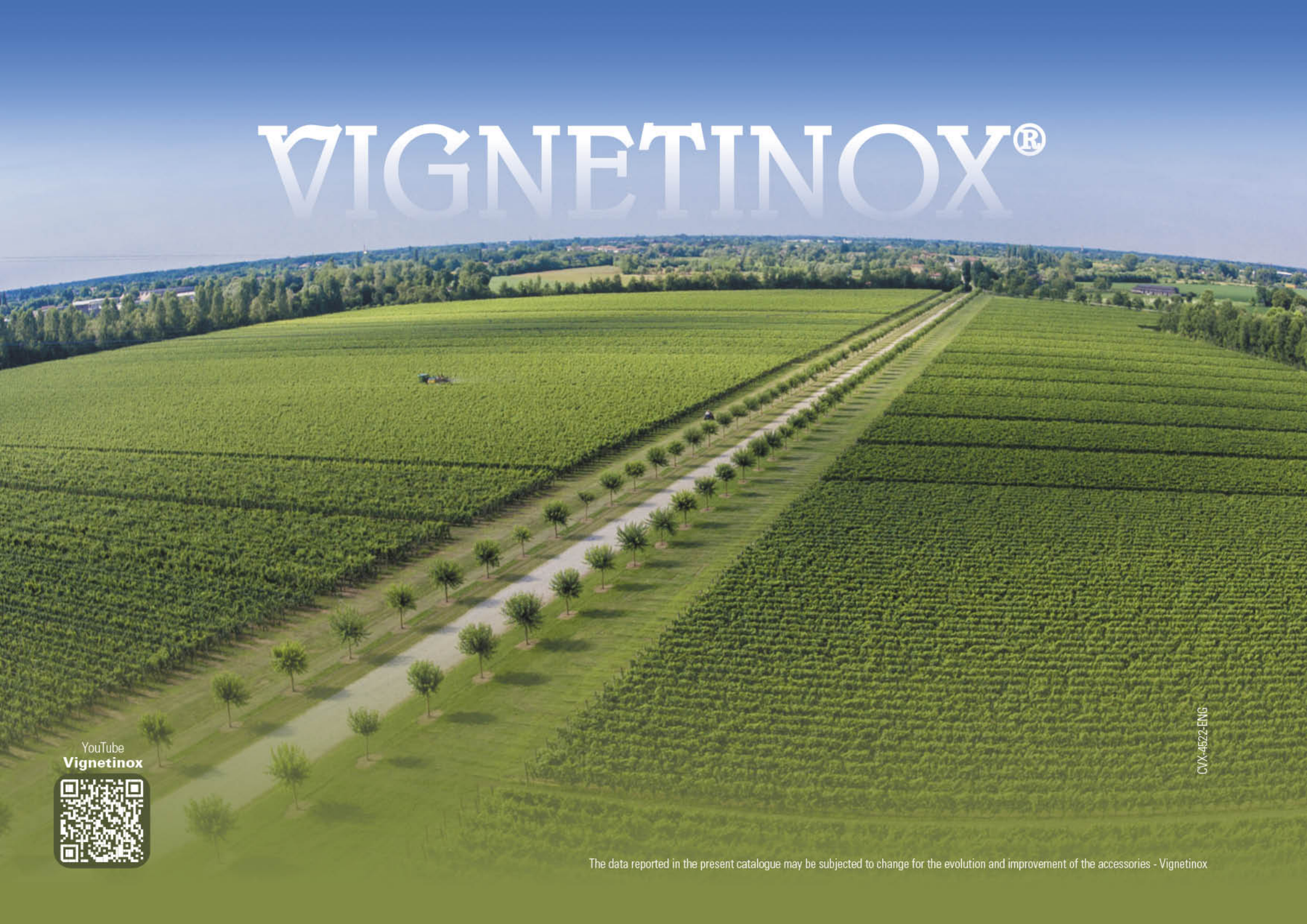
VIGNETINOX®

POSTS, WIRES AND ACCESSORIES FOR VINEYARDS AND ORCHARDS

made in Italy since 1979

VIGNETINOX®



YouTube
Vignetinox

CVX-4522-ENG

VIGNETINOX®

Index

Vignetinox Range of Accessories


BAND


ART.72


ART.35


ART.88-A


ART.88G-SR


ART.33


ART.98


ART.89G


BAND


ART.54


ART.35-IRRG


ART.88-A


ART.88O-SR


ART.33-S


ART.99


ART.17, ART.18


ART.8


ALBERELLO


ART.19LO


ART.88A-SU (S,M,L)


ART.88A-INF


ATT-33SMAN


ART.23


ART.16BU


ART.19R


ART.90


ART.97


ART.88-ASR


ART.82D-External


ATT-33SPNE +
ATT_PN100K-E


ART.23-ZAVA


CLIP-ARM


ART.19H


ART.91


ART.52


ART.88-A + BAND


ART.82D-Internal


ART.93


ART.25


INFINITY-ARM


ART.19V


ART.73


CESARE


ART.88-AL


ART.82D-External


ART.32


ART.25-BPLUS


ARM


ART.19MINI


ATT_73T40


ART.219


ART.88-AV


ART.TFO-DYN


ART.68


FR HOOK


ARM


ART.19MAXI


ART.69


ART.27


ART.88-AT


winding machine tool


ART.94


ZAVA HOOK


U-ARM

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

"H" System

ART.19

2003

ART.88

2005

ART.65 LIVIO

ART.8

ART.41BIS

2006

ART.23 Zava

ART.35

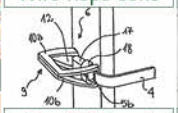
2008

Zava Hook

2009

Tie for Wine Plants

Wire-Rope Cone



Band "Milano"

Reverse Tension Compensator

2010

Binaries System

ART.65T

ART.54T

2011

Knot Brace Wire

Dynamic

Basilia

2012

ART.41/R1

Triacca

2013

External Dynamic

Movable Stake

2016

Blade grafting

America Hook

Cesare Scissors

Post for Cordon Wire

2017

ART.88R-G

Omega Support

Design INFINITY

2018

America Hook

Roll improved

2019

Spring for anti-hail net

2020

ART.65LIV-GS

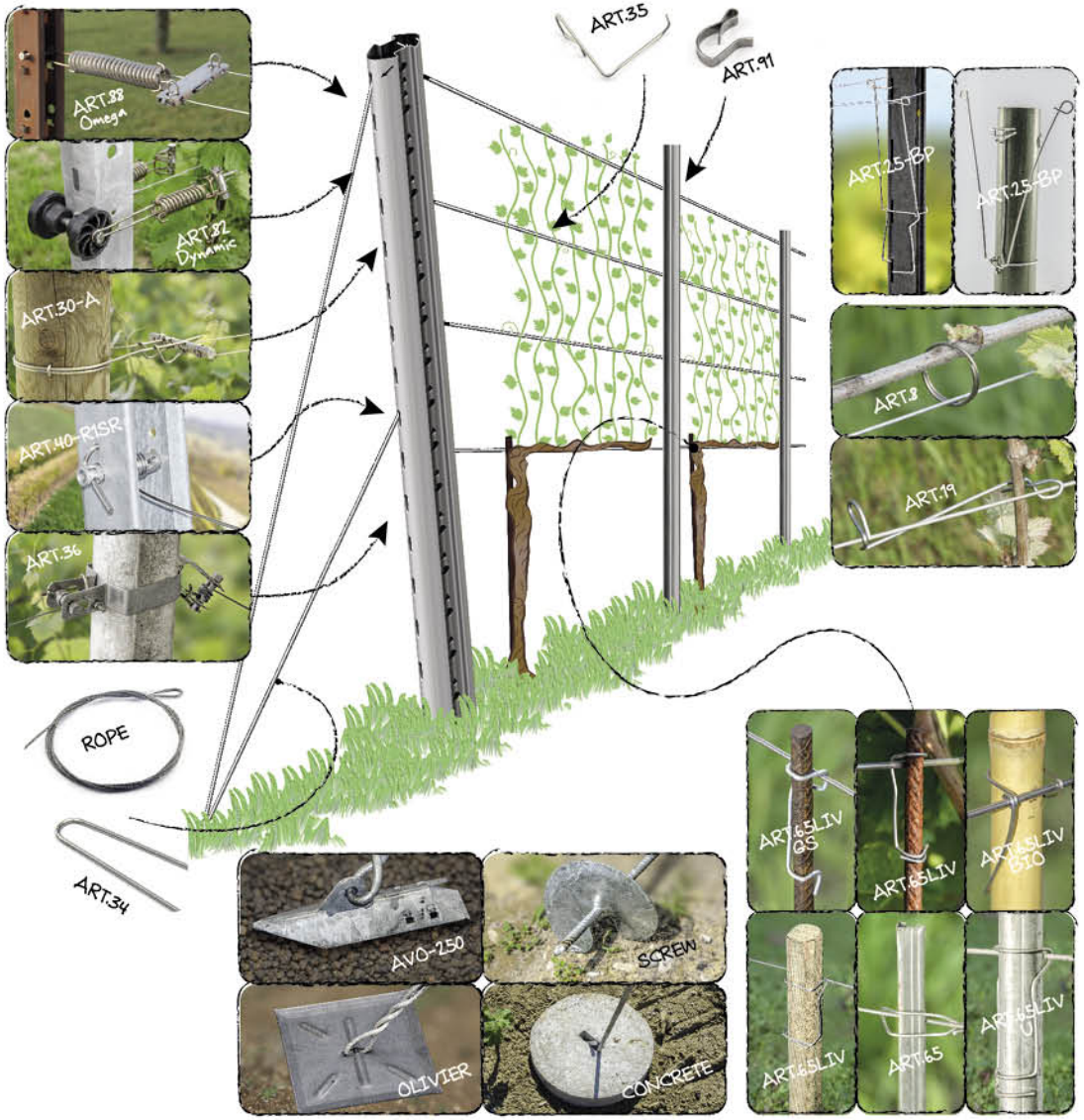
2021

ATT.65LIV-RAPID

Europäisches Patentamt
European Patent Office
Office européen des brevets

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



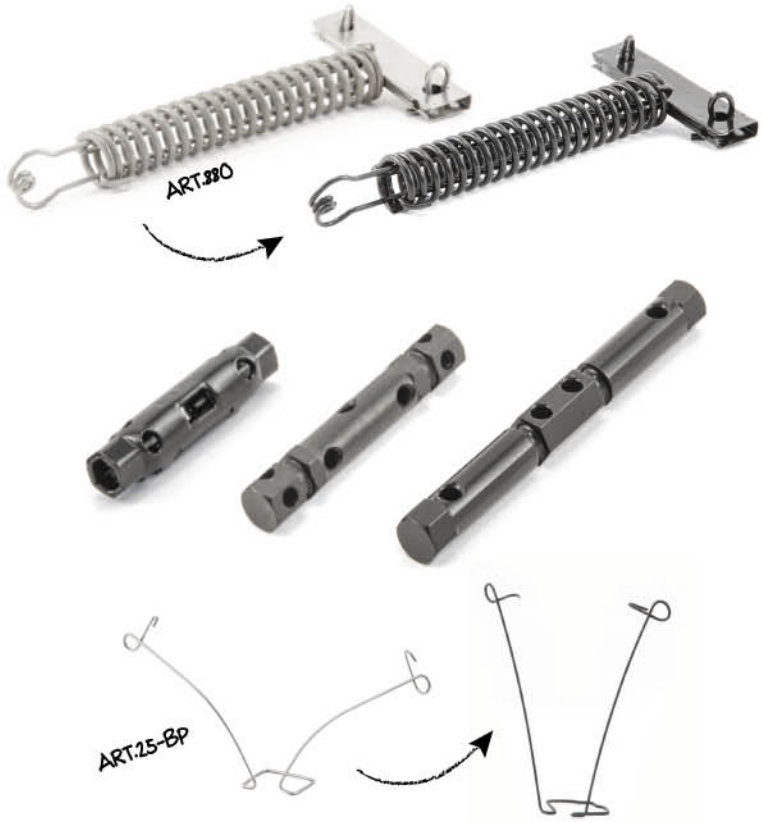
BLACK line EDITION

ORIGINALS

NEW LINE OF BLACKED ACCESSORIES

Vignetinox "BLACK EDITION"

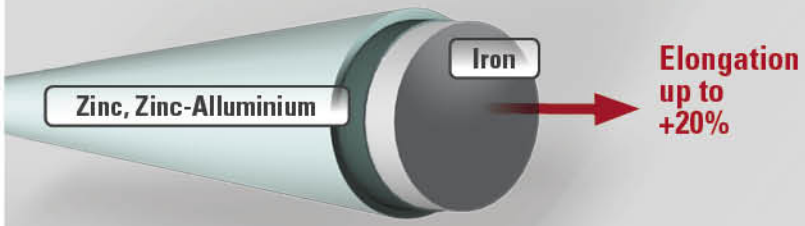
FOR A LOWER VISUAL IMPACT IN THE VINEYARD



Differences Between Galvanized and Stainless Steel Wires

Coated Wire

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

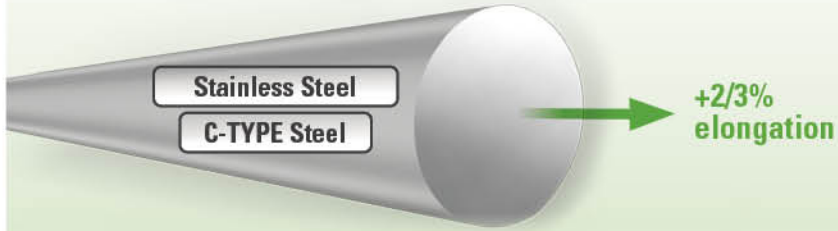


Characteristics/Properties:

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

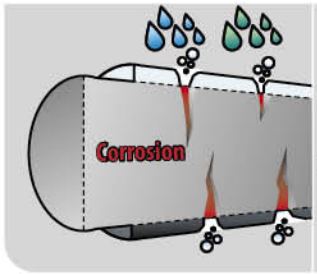
Stainless Steel Wire

Surface and inner part made of the same material.

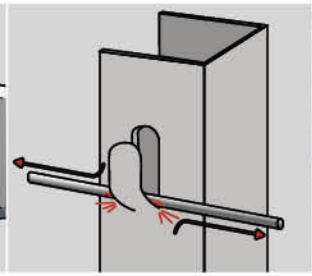


Characteristics/Properties:

- Higher tensile strength ✓
  Smaller diameter = greater efficiency
- Reduced elongation ✓
  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

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®: For vineyards and Orchards with performances of the higher quality at a lower price than galvanized wires. (Vignetinox Brand).
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 wire Zn	Stainless Steel Wire AISI 302-304	LEGAInox Wire
Load Capacity 1102 lbs = Ø	Ø 0,15 in	Ø 0,07 in	Ø 0,07 in
1lb = ft	14,8 ft	59,5 ft	59,5 ft
Labour			
1ft = $	$$$	$$	$

Stainless Steel Wire Market

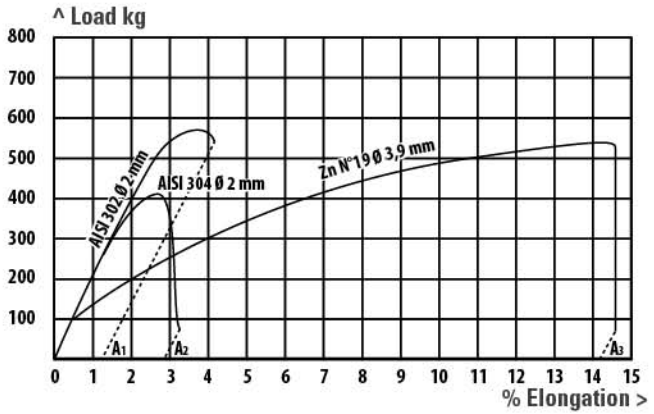
The hidden risk of cheap products:

- 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



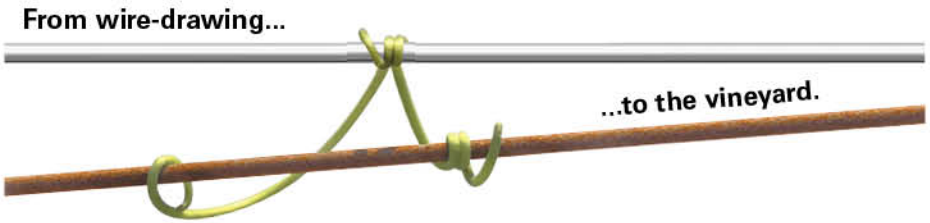
AISI 302 Ø 2 mm
Fmax = 565 kg
Rmax = 199,7 kg/mm^2
Elong. = 1,296 %

AISI 304 Ø 2 mm
Fmax = 424 kg
Rmax = 135,12 kg/mm^2
Elong. = 2,879 %

Zinc (Zn) N°19 Ø 3,9 mm
Fmax = 537 kg
Rmax = 44,19 kg/mm^2
Elong. = 14,13 %

Steel corten wire

Cor-ten is a **steel alloys wire resisting corrosion** (CORrosion) specially under atmospheric conditions such as dryness/humidity/dryness cycles. Cor-ten is also **highly mechanical resistant** (TENsil strenght).
Cor-ten properties are due to **micro alloys among Copper** (cu), **Crome** (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**.



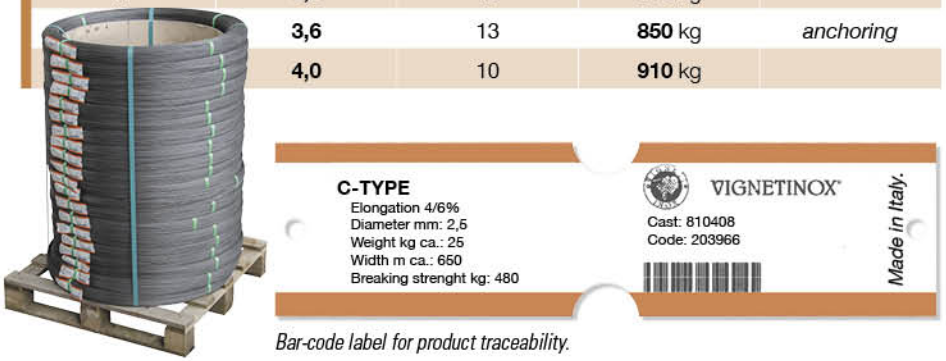
COR-TEN FORMS ITS PROTECTIVE LAYER IN THE FIRST 5/8 MONTHS.

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
11	**1,6**	63	**225** kg	
12	**1,8**	50	**285** kg	
13	**2,0**	40	**350** kg	*catch wire*
14	**2,2**	33	**400** kg	
	2,5	26	**480** kg	*fixed wire*
	2,8	21	**600** kg	*cordon wire*
17	**3,0**	18	**650** kg	
	3,6	13	**850** kg	*anchoring*
	4,0	10	**910** kg	



Bar-code label for product traceability.

Mechanic characteristics of Vignetinox's wires

Tensile strenght and elongation

The more the tensile strenght is important the more the elasticitiy 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

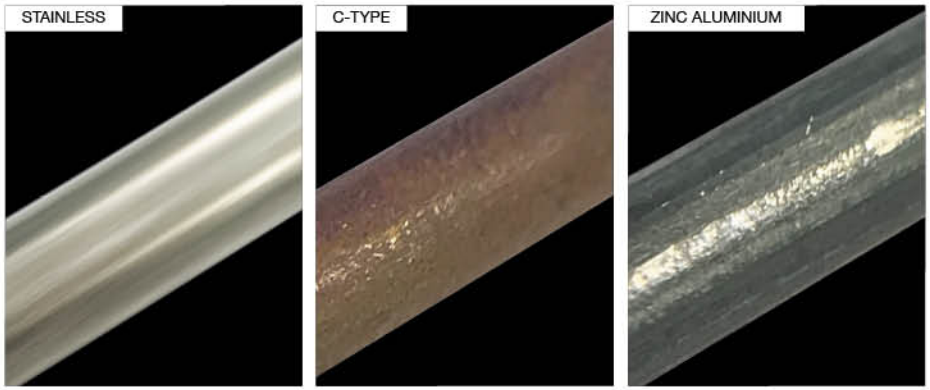
The more the coating is hard the less it is likely to be scratched. Coated wires have a Zn and ZnAl layer on top of the in Carbon (FeC) wire core.
This coating has a low hardness therefore the cutting and abrassion are more likely to affect the core (FeC).

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.



