Automatic shaping and stirrup bender from coil

Planet 16 Plus

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MEP

the history of innovation

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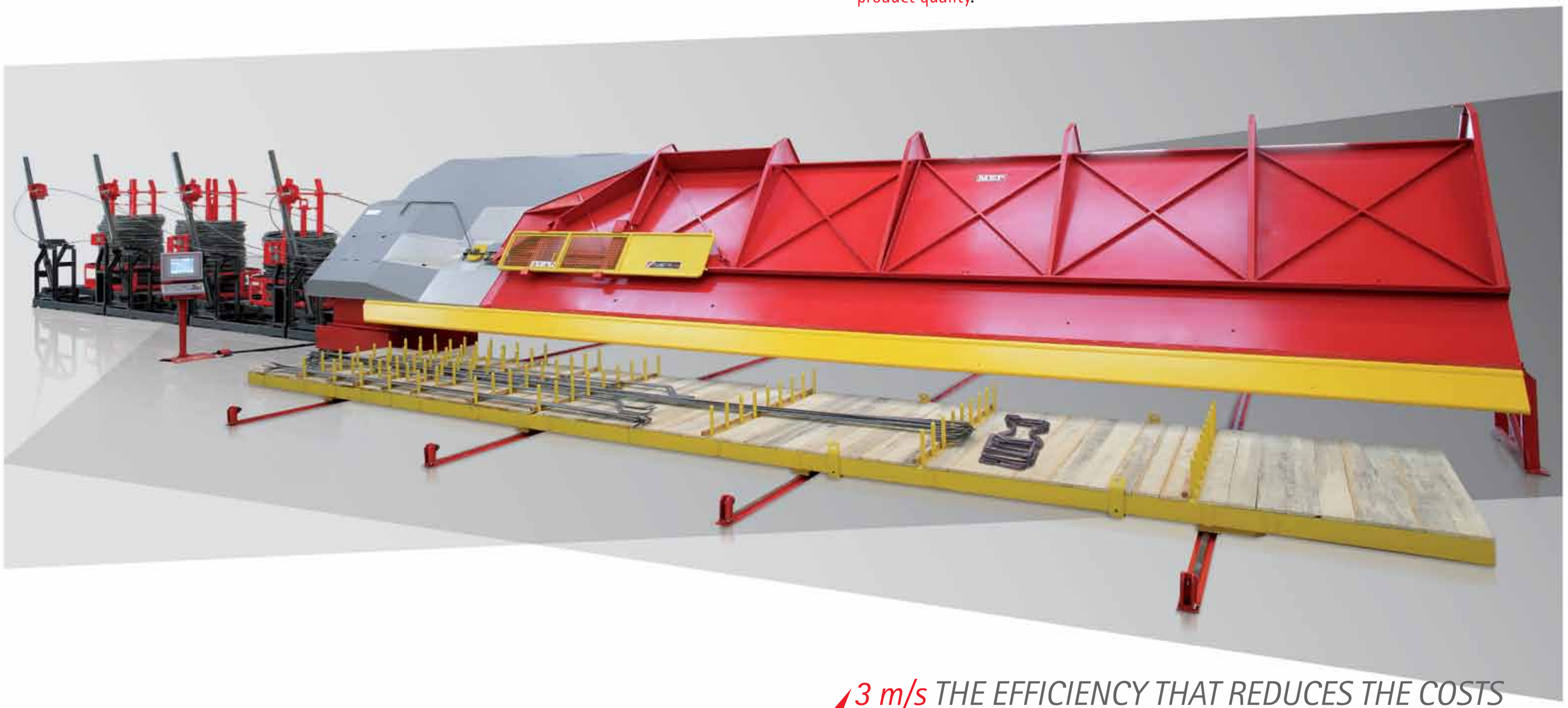
Planet **16 Plus**

VERSATILITY AND INNOVATION

The **PLANET 16 Plus** is the sum of all best technology solutions developped in the field of coil processing, straightening and shaping.
In this machine it is reached the maximum level of flexibility, productivity and product quality.



