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**Technical Data – Fully Automatic Bending Machine
Model: A-BA**



INGENIA A-BA

MASSGESCHNEIDERTE MASCHINEN FÜR THERMOPLASTISCHE MATERIALIEN & HALBZEUGE

Fully Automatic Bending Machine A-BA

INGENIA bending machines, model A-BA, are robust all-round machines with a flexible range of application. The bending cycle is running automatically, the main bending parameters are stored in a data base which is linked to the plc-control. While on bending zone is cooling the machine automatically starts the heating of the next bending zone simultaneously. The smallest model shows 2m working width (model 20.15 BA), the largest available machine has a working width of 3 m (model 30.15 BA), the maximum bendable thickness is 15 mm (20-25mm). The machines are designed to fold-weld all semicrystalline thermoplastics as PE, PP and PVDF as well as to brilliantly bend amorphous thermoplastics as PVC, PMMA (acrylics). The machine is also designed to bend U-Profiles (e.g. used as cover for steel carrier beams

Structure of the machine:

The main frame is designed as a solid rectangular- hollow- steel profile construction. The movable table is also of solid steel construction, with a high performance aluminium table plate. The table is designed to avoid misalignment of the resulting bending area by torsion and load stress even in high frequent usage. The bending beam is driven directly by pneumatic cylinders. The heating zone is driven by servo-drive with permanently lubricated ball bearings with solid dimensioning..

The front and the rear 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 SIEMENS plc- processor. All operating elements are located in the control desk and optional in a remote control (by wire).

The main bending parameters are stored in a data base for all standard plastics. 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 each move is performed by the user. In the automatic cycle the plc is performing the process automatically but the user may extend ore interrupt each actual time while automatic cycle.



Technical data of standard machine, modell xx.20 BA:

20.15 A-BA 30.15 A-BA

Max. dimensions

Length:	3300 mm	4300 mm
Width (without extension arms):	2000 mm	2000 mm
Height, (height of table level):	1100mm	(900 mm)
Weight:	app. 1,35 to	app. 1,5 to

Range of application

Max. working width:	2050 mm	3050 mm
Bendable sheet thickness:	3-15 mm	3-15 mm
Min. cross-section, square pipe:	100 x180 mm	100x180 mm
Min. bending angle:	10°	10°
Max. bending angle:	95°	95°
Min. length to allow clamping:	125 mm	125 mm

Energy supply

Electrical:	incl. transformer to 230/400 V 3/N/PE 50 - 60 Hz	
Required electr. performance:	7 kW	8 kW
Pneumatic pressure:	7 bar	7 bar

Machine forces

Clamping forces, 7bar (10bar):	10 kN (14)	15 kN (21)
Clamping sections per beam:	2	2
Maximum bending forces:	10.000 N	15.000 N

Heating units

1 lower heating element:	25 x 50 mm, Teflon- Coating, $T_{\max} = 260^{\circ}\text{C}$
1 upper heating element (for 90° bends):	25 x 50 mm x 82°, Teflon- Coating, $T_{\max} = 260^{\circ}\text{C}$

Base Machine:

Fixed control panel, opposite of opening side
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
2 separate temperature regulators for upper and lower heating element .
Clamping beam with quick releasing bolt, to take out bended pipes
Flexible mounted clamping plates, non-rotating, with anti-skid covering
Continuously adjustable clamping forces, allows adoption to different material hardness
Sleeplessly adjustable bending angle 10°-95°
1 upper angled heating element with Teflon- coating 25 x 50 mm, 82°, $T_{\max} = 260^{\circ}\text{C}$
1 lower flat heating element with Teflon- coating 25 x 50 mm, $T_{\max} = 260^{\circ}\text{C}$ exchangeable
with a heating element of an INGENIA butt welder
Parameter stored in a data base for PE / PP / PVC-U (other materials on request)
Digital position control of the adjusted bending length
Continuously adjustable clamping forces, allows adoption to variable material hardness
Manual set up of the penetration of upper heating element
Manual drive of the sheet transport, by turning a wheel
Paint: red / grey

**** Changes in technical details possible ****