Wire comparison chart

					VEGETATION WIRES					CORDON W.					
COATED WIRES (average values)	Coating classes UNI EN 10244-2	**ZN 50 C** (commercial) elongation % **18/20** R= **400/600** N/mm² — *COATING* 100% Zn - *Class* **C**	Ø mm.	2,0	2,2	2,5	2,8	3,0	3,5	4,0	4,5			5,0
			JDP	*13*	*14*			*17*						
			m/kg.	40	33	26	21	18	14	10	8			6
			breaking load kg.	**160**	**200**	**250**	**320**	**360**	**500**	**650**	**800**			**1000**
		ZN 80 (heavy) elongation % **8/10** R= **700/900** N/mm² — *COATING* 100% Zn - *Class* **A**	Ø mm.	1,6	1,8	2,0	2,2	2,5	2,8	3,0	3,5			4,0
			JDP	*11*	*12*	*13*	*14*			*17*				
			m/kg.	63	50	40	33	26	21	18	14			10
			breaking load kg.	**150**	**220**	**260**	**320**	**400**	**500**	**580**	**790**			**1000**
		SERIES **LAZ 80** elongation % **8/10** R= **700/900** N/mm² — *COATING* • **LAZ 80** - 95% Zn 5% Al - *Class* **A** • **LAZ 80 Plus** - 90% Zn 10% Al - *Class* **B**	Ø mm.	1,6	1,8	2,0	2,2	2,5	2,8	3,0	3,5			4,0
			JDP	*11*	*12*	*13*	*14*			*17*				
			m/kg.	63	50	40	33	26	21	18	14			10
			breaking load kg.	**150**	**220**	**260**	**320**	**400**	**500**	**580**	**790**			**1000**
		SERIES **120** elongation % **3/5** R= **1100/1300** N/mm² — *COATING* • **ZN 120** - 100% Zn - *Class* **A** • **LAZ 120** - 95% Zn 5% Al - *Class* **A** • **LAZ 120 Plus** - 90% Zn 10% Al - *Class* **B**	Ø mm.		1,6		1,8	2,0	2,2	2,5	2,8	3,0			3,5
			JDP		*11*		*12*	*13*	*14*			*17*			
			m/kg.		63		50	40	33	26	21	18			14
			breaking load kg.		**250**		**310**	**380**	**460**	**600**	**750**	**850**			**1150**
		SERIES **180** elongation % **2/3** R= **1700/1900** N/mm² — *COATING* • **ZN 180** - 100% Zn - *Class* **B** • **LAZ 180** - 95% Zn 5% Al - *Class* **B**	Ø mm.		1,4			1,6	1,8	2,0	2,2	2,5	2,7	3,0
			JDP		*9*			*11*	*12*	*13*	*14*		*16*	*17*
			m/kg.		83			63	50	40	33	26	22	18
			breaking load kg.		**270**			**350**	**450**	**560**	**650**	**850**	**940**	**1050**
UNCOATED WIRES (average values)	Stainless UNI EN 10088-3	**INOX 302/304** elongation % **2/3** R= **1700/1900** N/mm² — ***STAINLESS***	Ø mm.	1,2	1,4			1,6	1,8	2,0	2,2	2,5	2,7	3,0
			JDP	*7*	*9*			*11*	*12*	*13*	*14*		*16*	*17*
			m/kg.	113	83			63	50	40	33	26	22	18
			breaking load kg.	**200**	**270**			**350**	**450**	**560**	**650**	**850**	**980**	**1150**
		LEGAINOX elongation % **2/3** R= **1700/1900** N/mm² — ***STAINLESS***	Ø mm.		1,3		1,5	1,7	1,9	2,1	2,4		2,8	3,1
			JDP		*8*		*10*				*15*			
			m/kg.		100		75	58	46	38	28		21	17
			breaking load kg.		**230**		**320**	**390**	**500**	**620**	**800**		**980**	**1150**
	Chemical Composition EN 10025-5	**C-TYPE** (new product) elongation % **4/6** R= **1000/1200** N/mm² — ***NATURAL OXIDE***	Ø mm.	1,6	1,8		2,0	2,2	2,5	2,8	3,0	3,6	4,0	
			JDP	*11*	*12*		*13*	*14*			*17*			
			m/kg.	63	50		40	33	26	21	18	13	10	
			breaking load kg.	**225**	**285**		**350**	**400**	**480**	**600**	**650**	**850**	**910**	

Wire packaging

Packaging options

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

Pallet of approx. **990** kg* (2204 lb)
66 spools of **15** kg ea (33 lb).

Coils of **25** or **50** kg ea (55/110 lb)
tied horizontal.
Total **500** kg* (1102 lb).

Pallet of approx. **500** kg* (1102 lb)
coils of **25** or **50** kg ea (55/110 lb)
Packed horizontal.

Pallet with reel of
approx. **500** kg* (1102 lb)

Packaging in wooden crates on pallet
approx. **500** kg.

Spool of **15** kg (33 lb).

Coil of **25** kg (110 lb).

Coil of **50** kg (110 lb).

Pallet of about **1000 kg* (2200 lb) with
2 wire spool of about **500** kg (1100 lb)
overlapped.

*Minimum quantity required (500 / 990 kg - 1102 / 2180 lb).
**Blue metal packaging must be returned within 6 months from delivery, otherwise it will be invoiced.

Tension Clamps and Hooks

Tension Clamps for end posts, complete with tension roller.

ART.9
Strengthened clamp

ART.10

ART.30

ART.36 - *Square*

ART.36 - *Round*

ART.12 Univ (Universal)

ART.12 ZR2

Hooks for Anchoring Trellis Wire

ART.12

ART.92

ART.92R

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

EXTRA UE

- 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

MADE IN UE

- 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

ART.65"Livio" 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 Steel	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 stake R12	ART.65LIV-R12	x	x	x
Tutor stake 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 appel of the European patent office **HAS ESTABLISHED THE VALIDITY OF OUR PATENT ON April 23rd 2021**.*

Beschwerdekammern
Boards of Appeal
Chambres de recours

Datasheet for the decision of 23 April 2021

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

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. 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 2018,

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:

Vine Support Stakes and Tutor Stake Locker

ART.65LIV FAST

ART.65LIVGS-6/8
ART.65LIVGS-6/10
wire diameter 1,6 mm

ART.55BL DOPPIO

ART.55BL-DOPPIO
wire diameter 1,6 mm

ART.65LIV-Bio
It does not fall when the stake dries.

ART.57

ART.58

ART.60

ART.61

ART.62 / ART.63

ART.64

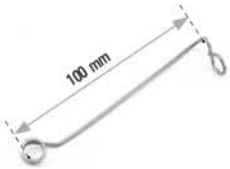
ART.65 / ART.75

Tie for the plant trunk and posts

ART.54
It can be either rounded or square shaped in different length. Usable also for posts fixing.

Ties for Vine Canes

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



ART.19H

ART.19R

ART.19V

ART.19 Mini

ART.19 Maxi

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.

Accessories for irrigation

ART.19LO-IRRG

CONSORTIUM

Irrigation hose Ø: 16 and 25 mm.

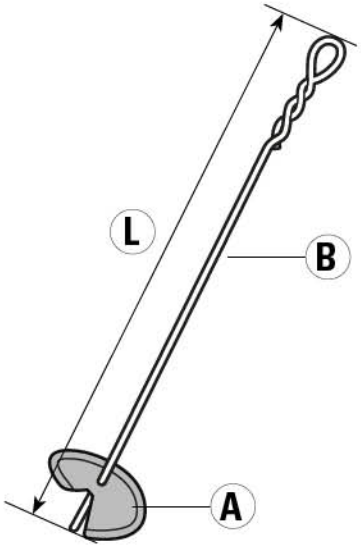
ART.35-IRRG
h= 80, 100, 150, 200 e 250 mm.
Irrigation hose Ø: 16, 20 and 32 mm.

ART.97-IRRG
Compensate for the hose dilatation.

GANC-ART-97
Hose irrigation (tap included) fastening to spring ART.97-IRRG.

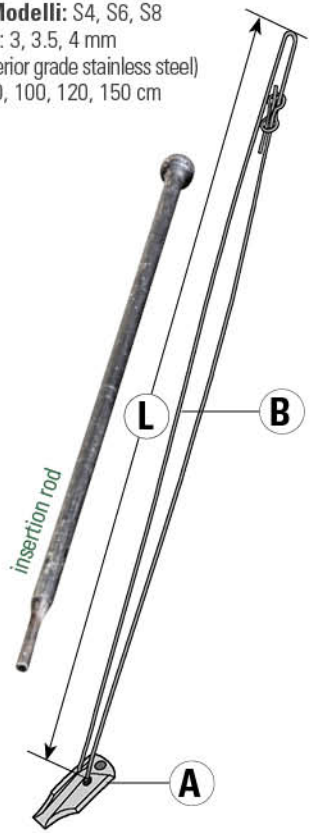
Screw

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



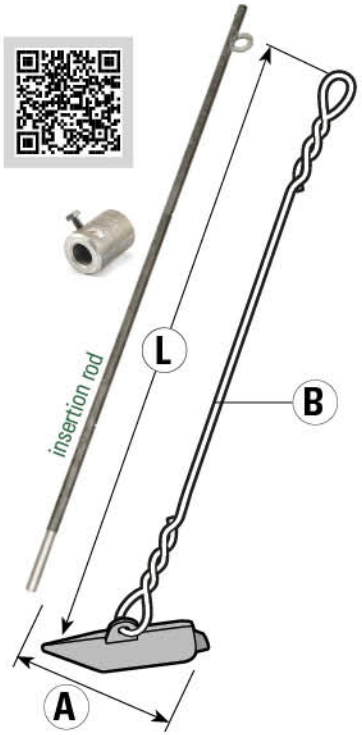
Quick Installation Anchor

A Modelli: S4, S6, S8
B: Ø: 3, 3.5, 4 mm
(superior grade stainless steel)
L: 80, 100, 120, 150 cm



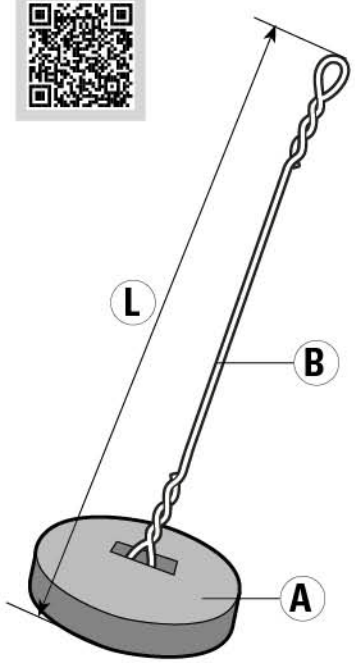
Avo

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



Concrete Plate

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



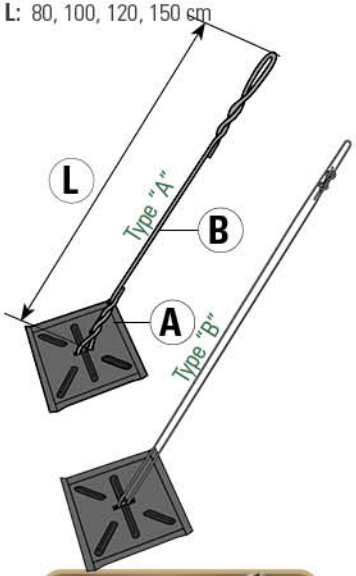
Metal Plate Olivier

Type "A"

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

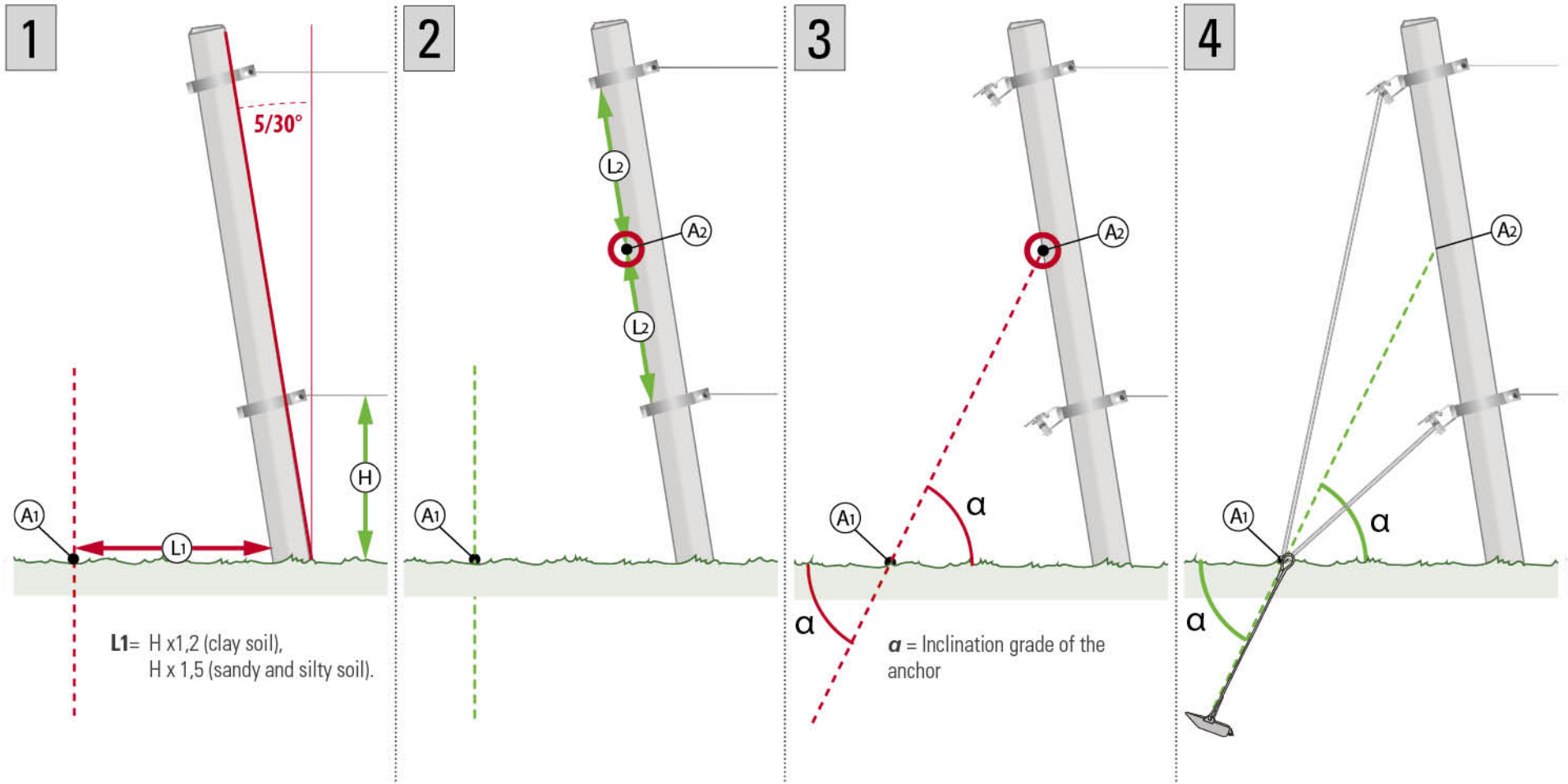
Type "B"

A: 25x25 cm
B Ø: 3, 3.5, 4 mm
(superior grade stainless steel)
L: 80, 100, 120, 150 cm



Anchor installation

How to calculate the proper distance and the proper inclination of the anchor

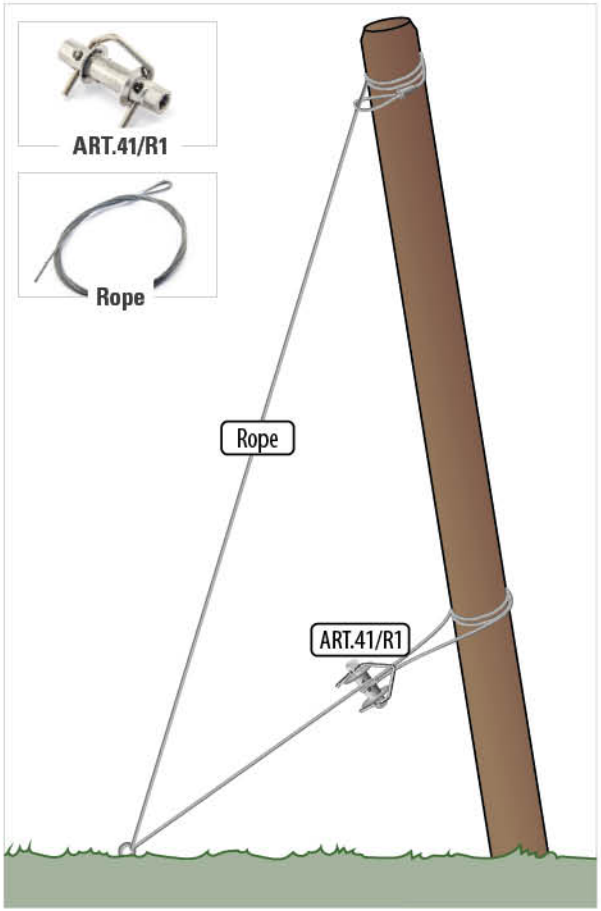


L1= H x1,2 (clay soil),
H x 1,5 (sandy and silty soil).

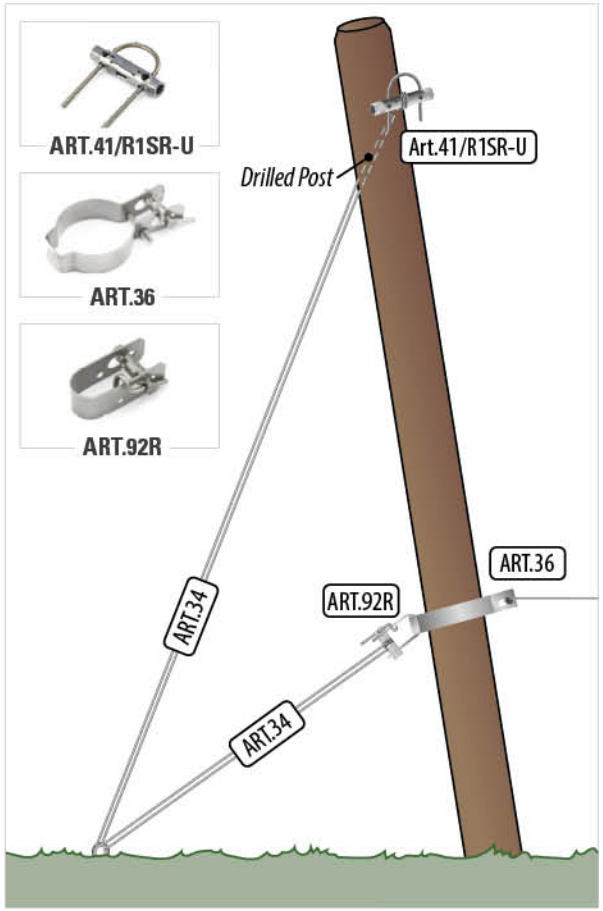
α = Inclination grade of the anchor

Anchoring Systems

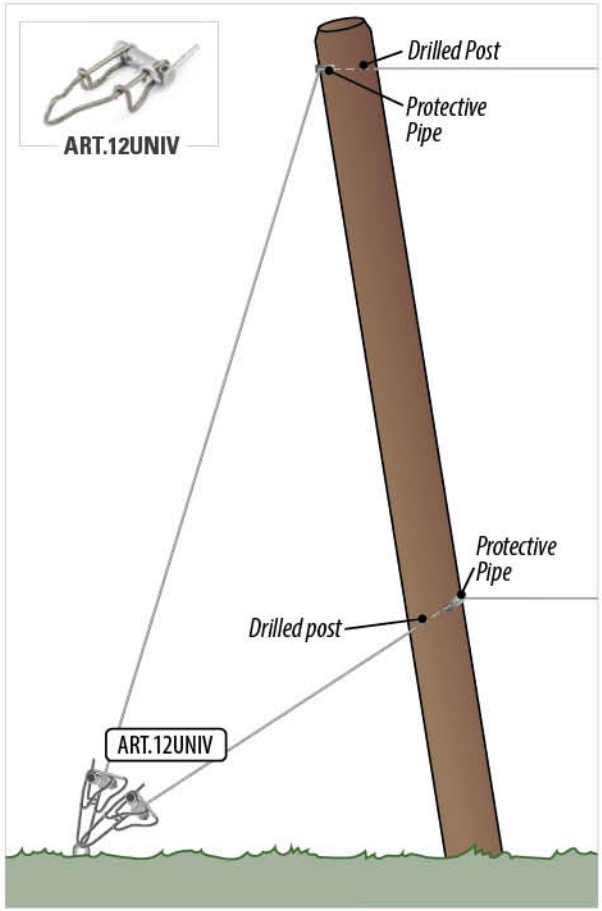
ANCHOR-KIT for any kind of post
- **ART.41/R1** Wire Roller Tensioner with Stopper;
- **Rope with loop.**



Anchoring using double anchor wire and flat smooth clamp on wooden, concrete and metal post:
- **ART.41/R1SR-U** Wire Roller Tensioner with "U" Stopper;
- **ART.92R** Tensioner Hook for Trellis Anchoring Wire;
- **ART.36** Wire Tension Clamp.