3 m/s THE EFFICIENCY THAT REDUCES THE COSTS

The high productivity is guaranteed both in case of serial production (same diameter with two wires up to 12 mm) and for "classified" production, thus when processing of individual building elements such as beams and columns (variable diameters with single wire up to 16 mm). The very large production capacity of the Planet Series determines a reduction in the extent of required equipment, as well as in the number of machinery operators, therefore reducing drastically the production cost per unit of weight.

AFS Advanced Feeding System
Anti-Twist and Straightening System

The AFS system guarantees perfect straightening with flat stirrups.

QUALITY AND PRODUCTIVITY

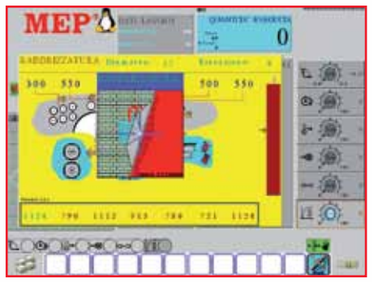
The **PLANET 16 Plus** is a user friendly automatic stirrup bender that provides superior quality of finished products.
The combined action of an exclusive series of patented devices minimizes the time for setup adjustments and reduces drastically the amount of discarded products.
A drive and control system, based on the latest generation technology, grants to reach unparalleled levels of productivity per hour.

patented

The twisting of the wire during the pulling phase creates open stirrups.

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.



CONTROLLED STRAIGHTENING

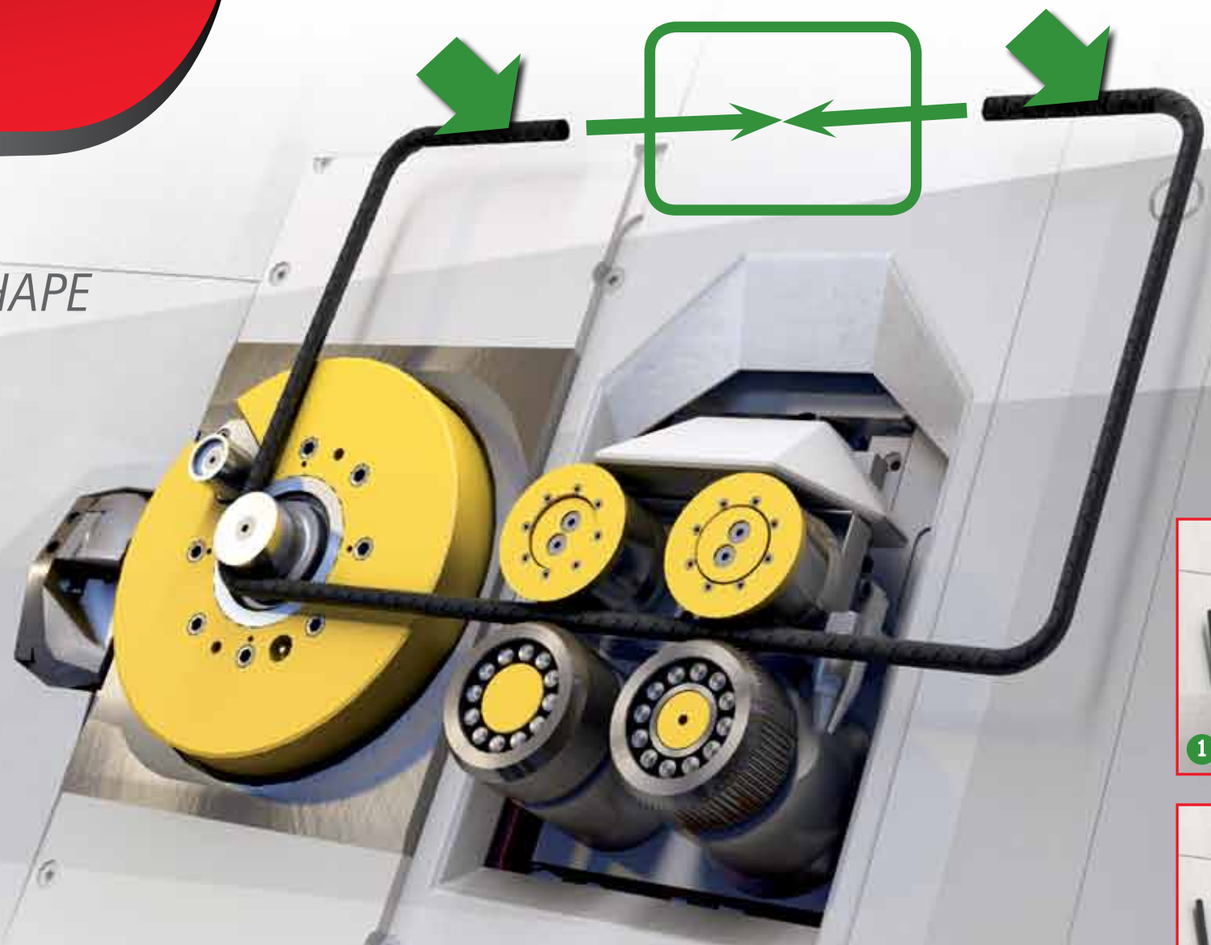
Specific corrections can be appplied on the straightening set up of each individual wire even though working in double strand mode and also during the working cycle, thus without stopping the production.

