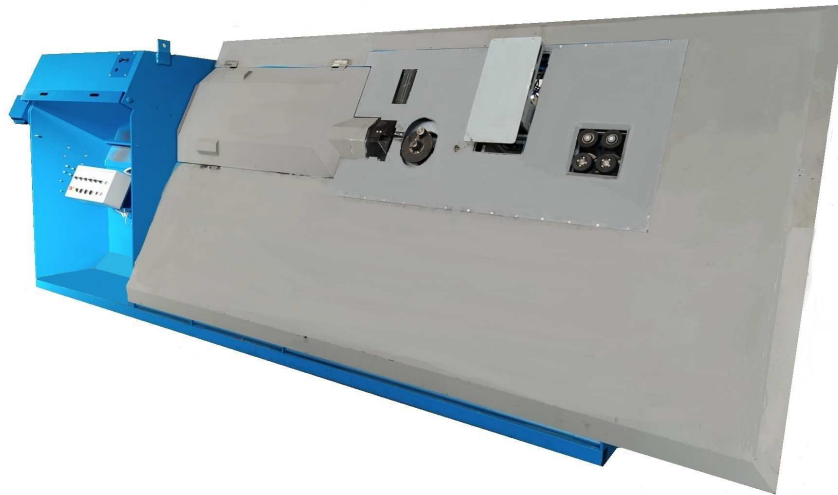


STIRRUP MACHINE type MULMA SD16-3D - TECHNICAL FEATURES

Automatic stirrup machine from coil, bi-directional, programmable, CNC, designed for the production of stirrups as well as for re-bar straightening and bending.



Working range (feeding pieces):	2 Ø8	2 Ø10	2 Ø12	1 Ø14	1 Ø16
	(Ultimate tensile strength: 650 N/mm ²)				
Average power consumption:	10 Kw				
Re-bar propulsion speed:	90 m / min.				
Bending angle speed:	1200° / sec.				
Maximum bending angle :	180°				
No. of Angles:	39				
No. of Sides:	39				
Maximum length :	14000 mm				
Minimum length :	50 mm				
Angle accuracy :	± 1°				
Length accuracy:	± 1 mm				
Dimensions (L x W x H):	5500 x 1600 x 2200 mm				
Weight :	4.100 Kg (Main machine)				

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Supplies demanded

- **Electric supply: 30Kw**
- **Compressed air: 8 Bar**

MULMA SD16-3D is provided with main and auxiliary mechanisms necessary for the machine

operation:

A) Main mechanisms:

1. Propulsion System
2. Straightening system
3. Bending system
4. Cutting system
5. Control panel
6. Hydraulic unit
7. Electric/Electronic board

B) Auxiliary mechanisms (additional equipment upon request):

1. Pay-off (wire coil support)
2. Working surface
3. Bench for the support of the straight re-bars



A.1. Propulsion System

The Propulsion System consists of four rollers. Two moving rollers (servomotor) and two free ones. The rollers of the system are installed in such a way, so that the produced shapes are not «distorted».

An encoder is moved by the free rollers. Hydraulic tightening of the rod at the advancing rollers.

A.2. Straightening system

The straightening system consists of two groups of rollers, placed at 90° to each other. By this way the complete straightening of the rod on both planes is achieved (up-down and right-left).

The system consists of moving and fixed rollers. The first ones are moved upwards-downwards electrically. Thus, the rod diameter changing as well as the straightening adjustment in all directions is achieved. All settings are electrically driven from the panel.

A.3. Bending system

The bending system is powered by a servo-motor and equipped with a rotating disk which rotates clockwise and counterclockwise.

A side bending pin is placed on the disc

The fixed bending unit is placed at the center of the disk.

A.4. Cutting system

The cutting system is hydraulic powered and carries out lateral cutting, while the cutting plates bear with two shearing sights.

A.5. Control panel

The control panel is placed on the machine and the industrial PC is placed at its inner part.

At the front view of the control panel are placed the buttons for manual operation and the touch screen as well.

During programming phase the figure is exactly developed on the screen as it will be executed during the production procedure and the operator can select its storage directly in the computer's memory in case he wishes to recall it for future production execution.

Moreover, additional data are indicated on the screen. The following data about the daily production are seen, such as

- Total rod length for each figure
- Total quantity (No of pieces) to be produced
- Total weight of pieces
- Produced shapes (pieces)
- Produced shapes (Kg)
- Remaining pieces (to be executed)
- Rod diameter
- Function indication for option of production by use of single/double wire

Other functions:

- Option for production of continuous stirrups
- Option for production of stirrups alternately
- Capacity for various operations and adjustments during production procedure
- Adjustment of angles speed (increase - decrease)
- Adjustment of advance speed (increase - decrease)
- Angles correction (open - close)



Programming modes (WINDOWS environment):

- a) via keyboard
- b) via screen
- c) by use of USB memory stick
- d) recall directly from computer's memory

A.6. Hydraulic unit

The hydraulic unit bears with one pump of special construction (for such types of machinery).

A.7. Electrical/Electronic unit

All electric/electronic components are supplied by:

Plc: Berghof

Servomotor: Nidec – Control Techniques

Drive: Nidec – Control Techniques

Electronic complements : Schneider and ABB

Hydraulic complements : Yuken