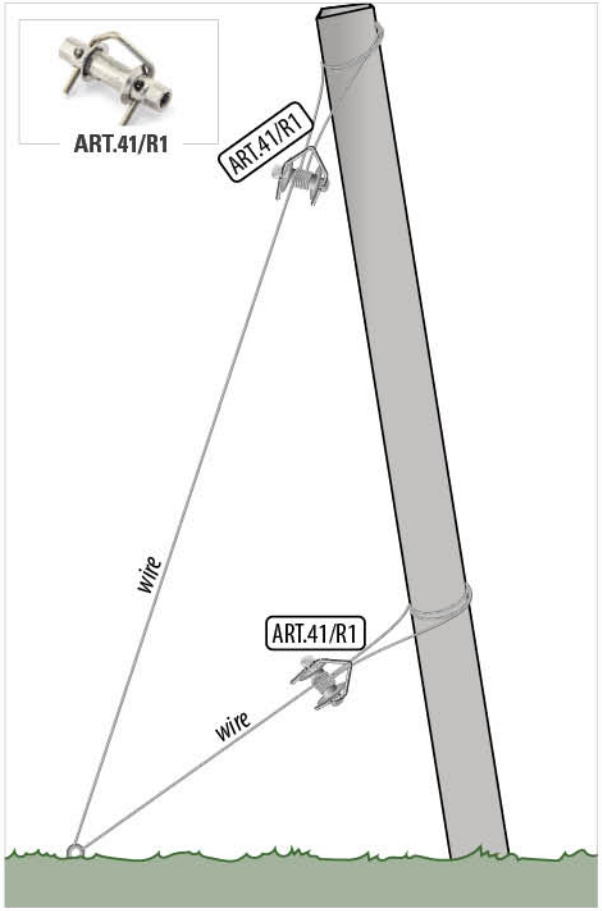


Anchoring using single anchor wire and ART.12-UNIV on wooden or concrete post:
- **ART.12UNIV** Tensioner Hook;
- **Protective Pipe.**

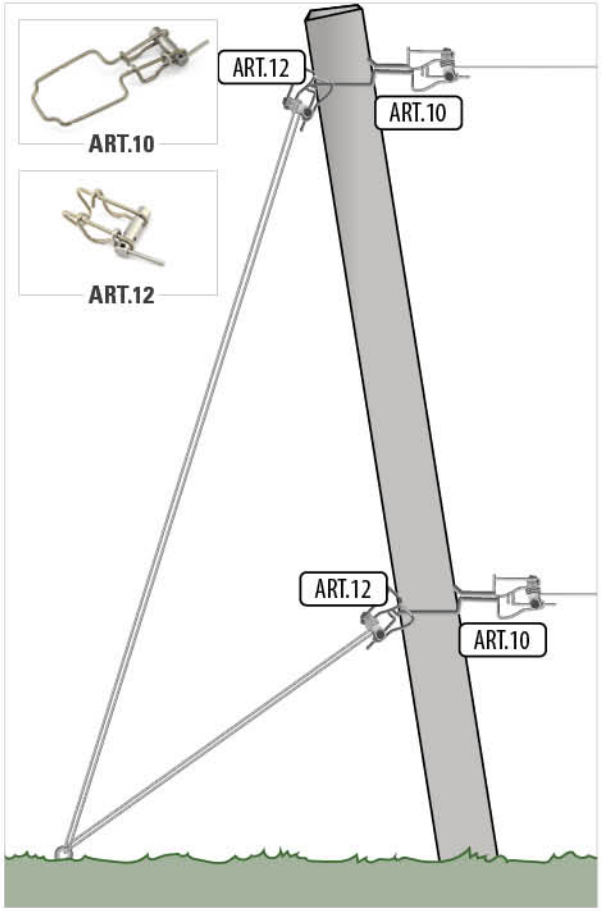


Anchoring Systems

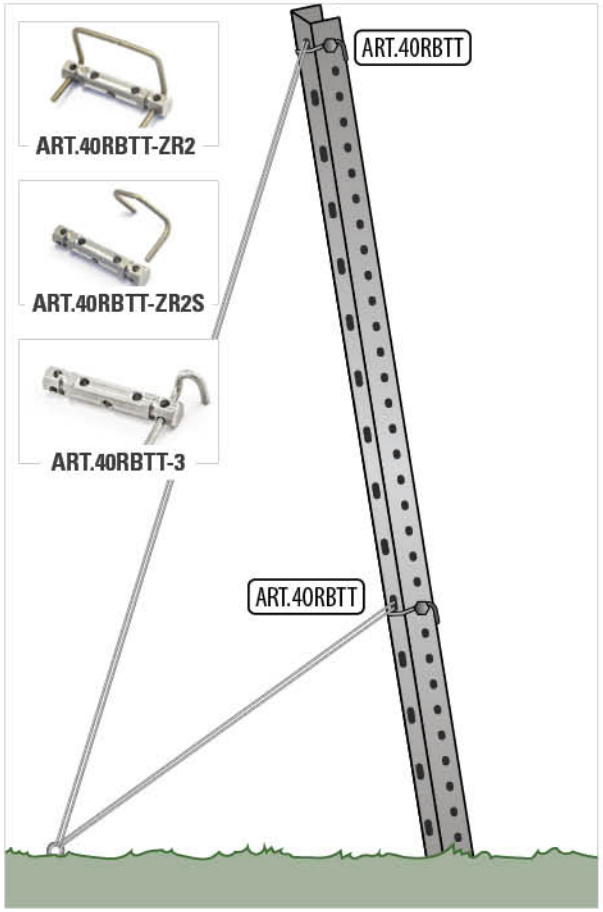
Anchoring using single or double anchor wire and ART.41/R1 on wooden, concrete and metal posts:
- **ART.41/R1** Wire Roller Tensioner with Stopper.



Anchoring using double anchor wire, ART.12 and ART.10 on concrete and metal posts:
- **ART.10** Wire Tension Clamp;
- **ART.12** Tensioner Hook for wire.

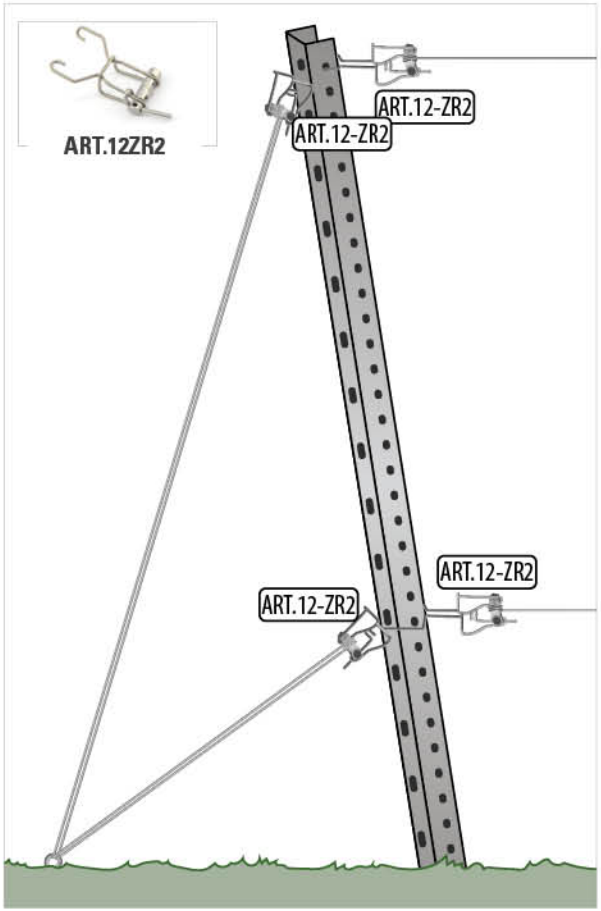


Anchoring using single or double anchor wire and ART.40RBTT on perforated metal posts:
- **ART.40RBTT** Wire Roller Tensioner with Stopper.

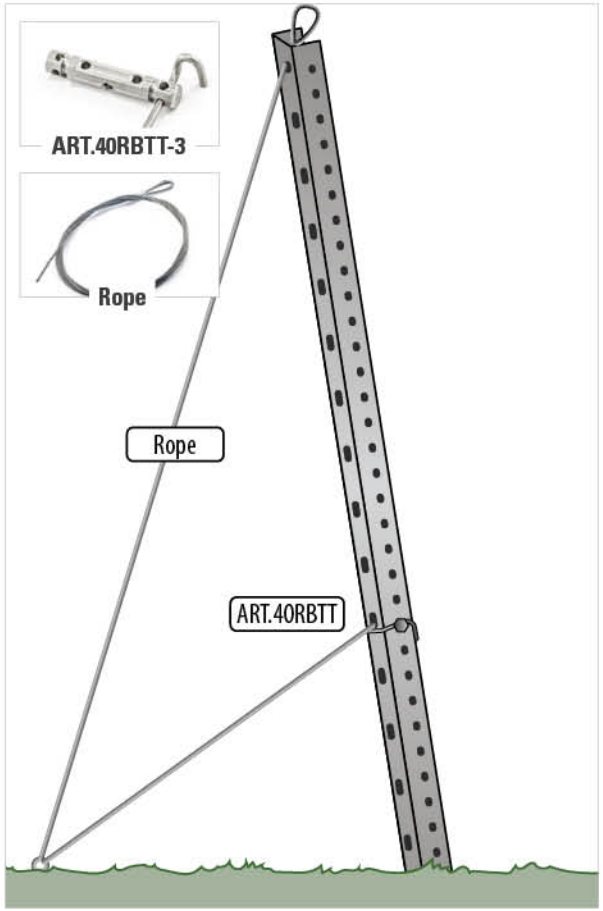


Anchoring Systems

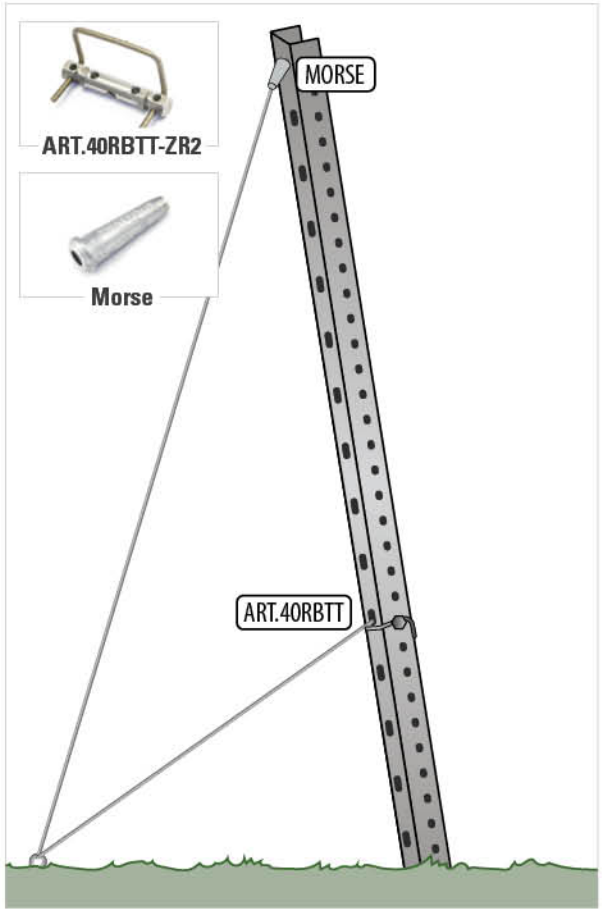
Anchoring using single or double anchor wire and ART.12-ZR2 on perforated metal posts:
- **ART.12ZR2** Tensioner Hook for wire.



Anchoring using Rope and ART.40RBTT on perforated metal posts:
- **ART.40RBTT** Wire Roller Tensioner;
- **Fune.**

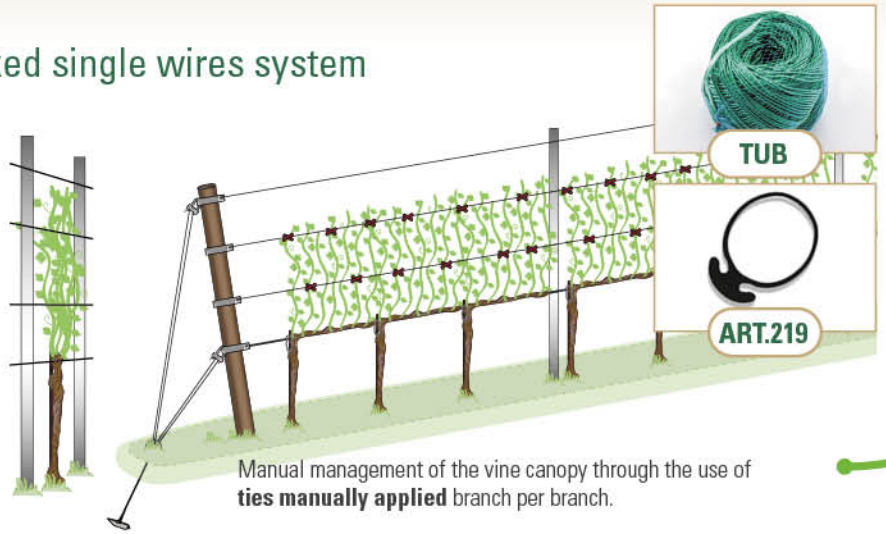


Anchoring using single anchor wire, Morse and ART.40RBTT on perforated metal post:
- **Morse** Wire tensioner;
- **ART.40RBTT** Wire Roller Tensioner with Stopper.



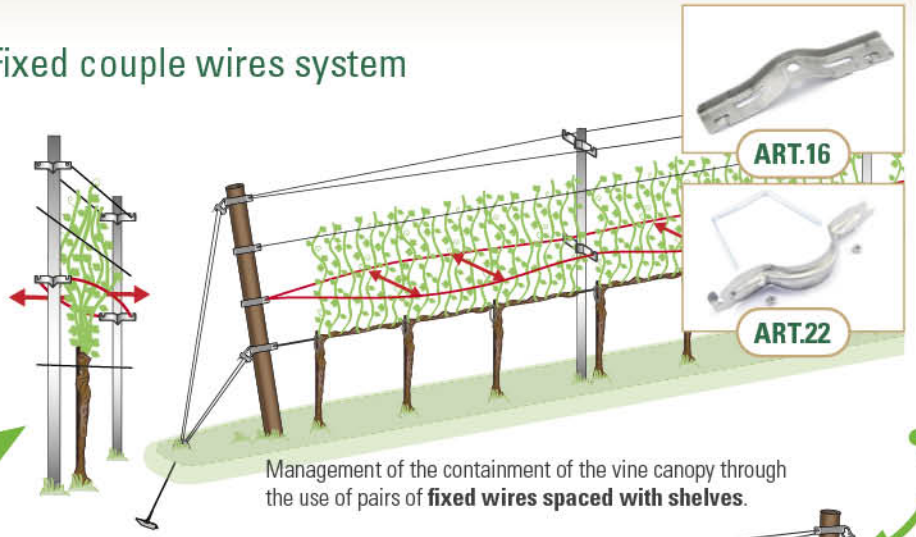
Development of vineyard trellises: from fixed wires to moveable catch wires

Fixed single wires system



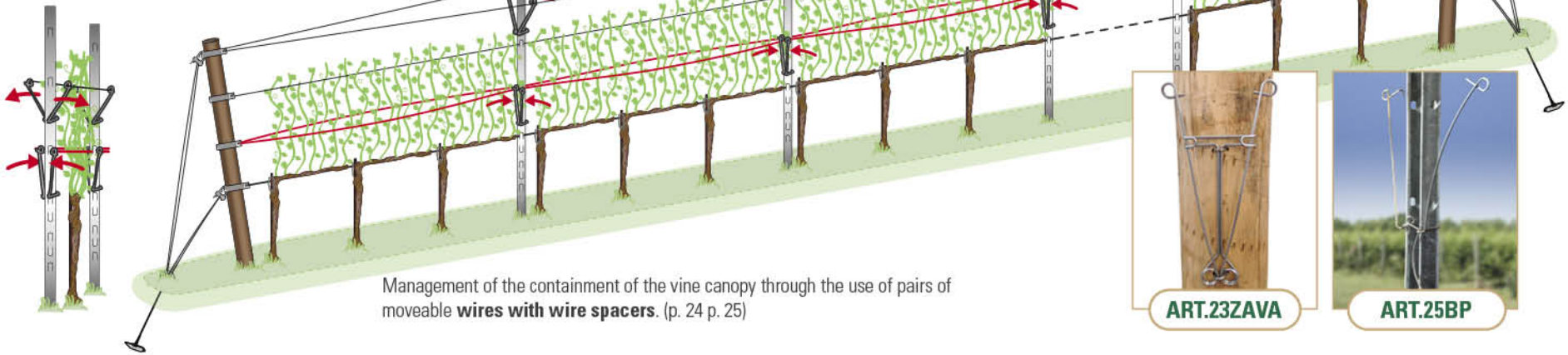
Manual management of the vine canopy through the use of **ties manually applied** branch per branch.

Fixed couple wires system



Management of the containment of the vine canopy through the use of pairs of **fixed wires spaced with shelves**.

Moveable wires in couple with wire spacers
(horizontal movement)



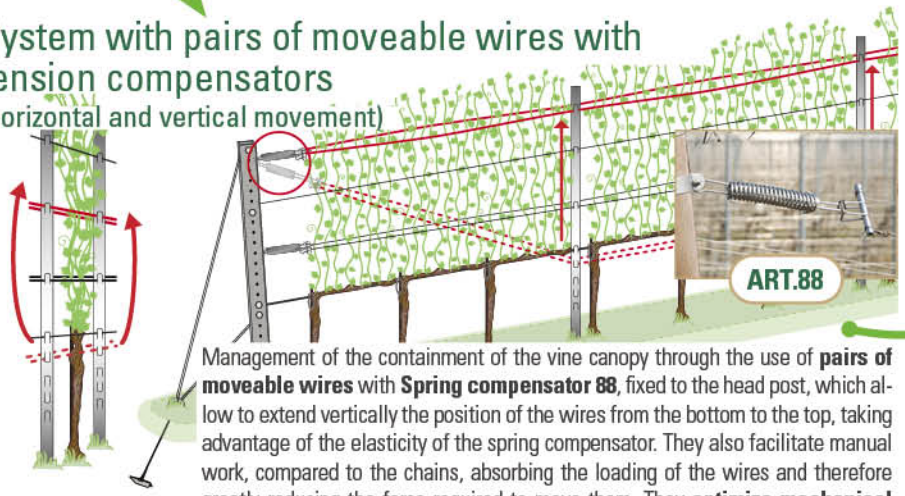
Management of the containment of the vine canopy through the use of pairs of moveable **wires with wire spacers**. (p. 24 p. 25)

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

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

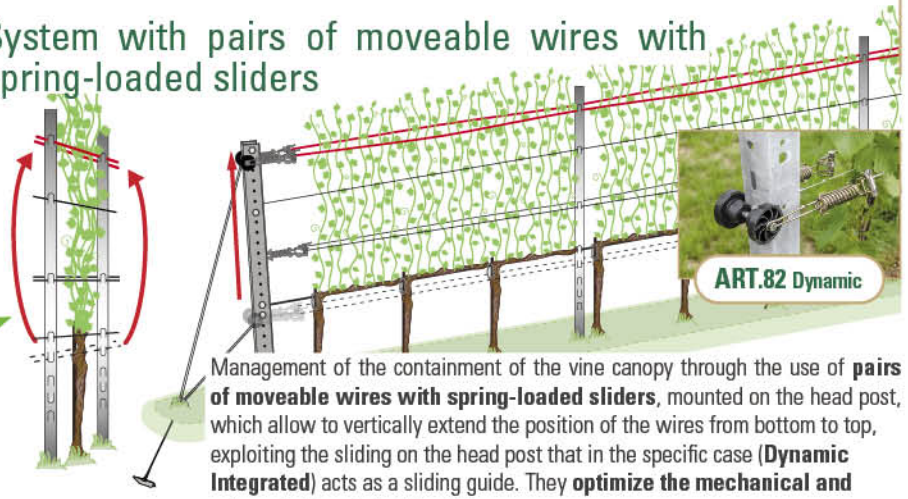
Management of the containment of the vine canopy through the use of **fixed wires manually fixed through the use of chains** to be anchored to a nail or collars to the head post. They require a very demanding manual work because, in order to carry the wires to full load and contain the bulky load of the vine canopy with them, it is necessary to exercise considerable physical effort.

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



Management of the containment of the vine canopy through the use of **pairs of moveable wires** with **Spring compensator 88**, fixed to the head post, which allow to extend vertically the position of the wires from the bottom to the top, taking advantage of the elasticity of the spring compensator. They also facilitate manual work, compared to the chains, absorbing the loading of the wires and therefore greatly reducing the force required to move them. They **optimize mechanical and automated work** (see from page 26 to page 32).

System with pairs of moveable wires with spring-loaded sliders



Management of the containment of the vine canopy through the use of **pairs of moveable wires with spring-loaded sliders**, mounted on the head post, which allow to vertically extend the position of the wires from bottom to top, exploiting the sliding on the head post that in the specific case (**Dynamic Integrated**) acts as a sliding guide. They **optimize the mechanical and automated work** (p. 33 p. 43).

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

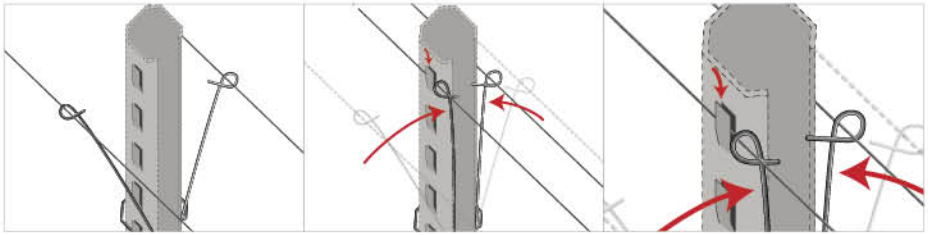
Plate
Combinable with ART.23

ART.29
Combinable with ART.23

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

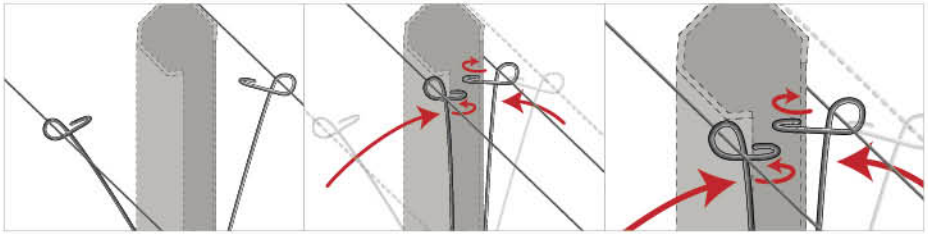
Wire spacer for metal post and other materials ART.25

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.