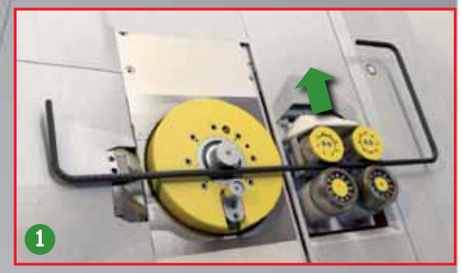
Secondary feeding unit: a patented system

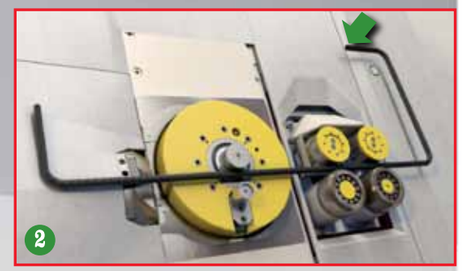
A DOUBLE TRACTION FOR ANY SHAPE

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 speed 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.

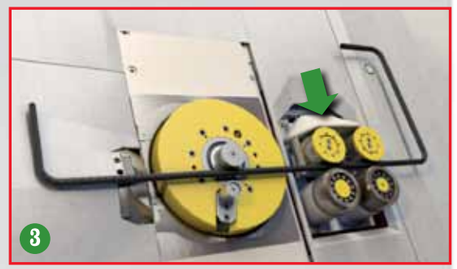
This solution enables the production of shaped products of all forms and sizes using the entire working surface.

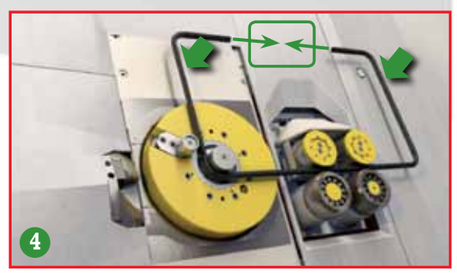
GRAVITY FOR QUALITY

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.

