

MASTER 3X

Modular automatic bending machine CNC



CE-51-3X Modular automatic bending machine -
CNC automatic version of MASTER Series bending machines



Oriented:

Mandrel and without mandrel
bending of tubes



and profiles



High quality bends in 3 axes
by coiling method

Bending software TUBEND

Has intuitively-understandable menu with the possibility of simulation and animation of 3D parts

- Allows you to create 3D details of any complexity using the library of parts and materials, such as an arc or a spiral of a given radius
- Allows to use for details construction the Cartesian (X, Y, Z) or machine (L, R, A) coordinate system
- Allows to forecast the spring back factor and the coefficient of tube stretching
- Allows to choose the measurement unit mm /inch
- Allows to print the drawings of the parts and export-import of 3D parts to the other CAD programs
- Allows to check the possibility of manufacturing parts (animated visualization), taking into account the bending moment of the material, the probability of collision between machine and bent part and machine characteristics
- Offers options for making adjustments when manufacturing of given part not possible on this machine
- Allows to work in automatic and manual modes. Manual mode for adjustment of bending machine and testing of operability of all machine's units.
- Automatic mode for making parts according to control program in automatic of step-by-step succession.
- Ensures smooth operation of the machine drives and prevents overloading
- Works in the shell of Windows, which allows unlimited create and save 3D parts and control programs for them
- Creating the control program is easy and accessible to every person who has only basics of computer skills



Bending software TUBEND it is a system of application, which includes:

- Module of CAD system, which intended for 3D simulation of parts in 3 axes from tubes, with using of replenished tubes library, replenished materials library and library of typical parts

Module of CAD system automatically generates for given tubes theoretical calculation of spring-back angle and stretching coefficient of bent place of tube

Result of Module of CAD system working - 3D picture of designed part and atable of parameters of designed part in XYZ or LRA system

- Module of CAM system for calculation and analysis of possibility of part producing with taking to account of machine moment of flection, billet length, CLR and machine dimentions.

Module of CAM system allows to simulate machine working with checking (analysis) for the purpose of collision of parts with machine during bending and gives advices for possible changing of parts design or bending process.

Result of Module of CAD system working - automatically generated control program for machine for producing of designed parts in automatic mode.



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Technical data

Maximum tube diameter, mm (with yield strength 250 MPa), mm	51x2
CLR, mm	from 27 up to 170 (up to 750 under request)
CLR, min	1.5D
Bending angle, degrees	0-180 + spring back angle
Accuracy	
Bending angle (A), degrees	0.1
Tube advance (L), mm	0.1
Tube space rotation angle (R), degrees	0.1
Time of one bend, sec.	10
Power supply	
Power/voltage	1.5 kWt, 50 Hz, 380 V
Compressed air	0.1 m ³ /min, 6 atm
LxBxH, mm	1900x780x1050
Weigh, kg	600

Configuration of bending machine:

- At machine design we use advanced solutions, which allow more freedom between machine and bent part during bending process and provide machine of high rigidity and reliability
- Safety mat



Componentry

- At the machines construction we use components, produced by the industry's leading manufacturers of Europe and Japan

Basic complete set

- Automatic bending machine CNC with software TUBEND
- Packing
- Operating manual
- Training to Customer's personnel

Tooling



- Consist of 5 elements:
 - Former
 - Clamp
 - CB die
 - Flexible mandrel
 - Wiper die
- We use high-tech components (flexible mandrel and wiper die) in tooling set, which ensure best quality bends of light-wall tubes on $R=1.5D$
- Tooling is replaceable for all bending machines, produced by BMC



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