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Technical Data – Semi-Automatic Bending Machine Model A-BW



INGENIA 30.15 A-BW

Semi-Automatic Bending Machine Model A-BW

INGENIA bending machines, model A-BW, are robust all-round machines from lower to upper range of application. The bending cycle is running automatically, the main bending parameters are stored in a database which is linked to the plc-control. The smallest model shows 2m working width (model 20.15 A-BW), the largest available machine has a working width of 4 m (model 40.15 A-BW), the maximum bendable thickness is 15 mm (20/25mm). The machines are designed to fold-weld all semi cristalline thermoplastics as PE, PP and PVDF as well as to brilliantly bend amorphous thermoplastics as PVC, PMMA (acrylics).

Structure of the machine:

The main frame is designed as a solid rectangular- hollow- steel profile construction. The moveable table is machined after the machine has been assembled completely. It is also of solid steel construction. The table is designed to avoid misalignment of the resulting bending area by torsion and load stress even in high frequent usage. The machine is driven directly by pneumatic cylinders. Permanently lubricated ball bearings with solid dimensioning guarantee precision for lifetime.

The clamping beam consist of solid hollow steel profile with integrated pneumatic cylinders. The forces are transferred by non- rotating aluminium- plates with anti- skid covering.

The basic machine, equipped with two Teflon- coated heating- elements (upper and lower), is designed for long-term application with continuously max. 260°C.

The simple to operate push button controls and the custom designed plc- panel is integrated in a control desk. It is located at the front of the machine.

Operation of the machine:

The welding process is executed by a PLC- processor. All operating elements are located in the control desk and optional in a remote control (by wire).

The main bending parameters are inserted manual from a data sheet. All parameters meet the requirements established by diverse manufacturers of thermoplastic sheets. However all parameters may be adopted individually by the user. The pressure of the upper heating element is set up manually with a pressure regulation valve.

The machine is equipped with a switch for operation modus. In the Step- Modus the user performs each move. In the automatic cycle the plc is performing the process automatically but the user may extend ore interrupt each actual time while automatic cycle.

Machine specials:

Due to horizontal and vertical moving heating element the machine is heating and bending at one position. Therefore the machine works without the usual movement of sheets and it's disadvantages. This allows a one-man control and a very flexible set up. It is equipped with exchangeable heating elements. By opening a few screws and one plug the machine is transformed from contact to contact less heating with the optional infrared heating elements.

To keep the position of the machine flexible the machine might be equipped with heavy-duty rolls.



View onto the upper heating element of an INGENIA 30.15 A-BW



Spare parts: All used parts integrated in pneumatic or plc system are available of the shelf by FESTO resp. SIEMENS



Technical data of standard machine, model xx.15 A-BW:

	20.15 A-BW	30.15 A-BW	40.15 A-BW
<i>max. dimensions</i>			
Length:	3200 mm	4200 mm	5200 mm
Width (without extension arms):	930 mm	930 mm	930 mm
Height of table level:	1100 mm	1100 mm	1100 mm
Weight:	app. 1,4 to	app. 1,8 to	app. 2,1 to.
<i>Range of application</i>			
Max. working width:	2050 mm	3050 mm	4050 mm
Bendable sheet thickness:	3-15 mm	3-15 mm	4-15 mm
Min. cross-section, square pipe:	220x295 mm	220x295 mm	220x295mm
Min. bending angle:	10°	10°	10°
Max. Bending angle:	95°	95°	95°
<i>energie supply</i>			
Electrical:	230/400 V 3/N/PE 50 - 60 Hz		
Required electr. Performance:	7 kW	9 kW	13 kW
Pneumatic pressure:	6 bar	6 bar	6 bar
<i>machinery forces</i>			
clamping forces, 7bar (10bar):	10 kN (14)	15 kN (21)	20 kN (33)
clamping sections per beam:	2	2	2
maximum bending forces:	15.000 N	15.000 N	20.000 N
<i>heating units</i>			
2 heating elements:	25 x 50 mm, Teflon- Coating, $T_{max} = 260^{\circ}C$		

Base Machine:

fixed control panel, opposite of opening side
2 digital temperature regulators for separated control of upper and lower heater temperature
Digital timer for heating cooling time setup
Manual pressure valves for setup of melting and bending forces
Manual setup / correction of bending line
Safety lines or safety stops alongside of the machine for possible emergency case
Switch to choose automatic ore step- bending cycle
Possibility to interrupt or extend actual program step
Clamping beam with quick releasing bolt, to take out bended pipes
Two clamping areas, for separated clamping of two working pieces (only in 3m and 4m model)
Stop device with scale for setting of distance bend to bend
Continuously adjustable clamping forces, allows adoption to different material hardness
Flexible mounted clamping plates, non-rotating, with anti-skid covering
upper angled heating element with Teflon- coating 25 x 50 mm, 82°, $T_{\max} = 260^{\circ}\text{C}$
Lower flat heating element with Teflon- coating 25 x 50 mm, $T_{\max} = 260^{\circ}\text{C}$
Extension arms with Polyethylene covering
Paint: red / grey

**** change in technical details possible ****