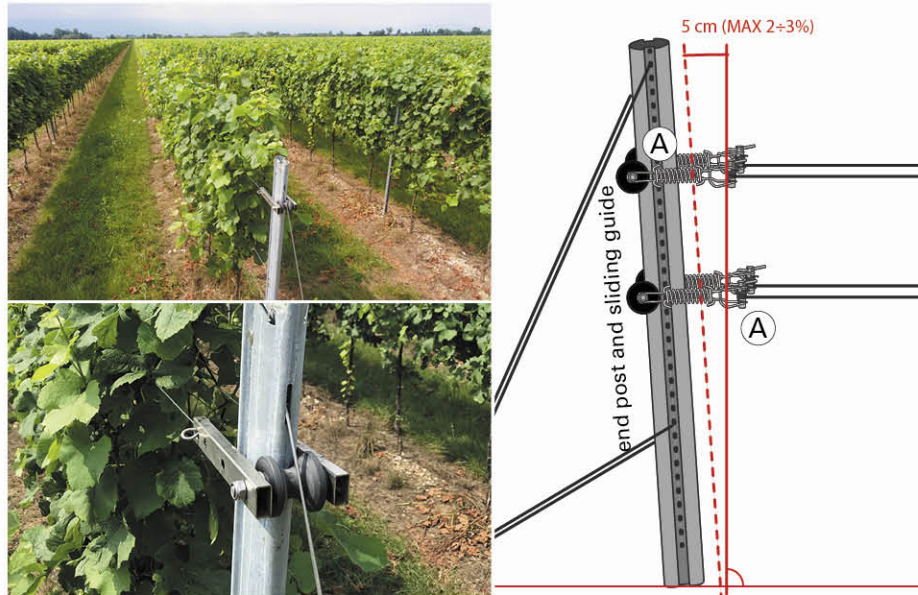
It is possible to install the External Dynamic System, on a traditional row, even with fixed wires without changing the head post, anchoring and keeping the existing fixed wires. Also the sliding guide and the rod acts as a push post and push rod, strengthening the anchor of the head post and protecting the anchor tie rods.

-  Dynamic Structure
-  Tensioner sliding area
-  Pair of moveable wire Dynamic
- (A)** Spring sliding tensioner for external guide
- (B)** Spring sliding tensioner for internal guidance
- (C)** Accessories for push rod
- (D)** Push post
- (E)** Push rod

## Amortized Dynamic system

### Integrated Dynamic system with closed profile post

The End Post closed profile acts directly as a sliding guide.



**Sliding tensioner for external guide  
ART.TFO-DYN-INF**  
Integrated Dynamic

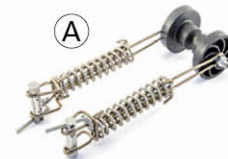
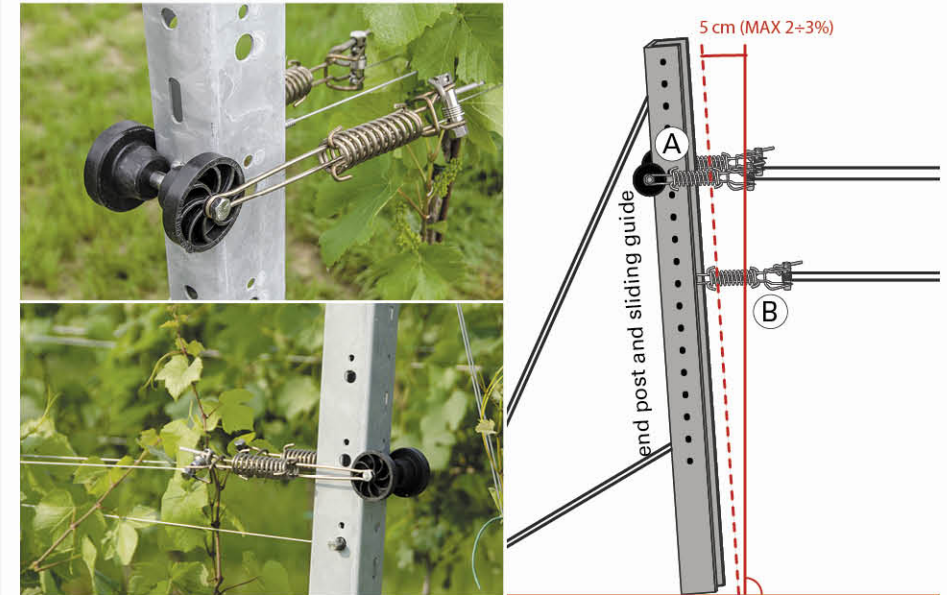


**Sliding tensioner for external guide  
ART.82-DRE-INF**  
Integrated Dynamic



### Integrated Dynamic system with open profile post

The End Post open profile acts directly as a sliding guide.



**Sliding tensioner for external guide  
ART.82-D-DOPPIO**  
Integrated Dynamic

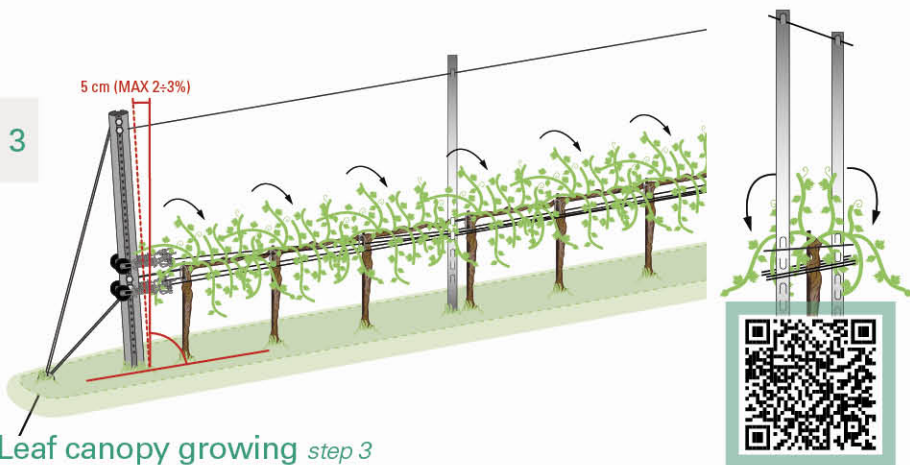


**Sliding tensioner for internal guide  
ART.82-D-SINGOLO**  
Integrated Dynamic



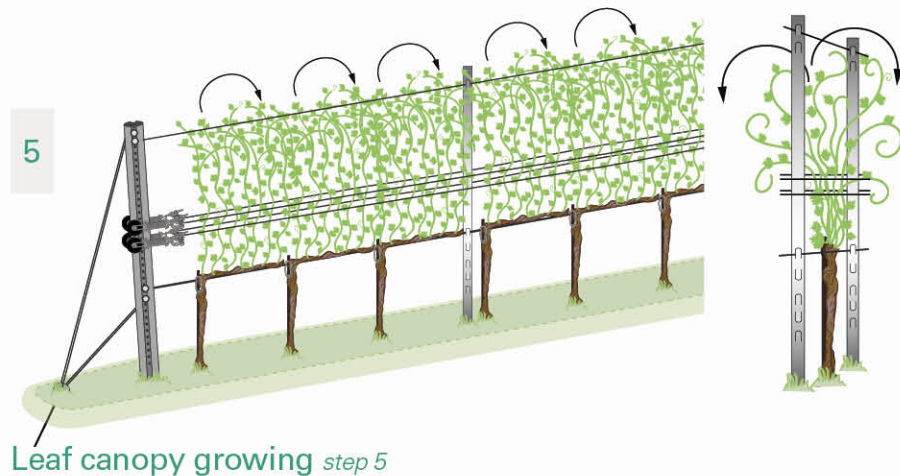
## Integrated Dynamic system with closed profile end post

Vegetation Management



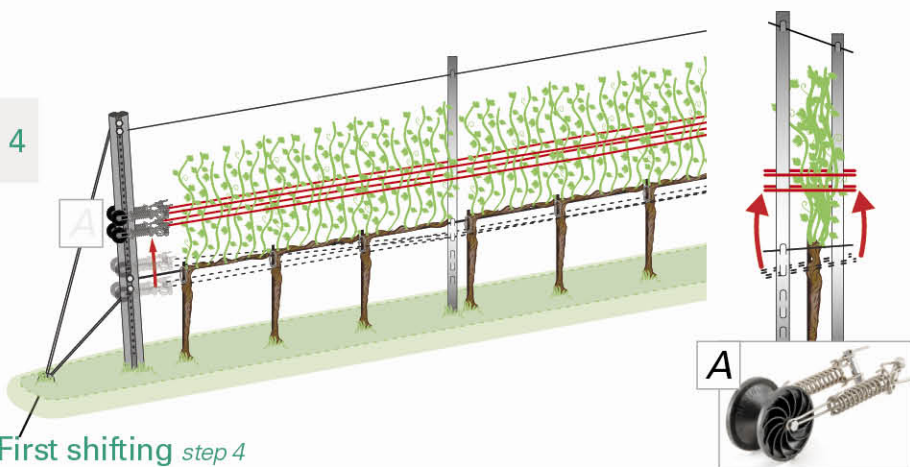
**Leaf canopy growing** *step 3*

Preceded by "phase 2" in which the movable wires are positioned in the lower part, below the supporting wire. In spring the plants grow new shoots. The **leaf canopy grows** and the vine shoots need to be contained and be directed upwards.



