

# Mini Syntax

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# Mini Syntax 16

## VERSATILITY AND INNOVATION

The **MINI SYNTAX 16** is the sum of all best technology solutions developed in the field of coil processing, straightening and shaping.

In this machine it is reached the **maximum level** of **flexibility, productivity** and **product quality**.



## THE EFFICIENCY THAT REDUCES THE COSTS

The high productivity is guaranteed in any condition, regardless if there is a requirement for **serial production** or processing of **individual building elements** such as beams and columns. The **MINI SYNTAX 16** can offer an outstanding flexibility of application, and the capability of processing double wire up to 12 mm in all versions, and single wire 16 mm. The large production capacity, as well as the adaptability in different production configurations, makes the **MINI SYNTAX 16** capable to reduce the number of required equipment, as well as in the number of machinery operators, therefore **reducing drastically the production cost per unit of weight**.



## QUALITY AND PRODUCTIVITY

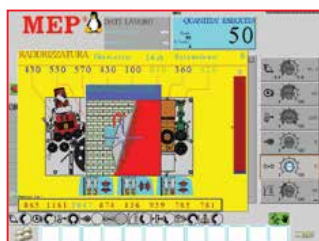
The **MINI SYNTAX 16** is a user friendly automatic stirrup bender that provides **superior quality of finished products**.

The combined action of an exclusive series of **patented devices** minimizes the time for setup adjustments and **reduces drastically the amount of discarded products**.

A drive and control system, based on the latest generation technology, grants to reach **unparalleled levels of productivity** per hour.



The twisting of the wire during the pulling phase creates shapes not co-planar and open stirrups.



## CONTROLLED STRAIGHTENING

Specific corrections can be applied on the straightening set up of each individual wire even though working in double strand mode and also during the working cycle, thus without stopping the production.

The **AFS** system guarantees perfect straightening always co-planar shapes and flat stirrups.



**patented**

## AN INNOVATIVE SOLUTION

The **AFS** is a straightening system that eliminates the effect of the wire rotation on its own axis. Therefore, **closed stirrups and straight bars** can always be produced.

The **independent control** of the traction on two wires, as well as the increased surface of contact with the **large infeed wheel**, eliminates any **difference in length** between the two wires. Thanks to this design and to the consequent lower pressure applied on the steel material, **the coil ribs are far less deformed by the straightening process**. The lifetime of the **infeed roller themselves** is about **8 times longer** than in case of traditional straightening methods.





## Secondary feeding unit: a patented system

### A DOUBLE TRACTION FOR ANY SHAPE

The Secondary feeding unit lets you use a **patented method** that allow to produce shapes **bent on both sides** using one bending unit instead of two.

The **working cycle** is considerably simplified and **sped up**, having eliminated all the time related to transfer the wires at the second bending unit and those required for the change of two bending pins related bending angles calibrations.

### NO RESTRICTIONS ON SHAPES AND DIMENSIONS

This **patented method** provides the simultaneous exit of the secondary feeding unit (1) and the bending unit (2) among the working plane, avoiding the collision between the shape and the cutting unit (1 + 2) during the pulling back progress.