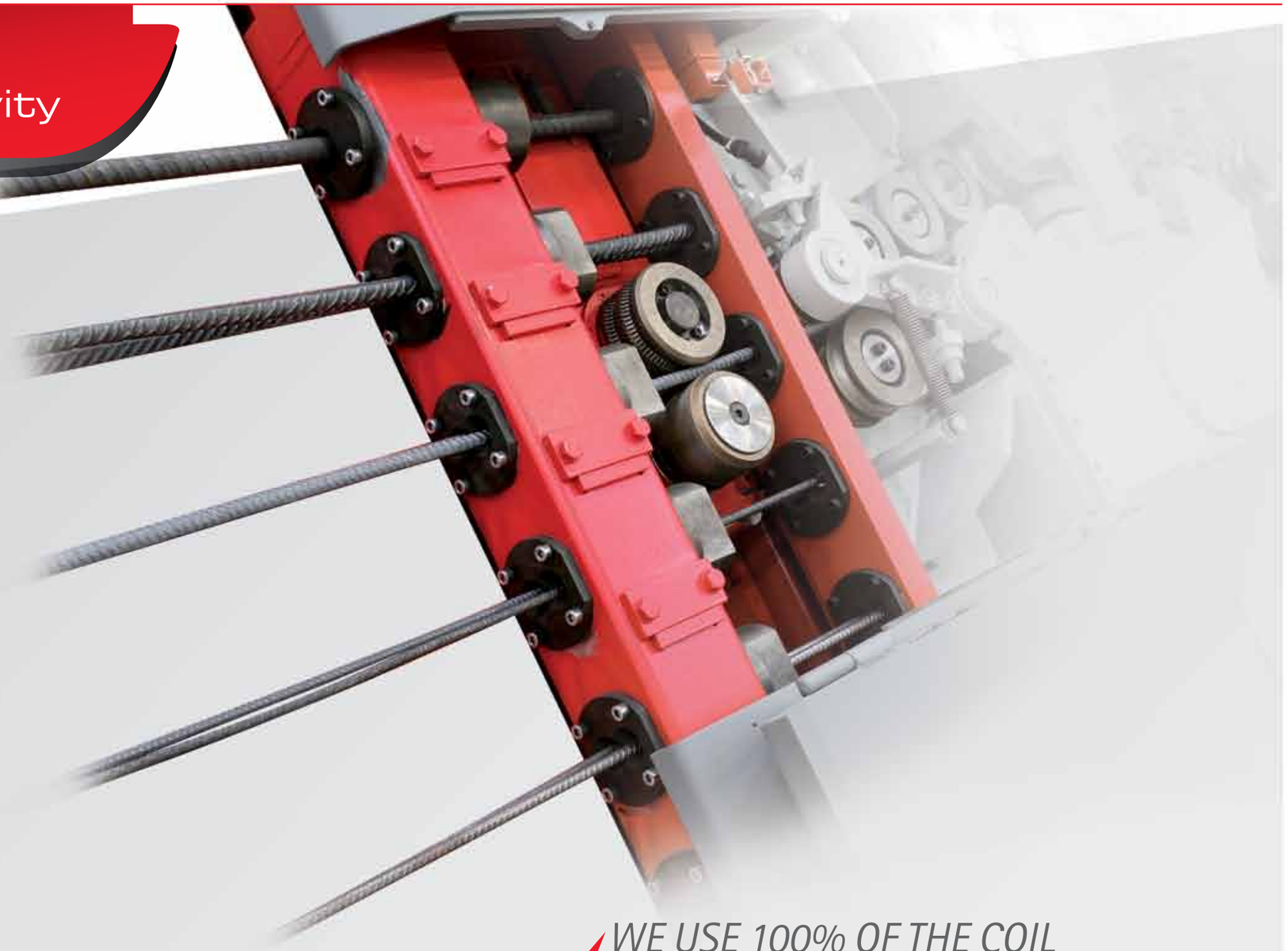




Exclusive automatism for unparalleled productivity

The productivity reached from **PLANET 16 Plus** 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.

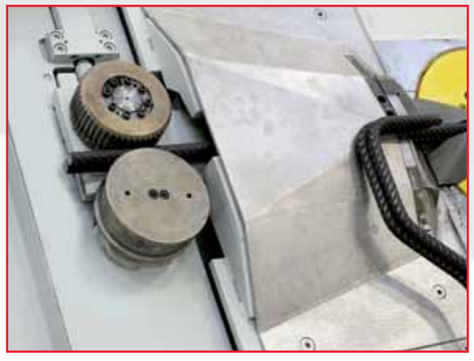
All manual handlings as well as control operations which can slow down the production and be potentially detrimental for the unit efficiency are completely assigned to the control of the machinery. In this way the Planet operates in a full automated non-stop working cycle.



THE FASTEST WIRE CHANGE

The exclusive pre-feeding unit 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 re-calling, 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.