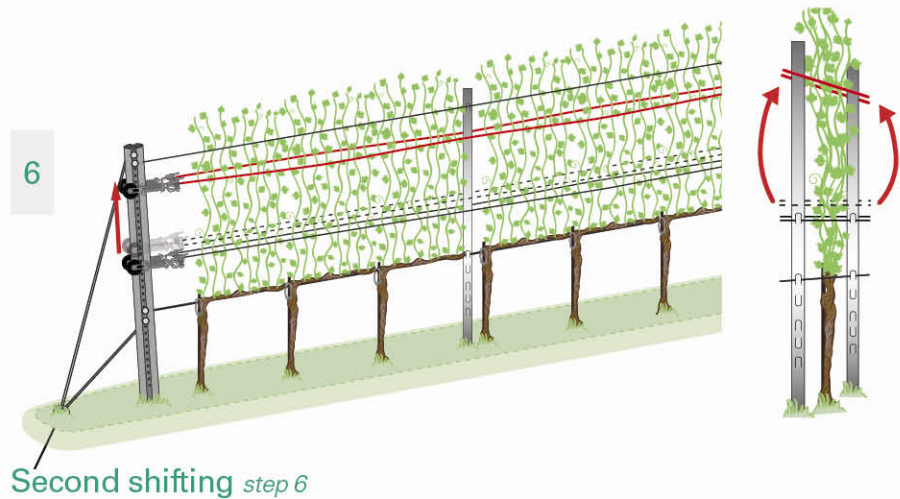
**Leaf canopy growing** *step 5*

The **leaf canopy grows** and the vine shoots need **to be contained** again and **directed upwards**.



**First shifting** *step 4*

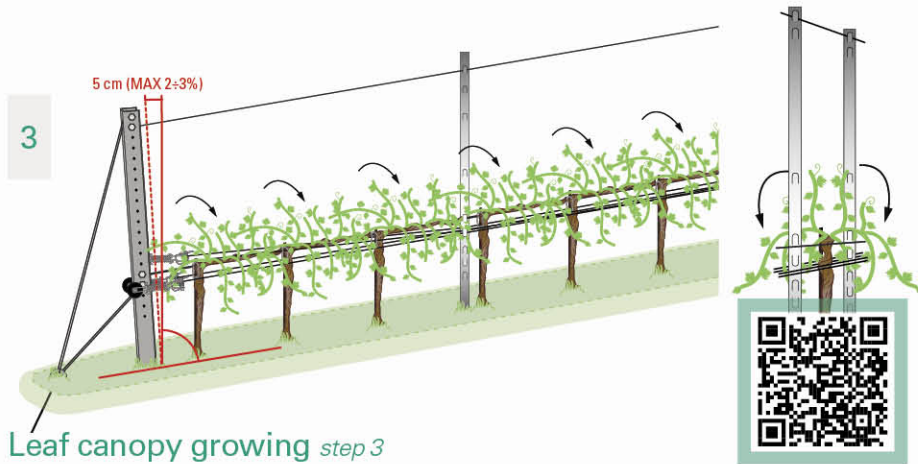
The **lower moveable pair (A)** is repositioned to an intermediate height which allows **to contain the vine canopy** and to guide the branches upwards.



**Second shifting** *step 6*

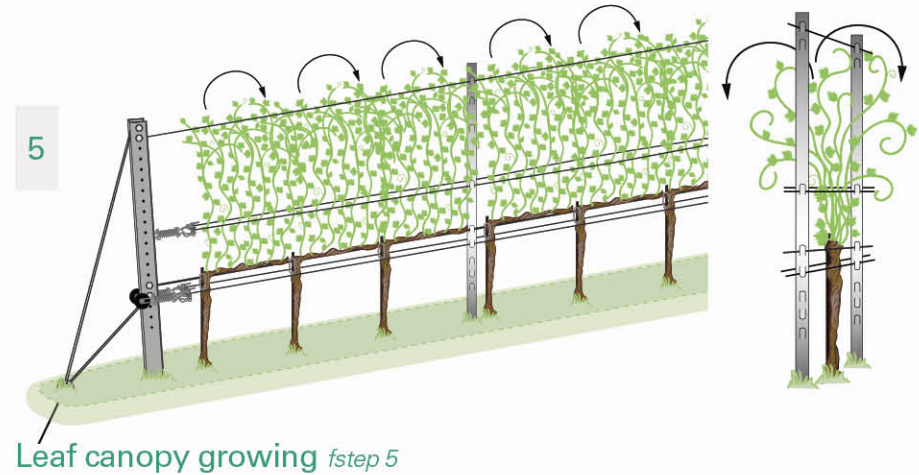
The **upper moveable pair** is moved upwards until it reaches the maximum height allowed by the length of the post, so as to contain the **vine canopy** and **drive the branches upwards**. The **lower pair of mobile wires remains in its current position** and therefore at an intermediate height.

# Integrated Dynamic system with open profile end post



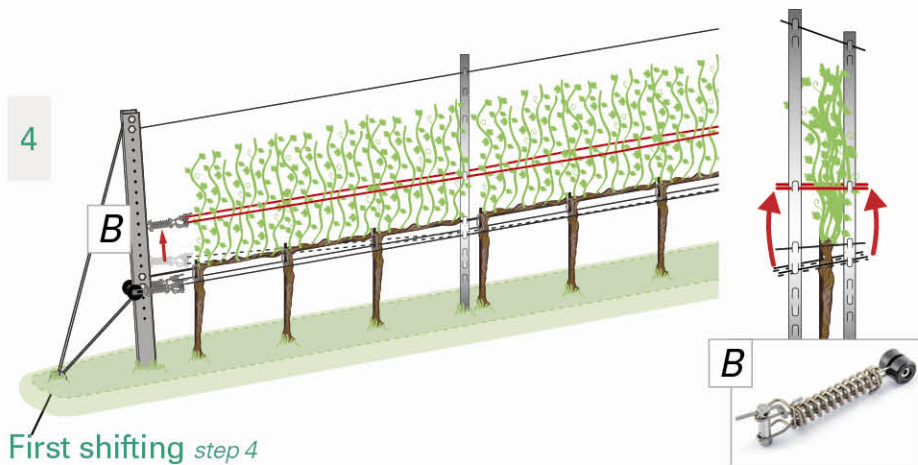
**Leaf canopy growing** *step 3*

Preceded by "phase 2" in which the movable wires are positioned in the lower part, below the supporting wire. In spring **the plants** grow new shoots. The **leaf canopy grows** and the vine shoots need to be contained and be directed upwards.



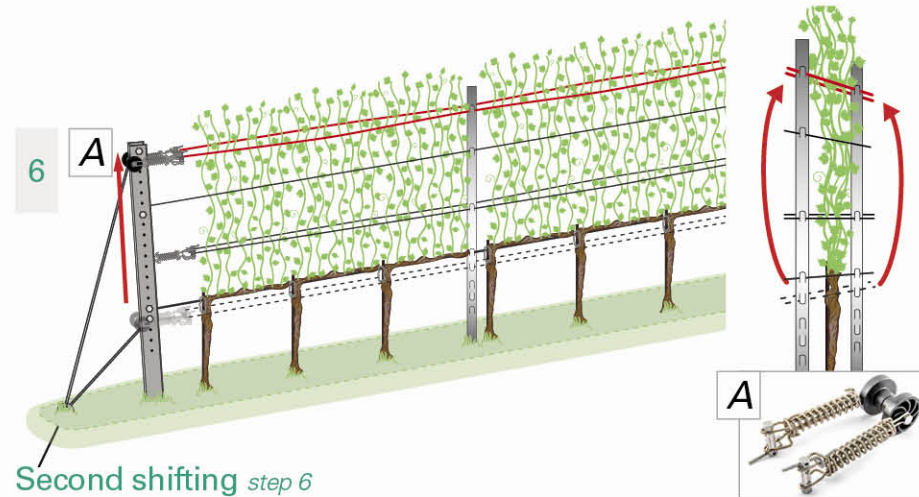
**Leaf canopy growing** *step 5*

The **leaf canopy grows** and the vine shoots need to be **contained again** and directed upwards.



**First shifting** *step 4*

The **lower moveable pair (B)** is repositioned to an intermediate height which allows to **contain the vine canopy** and to guide the branches upwards.

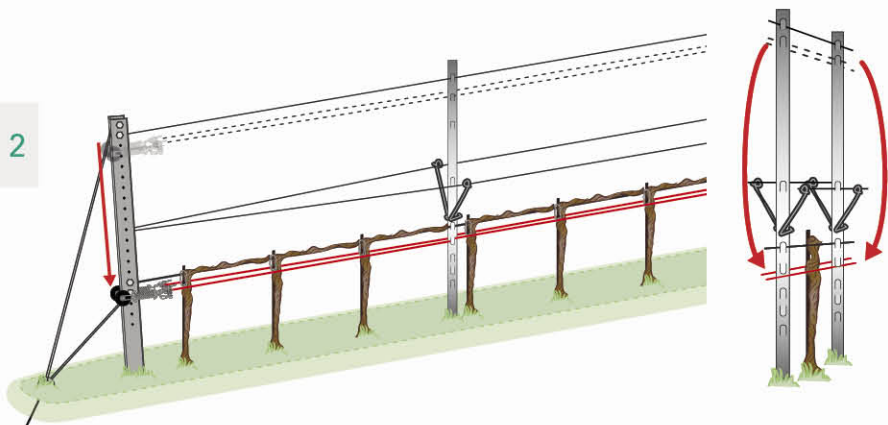


**Second shifting** *step 6*

The **upper moveable pair (A)** is moved upwards until it reaches the maximum height allowed by the length of the post, so as to contain the **vine canopy and drive the branches upwards**.

