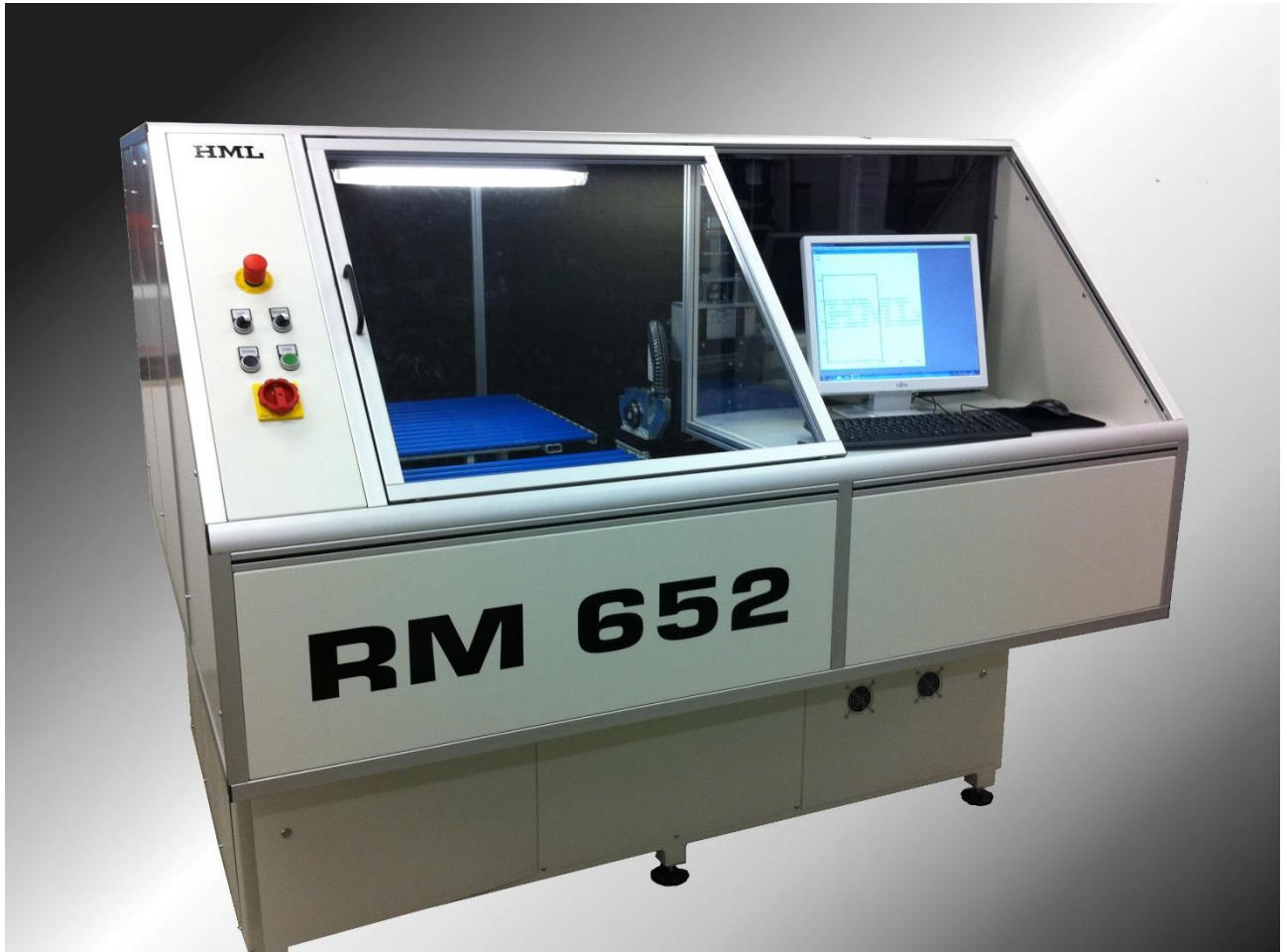# CNC-SCORE MACHINE RM 652

Technical description

The CNC score machine RM 652 with skipping device is used for score nominal area grooves in printed-circuit board multi-panels, which allows an easy break-off of individual PCB's.

The machine permits one and two-sided score optionally, where the smallest adjustable distance between two score lines is theoretically 0,02 mm. The dimensions of the multi-panels may be 120 x 120 mm and 650 x 650 mm max.

It is possible to process all known substrates from FR 2 to FR 4, multilayer, polymides as well as green ceramics, in thicknesses between 0,5 and 3,2 mm.

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The mechanical set-up and the programming of the machine take only a few minutes, which makes the machine ideal for application with small and high volumes.

Working way

The machine is controlled by a modern CNC control system fitted with intelligent servo-controllers an with a super ordinated PC. The special software includes pull-down menus and macro-programming, which allows control of the machine without extends training.

This ensures a fast score input. The internal control of the machine has a storage capacity more than 250.000 different score programmes.

By means of the software, a residual land of up to 0,2 mm max. may be entered from the PC. It is possible to specify separate to and bottom score depths. This is achieved by two Z axes, each with individual control. The residual land may differ for each skip.

A total of 500 cuts may be programmed and each cut may be interrupted up to 100 times. The score depth may be inputted separately for each interruption.

An RS 485 C interface permits optimal data communications. The control is fitted with a 2,5" Hard disk drive for data storage and processing.

Technical parameter

Dates:

Useful area	*max. 650 x 650 mm*
	min. 120 x 120 mm (Score machine Standard)
Useful height	*0,5 - 3,2 mim*
Positioning range	
x-axis	*650 mm*
y-axis	*850 mm*
two z-axis	*10 mm*
Drive units	*ball screw; servomotor with*
x-/y-/z-axis	*incremental transmitter*
Positioning accuracy	
x-axis	*+/- 0,02 mm*
y-axis	*+/- 0,05 mm*
two z-axis	*+/- 0,02 mm*
Repetitive accuracy	
x-axis	*+/- 0,01 mm*
y-axis	*+/- 0,02 mm*
two z-axis	*+/- 0,01 mm*

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Positioning speed
    x-axis   *15 m /min.*
    y-axis   *40 m / min.*
  two z-axis   *2 m / min.*

Cutting speed   *programmable 0,5 to 40 m /min.*

Saw blade drive   **AC control**
    Speed range   **continuos control,**
                          2500 to 10000 1/min., stepless

    Nominal capacity   *1,2 kW*

    Slitting saw blade   *massive hardmetal alternative optional*
                          diamond charging; Dm 120 x 2 x 40 mm - 30° (or alternative)

Carrier system
    Carrier Standard   *1 pin fixed and 1 pin sliding movable (or alternative - Option)*
    Pin Standard   *diameter 3,0 mm (or alternative)*

Min. distance middle
    of pin to 1. score   *8,0 mm*

    Parallelism pin - score   *+/- 0,03 mm*

Score dates
    Jumps per scoreline   *0 to 100*

    Jump tools   *100*

    Scorelines   *0 to 1000*

    Score dividing   *programmable*

    Score depth   *programmable*

    Score tools   *100*

    Width of remaining
    material   *min. 0,2 mm*

Control system
    Hardware   *PC-Control*

    Operating system/
    Software   *Windows 10 Professional*

    Rima Software   *written in C++*

    Electric mains   *230 V; 50/60 Hz*

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Power consumption   *2,5 kW*

Compressed air supply   *6 bar*

Dimension (LxWxH)   *2000 x 1900 x 1750 mm*

Weight   *790 kg*

Noise level   *75 dB*