WE USE 100% OF THE COIL

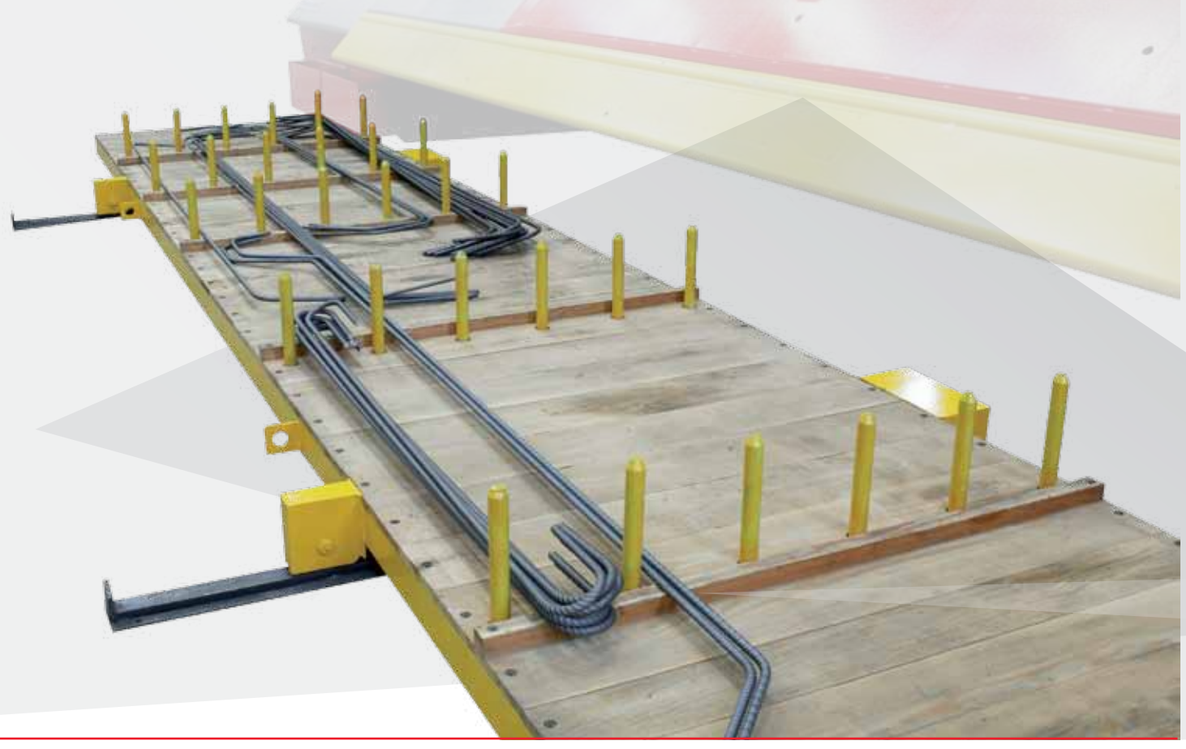


The **extraction pulling unit** reduces the scrap and eliminates the downtime needed for the extraction of the "tails", straightening and extracting automatically the final section of the coil.

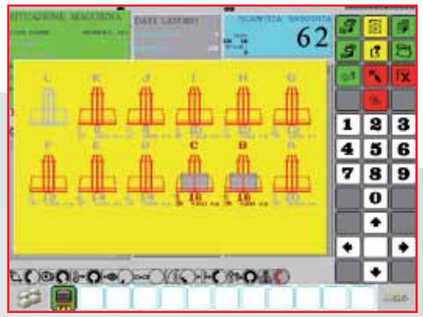
COLLECTING AUTOMATICALLY

The automatic collection devices are used to maintain high levels of productivity, reducing downtime normally required for the evacuation of the products finished. Each unit can be equipped with single or multiple collection cart configuration.

It is possible split automatically the different products based on the production cycle (repeated forms) or for single structural elements such as beams, columns (different diameters, shapes and sizes).



3 m/s: DECOILING UNDER CONTROL



The maximum speed of 3 m/s which operates **PLANET 16 Plus** requires an automatic unrolling control of the coil.

The management of the speed rotation of each motorized decoiler, depends on variables related to the weight and diameter of the coil, avoid wire overlaps and reduces downtime.