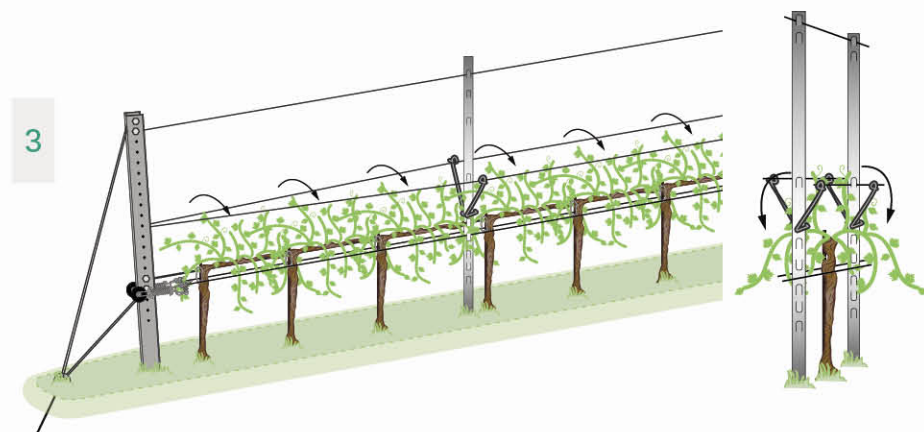
## Integrated Dynamic system with open profile end post

Vegetation Management



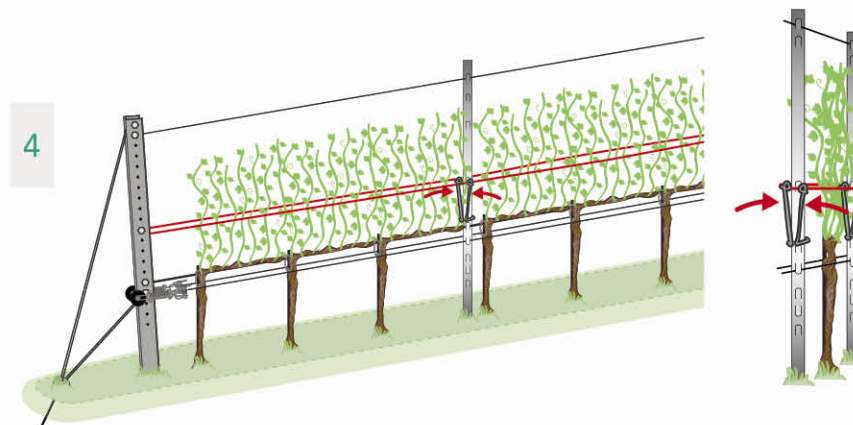
2 Wintertime *step 2*

Preceded by "phase 1" in which the cane fruit are tied to the supporting wire. During the winter, after the binding of the renewal branch, the **couple of moveable wires with compensators is moved below the supporting wire.**



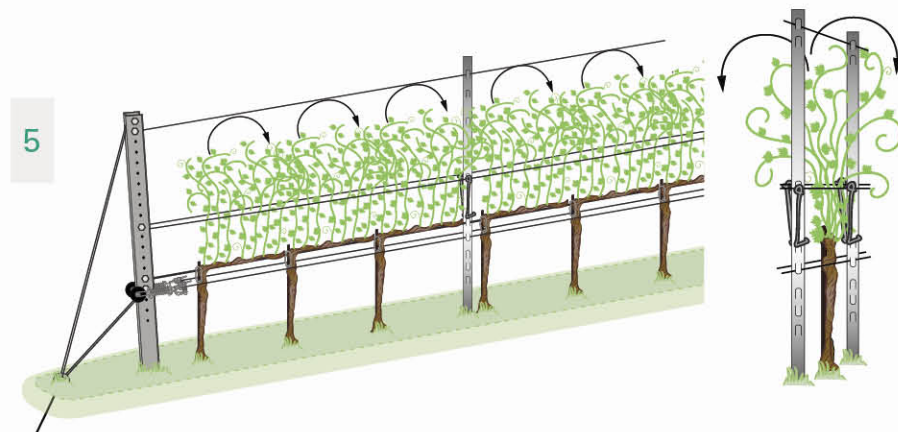
3 Leaf canopy growing *step 3*

In spring the plants grow new shoots. The **leaf canopy grows** and the **vine shoots need to be contained and be directed upwards.**



4 Spacers closing *step 4*

The **spacers, of the intermediate movable wire pair, are closed, thus containing the vine canopy** and guiding the vine shoots upwards.

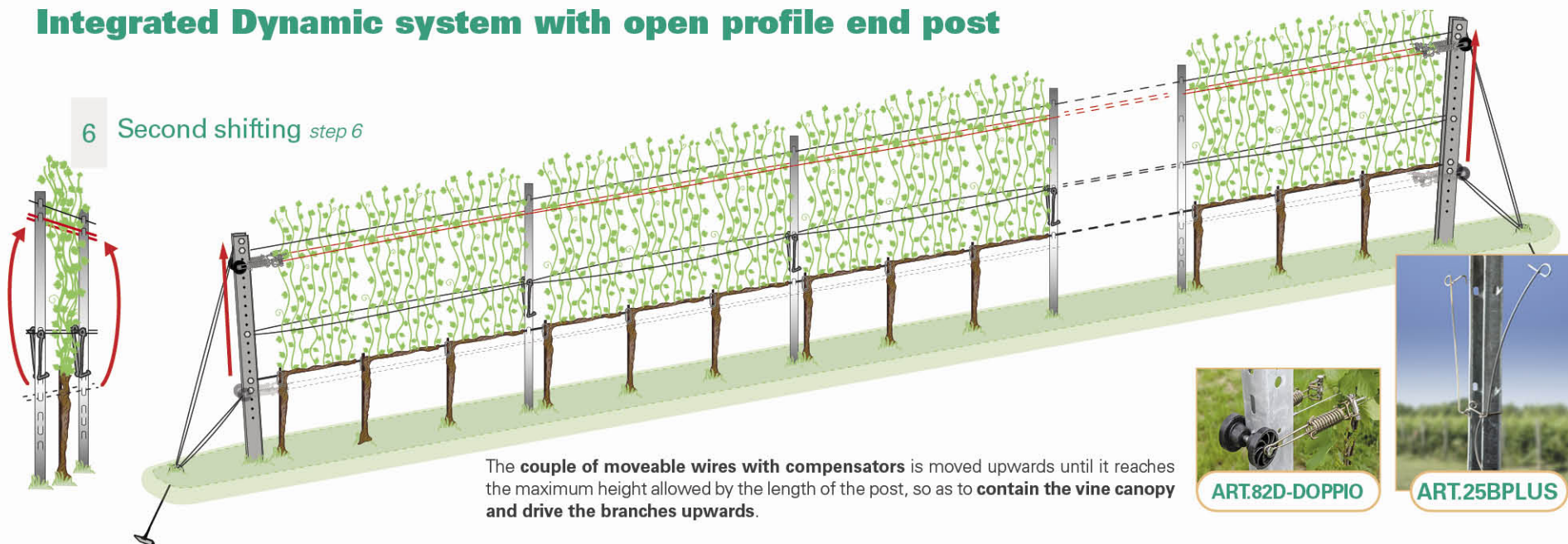


5 Leaf canopy growing *step 5*

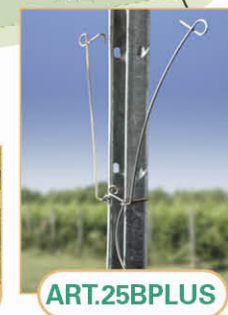
The **leaf canopy grows** and the **vine shoots need to be contained** again and directed upwards.

## Integrated Dynamic system with open profile end post

6 Second shifting *step 6*



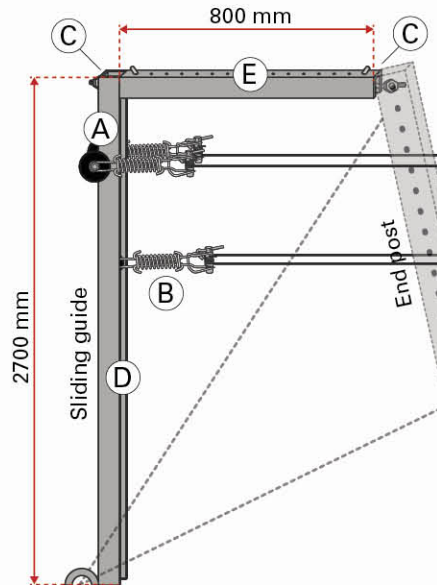
The **couple of moveable wires with compensators** is moved upwards until it reaches the maximum height allowed by the length of the post, so as to **contain the vine canopy and drive the branches upwards**.



## Amortized Dynamic system

### External Dynamic system

It is installed on the head post outside the row area also acting as a reinforcement.



**Sliding tensioner for external guide**  
**ART.82-D-DOPPIO**  
External Dynamic



**Sliding tensioner for internal guide**  
**ART.82-D-SING**  
External Dynamic



**GUID-DYN\_EST**  
Sliding guide used also as  
brace post, External Dynamic



**TRAV-DYN**  
Horizontal brace post



**GANC-TSPIN**  
Brace pin for horizontal brace  
post with M8 locking-nut



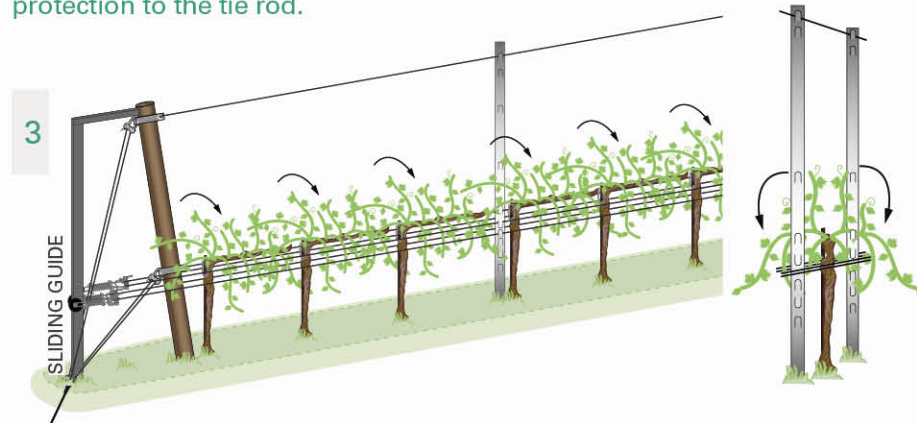
**FASCIA-DYN**  
Band to fix the horizontal brace post  
on wood end post.