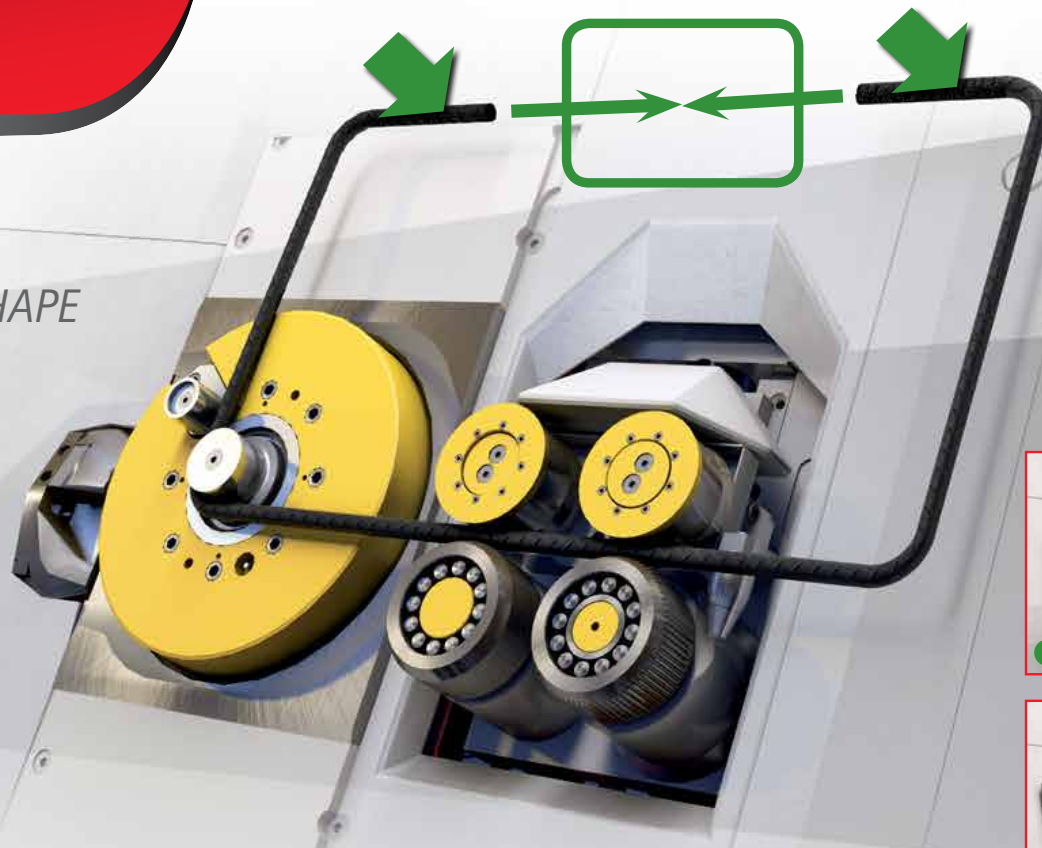
This solution enables the production of **shaped products of all forms and sizes** using the **entire working surface**.

### GRAVITY FOR QUALITY

Exploiting the effect of **gravity** during the bending phase **we obtain shapes always coplanar**.

The rollers of the secondary feeding unit **open** (1) and **close** (3) before each bend, allowing the shape "to rely" on the work surface (2) and (4) as a result of gravity.

The subsequent bends will always aligned with those already executed, **canceling out** any residual phenomenon of rotation.



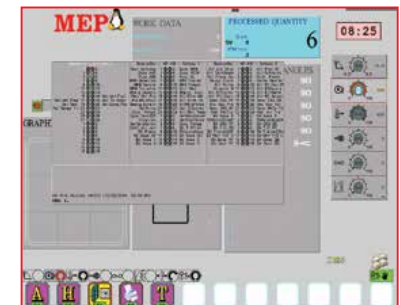
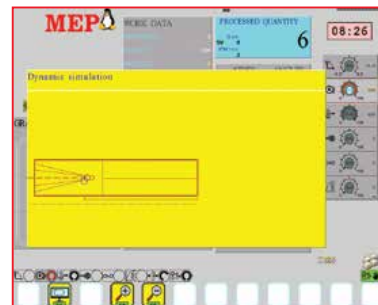
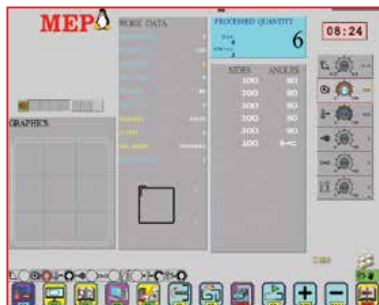
# WORLD SYSTEM Controllo Totale

- MEP Industrial PC "World System" operator control panel is comprised of:
  - LCD "Touch Screen" for the user friendly graphical visualization of all data.
  - Compact, "embedded" microprocessor with low power consumption and a compact flash disk with no moving parts (diskless).
  - Linux operating system.
  - Automatic backup saving system in case of accidental power interruption for safeguarding files and memory support integrity.