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

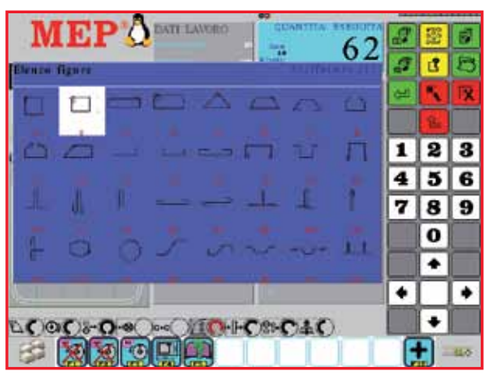
WORLD SYSTEM
Total Control

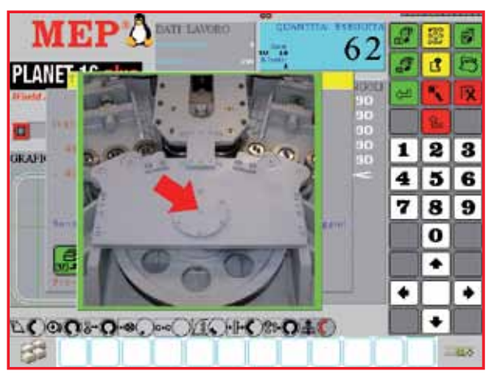
The world system through an interface "user friendly" allows total control of all devices in the plant, enhancing performance.

The programming of the production cycle makes it possible to use the stored parameters related to speed, compensation etc. related to shape, size and diameter of each element.

- **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.).
- "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

PLANET 16 Plus allows to get coplanar shapes and stirrups continuously closed, eliminating the dangerous manual operator intervention during the bending phase.
The exclusive design of the tilted work table provided with a lower swinging device allows to produce large sized stirrups and shapes (a distance of 2300 mm between the central bending pin and the floor) in addition become an intermediate storage level for all fabricated products.
The combined action of pre-feeding unit and the collecting unit allow the operator to always work in optimal safety conditions and in an extremely ergonomic environment.

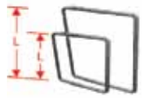
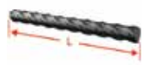
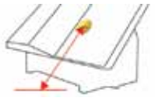
UNIVERSAL BLADE

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

COMPLIANCE BENDING PINS

- Bending pins for quick replacement, made in accordance with international standards among the different workable diameters.

TECHNICAL AND PRODUCTION CHARACTERISTICS

	**SINGLE STRAND PROCESSING WIRE DIAMETER**		
	cold drawn, hot rolled, smooth or ribbed wire	from Ø 6 to Ø 16 mm	# 2 to # 5
	fy = 600 N/mm² - ft = 700 N/mm² (other loads upon request)		
	**DOUBLE STRAND PROCESSING WIRE DIAMETER**		
	cold drawn, hot rolled, smooth or ribbed wire	from Ø 6 to Ø 12 mm	# 2 to # 4
	fy = 600 N/mm² - ft = 700 N/mm² (other loads upon request)		
	**SQUARE STIRRUP DIMENSIONS**		
	minimum with Ø 10 mm wire (optional bending pin)	80 mm x 80 mm	3" x 3"
	maximum if clockwise	1600 mm x 1600 mm	5-3" x 5-3"
	maximum if counterclockwise (with eventual optional cover extension)	2200 mm x 2200 mm	7-3" x 7-3"
	**LENGTH OF STRAIGHTENED AND CUT-TO-LENGTH BAR**		
	minimum	5 mm	3/16"
	maximum (other sizes upon request)	12000 mm	39-4"
	**CENTRE FORMING TOOLS DIAMETER**		
	minimum	30 mm	1-1/4"
	maximum (other sizes upon request)	160 mm	6"
	**MAXIMUM DISTANCE BETWEEN CENTRAL BENDING PIN AND THE GROUND**		
	standard	2300 mm	7-6"
	optional upon request	> 2300 mm	> 7-6"
	**OPERATING TEMPERATURE**		
	standard	-5° C / +40° C	23° F / 104° F
	optional upon request	-15° C / +55° C	5° F / 131° F
	**INSTALLED POWER**		
	Power consumption	47 kW/h	63 hp

THE PLANT DOES NOT REQUIRE COMPRESSED AIR.

fy: max. unit yield point - ft: max. tensile strength

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

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