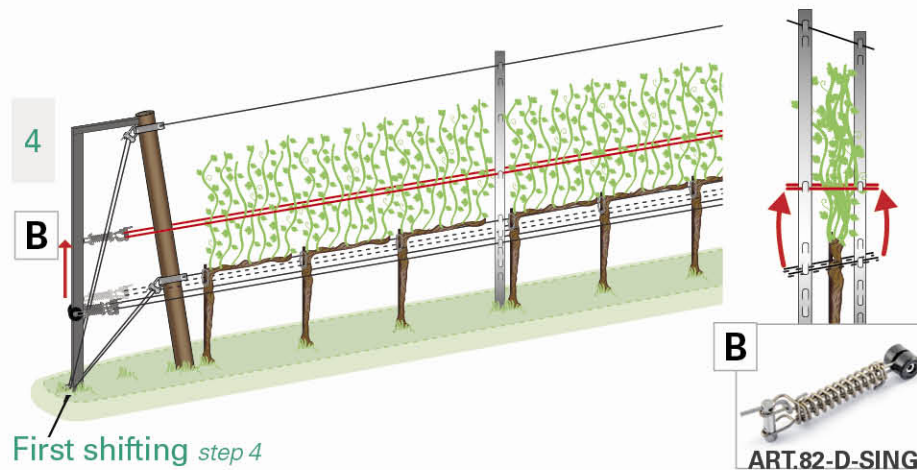
## External Dynamic system

With the sliding guide the solidity of the head post increases and gives protection to the tie rod.



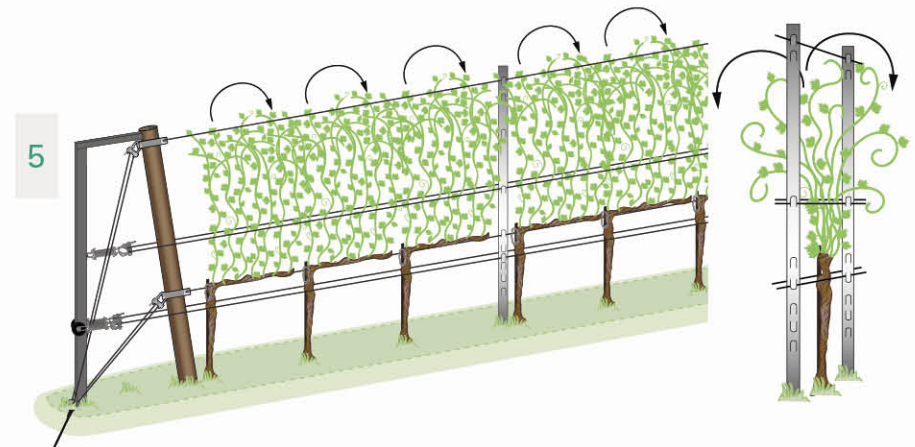
Leaf canopy growing *step 3*

Preceded by "phase 2" in which the movable wires are positioned in the lower part, below the supporting wire. In spring **the plants grow new shoots**. The leaf canopy grows and the vine shoots need to be contained and be directed upwards.



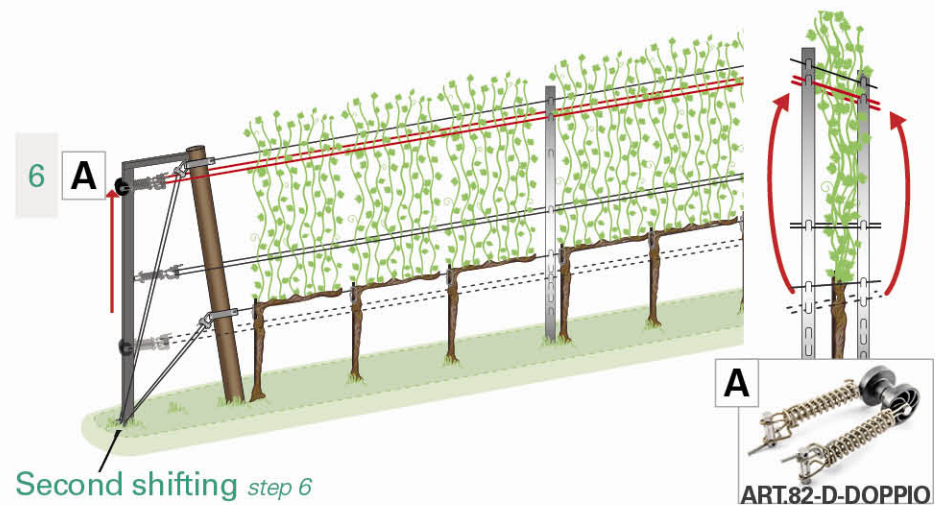
First shifting *step 4*

The lower moveable pair (B) is repositioned to an intermediate height which allows to **contain the vine canopy** and to guide the branches upwards.



Leaf canopy growing *step 5*

The **leaf canopy grows** and the **vine shoots need to be contained** again and directed upwards.



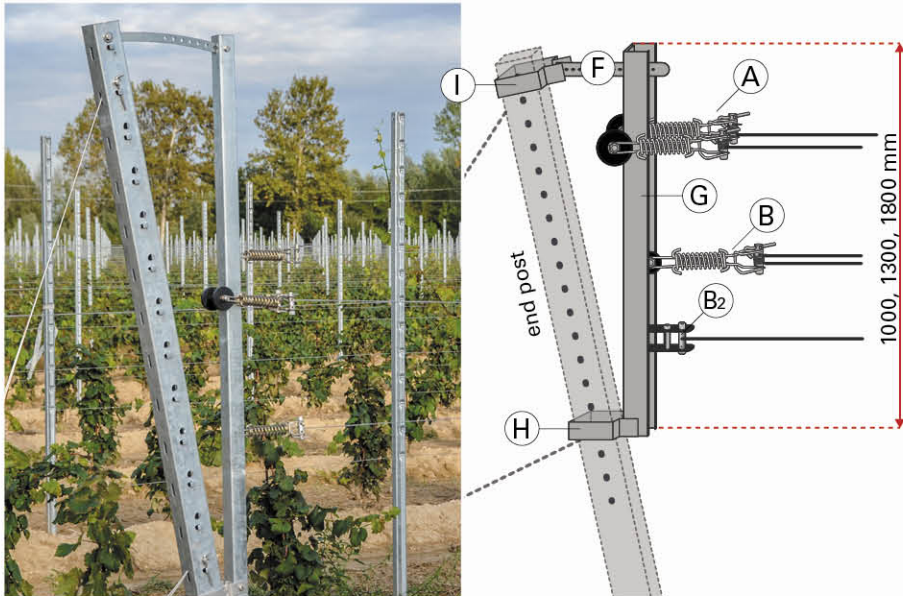
Second shifting *step 6*

The upper moveable pair (A) is moved upwards until it reaches the maximum height allowed by the length of the post, so as to **contain the vine canopy and drive the branches upwards**.

## Amortized Dynamic system

### Internal Dynamic system

It is installed on the head post in the row area.

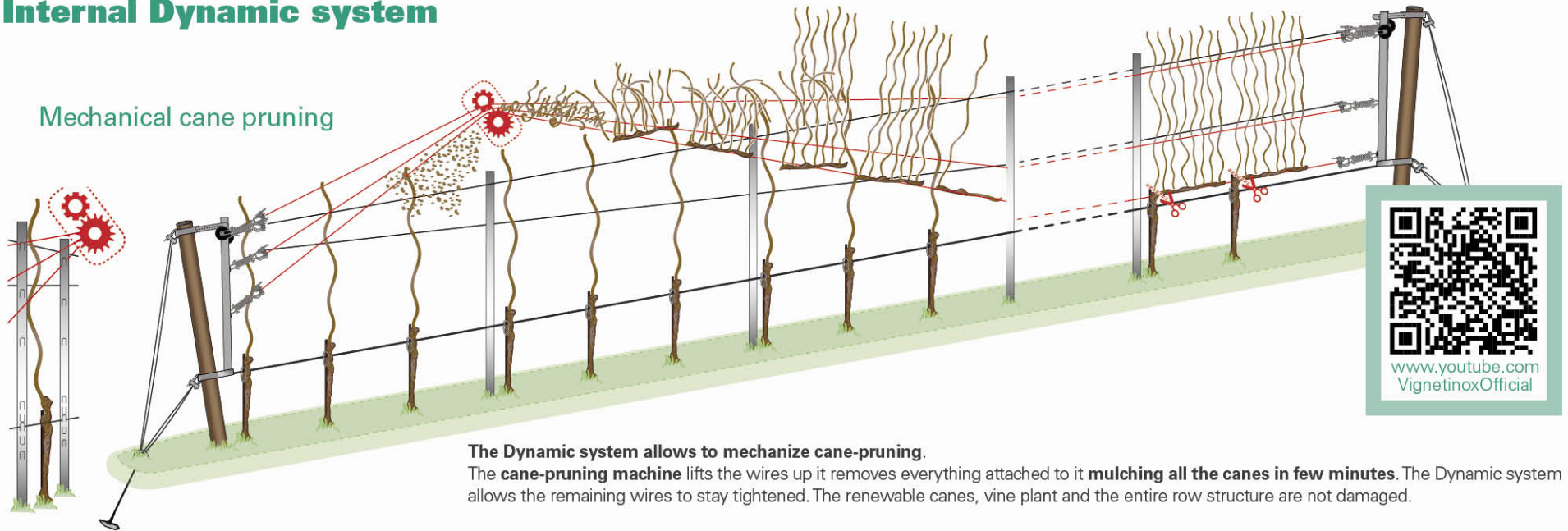


	<p><b>Sliding tensioner for external guide</b> <b>ART.82D-DOPPIO</b> Internal Dynamic</p>	
	<p><b>Sliding tensioner for internal guide</b> <b>ART.82D-SING</b> Internal Dynamic</p>	