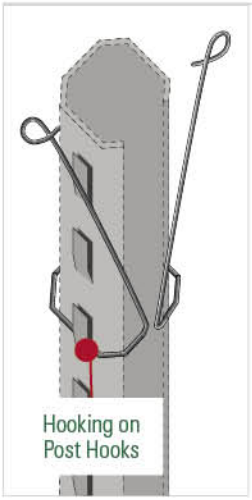


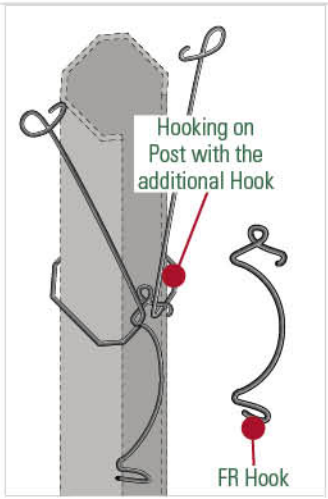
Wire spacers

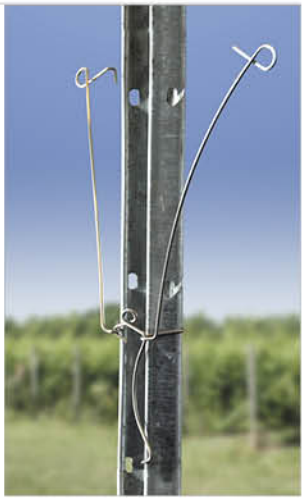
ART.25 combined with FR hook on open shaped metal posts.

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

FR Hook
Hook for spring spacer ART.25 on metal post.



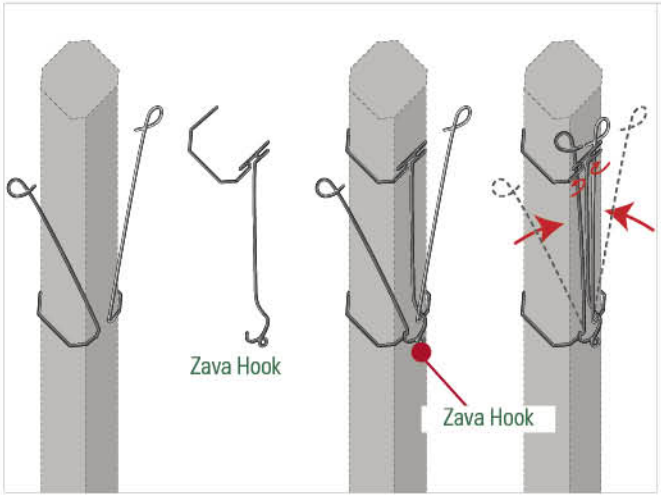




ART.25 combined with ZAVA hook on concrete and pipe shaped posts.

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.

ZAVA Hook
Hook for spring spacer ART.25 on concrete post.



Tension compensators ART.88

PLAY VIDEO

ART.88A
Tension compensator with "square"
GANCIO/SICUR88
clamp and safety hook

ART.88A
with "round" clamp

ART.88A-SU
with Band (S/L/M)

ART.88A-S
with Hook "B"

ART.88A-S + Fascia/S
with single band

ART.88A-SR
with screw and nut

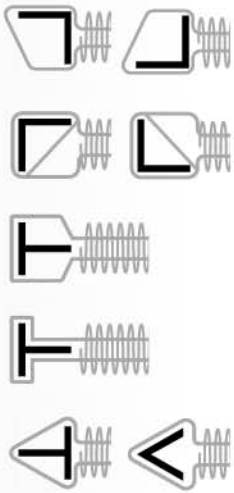
ART.88A-L SX
with hook fot L post

ART.88A-L DX
with hook fot L post

ART.88A-T
with hook fot T post
> 40x40 mm

ART.88A-T + ART.88A
with hook fot T post
< 35x35 mm

ART.88A-T DX / ART.88A-L V
with hook fot L and T post



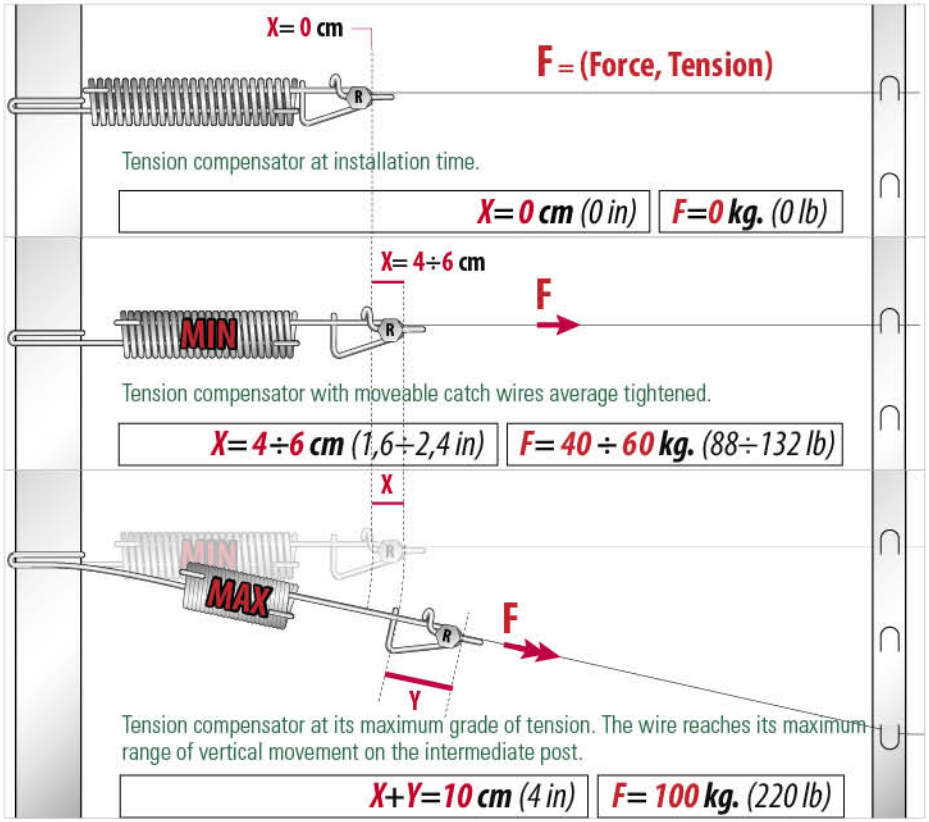
ART.88 EASY
Gripple (ART.88G) and MAXTENSOR (ART.88MT)

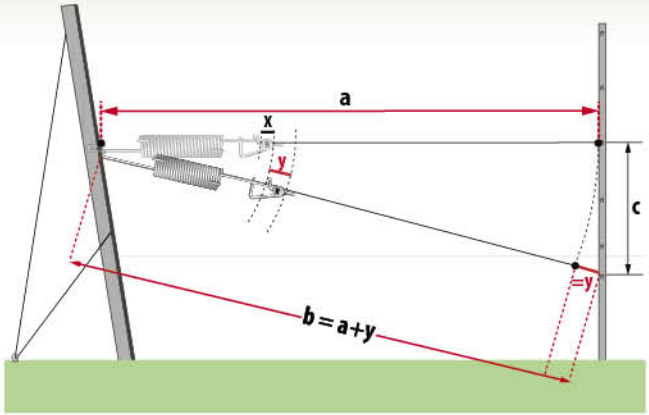
ART.88 REVOLUTION
Omega (ART.880)

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 = $b = a+y$
$\sqrt{a^2+c^2} = \sqrt{400^2+70^2}$ = **406 cm**

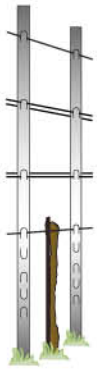
y = b-a = 406-400 cm = **6 cm** *(stretching grade of the tension compensator in order to move to "c" position)*

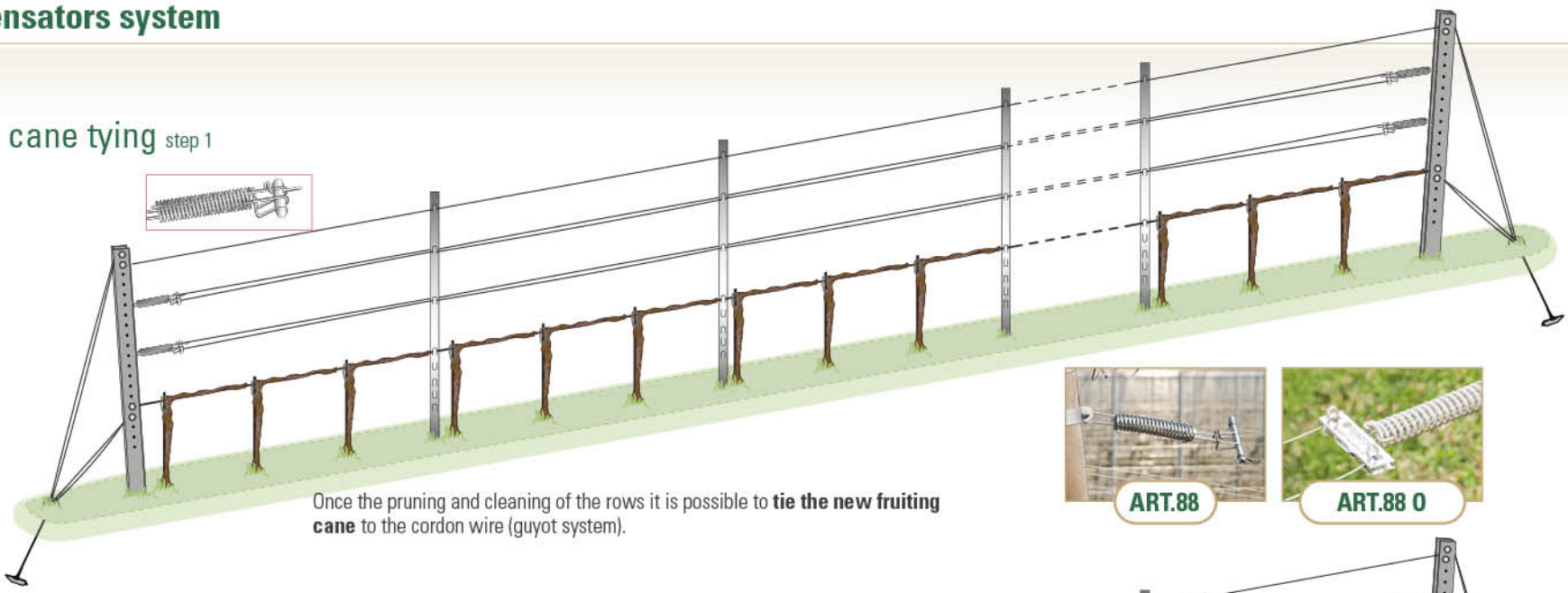
x+y = 10 cm ⇒ **x** = 10-y = 10 - 6 = **4 cm** *(tightening of tension compensator)*

x = 4 cm ⇒ **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



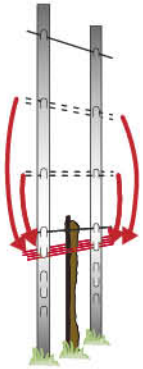


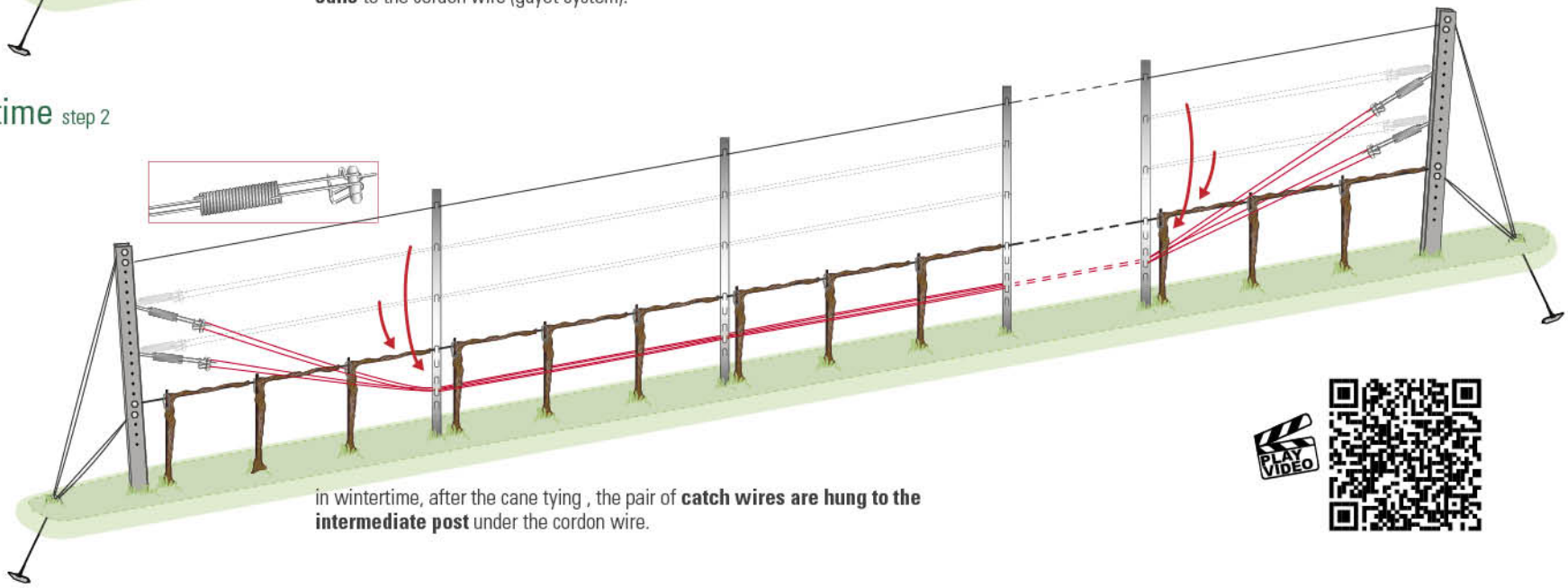
ART.88

ART.88 0

Once the pruning and cleaning of the rows it is possible to **tie the new fruiting cane** to the cordon wire (guyot system).

2 Wintertime step 2

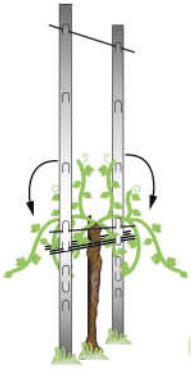


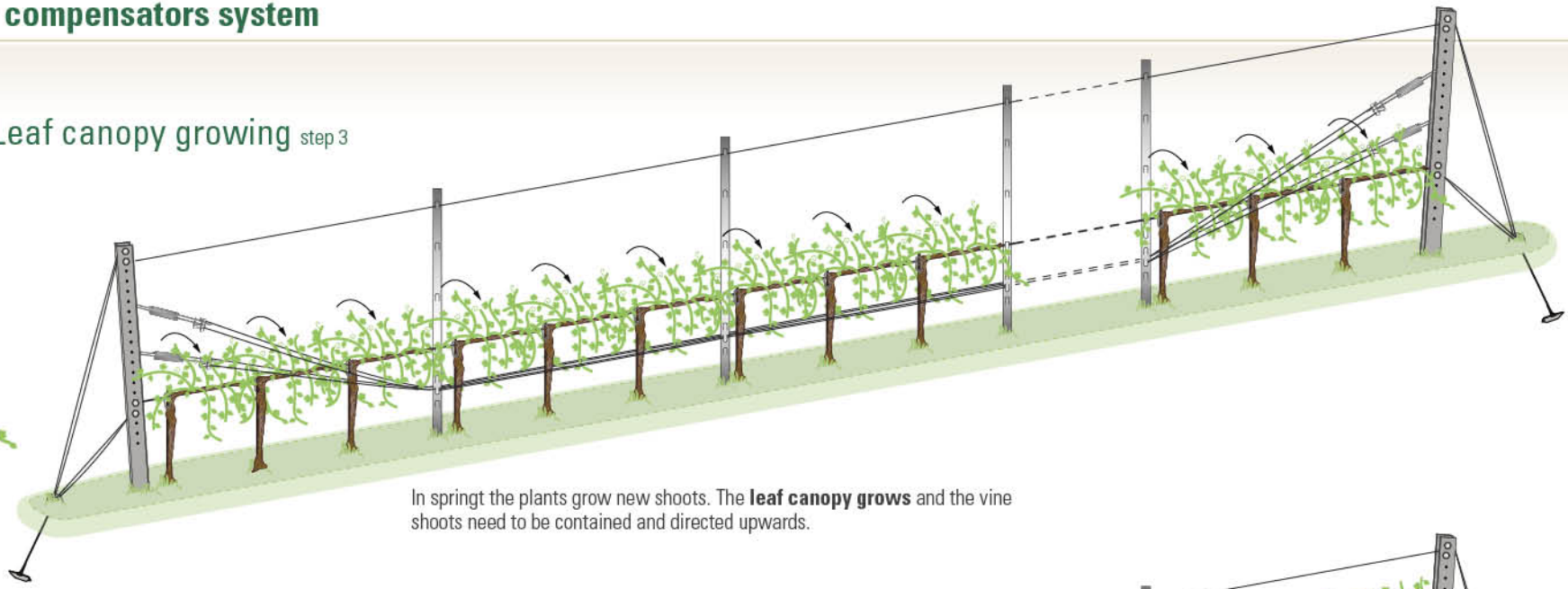


in wintertime, after the cane tying , the pair of **catch wires are hung to the intermediate post** under the cordon wire.

PLAY VIDEO

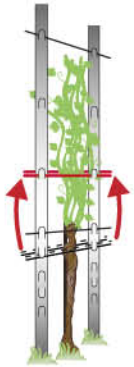
3 Leaf canopy growing step 3

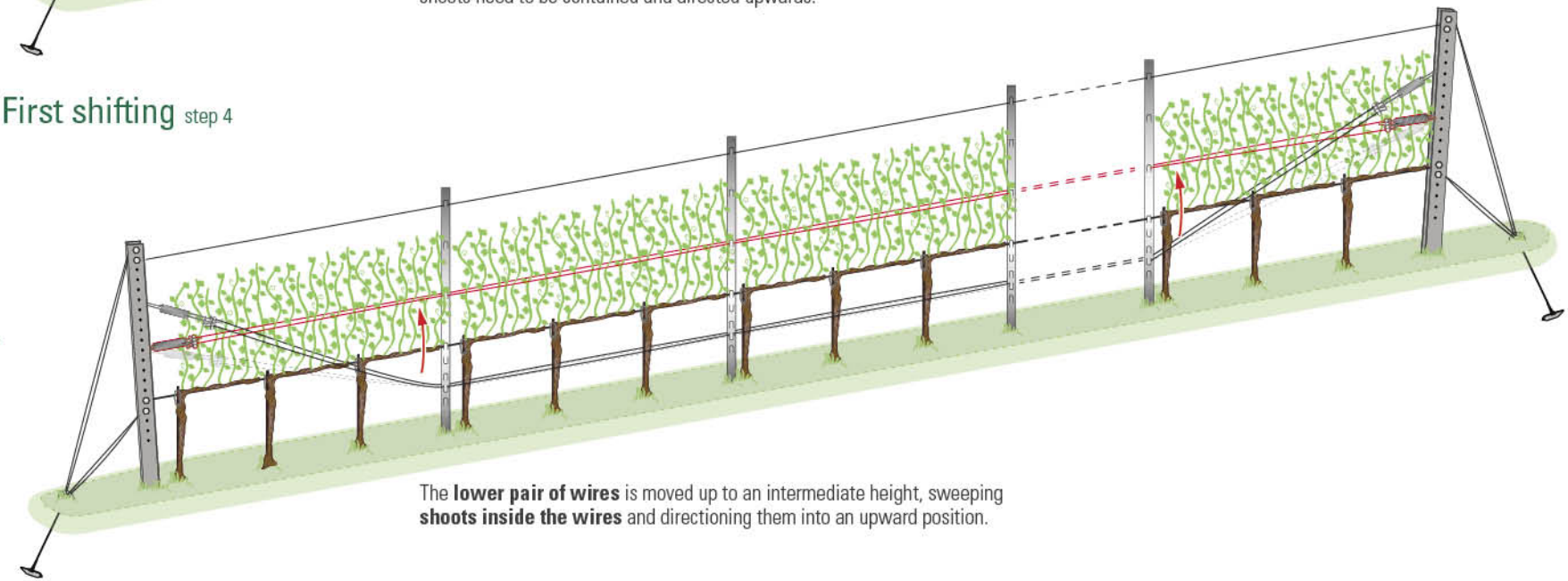




In springt the plants grow new shoots. The **leaf canopy grows** and the vine shoots need to be contained and directed upwards.