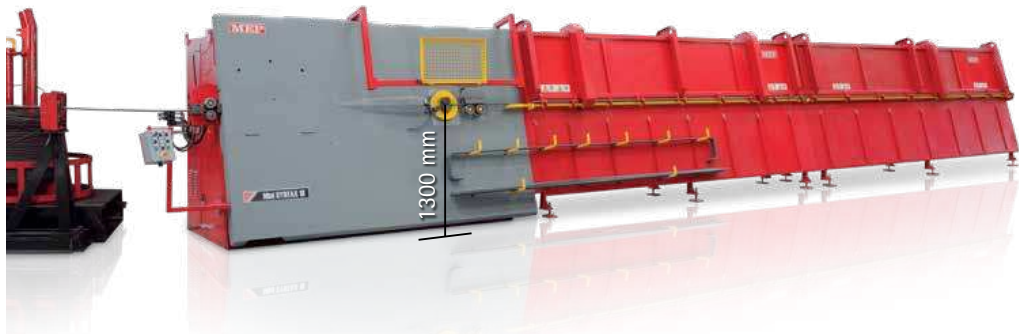


Control panel for Mini Syntax 16

- The custom software developed by MEP allows:
  - Data input with graphic visualization of programmed and pre-memorized shapes with feasibility checks via a "dynamic simulation".
  - Control of all speed parameters in execution via a potentiometer.
  - Access to the straightening correction function, without stopping the production process, through the electronic cross hair displayed on the control panel.
  - Saving and archiving of data relative to work cycles and generation of daily production statistics (positions, diameters, times, weights, etc.).
  - "Active diagnostic" system for a constant efficiency check of all machine devices.
  - Automatic activation of the scheduled maintenance program.
  - Interface compatible with optical bar code reader through RS 232 port.
  - USB connection port.
  - Possible to connect to Company Network through RJ45 Ethernet port (LAN port) or RS 232 port.
  - VPN Connection-ready for remote assistance via Internet (through Company Network).



## SAFETY AND ERGONOMIC



MINI SYNTAX 16 allows to get coplanar shapes and stirrups continuously closed, eliminating the dangerous manual operator intervention during the bending phase.

## COMPLIANCE BENDING PINS



- Bender supplied with central bending pins that conform to international standards. Exclusive MEP design, designed to facilitate the overlapping and the guiding of the external wire with respect to the internal one during the bending phase. This means that complex or even very small stirrup can be realized with two wires simultaneously.

## QUALITY DECOILING



- Decoilers equipped with an automatic braking system monitored by the control panel according to the work cycle.



- Spacer for the use of spooled or rewound coils. (OPTIONAL)

## ACCESSORIES



- Winch equipped with clamping device for the wire end to be pulled.





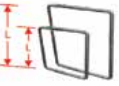







- Motorized pre-feeding roller, for the insertion of the wires.



- Pins for producing circles. (OPTIONAL)

## TECHNICAL AND PRODUCTION CHARACTERISTICS

			
	<b>SINGLE STRAND PROCESSING WIRE DIAMETER</b>		
	cold drawn, hot rolled, smooth or ribbed wire $f_y = 600 \text{ N/mm}^2 - f_t = 700 \text{ N/mm}^2$ (other loads upon request)	$\emptyset 8 - \emptyset 16 \text{ mm} - \#2 - \#5$	
	<b>DOUBLE STRAND PROCESSING WIRE DIAMETER</b>		
	cold drawn, hot rolled, smooth or ribbed wire $f_y = 600 \text{ N/mm}^2 - f_t = 700 \text{ N/mm}^2$ (other loads upon request)	$\emptyset 8 - \emptyset 12 \text{ mm} - \#2 - \#4$	
	<b>SQUARE STIRRUP DIMENSIONS</b>		
	minimum with $\emptyset 8 \text{ mm} - \#2$ wire (optional bending pin)	80 mm x 80 mm - 3" x 3"	
	maximum if clockwise maximum if counterclockwise (with eventual optional cover extension)	1000 mm x 1000 mm 2000 mm x 2000 mm - 6' - 7" x 6' - 7"	
	<b>LENGTH OF STRAIGHTENED AND CUT-TO-LENGTH BAR</b>		
	minimum maximum (if equipped with optional supporting guide; other sizes upon request)	5 mm - 3/16" 12000 mm - 39'-4"	
	<b>CENTRE FORMING TOOLS DIAMETER</b>		
	minimum maximum (other sizes upon request)	32 mm - 1 1/4" 120 mm - 4 2/3"	
	<b>MAXIMUM DISTANCE BETWEEN CENTRAL BENDING PIN AND THE GROUND</b>		
	standard optional upon request	1300 mm - 5'-3" > 1300 mm - > 5'-3"	
	<b>OPERATING TEMPERATURE</b>		
	standard optional upon request	-5° C / +40° C - 23° F / 104° F -15° C / +55° C - 5° F / 131° F	
	<b>INSTALLED POWER</b>		
	maximum (other sizes upon request)	37 kW/h - 49.5 hp	