	<p><b>Regulation Arm</b> Internal Dynamic</p>	
	<p><b>Dynamic sliding guide</b> Internal and external guide Internal Dynamic</p>	
	<p><b>Lower support Dynamic</b> Internal Dynamic</p>	
	<p><b>Upper support Dynamic</b> Internal Dynamic</p>	
	<p><b>Tensioner for internal guide</b> <b>ART-TF2-5-DYN</b> Internal Dynamic</p>	

## Internal Dynamic system

### Mechanical cane pruning



**The Dynamic system allows to mechanize cane-pruning.**

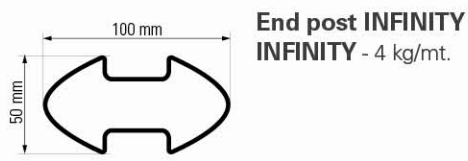
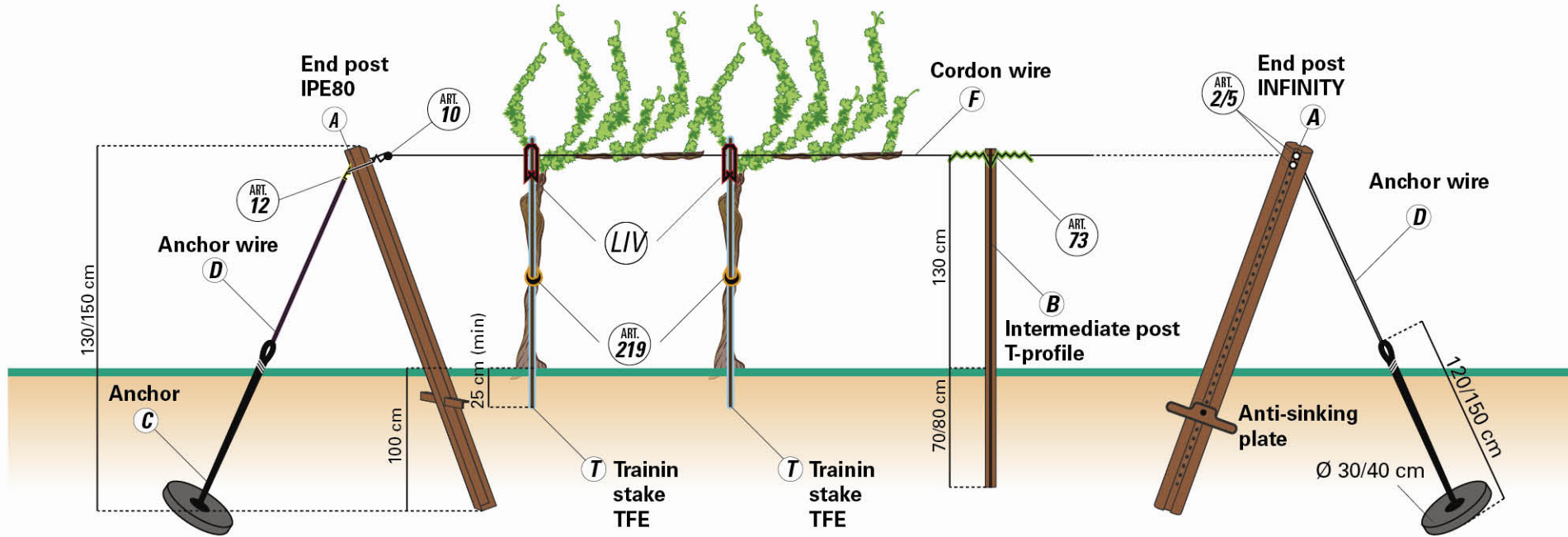
The **cane-pruning machine** lifts the wires up it removes everything attached to it **mulching all the canes in few minutes**. The Dynamic system allows the remaining wires to stay tightened. The renewable canes, vine plant and the entire row structure are not damaged.



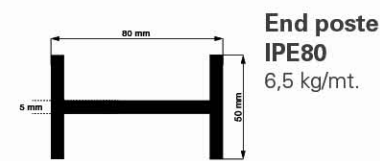
Mechanical cane pruning on vineyard with Internal Dynamic System.

Free Cordon

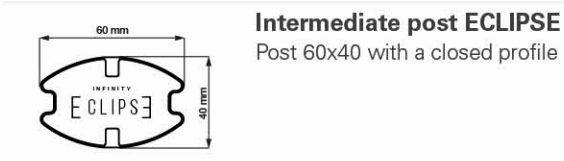
Trellis structure and accessories



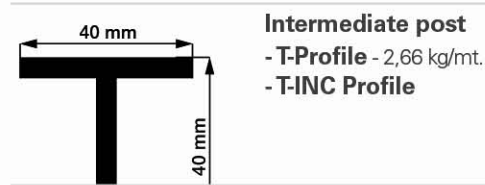
End post INFINITY INFINITY - 4 kg/mt.



End poste IPE80 6,5 kg/mt.



Intermediate post ECLIPSE Post 60x40 with a closed profile



Intermediate post - T-Profile - 2,66 kg/mt. - T-INC Profile



# Free Cordon



**Concrete plate anchor**  
Screw anchor, percussion driven earth, AVO, concrete, plate.



L = mm1500, 1800, 2000, 2200

**Anchoring wire**  
AISI (302/304 Ø 3,0 mm)  
Legainox (Ø 3,1 mm)  
ART.34 (L 1500 / 1800 / 2000 / 2200 mm)



**Cordo wire**  
AISI (302/304 Ø 3,0 mm)  
Legainox (Ø mm 3,1)  
ZN/ALU (Ø 3,5 mm, Ø 4 mm)  
C-TYPE



**Tension clamp**  
ART.10 Clamp for any kind of End Post complete with roller tensioner.



**Hook for anchoring wire**  
ART.12 Hook to be installed behind the tension clamp, complete with roller tensioner to tighten the wire.