4 First shifting step 4

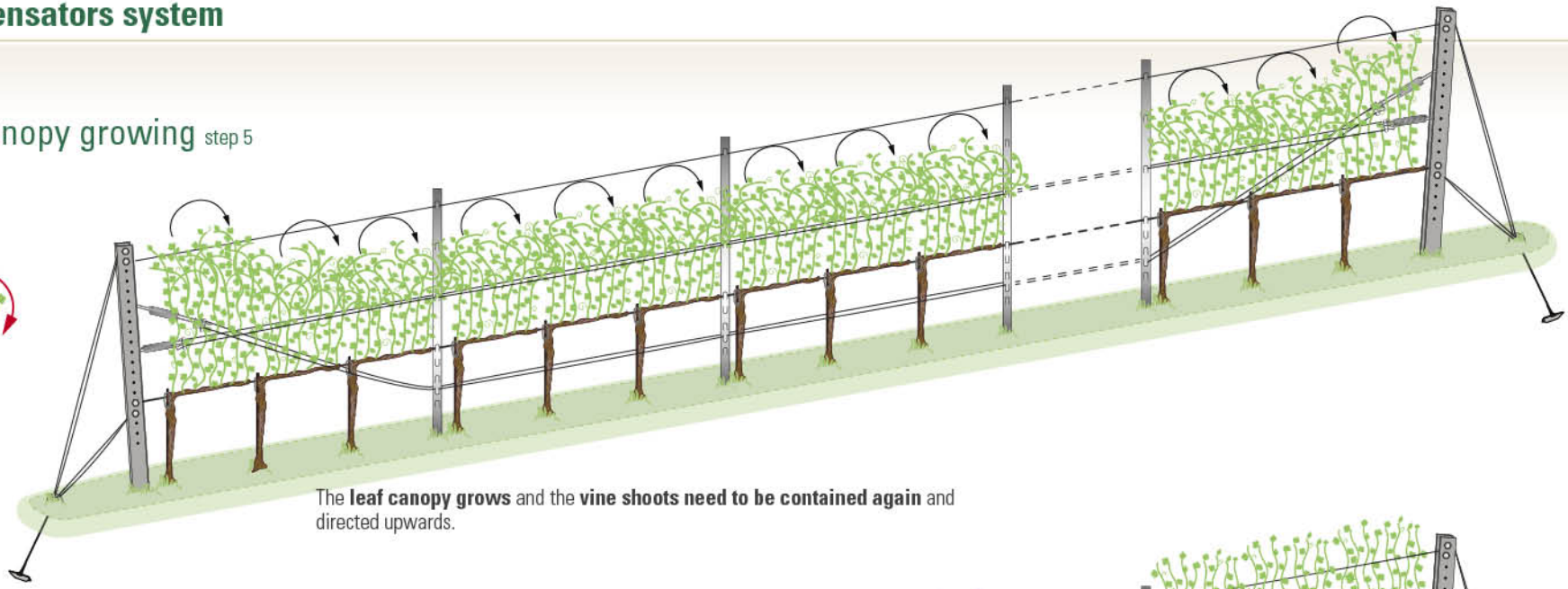




The **lower pair of wires** is moved up to an intermediate height, sweeping **shoots inside the wires** and directioning them into an upward position.

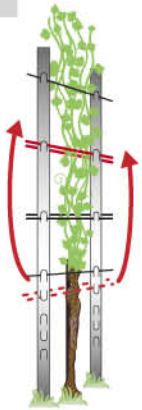
Tension compensators system

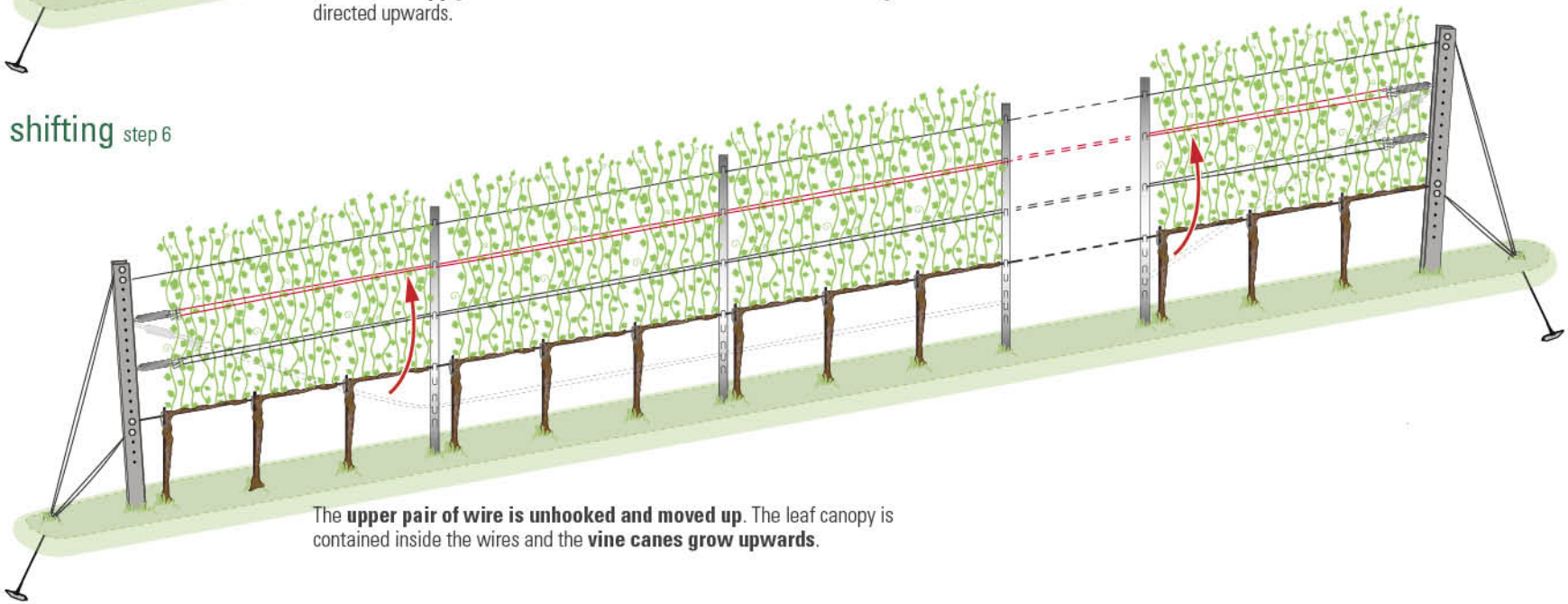
5 Leaf canopy growing step 5



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

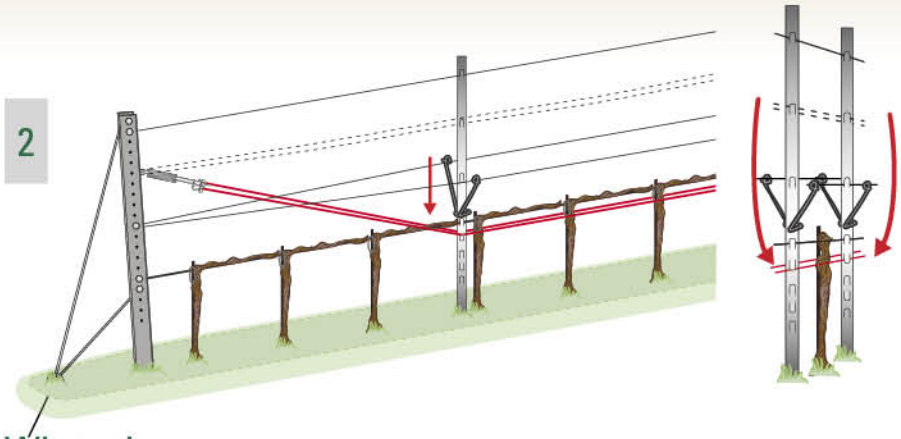
6 Second shifting step 6





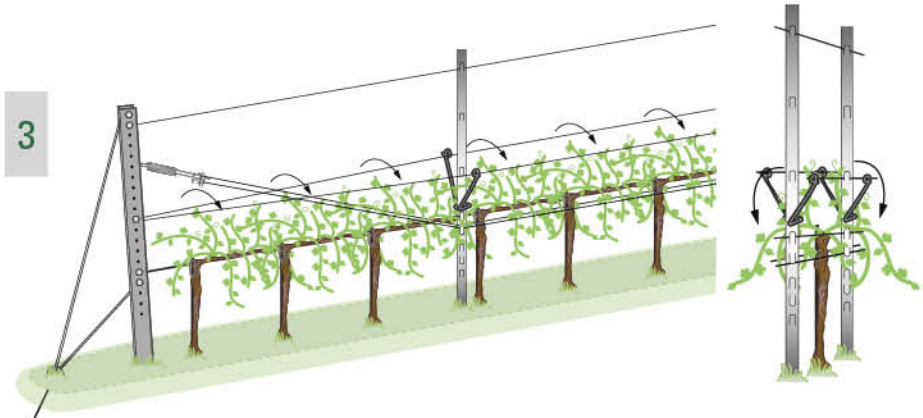
The **upper pair of wire is unhooked and moved up**. The leaf canopy is contained inside the wires and the **vine canes grow upwards**.

Spacers and tension compensators system



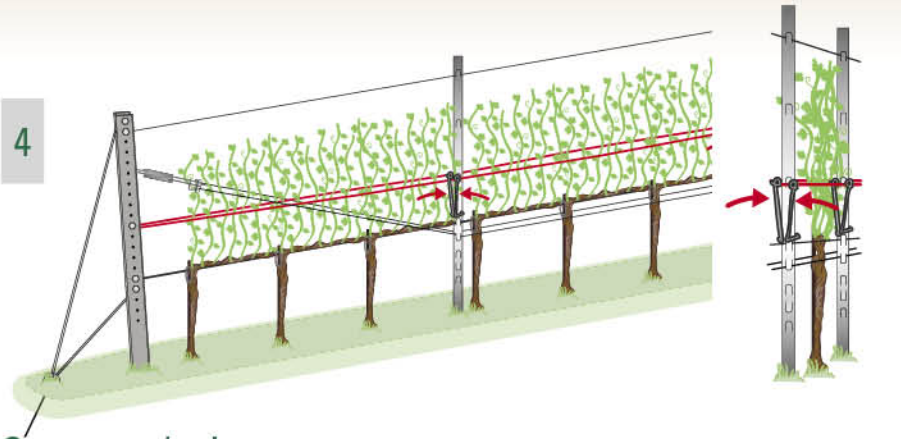
Wintertime step 2

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



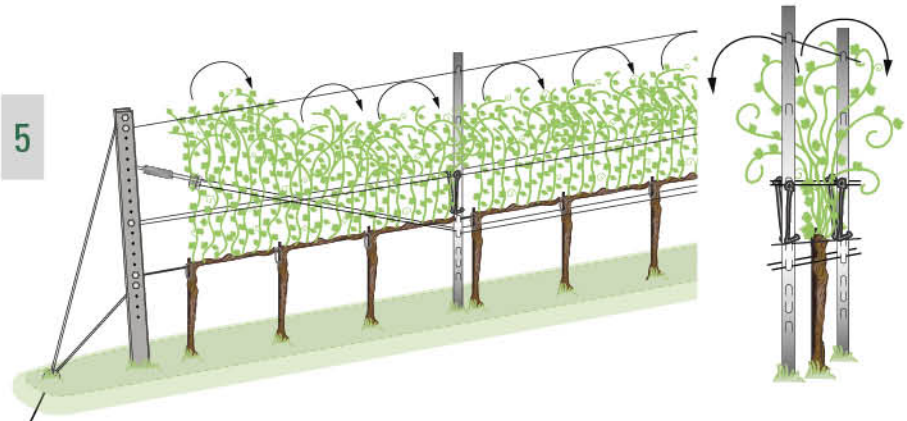
Leaf canopy growing step 3

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



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.

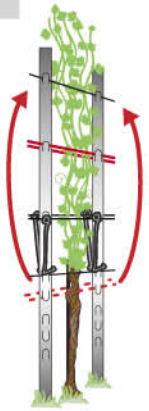


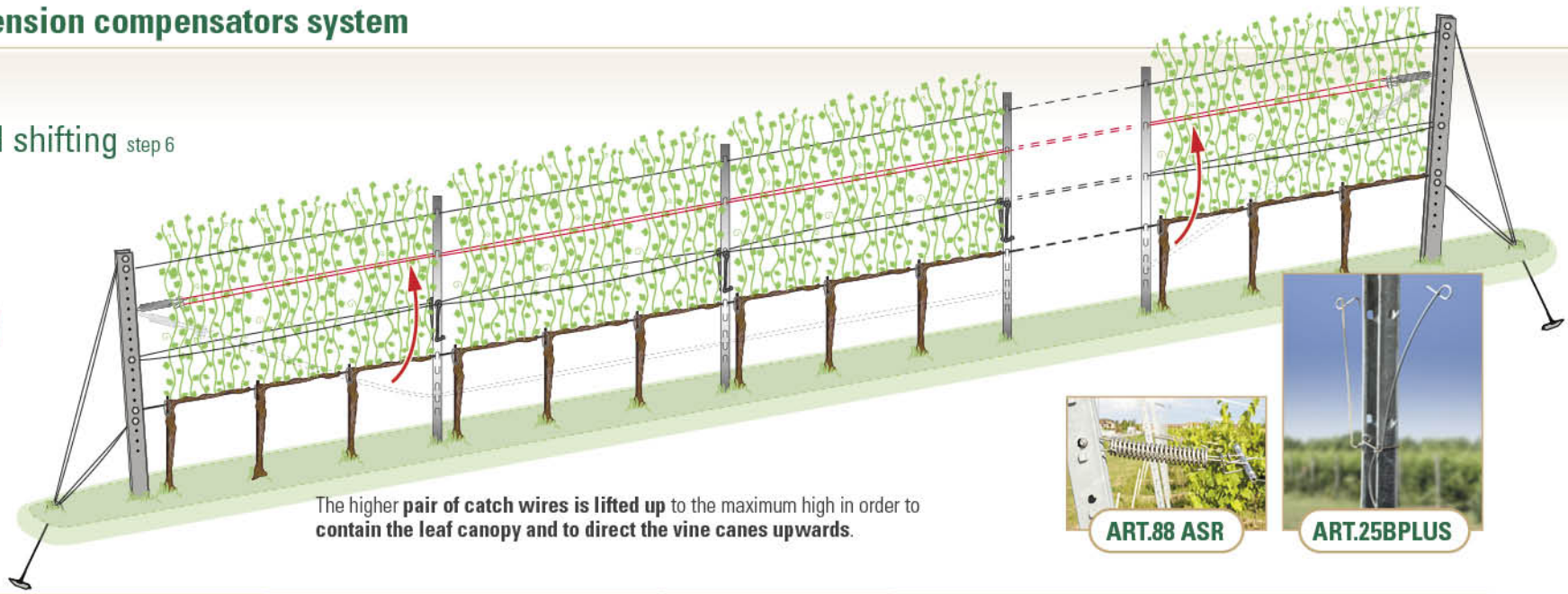
Leaf canopy growing step 5

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



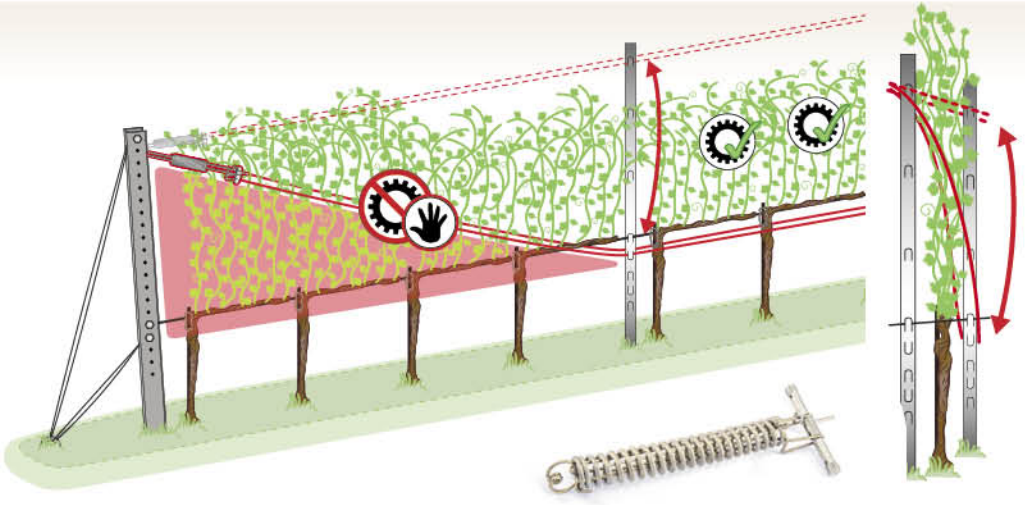


The higher **pair of catch wires is lifted up** to the maximum high in order to **contain the leaf canopy and to direct the vine canes upwards**.

ART.88 ASR

ART.25BPLUS

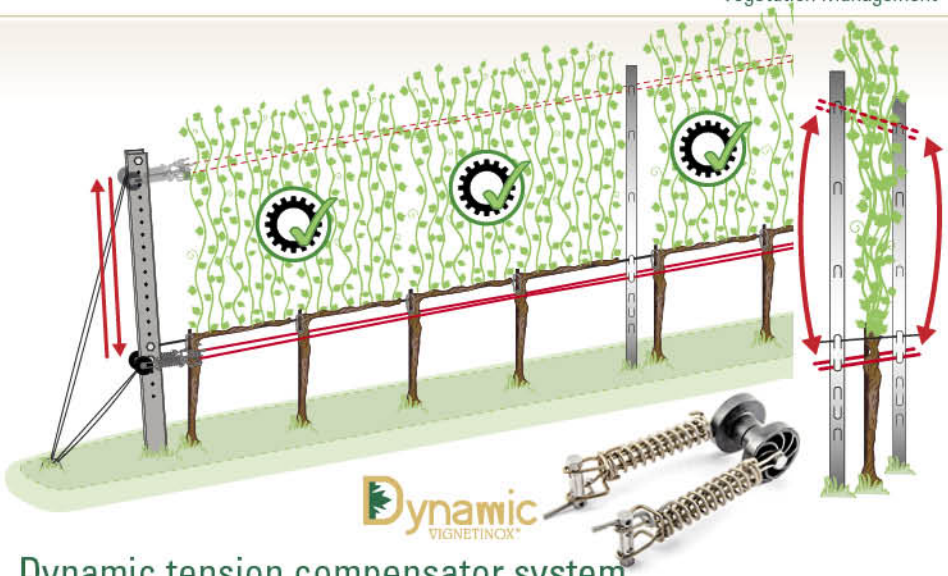
From “fixed” tension compensator to “Dynamic” system



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.



Dynamic tension compensator system

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

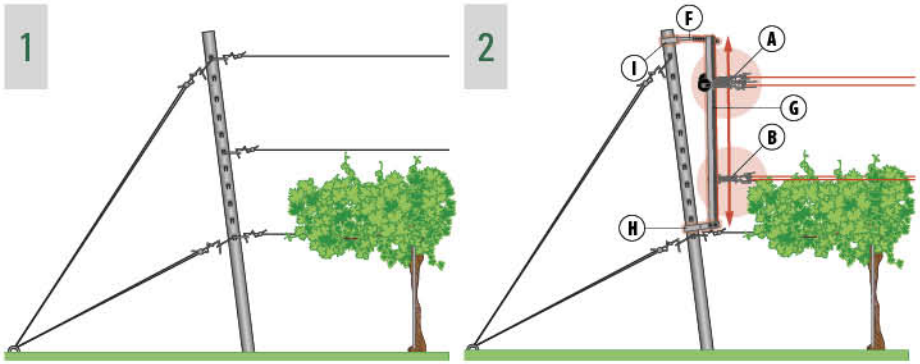
- Optimal management of canopy growth; ✓
- Can be installed it in any type of post; ✓ - Universal kit for any type of post.
- Best arrangement for the mechanized dry pruning; ✓

At the end of the cycle can be mechanically cut the old fruit cane. (Viteco, p. 43).

- 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. ✓

Renewal of the vineyard with Dynamic system

Internal Dynamic and External Dynamic.

