

F8 Products and Solutions for Switchboard Manufacturing

Protube Engineering supplies a range of high-quality machines, spares and wear items for all types of switchboard manufacturing.

HORIZONTAL BENDING AND PUNCHING MACHINES

With its various tool solutions, this bending machine is very versatile. Its open design provides plenty of advantages for manufacturing bent parts, metalworking and straightening work.

As a universal bending machine and straightening machine, these metal benders are used in numerous industries and for both single part/small series production and series manufacturing.

Various 1- or 2 axis control concepts, including manual bending machines and powerful CNC bending machines, provide the operator with optimal support in the production process.



85 HE
(Horizontal Machine,
Working Power: 8.5 to)



120 CNC
(Horizontal Machine,
Working Power: 12 to)



220 CNC-W Hybrid
(Horizontal Machine,
Working Power: 22 to)



CU-Profi
(Punching Machine)

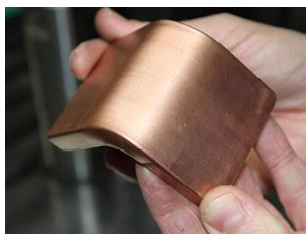
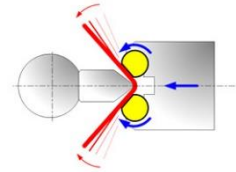


CU-WK II
(Punching Machine)

BENEFITS OF OUR HORIZONTAL BENDING AND PUNCHING MACHINES

1. BENDING WITH ANGLE MEASUREMENT (MEASURING V-BLOCK)

Very precise bending is possible with the integrated angle measurement. Differing material-related spring-back tolerances, as occur frequently in copper, can be compensated for automatically. This provides a high level of process reliability and high precision when bending.

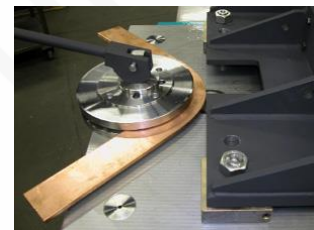


2. MARK-FREE BENDING

The integrated swivel jaws in the bending v-block allow virtually mark-free bending. Companies that operate as suppliers on a contract basis appreciate this option of mark-free bending

3. EDGE BENDING WITH MANUAL CLAMP

Edge bending of busbars (on the flat side) can be carried out up to 60x10 mm with a manual clamp. The clamp provides the quality required.



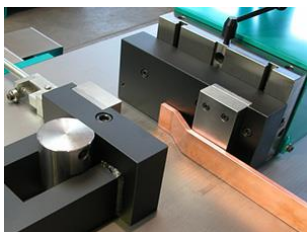
4. EDGE BENDING WITH HYDRAULIC CLAMP

We recommend a hydraulic clamp from a thickness of 60x10 mm. Edge bending up to 100x10 mm is possible with a hydraulic clamp. (Larger cross-sections on request).

5. BENDING OFFSETS NO. 1

If the distance between two bends is too short for a normal v-block, 2 bends can be bent simultaneously with one stroke using the offset tool. With this tool, the offset depth can be adjusted continuously using the stroke lengths. The offset width is fixed.



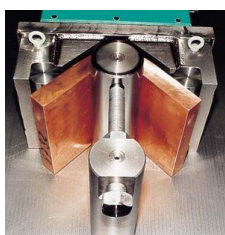


6. BENDING OFFSETS NO. 2

If the distance between two bends is too short for a normal v-block, 2 bends can be bent simultaneously with one stroke using the offset tool. With this tool, the offset depth and width can be adjusted freely.

7. TWISTING TOOL (TWIST OR ROTATIONAL BENDING)

Busbars can be bent using the twist bending process up to dimensions of 100x10 mm. Twisting (twist bending) is carried out with a special tool fitted to the horizontal bending machine. Larger dimensions on request.



8. BENDING THICK BUSBARS

With our wide range of machines and our many years of experience, we can offer you bending solutions that go beyond the dimensions of normal busbars, e.g. 300x20 or 300x30 mm. Bending solutions for copper up to 500x50 mm have been supplied.

9. BENDING ALUMINIUM CIRCUIT BOARDS

In addition to the traditional CU busbars, aluminium busbars and circuit boards can be bent using the same tools.



10. TIGHT Z-BENDS

Very tight Z-bends of 90° can be achieved with a special tool.