**Tensioner Roller**  
ART.2/5 - Tensioner roller for head post INFINITY.



**Tie for cordon wire**  
ART.73 Tie annealed wire, used to fix the cordon wire to the intermediate post.



ATT.73T40



**ART.73 ECLIPSE**  
Tie for carrying wire. (Free Cord System)



**Training stake clip**  
ART.65 LIV clip used to fix the training stake to the cordon wire.



ATT.65LIV-L



**Rubber tie**  
ART.219 (Nr. 5, 8, 12) Used to fix vine plants to the training stake.



**Training stake**  
TFE Ø 8 mm, TU16, TU9, TR12, TTD, TID, fiberglass, Bamboo, Acacia.

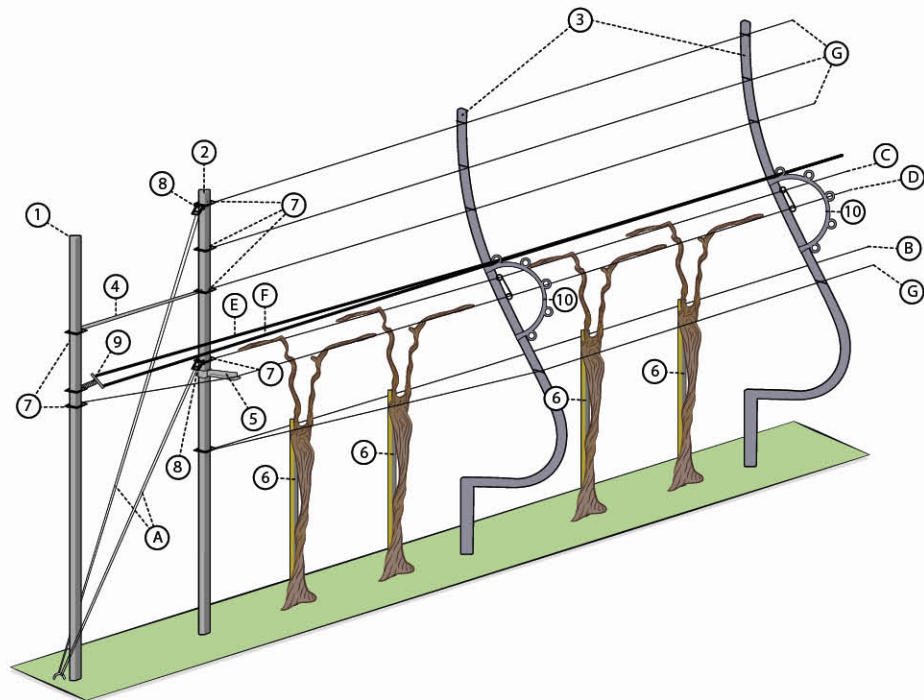


**Anti-sinking plate**  
Anti-sinking plate secured to the "INFINITY" pole with screws and nuts



## Triacca terrace trellis system

### Structure and accessories for the "Triacca" terrace trellis



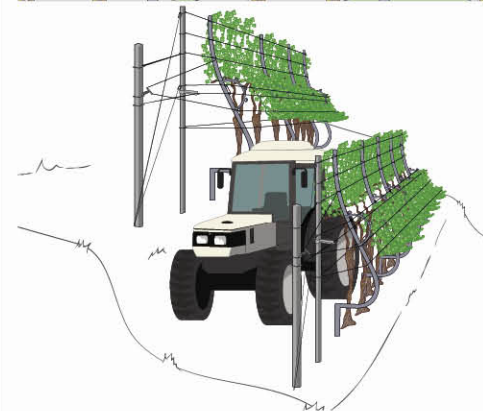
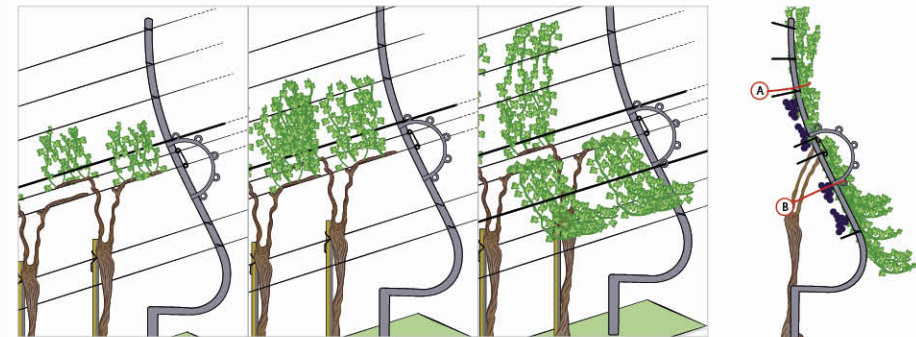
- |                                 |                                 |                  |
|---------------------------------|---------------------------------|------------------|
| ① Brace post                    | ⑨ ART.88/A - compensator        | ⓐ Reference wire |
| ② End post                      | ⑩ Arc for placing movable wires |                  |
| ③ "Triacca post" (intermediate) | ⓐ Anchoring wire                |                  |
| ④ Horizontal brace post         | ⓑ Wire for training stake       |                  |
| ⑤ Crossarm                      | ⓒ Upper principle wire          |                  |
| ⑥ Training Stake and ART.65LIV  | ⓓ Lower principle wire          |                  |
| ⑦ ART.10 - Tension clamp        | ⓔ Upper movable wire            |                  |
| ⑧ ART.12 - Hook anchoring wire  | ⓕ lower movable wire            |                  |

### Vegetation management with Double Guyot

Optimal distribution of vegetation:

With the **Triacca post**, the vine shoots are distributed in an inclined position ensuring both the maximum exploitation of the **leaf surface most exposed to the sun**, and the protection of the grapes by the shade.

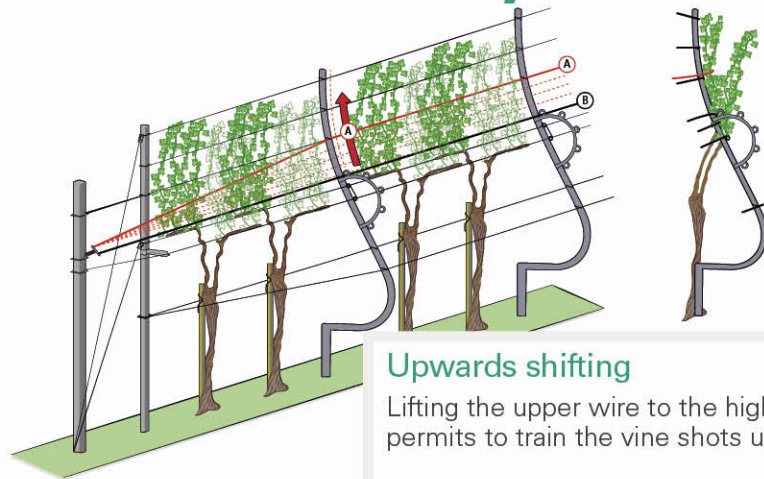
This allows greater use of the energy and the nourishment given by the solar rays. The **grapes, ventilated and protected**, grow and **ripen without undergoing alterations from direct sunlight**, from contact with other grapes, vine shoots, wires, threads and all the parts of the support of the row that could damage the integrity of each single berry thus compromising the final product (eg. organoleptic characteristics of the wine).



#### Terrace

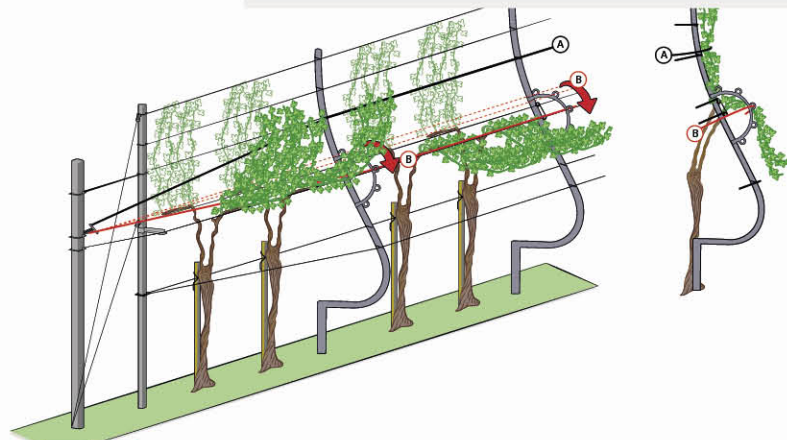
The system allows **the best exploitation of fields located in hilly areas** permitting a high mechanization of the row management.

## Triacca terrace trellis system



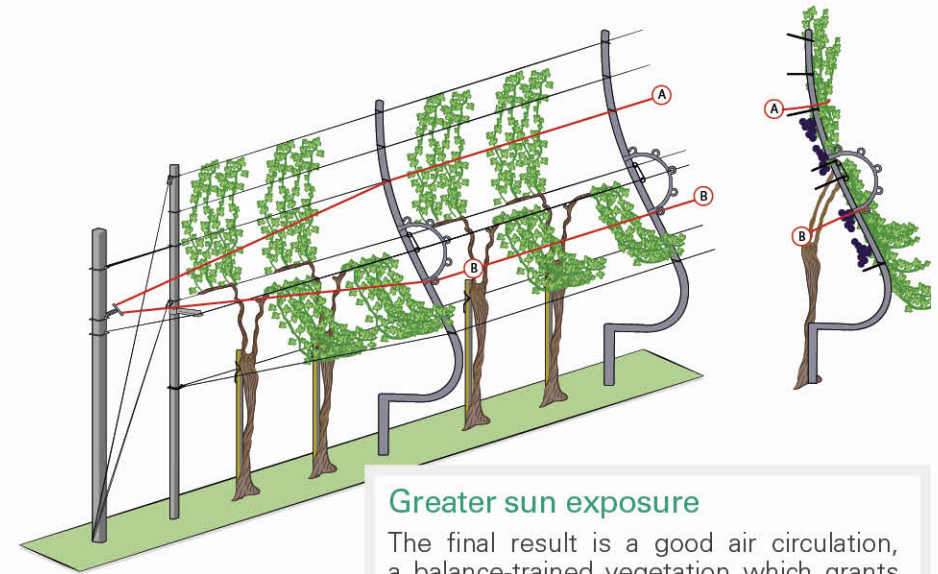
### Upwards shifting

Lifting the upper wire to the higher level permits to train the vine shoots upwards.



### Downwards shifting

Pulling the lower wire to the lower level using the slots of the arc permits to train the vine shoots downwards gradually, without damaging the buds and the vine shoots. Actually the arc permits to move the wire down step by step as the vegetation grows.



### Greater sun exposure

The final result is a good air circulation, a balance-trained vegetation which grants sun and the proper half-light needed clusters burning.

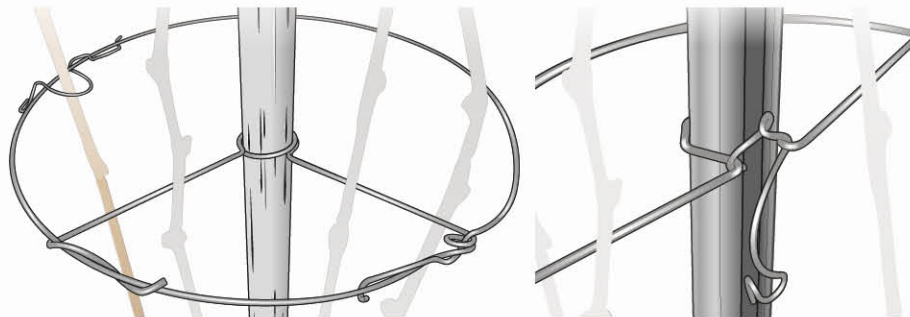


Terrace trellis with Triacca post.