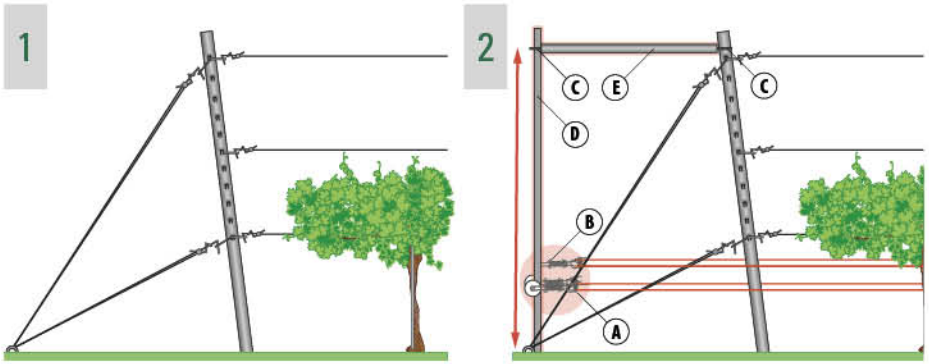


Row before installation of Dynamic

Row after installation of Internal 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



Row before installation of Dynamic

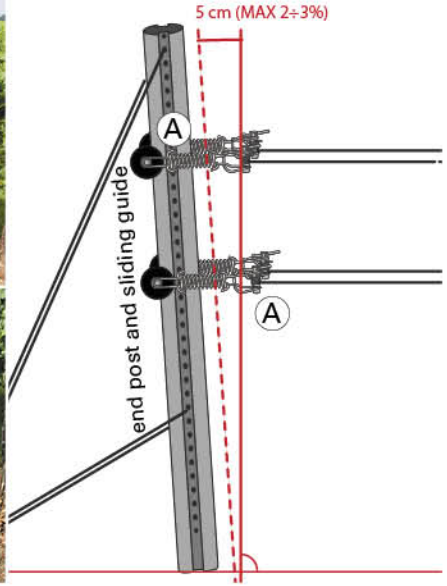
Row after installation of External Dynamic

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

Integrated Dynamic system with closed profile post

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

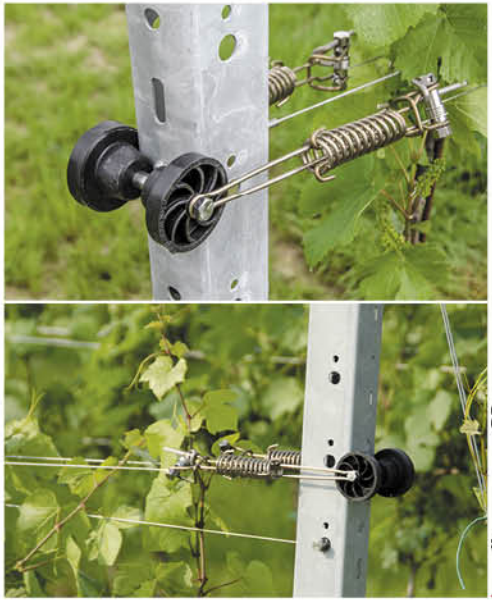


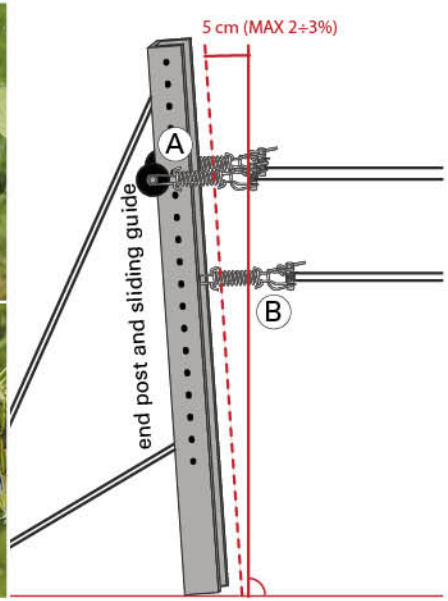
Sliding tensioner for external guide
ART.TFO-DYN-INF
Integrated Dynamic

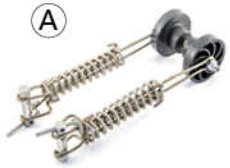
Sliding tensioner for external guide
ART.82-DRE-INF
Integrated Dynamic

Integrated Dynamic system with open profile post

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





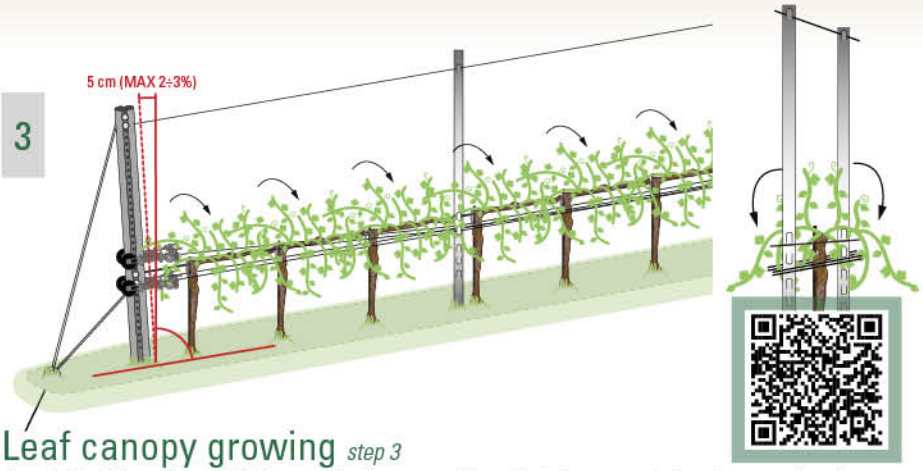


Sliding tensioner for external guide
ART.82-D-DOPPIO
Integrated Dynamic

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

Integrated Dynamic system with closed profile end post

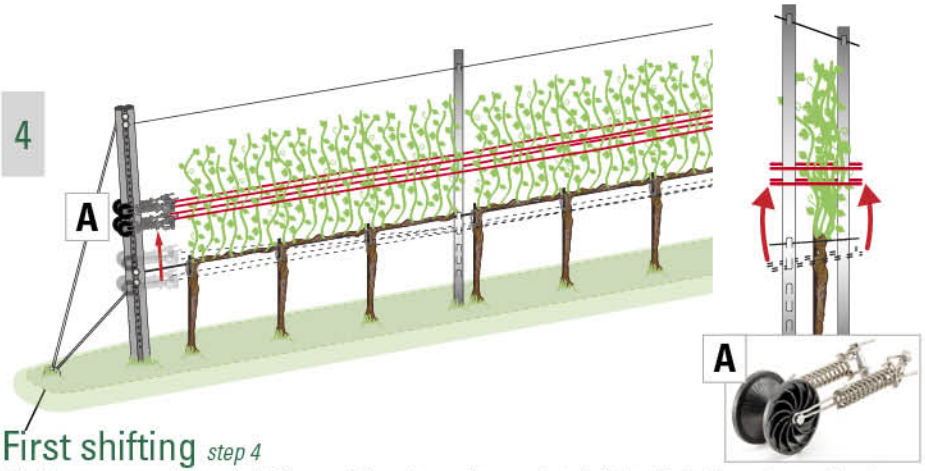
3



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.

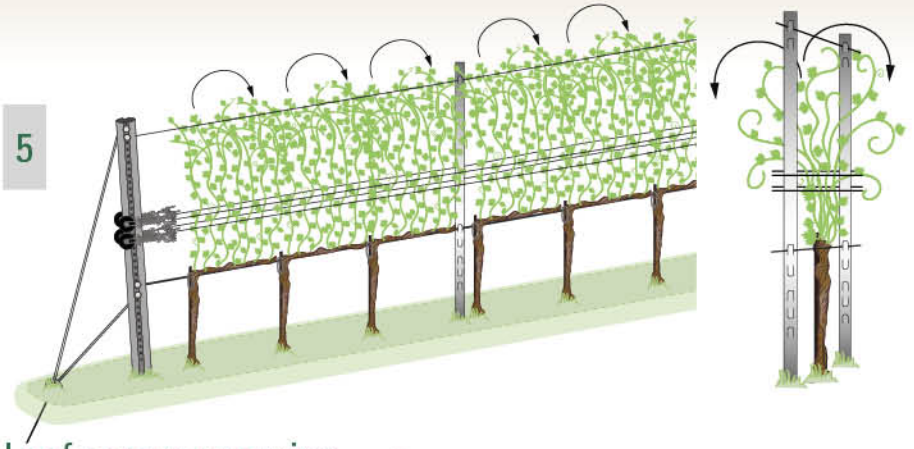
4



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.

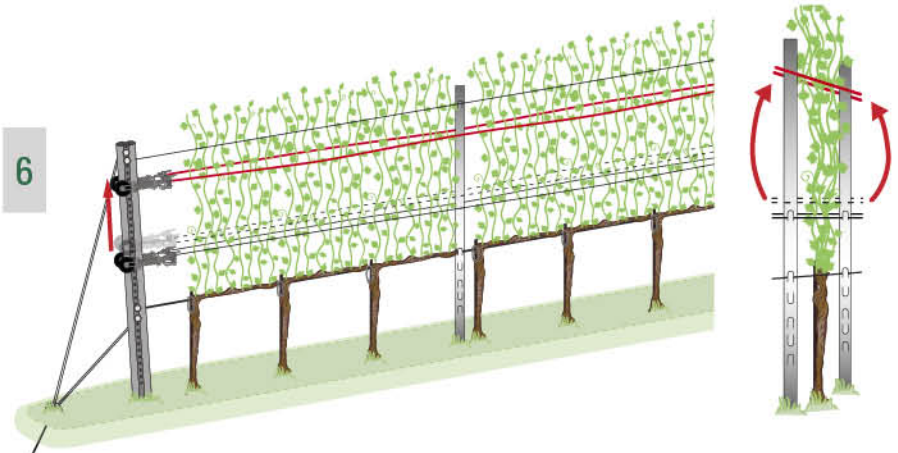
5



Leaf canopy growing *step 5*

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

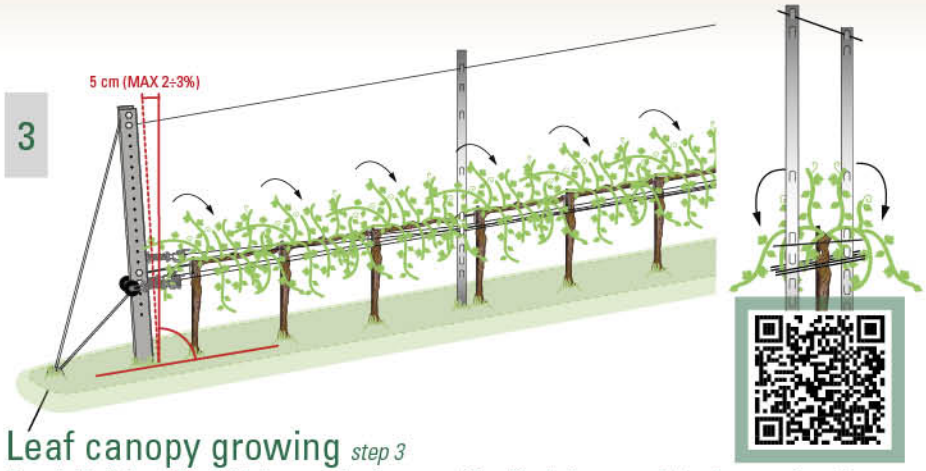
6



Second shifting *step 6*

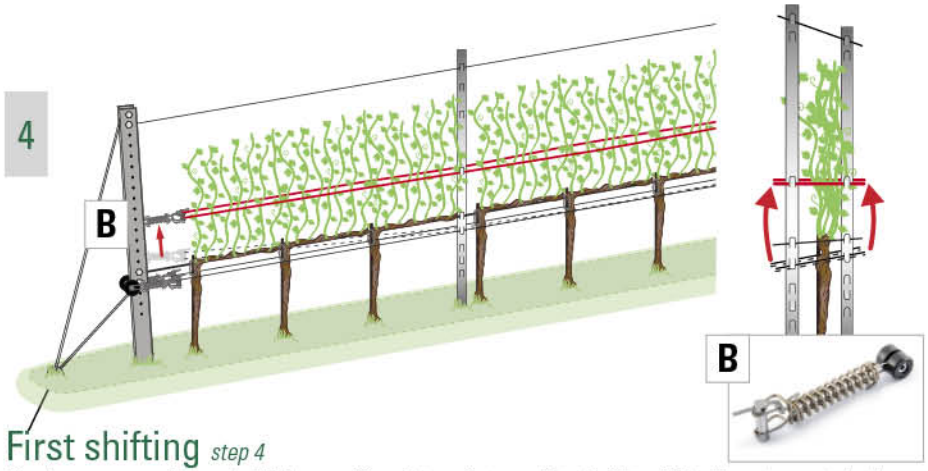
The upper movable pair is moved upwards until it reaches the maximum height allowed by the length of the post, so as to contain the **vine canopy and drive** the branches **upwards**.

Integrated Dynamic system with open profile end post



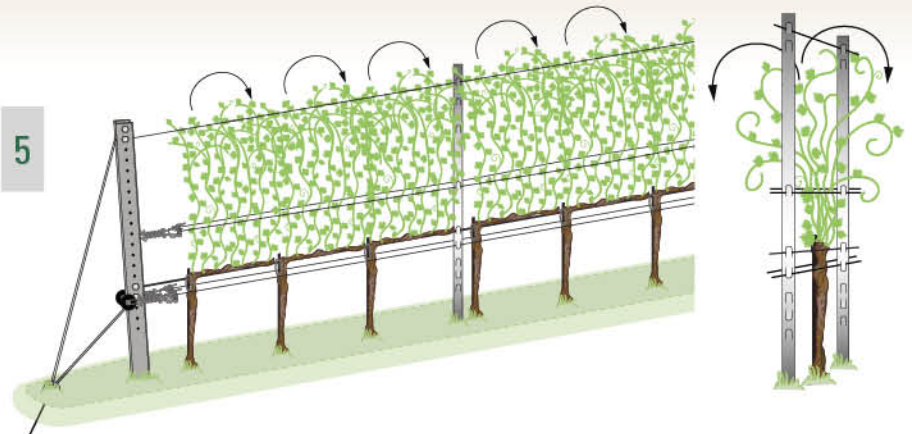
Leaf canopy growing *step 3*

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.



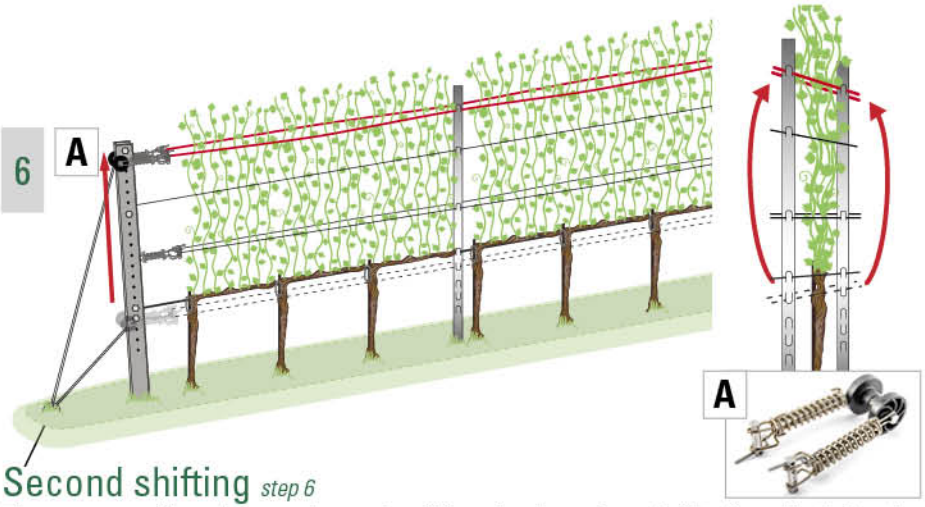
First shifting *step 4*

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**.

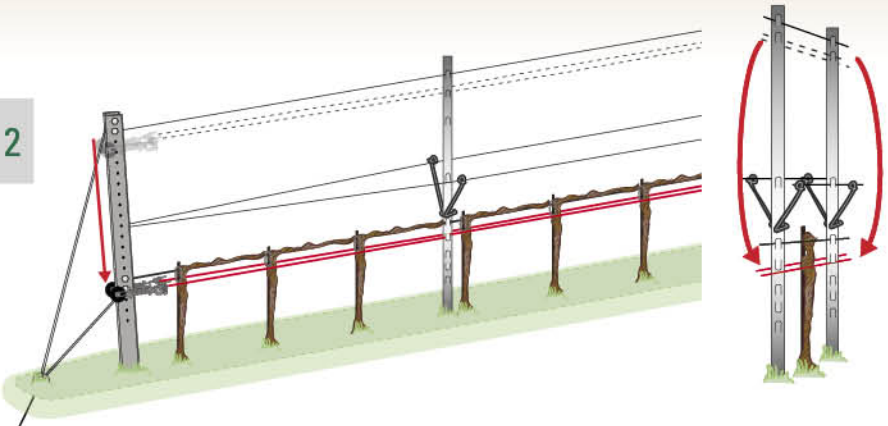


Second shifting *step 6*

The upper movable 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**.

Wire spacer system/Integrated Dynamic system

2

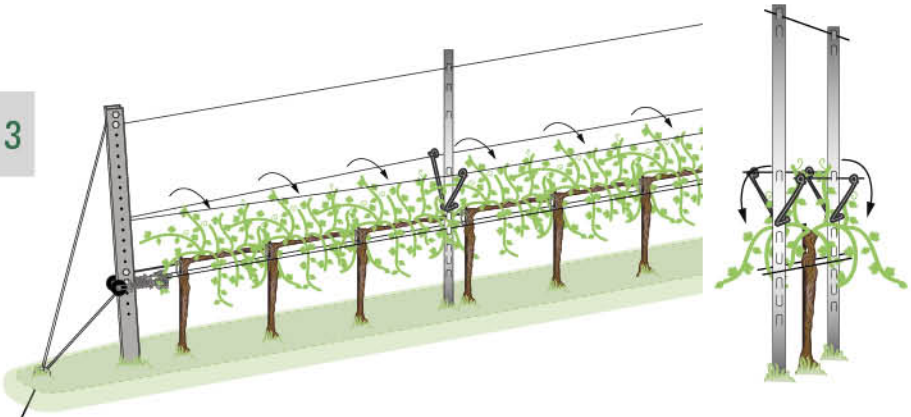


Wintertime *step 2*

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.

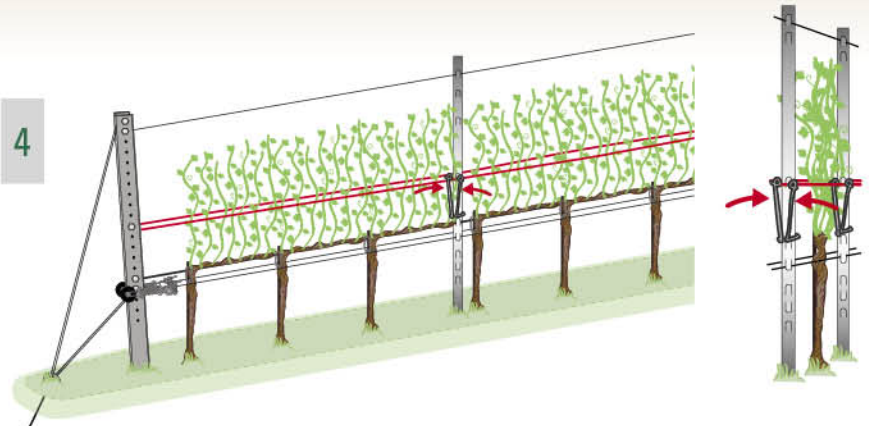
3



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.

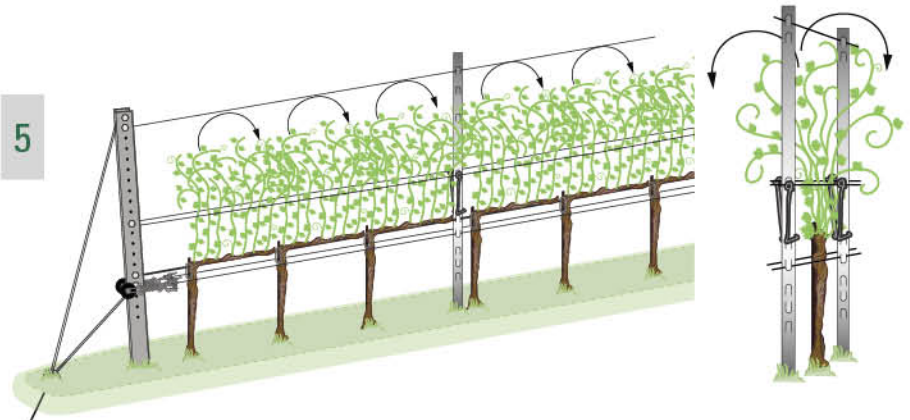
4



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.

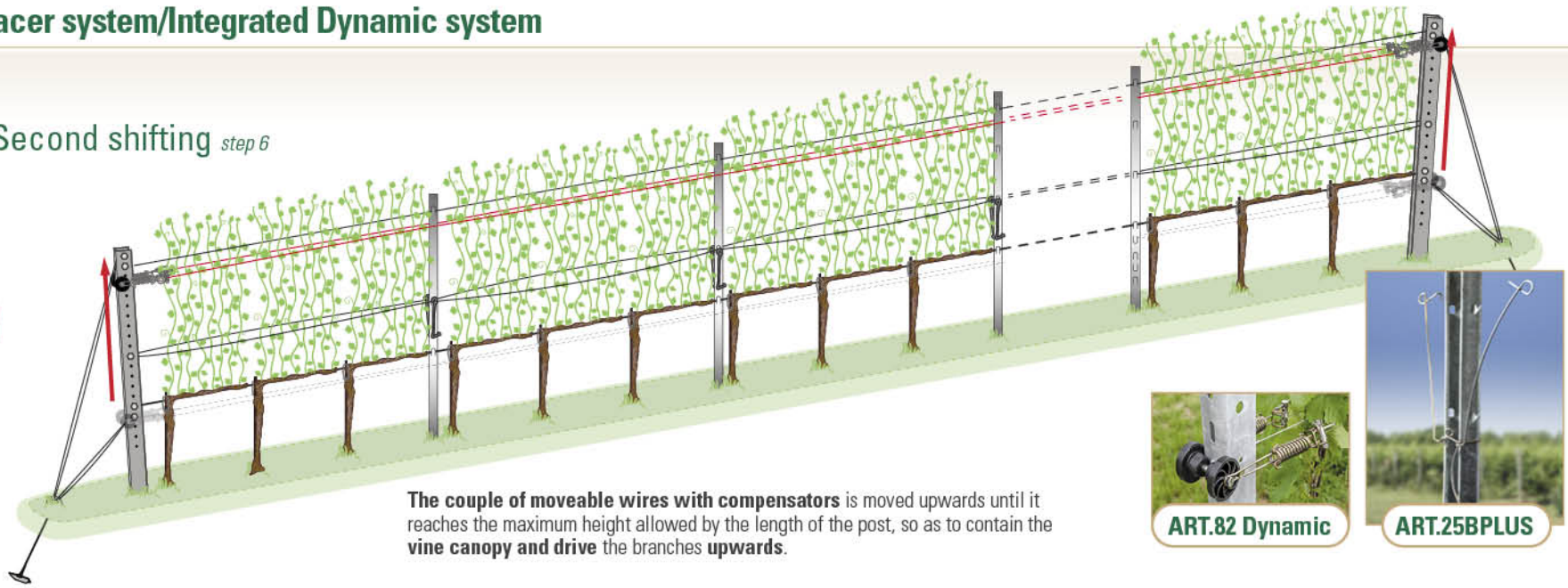
5



Leaf canopy growing *step 5*

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

6 Second shifting *step 6*



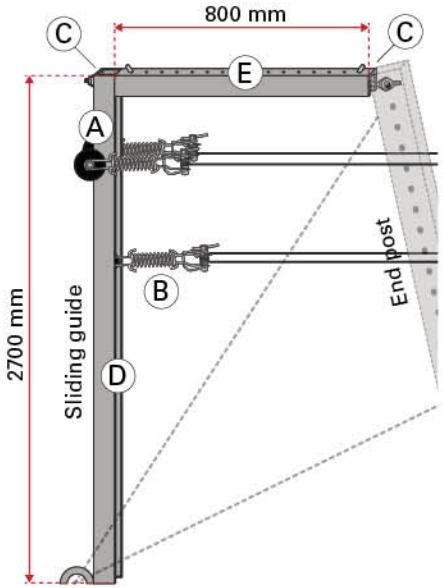
The couple of moveable wires with compensators is moved upwards until it reaches the maximum height allowed by the length of the post, so as to contain the **vine canopy and drive** the branches **upwards**.

