

## BUNGARD CCD /2 CNC MACHINE

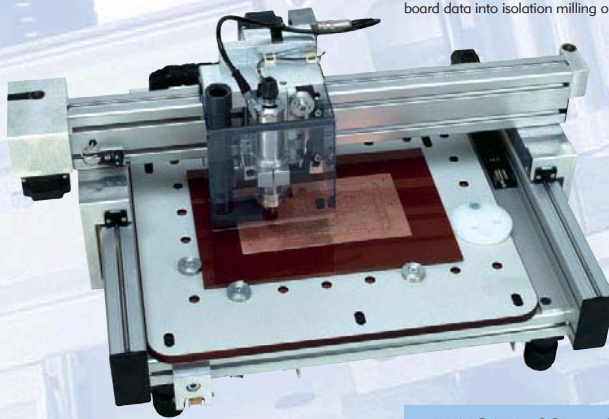
This machine serves for drilling and routing PCBs and Aluminium and for isolation milling. It is fully equipped and easy to use. The extent of delivery contains the mechanics unit, the high frequency spindle, the integral control unit, a vacuum cleaner and the driver software for drilling and milling.

The axes are driven by stepper motors and precision belts. The step definition is 1 mil, the positioning accuracy is +/- 1 mil. The maximum speed is bigger than 90 mm/s. The control unit is hardware prepared to run the axes in microstep mode at down to 6.35µm step width. The Z axis as well has a stepper motor. Other than any solenoid or pneumatic drive, only a stepper motor allows active control over Z working depth and penetration speed. An additional mechanical depth limiter is included.

The machine comes with a high frequency spindle at 150 W and 60000 rpm. The tool change action is semiautomatic, with the driver software arresting the axes and prompting the user to change the tool. This is done right on the spot by a quarter turn of a knob, and no recalibration will discontinue the drill or mill job.

The machine table has a regular pattern of mounting holes where the board holders and clamps will go. The boards can be mounted to machine zero or to any relative position, but can also be put on base plates with fixing pins, as required for double sided isolation milling.

The driver software coming with the machine will run on any standard PC. It directly reads Excellon or Sieb & Meyer drill files, or HP/GL. One software option is the RoutePro 2005 Windows 9x... XP based driver software, a second one is IsoCAM, a program that you will need to convert Gerber board data into isolation milling outlines.



Picture of CCD /2

### BUNGARD CCD + CCD/2

**Power supply:** 230 V, 50 Hz,  
approx. 250 VA + vacuum cleaner

**Warranty:** 1 year in-house warranty  
on parts and labour

**Sizes (mechanics) CCD:**  
(W x D x H) 70 x 80 x 30 cm  
Board size max.: 325 x 495 x 35 mm<sup>3</sup>  
Weight: approx. 35 kg

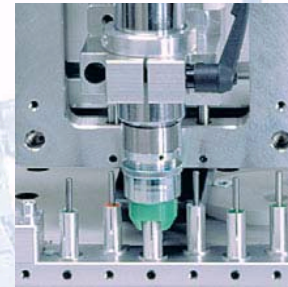
**Sizes mechanics CCD /2 :**  
(W x D x H) 70 x 55 x 30 cm  
Board size max.: 280 x 325 x 35 mm<sup>3</sup>  
Weight: approx. 23 kg

#### Available options:

Protective hood, CAM / Isolation software,  
monitor + camera, cooling device  
for aluminium routing, compressor

#### Explains:

MTC = Manual Tool Change  
ATC = Automatic Tool Change



## BUNGARD CCD CNC MACHINE

The Bungard CCD/MTC-ATC is a high quality Computer Controlled Drilling machine with Manual Tool Change (MTC) or Automatic Tool Change (ATC). It allows direct processing of Excellon/Sieb&Meyer drill data or HP/GL plot data for PCB production (drilling, milling, isolation routing, engraving) and milling/routing of plastics, aluminium or other metal panels.

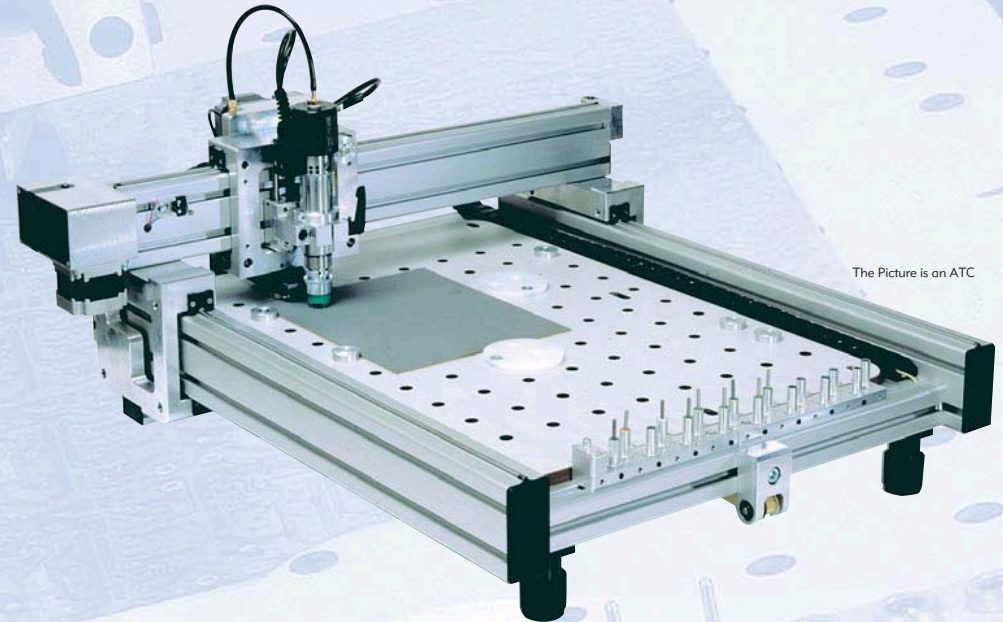
#### Extent of delivery:

- Mechanics unit, control unit, cables
- Driver software for drilling and routing
- High frequency spindle (max. 60000 rpm), with DC brake and load control
- Powerful 500-1300 Watt vacuum cleaner
- If required: 4 hours free training at our facilities

#### Special features:

- Mechanics unit: rigid and flat construction with low moving weights and high quality bearings for high-speed positioning
- Machine bed with universal fixture system, suitable for both clamps and ref. pins

- KaVo high speed spindle with chuck 1/8", 140W
- Software controlled spindle speed 30000 to 60000 1/min.
- Spindle quick stop (1s) DC brake and electronic load control
- Heavy duty stepper motor on Z-axis for true milling capability and correct tool speed
- Automatic tool change, simultaneously 15 + 1 out of 99 tools per job.
- Drill break detector
- Smallest drill diameter: 0.2 mm
- Integral depth limiting device for (isolation) milling and engraving on uneven surfaces
- Stand alone control unit (19" rack) connects to all standard PC's with one free serial or USB port
- Driver software for Excellon, Sieb&Meyer or HP/GL data for real-time, on-line machine control, with comfortable user interface.
- All machine parameters software controlled and configurable
- Step definition: 1 mil (=0.0254 mm), precision +/- 1 step, hardware prepared for microstep mode (6.35 µm)
- Maximum speed per axis: 93 mm/s (=5.6 m/min)
- Drill speed: 5 hits/s (= 18000 holes per hour)



The Picture is an ATC