**Bush vine training system** - Ring for canopy containment, natural and sustainable management.

Vegetation Management

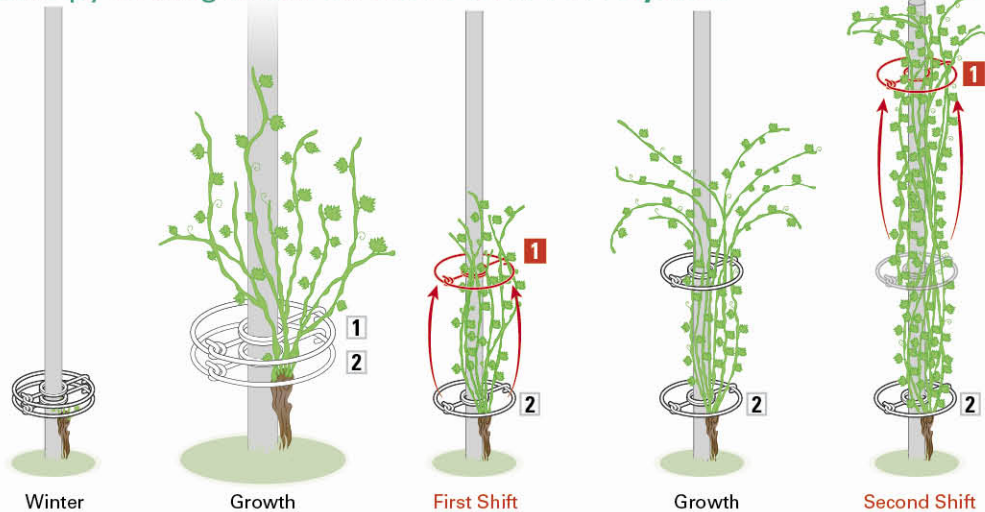
Metal wire rings designed to **support vine shoots and contain the canopy**, facilitating **vertical growth**. A fixed ring at the base and a movable one to be gradually and coordinately shifted with the **growth of the canopy**. The **“goblet” vegetative structure optimizes sun exposure**, avoiding drastic interventions like severe pruning for a **natural and sustainable vineyard management**.



Self-locking ring on wooden post.

Ring on metal post.

**Canopy management on the ALBERELLO System**



**Rings for wooden posts and metal posts**

**ANELLO-ALB**

Ring for ALBERELLO System for wooden posts with a circular section. From 150 to 500 mm in diameter.



**FR Hook**  
to lock the ring to the post.

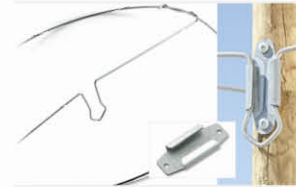
**ANELLO-ALB**

Ring for ALBERELLO System for round posts.



**ANELLO-ALB + PIASTRINA**

Ring for ALBERELLO System for wooden posts with irregular sections.



**PIASTRINA-ANEL-ALB**  
to lock the ring to the wooden post.

**ANELLO-ALB + GANCIO FR**

Shaped ring for ALBERELLO System for metal posts.



**FR Hook**  
to lock the ring to the post.

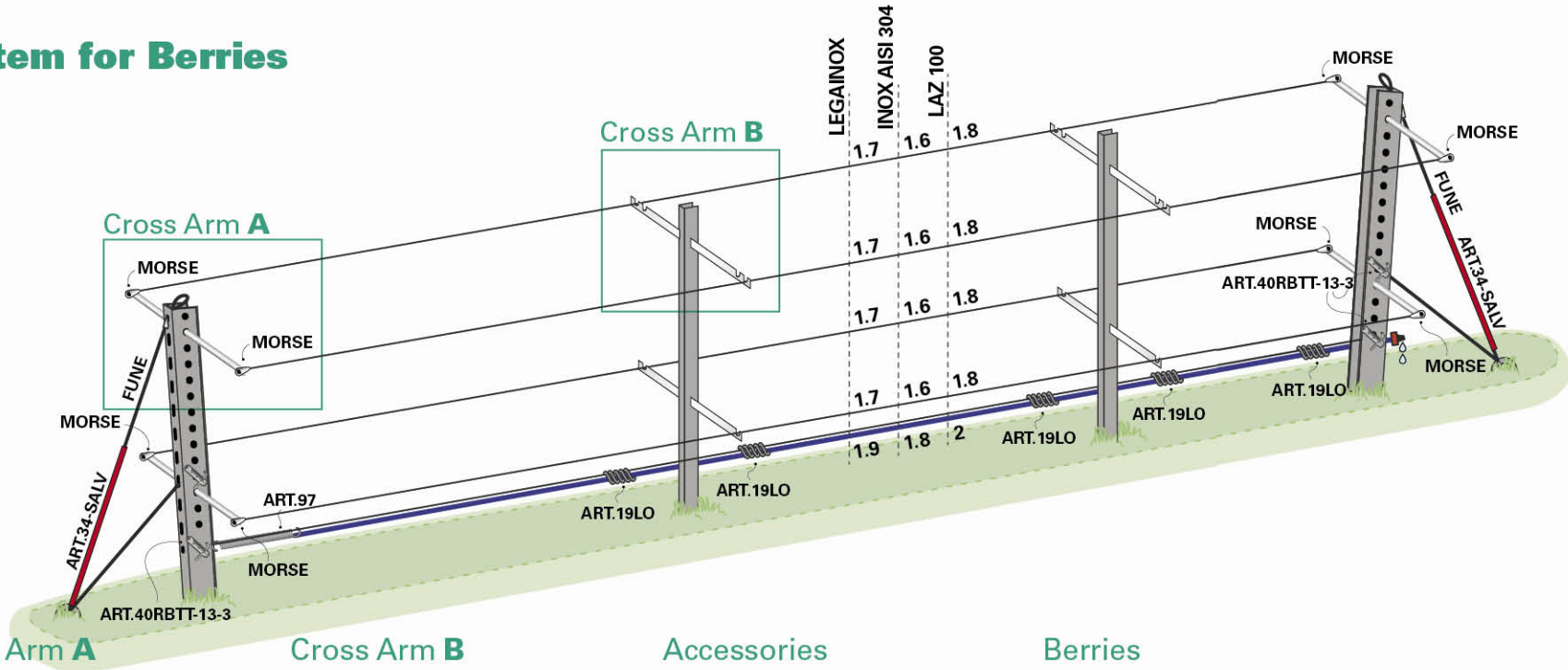
**ART.72**

Hook for shoots to be applied in support of the rings.





# System for Berries

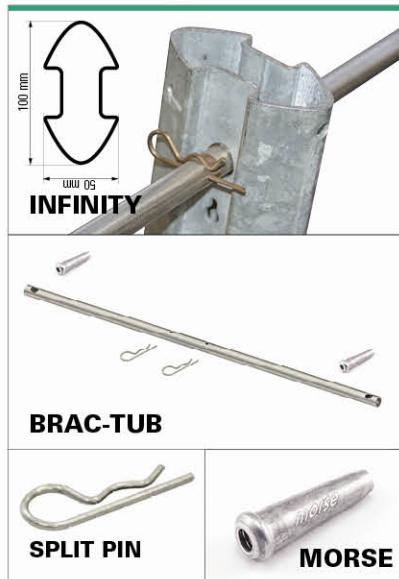


Cross Arm A

Cross Arm B

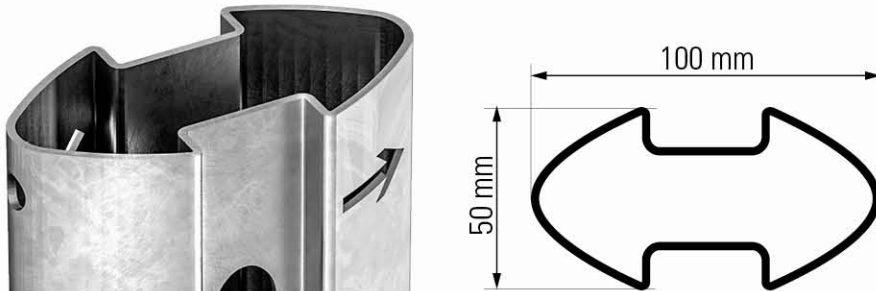
Accessories

Berries





**End Post Infinity**  
Closed Profil Post 100x50



Closed **profile post** (100x50 mm), **ergonomic**, ideal for **all mechanical operations**, **anti-torsion**, and with **excellent toughness** in all directions. The exclusive **bilateral groove** not only **provides exceptional resistance** but also shields and protects all wire tensioning systems.

	Material	Thickness (mm)	Weight (kg/m)
POST INFINITY	CorTen Steel	2,00	4,35
		1,50	3,28
	Stainless Steel	2,00	4,35
		1,50	3,28
	Hot Dip Galvanized	2,15	4,35
		1,65	3,28
	<b>Lengths (m)</b>	<b>Number of holes</b>	
	2,30	9	
	2,50	9	
	2,75	9	
	3,00	12	
	3,50	12	

Vignetinox's post

Accessories for INFINITY Post

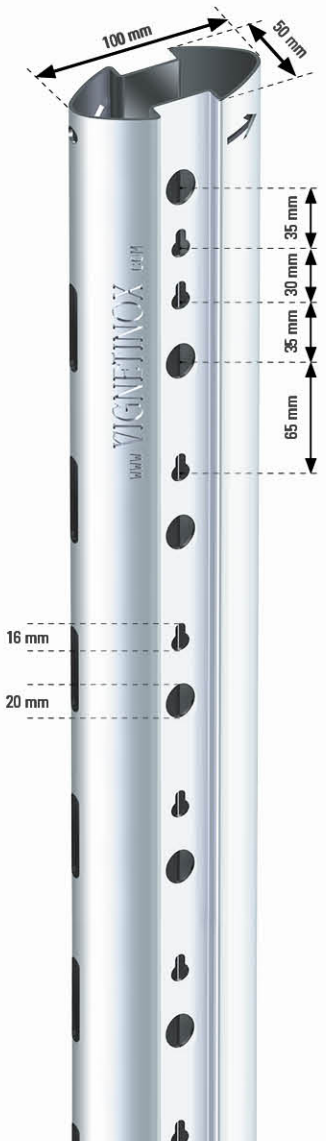
	<p><b>ART.2/5</b> Wire tensioner roller with stop.</p>	
	<p><b>ART.40 INF</b> Wire tensioner roller for a pair of wires with stop.</p>	
	<p><b>ART.88ADR INF</b> 88 ADR shock absorber, wire tensioner guide.</p>	
	<p><b>ART.82D INF</b> Dynamic 82 shock absorber, sliding wire tensioner guide.</p>	
	<p><b>TRAV-DYN INF</b> Dynamic External crossbar for Infinity post.</p>	