ART.82 Dynamic

ART.25BPLUS

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

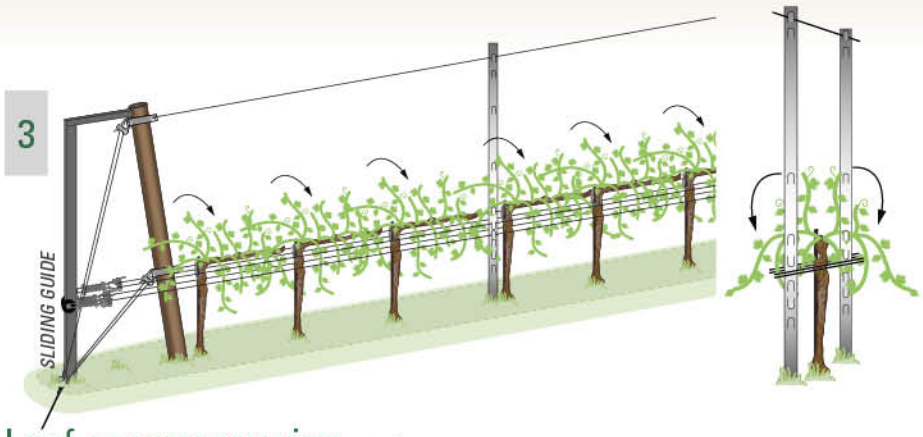
GUID-DYN_EST
Sliding guide used also as brace post, External Dynamic

TRAV-DYN
Horizontal brace post

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

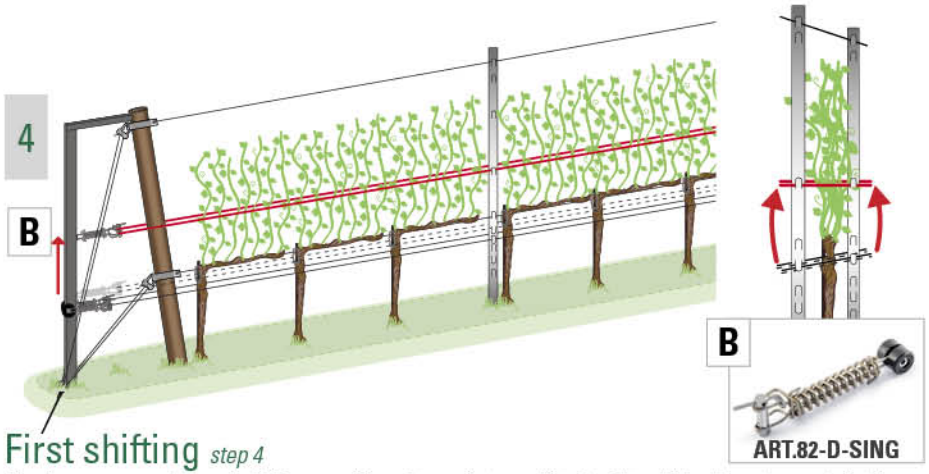
FASCIA-DYN
Band to fix the horizontal brace post on wood end post

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



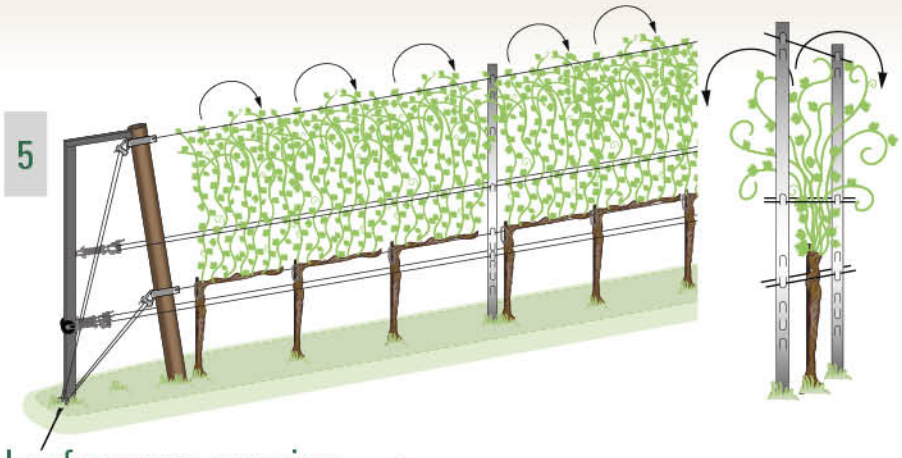
Leaf canopy growing *step 3*

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.



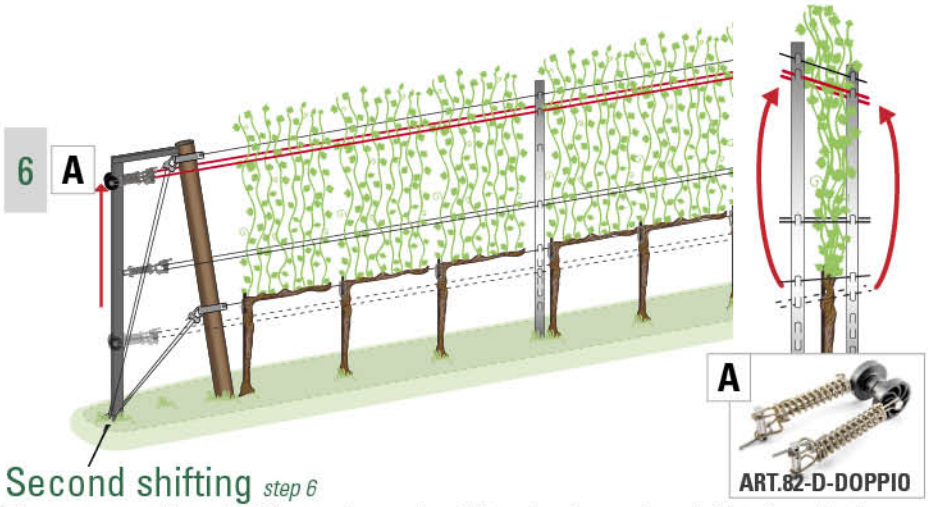
First shifting *step 4*

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**.

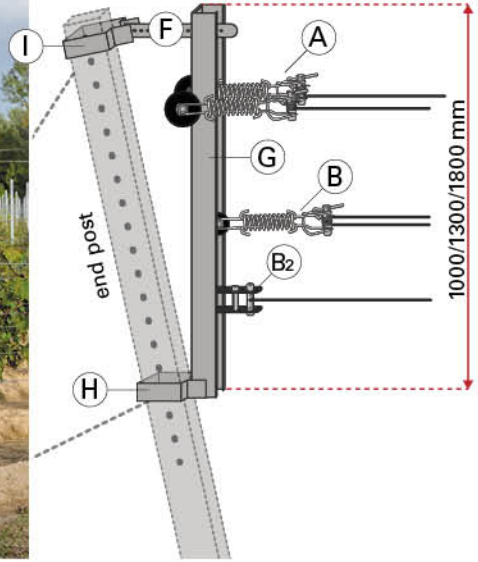


Second shifting *step 6*

The upper movable 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**.

Internal Dynamic system

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



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

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

Regulation Arm
Internal Dynamic

Dynamic sliding guide
Internal and external guide
Internal Dynamic

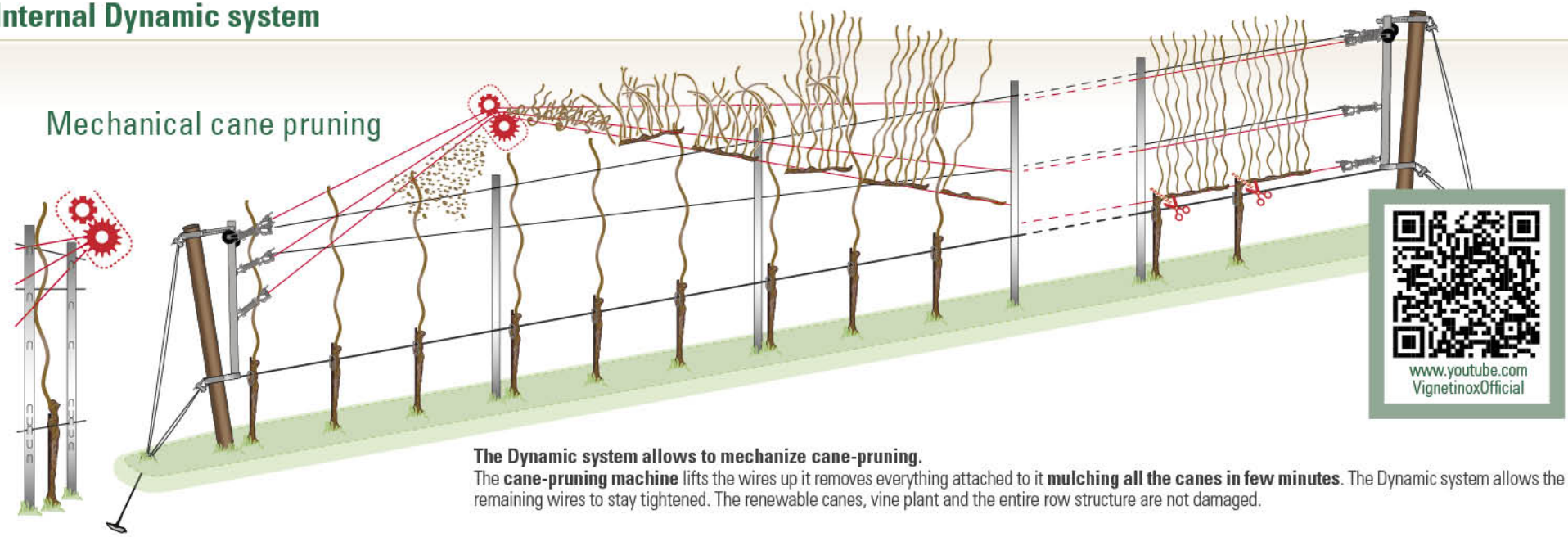
Lower support Dynamic
Internal Dynamic

Upper support Dynamic
Internal Dynamic

Tensioner for internal guide
ART-TF2-5-DYN
Internal Dynamic

Internal Dynamic system

Mechanical cane pruning

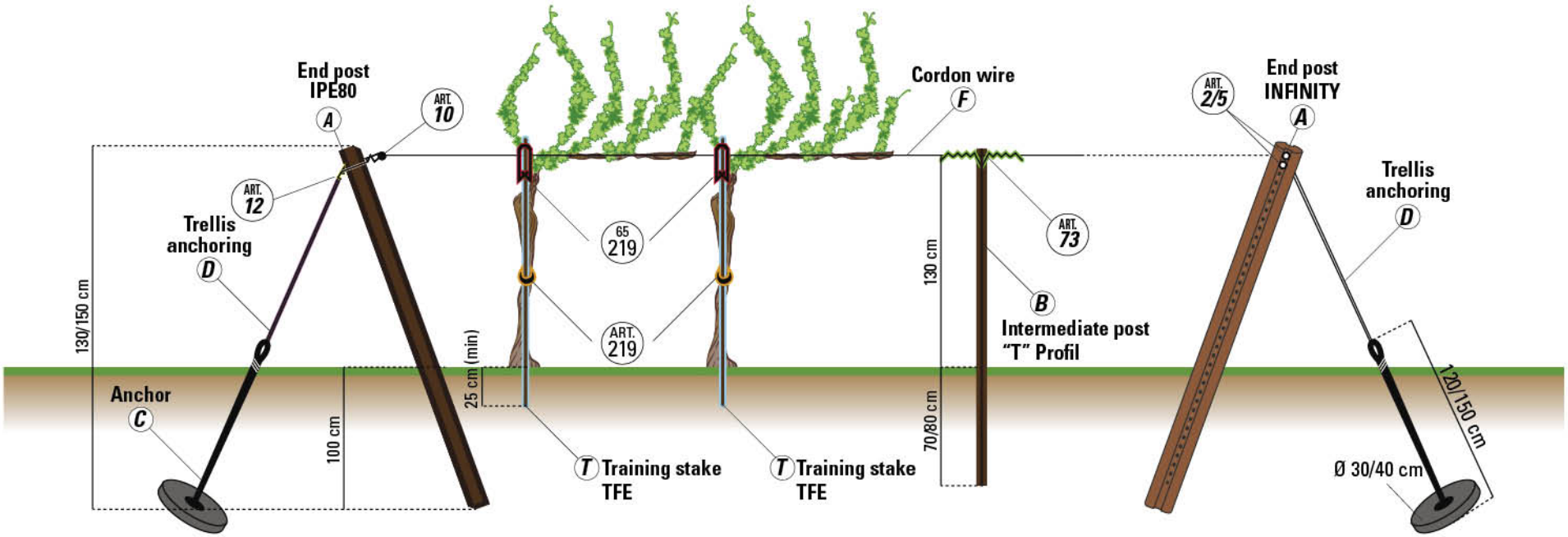


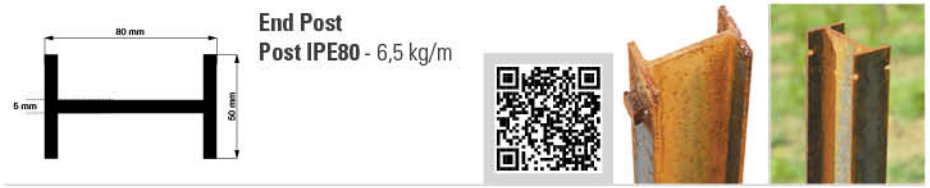
www.youtube.com
VignetinoxOfficial

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.

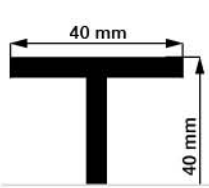
Mechanical cane pruning on vineyard with Internal Dynamic System.

Trellis structure and accessories





End Post
Post IPE80 - 6,5 kg/m



Intermediate Post
- **"T" Profil** - 2,66 kg/m
- **"T-INC" Profil**

Trellis structure and accessories

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

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

Cordon wire
Inox 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.

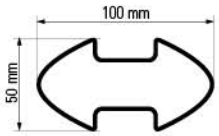
Hook for anchoring wire
ART.12 Hook to be installed behind the tension clamp, complete with roller tensioner to tighten the wire

Tie for cordon wire
ART.73 Tie made of annealed wire. It is used to fix the cordon wire to the intermediate post.

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

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.

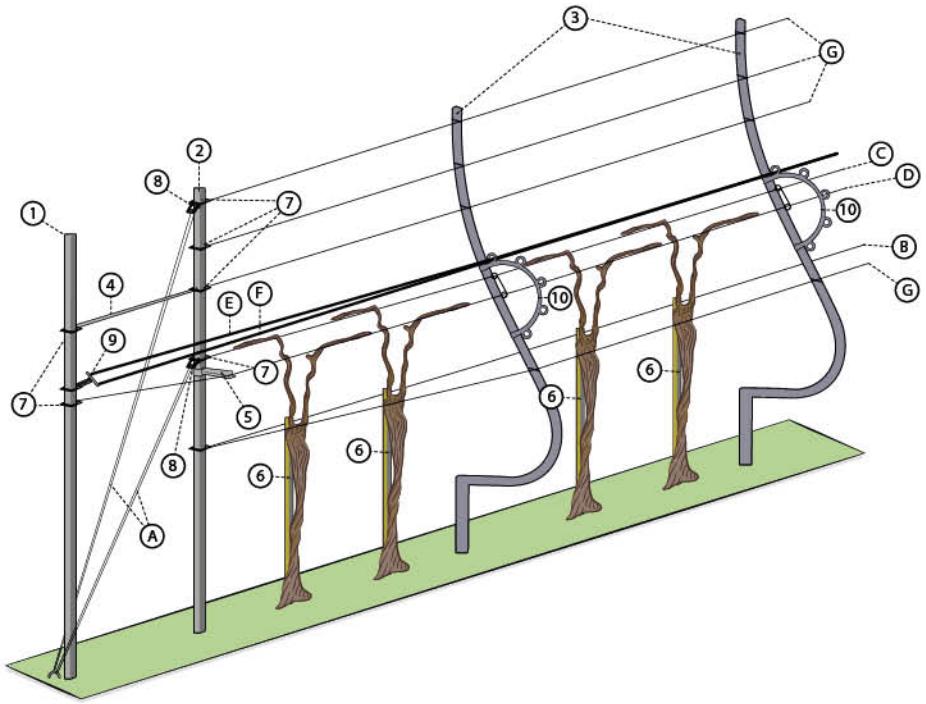


End Post INFINITY
INFINITY - 4 kg/m

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

Triacca terrace trellis system

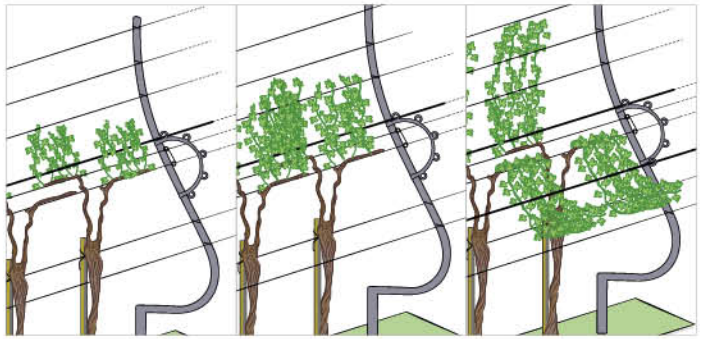
Structure and accessories for the Triacca terrace trellis

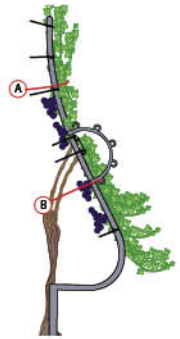


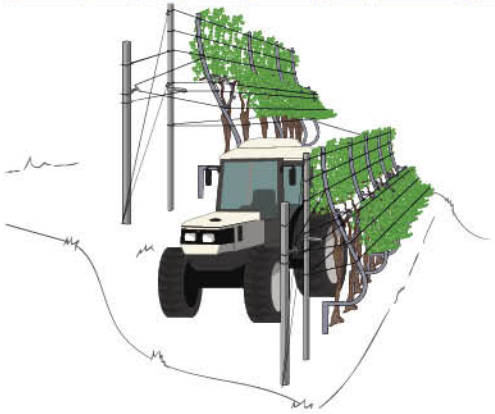
1. Brace post
2. End post
3. "Triacca post" (intermediate post)
4. Horizontal brace post
5. Crossarm
6. Training Stake anc clip (ART.65LIV)
7. ART.10 - Tension clamp
8. ART.12 - Hook for anchoring wire
9. ART.88/A - Tension compensator
10. Arc for placing movable wires
- A Anchoring wire
- B Wire for training stake
- C Upper principle wire
- D Lower principle wire
- E Upper movable wire
- F lower movable wire
- G Reference 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).