THE PLANT DOES NOT REQUIRE COMPRESSED AIR.

$f_y$ : max. unit yield point -  $f_t$ : max. tensile strength

Note: #2 = 1/4" ; #4 = 1/2" ; #5 = 5/8"



# Mini Syntax 16 HS

## VERSATILITY AND INNOVATION

The **MINI SYNTAX 12-16 HS** is the sum of all best technology solutions developed in the field of coil processing, straightening and shaping. In this machine it is reached the **maximum level** of **flexibility, productivity** and **product quality**.



## THE EFFICIENCY THAT REDUCES THE COSTS

The high productivity is guaranteed in any condition, regardless if there is a requirement for **serial production** or processing of **individual building elements** such as beams and columns. The **MINI SYNTAX 12-16 HS** can offer an outstanding flexibility of application, and the capability of processing double wire up to 12 mm in all versions, and single wire 16 mm. The large production capacity, as well as the adaptability in different production configurations, makes the **MINI SYNTAX 12-16 HS** capable to reduce the number of required equipment, as well as in the number of machinery operators, therefore **reducing drastically the production cost per unit of weight**.



## QUALITY AND PRODUCTIVITY

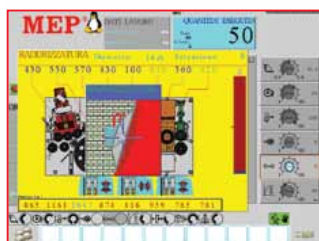
The **MINI SYNTAX 12-16 HS** is a user friendly automatic stirrup bender that provides **superior quality of finished products**.

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The twisting of the wire during the pulling phase creates shapes not co-planar and open stirrups.



## CONTROLLED STRAIGHTENING

Specific corrections can be applied on the straightening set up of each individual wire even though working in double strand mode and also during the working cycle, thus without stopping the production.

## patented

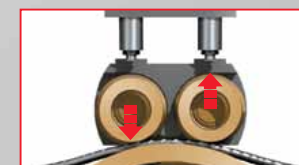
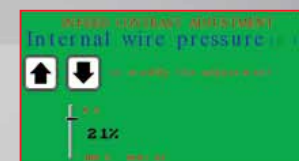
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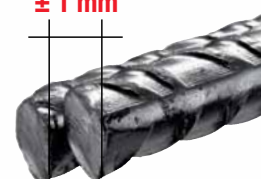
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Thanks to this design and to the consequent lower pressure applied on the steel material, **the coil ribs are far less deformed by the straightening process**.

The lifetime of the **infeed roller themselves** is about **8 times longer** than in case of traditional straightening methods.