## End Post Infinity

Accessories for INFINITY Post

Vignetinox's post



**ART.12 INF**  
Anchor Hook with Tension Roller and Stop.

**ART.12-A INF**  
With roller for a pair of wires.

**ART.25BP INF**  
Wire spacer for pairs of movable wires.

**HOOK LIV INF**  
Hook

**ART.66FAV INF**  
Hook for pairs of wires.

**HOOK LIV INF**  
Hook.

**ART.28 INF**  
Hook for chains.

**CHAINS**

**PINNA INF**  
Fin for stabilizing the pole in the ground.

**PIASTRA INF**  
Anti-sinking plate.



**ANTITORSIONE**

+ 300 kg  
4 volte lo standard

+ 500 kg  
4 volte lo standard

5.76

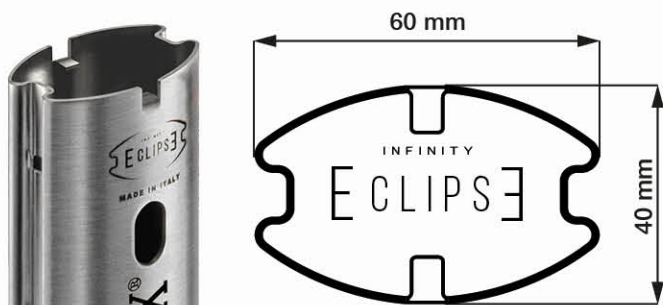
Video test  
INFINITY post.





## Intermediate Post Eclipse

60x40 Closed Profile Post



From the prestigious **Infinity Pole Series** by Vignetinox, Eclipse is the intermediate pole with a **closed 60x40 mm profile, anti-torsion**. It features an ergonomic and safe design without sharp edges. **Slots positioned at a fixed height along the entire length** of the pole allow for total customization of wire attachment using the **CLIP accessory**. The Eclipse Pole is reusable for a second use by turning it 180 degrees.

Pole lengths range from 2 to 3 meters, with variations every 10 cm.

	Material	Thickness (mm)	Weight (kg/m)
ECLIPSE POST	CorTen Steel	2,00	2,68
		1,80	2,41
		1,50	2,01
		2,15	2,88
	Hot Dip Galvanized	1,95	2,61
		1,65	2,21
		1,40	1,87
		2,00	2,68
	Pre-galvanized	1,80	2,41
		1,50	2,01
		1,25	1,67
		2,00	2,68
Stainless Steel	1,80	2,41	
	1,50	2,01	
	1,25	1,67	

Vignetinox's post

### Accessories for ECLIPSE post



#### wire CLIP

Wire clip made of shaped metal wire.



#### PINNA stabilizzatrice

Stabilizing Fin - Fin for stabilizing the pole in the ground.



#### ART.25 + GANCIO FR

Wire spacer with FR hook.



#### ART.73 ECLIPSE

Carrier wire tie.  
(Free Cord System)

## Basilia By Vignetinox

### The wire-positioning machine

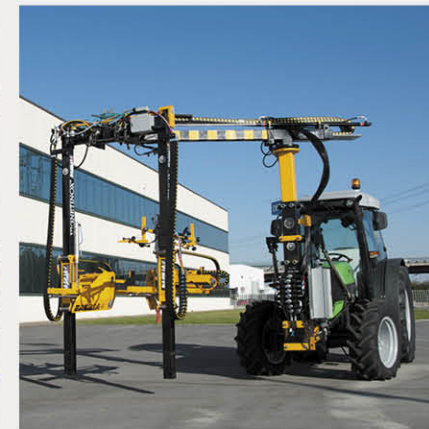
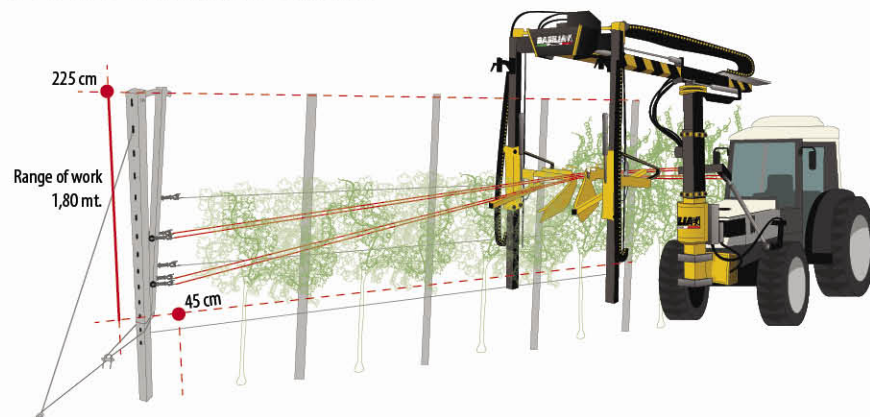


The wire positioning machine Basilia is the first automatic equipment for tractors or for self-propelled machines **patented by Vignetinox**. Basilia consists of an equipment that **places the wires in the post hooks or slots**. It can lift single or double wires up, during the vegetation growth. So, you can **direction the vegetation** growth, without adding any plastic clip or any additional wire, using post hooks or slots. It can also be used with concrete or wooden posts, because it can hook the wires to the accessories installed on these kind of posts. **At the end of the season Basilia machine can hang any wire already installed in the vineyard: working so, it helps pruning.**

The machine can also unhook the wires from metal post hooks or slots or from the accessories installed on concrete, wooden or fiberglass posts.

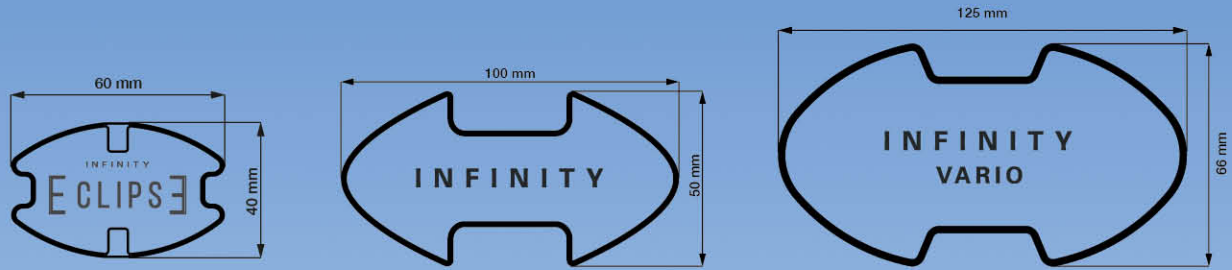
Basilia machine allows you to **enter into the vineyard to lift the wires up just after a chemical treatment or in**

**nightfall**, due to the automatic sensors that feel the post presence. You can also work in the field even if it rains or with wet leaves. It can also work in vineyards with narrow rows installed in self-propelled machines or tractors. Basilia permits to work at a constant speed of around 4÷5 km/h (2,4 ÷ 3 mph) on conventional vineyards.

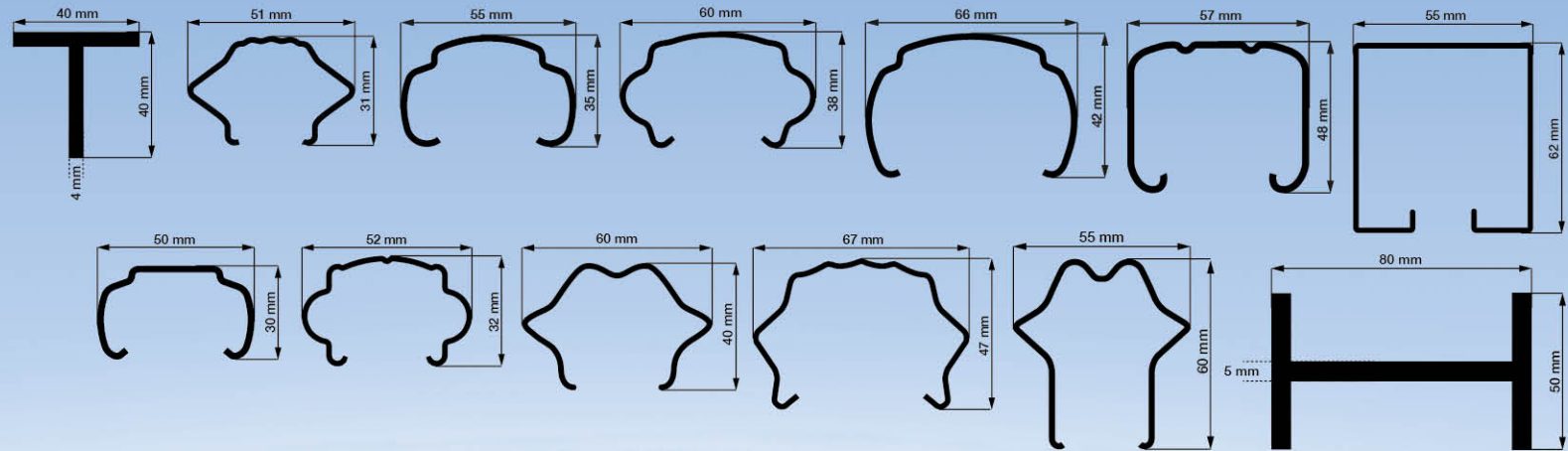


**"New Technology " Award Enovitis 2013  
"Citation Vinitech Sifel 2012" Bordeaux.**





**VIGNETINOX POSTS**





Product system with  
**renewable energy**



YouTube  
**Vignetinox**



# VIGNETINOX®