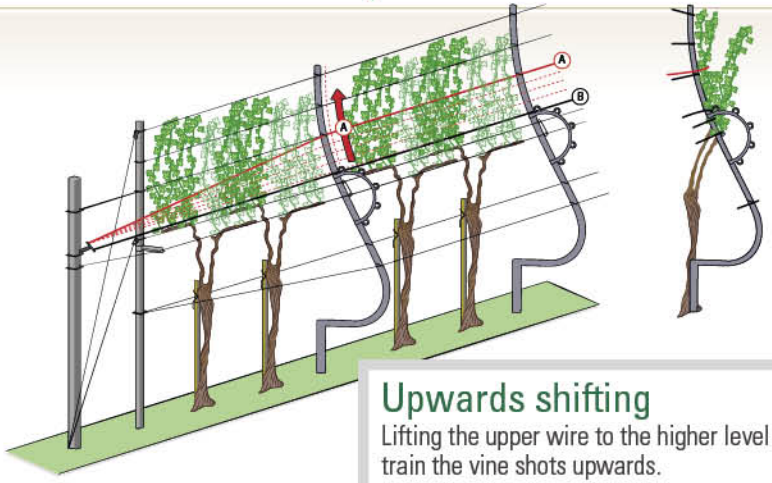




Terrace

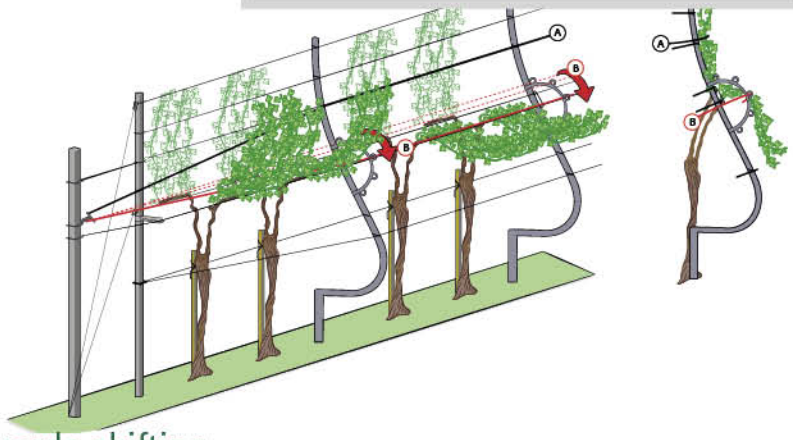
The system allows the **best exploitation of fields** located **in hilly areas** permitting a hight mechanization of the row manegement.

Triacca terrace trellis system



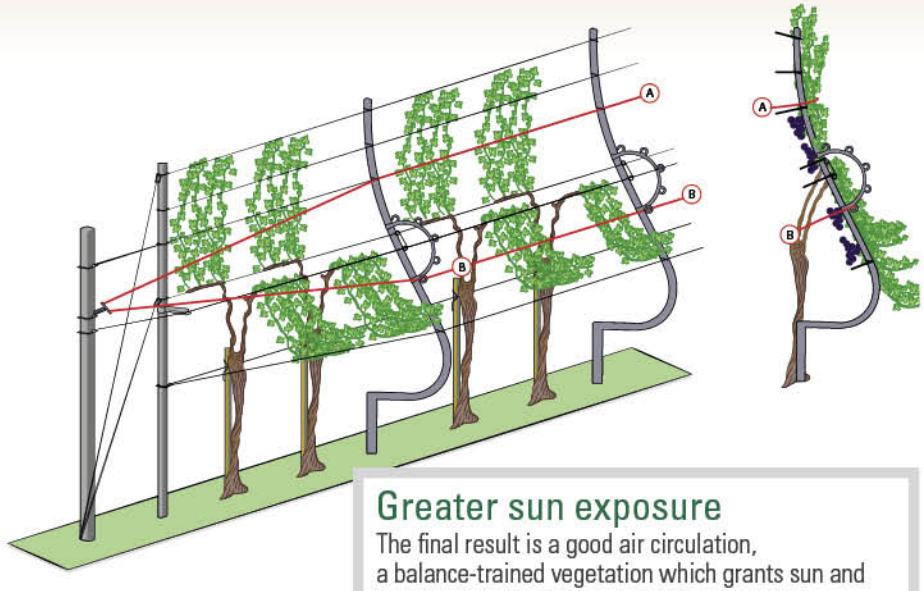
Upwards shifting

Lifting the upper wire to the higher level permits to train the vine shots 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.

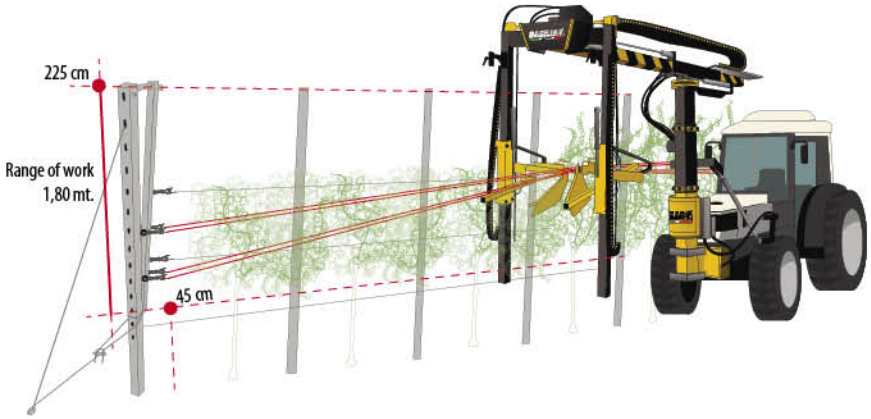
Terrace trellis with Triacca post.

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.



www.youtube.com
VignetinoxOfficial

BASILIA
VIGNETINOX

"New Technlology " Award Enovitis 2013
"Citation Vinitech Sifel 2012" Bordeaux.

The End Post Infinity

Closed profile post 100x50

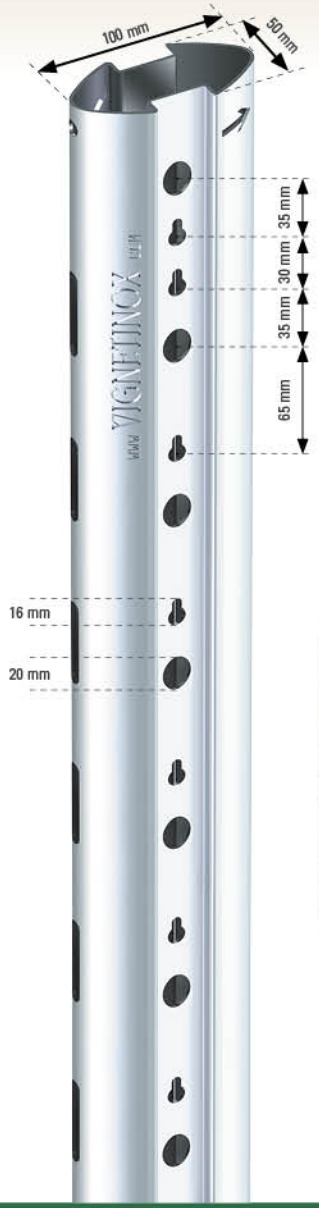
Closed and **ergonomic profile** post, ideal for all **mechanical working**, **anti-torsion** in all directions.

The exclusive **bilateral gorge**, in addition to giving it an **exceptional resistance**, it **hulls and protects** all tensioning systems.

height:	**2300** mm (Free Cordon System) **2500** mm, **2750** mm, **3000** mm.

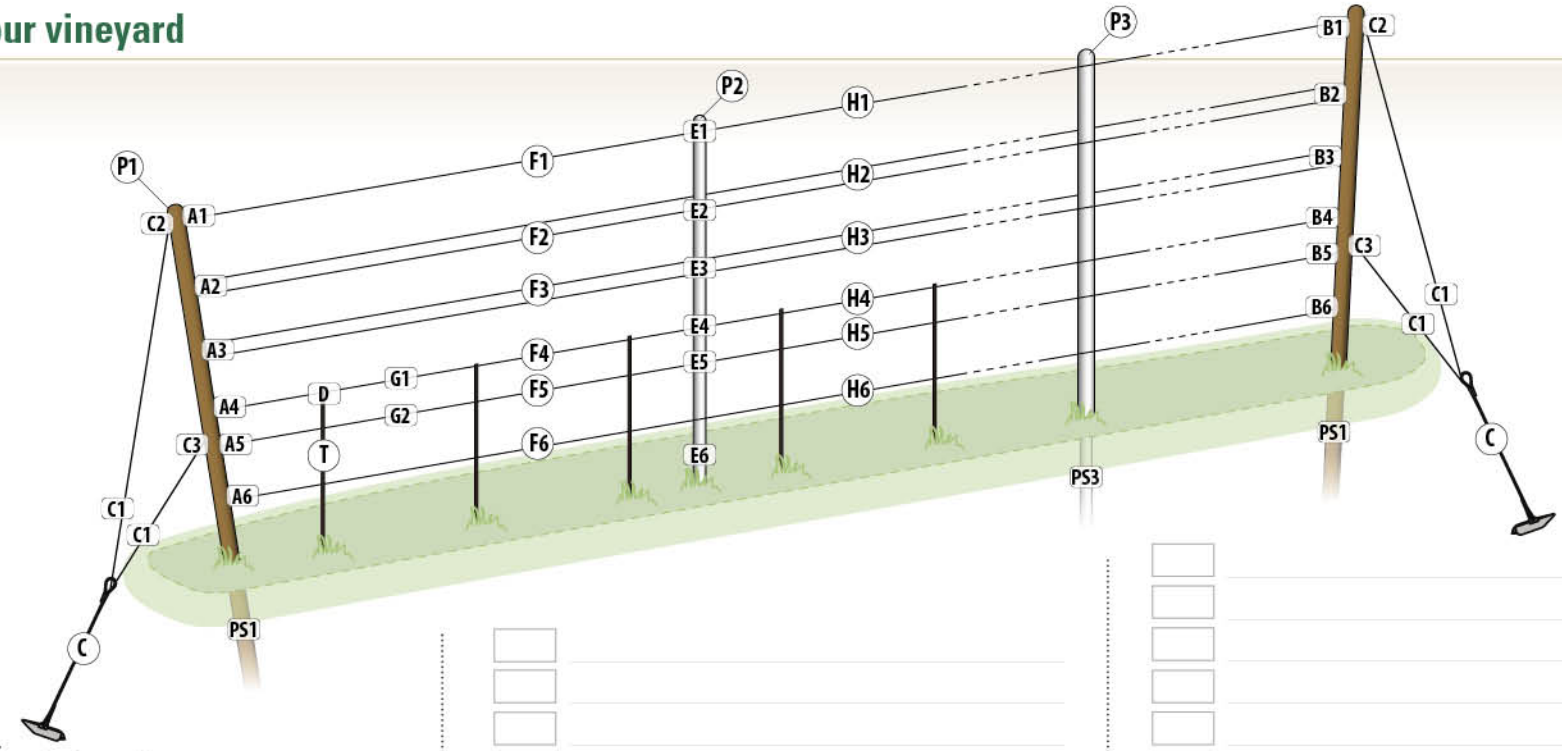
	thickness:	weight:
COR-TEN PRE-GALVANIZED INOX	1,50 mm	3,20 kg/m
	2,00 mm	4,20 kg/m
HOT DIP GALVANIZED	1,65 mm	3,40 kg/m
	2,15 mm	4,45 kg/m

Possibility of customization on request.



Video test INFINITY.

Configure your vineyard



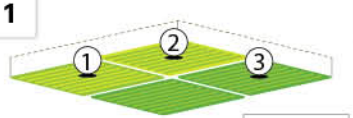
Example:
End Post Infinity thickness 2 mm Corten

P1

Configure your vineyard

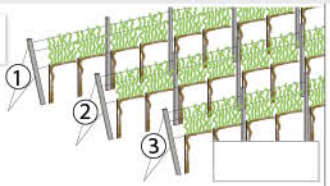
Vineyard characteristics:

1



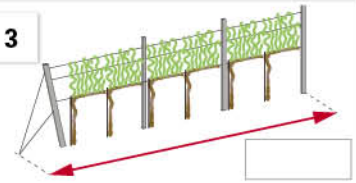
Number of hectares (ha):

2



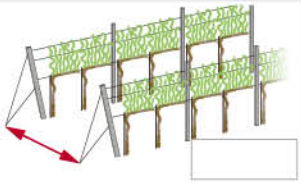
Rows quantity:

3



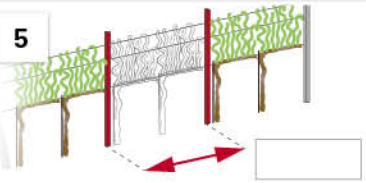
Rows length (m):

4



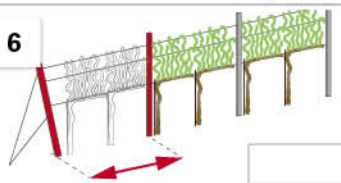
Rows distance (m):

5



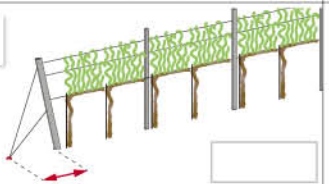
Intermediate posts distance (m):

6



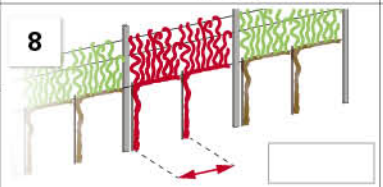
Distance between head post and intermediate post (m):

7



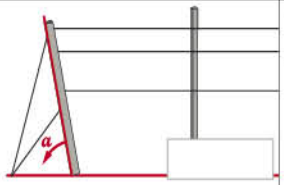
Distance between anchor and head post:

8



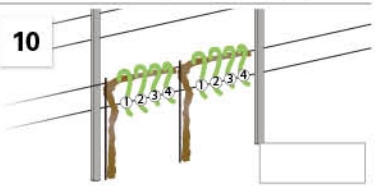
Distance between vine shoots:

9



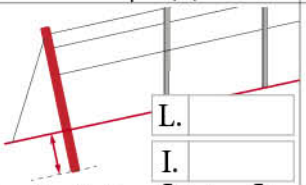
Head post inclination:

10



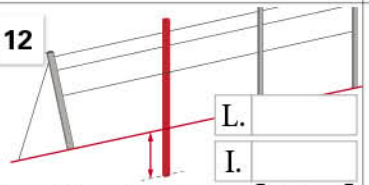
Ties quantity per branch:

11



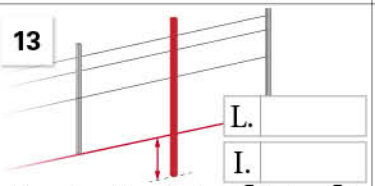
Head post length above (L) below (I) ground:

12



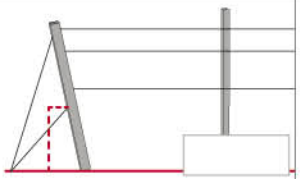
Intermediate post length above (L) below (I) ground:

13



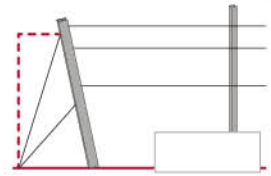
Support post length above (L) below (I) ground:

14



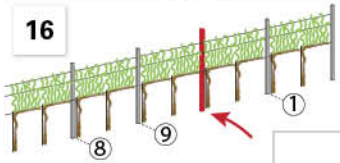
Short anchor wire height:

15



Long anchor wire height:

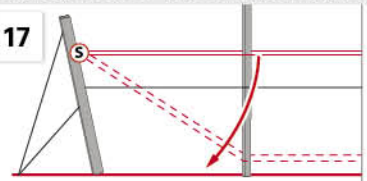
16



Intermediate posts quantity per support post:

Canopy & catch wires management:

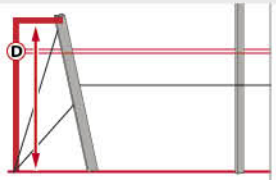
17



Standard:

Amortized ☐ Spaced ☐

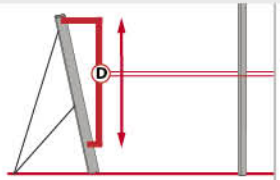
18



External Dynamic:

Amortized ☐ Spaced ☐

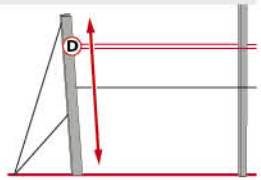
19



Internal Dynamic:

Amortized ☐ Spaced ☐

20



Integrated Dynamic:

Amortized ☐ Spaced ☐

REARING SYSTEM/OTHER: .....

VIGNETINOX®

Configure your vineyard and request a quote

Posts




	End post	Intermediate post	Support post length
Material			
Type			
Section			
Lenght			
Treatment			
Coating			
Cuts			

Wires

Type	Material	Highness	Diameter	Single	Couple	Amortized	Spaced
Catch wire 3				☐	☐	☐	☐
Catch wire 2				☐	☐	☐	☐
Catch wire 1				☐	☐	☐	☐
Fruit wire 2				☐	☐	☐	☐
Fruit wire 1				☐	☐	☐	☐
Irrigation				☐	☐	☐	☐
Other:				☐	☐	☐	☐

Anchoring


SCREW

Dimens.: ____ Material: ____


CONCRETE PLATE

Dimens.: ____ Material: ____


METAL PLATE

Dimens.: ____ Material: ____


INSERTION

Dimens.: ____ Material: ____

Accessories for irrigation

24

SPRING ☐
ART.35-IRRG ☐
ART.19LO-IRRG ☐

Irrigation hose ∅:

Irrigation hose highness:

Accessories

21

Type, Lenght and dimension of Training Stake:

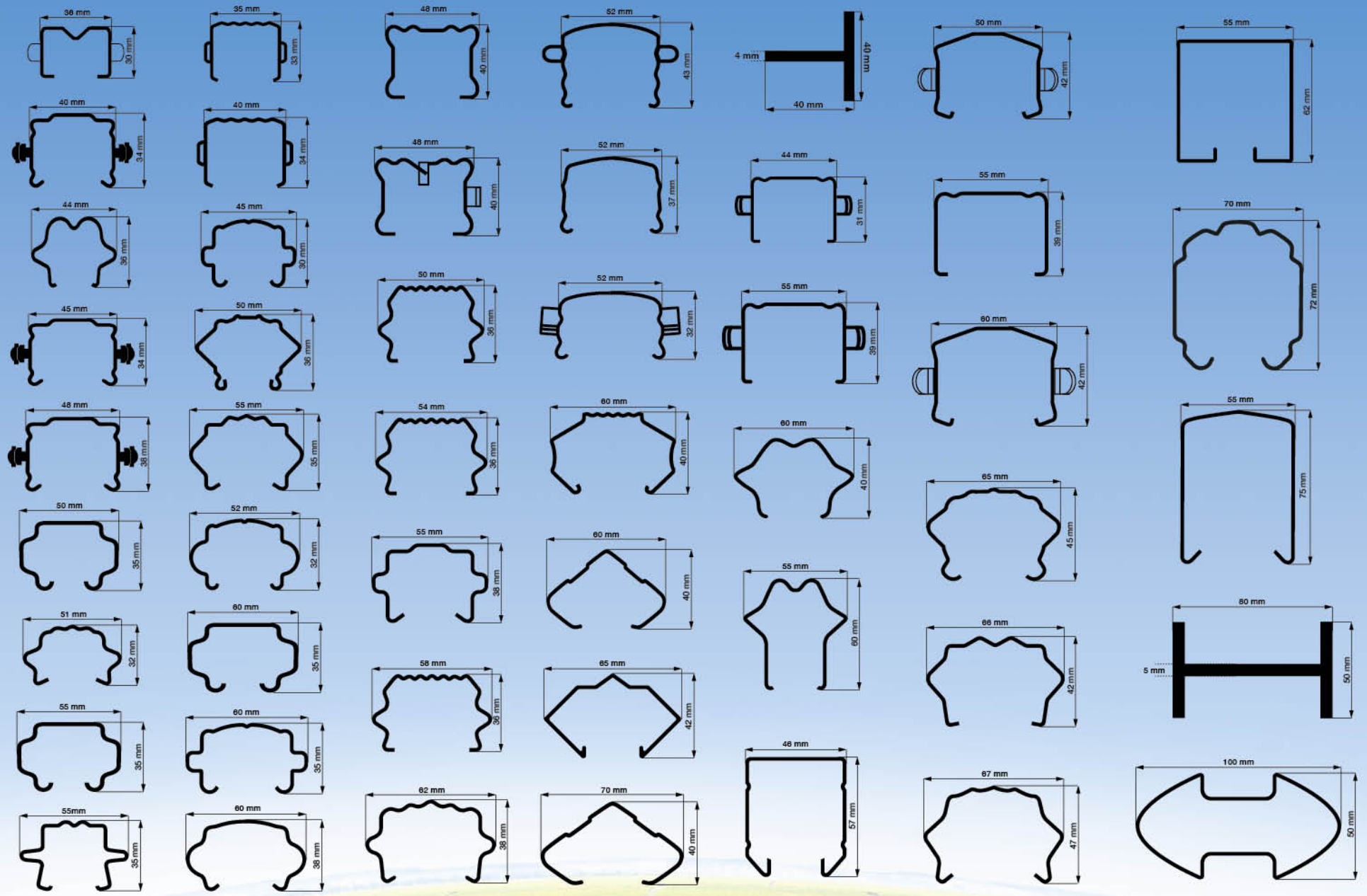
22

Type of Amortized:

23

Type of Spacer:

Normal ☐ PLUS ☐ BPLUS ☐
ZAVA ☐ FR Hook ☐
LIV Hook ☐ ZAVA Hook ☐


36 mm
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33 mm
48 mm
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43 mm
4 mm
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57 mm
67 mm
47 mm
100 mm
50 mm
55 mm
35 mm
60 mm
35 mm
55mm
35 mm
60 mm
38 mm
62 mm
38 mm
70 mm
40 mm

I love my planet
made in Italy with Solar Energy

Product system with renewable energy

YouTube
Vignetinox

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