± 1 mm





## Secondary feeding unit: a patented system

### A DOUBLE TRACTION FOR ANY SHAPE

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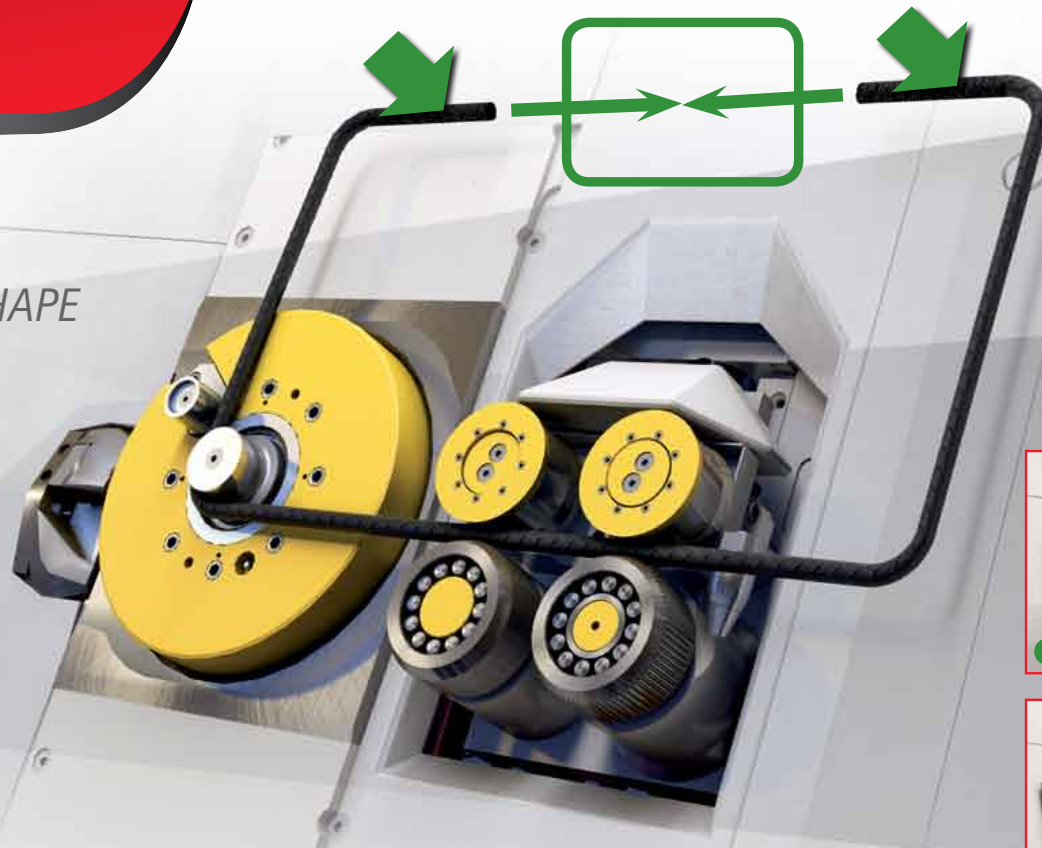
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The subsequent bends will always aligned with those already executed, **canceling out** any residual phenomenon of rotation.



## Exclusive automatism for unparalleled productivity

The **productivity** reached from **MINI SYNTAX 12-16 HS** is the result of an unprecedented concept of **full automation at maximum speed** of all processes that normally require the intervention of the machine operator.

All **manual handlings** as well as control operations **which can slow down the production** and be potentially detrimental for the unit efficiency are completely assigned to the control of the machinery.

In this way the **MINI SYNTAX 12-16 HS** operates in a full automated non-stop working cycle.

### THE FASTEST WIRE CHANGE

The exclusive pre-feeding unit (optional) **changes automatically the wire in a very short time**. At the same time **the straightening system AFS reconfigures itself** based on the diameter or the material to be worked and recalling, if stored, straightening parameters previously applied. Thanks to this solution the equipment is ready to **restart the production in few seconds** without any manual operation.



## SAFETY AND ERGONOMIC



MINI SYNTAX 12-16 HS allows to get coplanar shapes and stirrups continuously closed, eliminating the dangerous manual operator intervention during the bending phase.

## WORLD SYSTEM: TOTAL CONTROL



- MEP Industrial PC "World System" operator control panel is comprised of:
  - LCD "Touch Screen" for the user friendly graphical visualization of all data.
  - Compact, "embedded" microprocessor with low power consumption and a compact flash disk with no moving parts (diskless).
  - Linux operating system.
  - Automatic backup saving system in case of accidental power interruption for safeguarding files and memory support integrity.
- The custom software developed by MEP allows:
  - Data input with graphic visualization of programmed and pre-memorized shapes with feasibility checks via a "dynamic simulation".
  - Control of all speed parameters in execution via a potentiometer.
  - Access to the straightening correction function, without stopping the production process, through the electronic cross hair displayed on the control panel.
  - Saving and archiving of data relative to work cycles and generation of daily production statistics (positions, diameters, times, weights, etc.).
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  - Automatic activation of the scheduled maintenance program.
  - Interface compatible with optical bar code reader through RS 232 port.
  - USB connection port.
  - Possible to connect to Company Network through RJ45 Ethernet port (LAN port) or RS 232 port.
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## QUALITY DECOILING



- Decoilers equipped with an automatic braking system monitored by the control panel according to the work cycle.



- Spacer for the use of spooled or rewind coils. (OPTIONAL)

## ACCESSORIES



- Winch equipped with clamping device for the wire end to be pulled.






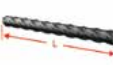


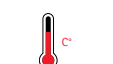



- The cutting unit utilizes universal knives for all diameters processed with 4 cutting faces.



- Bender supplied with central bending pins that conform to international standards. Exclusive MEP design, designed to facilitate the overlapping and the guiding of the external wire with respect to the internal one during the bending phase. This means that complex or even very small stirrup can be realized with two wires simultaneously.

## TECHNICAL AND PRODUCTION CHARACTERISTICS

			
	<b>SINGLE STRAND PROCESSING WIRE DIAMETER</b>	<b>MINI SYNTAX 12 HS</b>	<b>MINI SYNTAX 16 HS</b>
	cold drawn, hot rolled, smooth or ribbed wire	Ø 5 - Ø 12 mm - #2 - #4	Ø 8 - Ø 16 mm - #2 - #5
	$f_y = 600 \text{ N/mm}^2$ - $f_t = 700 \text{ N/mm}^2$ (other loads upon request)		
	<b>DOUBLE STRAND PROCESSING WIRE DIAMETER</b>		
	cold drawn, hot rolled, smooth or ribbed wire	Ø 5 - Ø 12 mm - #2 - #4	Ø 8 - Ø 12 mm - #2 - #4
	$f_y = 600 \text{ N/mm}^2$ - $f_t = 700 \text{ N/mm}^2$ (other loads upon request)		
	<b>SQUARE STIRRUP DIMENSIONS</b>		
	minimum with Ø 6 mm - #2 wire (optional bending pin)	80 mm x 80 mm - 3" x 3"	
	maximum if clockwise	1500 mm x 1500 mm - 5-3" - 5-3"	
	maximum if counterclockwise (with eventual optional cover extension)	2000 mm x 2000 mm - 6-7" x 6-7"	
	<b>LENGTH OF STRAIGHTENED AND CUT-TO-LENGTH BAR</b>		
	minimum	5 mm - 3/16"	
	maximum (if equipped with optional supporting guide; other sizes upon request)	12000 mm - 39-4"	
	<b>CENTRE FORMING TOOLS DIAMETER</b>		
	minimum	32 mm - 1 1/4"	
	maximum (other sizes upon request)	120 mm - 4 2/3"	
	<b>MAXIMUM DISTANCE BETWEEN CENTRAL BENDING PIN AND THE GROUND</b>		
	standard	1500 mm - 5-3"	
	optional upon request	> 1500 mm - > 5-3"	
	<b>OPERATING TEMPERATURE</b>		
	standard	-5° C / +40° C - 23° F / 104° F	
	optional upon request	-15° C / +55° C - 5° F / 131° F	
	<b>INSTALLED POWER</b>		
	maximum (other sizes upon request)	37 kW/h - 49.5 hp	

THE PLANT DOES NOT REQUIRE COMPRESSED AIR.

$f_y$ : max. unit yield point -  $f_t$ : max. tensile strength

Note: #2 = 1/4" ; #4 = 1/2" ; #5 = 5/8"



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