

*The Semi Automatic Router*  
**GSR 1200**



**半自动PCB切割机 GSR 1200**



## FEATURES

- *Routing speeds up to 100 mm/sec coupled with positioning speeds up to 1000mm/sec*
- *Two independent workstations, one per axis, allows for concurrent unloading and reloading of panels, thus continuous routing is achieved with minimal idle time*
- *Large panel size up to 350 x 350mm*
- *Integrated top clamping provides exceptionally rigid holding of PCB during routing*
- *Fixture carriage plate with reference holes for fast product change over*
- *Vision assisted jog and teach facility for rapid and accurate online programming*
- *Zero maintenance AC servo motors with repeatability  $\pm 0.02$  mm*
- *Tool life monitoring, tool wear compensation, tool break detection*
- *High power low noise, low vibration vacuum pump*
- *Options include, Auto tool change, pneumatic tool release, and 0.5 kW spindle*

*The GSR, based on the successful SR1200, is a stand-alone router machine, specially designed as a cost-effective solution to meet your PCB depaneling requirements, providing gentle and accurate board extraction as demanded by today's manufacturers.*

## WINDOWS® OPERATING SYSTEM

The system operates from a Windows® based software providing:

- Tool life tracking with automatic notification of details such as tool breakage
- Automatic back up of program files
- Definable distance routed for filter bag change
- Three levels of software access providing programming security

## TEACHING WITH VISION

All GSR machines are supplied with an analogue CCD video camera, which provides the user a view of the board from the perspective of the router bit, allowing for rapid and accurate online programming by operators with little or no programming experience.

Tool bit diameter compensation is provided, allowing for a change of diameter without having to make alterations to the cutting program.

## MANIPULATORS

The driving force behind the GSR is achieved by the use of advanced precision manipulators on all four axis offering:

- Extremely high acceleration/deceleration speeds, a prerequisite for routing
- Fully enclosed, heavy duty pre-loaded linear guides
- Servo motor powered Z axis with power off brake
- Complete PC based control, incorporating a high end motion control card

## ERGONOMICS AND SAFETY

The GSR is designed to provide a user friendly machine to operate. The welded structure, fitted with sliding doors, and a safety Perspex screen provides for a fully enclosed machine.

为满足当今制造商对印刷电路板PCB的切割要求,GETECH自动化有限公司在成功型半自动切割机SRR1200的基础上开发研制出新一代半自动切割机GSR1200。该机器为制造商提供了经济、实惠、轻柔和精确的线路板切割。

## WINDOWS® 操作系统

以 Windows® 软件为基础的操作系统提供:

- 刀具寿命跟踪, 自动显示有关数据, 如刀具断裂记录
- 程序文件的自动备份
- 通过输入切割行程来确定过滤袋的更换
- 三层软件访问保证编程的安全

## 视觉系统

在GSR机器上装有一台模拟CCD摄像机, 使用户可从切割点来俯视PCB, 允许编程经验不足或没有编程经验的操作者能够进行快速准确的在线编程。

提供刀具直径补偿, 在不改变切割程序的前提下, 允许刀具直径变化。

## 驱动系统

四套高精度驱动系统分别为四个运行轴提供驱动力, 以获得:

- 非常高的加速度和减速度, 即切割必满足的先决条件
- 完全封闭式重型预载线性导轨
- 伺服马达控制的Z轴上设有断电刹车装置
- 完全PC控制, 并配有高性能运行控制卡

## 工效性和安全性

GSR机器提供友善的用户界面。配有滑行门的焊接机身和安全的有机玻璃屏使机器完全封闭。



## 特性

- 定位速度高达1000毫米/秒, 切割速度高达100毫米/秒
- 两个独立式工作台, 每个工作台拥有各自的驱动系统, 允许同时装卸线路板, 从而进行连续切割, 减少机器空载时间
- 最大PCB尺寸350毫米 X 350毫米
- 在切割过程中顶端夹具为PCB提供强而有力的定位控制
- 带有定位孔的夹具携带板便于快速更换产品
- 借助于视觉系统提供快速准确的在线编程
- 免维护的交流伺服马达, 重复精度 $\pm 0.02\text{mm}$
- 刀具寿命监控、刀具磨损补偿和刀具断裂检测
- 大功率低噪音低振动真空泵
- 用户自选功能包括: 自动刀具更换和气动刀具释放
- 两种不同功率的主轴马达供用户选择: 0.3千瓦和0.5千瓦

## MECHANICAL SPECIFICATIONS

### MANIPULATOR

Manipulator Motor 4 axis AC brushless servo motors  
 Manipulator Repeatability  $\pm 0.02\text{mm}$   
 Resolution  $\pm 0.010\text{mm}$   
 Configuration X, Y1, Y2 & Z-axis.

### WORK STATION

Board Positioning Two workstations, Side by Side each with dedicated or modular fixtures  
 Panel location Located by tooling holes or edge of PCB  
 Loading/Unloading Manual Loading / Unloading  
 Panel Size (mm) 350 x 350mm  
 Panel Thickness 0.4 — 2.0mm

### SPINDLE MOTOR

Power 0.3kw (Options available)  
 Max. speed 60,000rpm  
 Cooling Air cooled  
 Router bit Shank size 3.175mm (1/8")  
 Tool change Manual with spanners

### VACUUM SYSTEM

Power 4 kW rotary vane blower  
 Filtration 3 stage disposable industrial vacuum filter bag

### UTILITIES

Power supply 415v, 3 phase, 20 amps, 50 Hz (options available)  
 Air supply 6 bars, consumption < 6 L/min

## OPERATING SYSTEM

**SPINDLE SPEED** 5,000 — 60,000 rpm adjustable via frequency converter

### ROUTING CAPABILITY

Non routing speed 1000 mm/sec  
 Routing speed 100 mm/sec max depending on material, cutting quality & tool diameter  
 Repeatability < 0.1 mm Straight lines, curves and interpolated profiles

### MAINTENANCE

Spindle bearing Ceramic bearings  
 Router bit 100 to 300 m cutting distance before next tool change, depending on PCB and fixture  
 Filter bag 1000m to 1500m before next filter bag change  
 Safety features E Stop, Spindle stop, Spindle motor overheat & Servo overload detection  
 Noise level < 76 dBA

**SYSTEM PLATFORM** System platform Windows® based PC

**VISION SYSTEM** Vision system high resolution video camera

### PROGRAMMING

On-line Vision assisted point to point manual teaching, or manual Data Input of co-ordinates  
 Editing function Dry run vision assisted / test run mode  
 Variables functions Tool bit diameter compensation, Filter change interval (distance) setting, Tool bit wear compensation

### OPERATION MONITOR

Router bit Tool life tracking, PCB board count. Tool broken sensor  
 Vacuum Vacuum filter change alarm  
 Machine Machine error history

## 机械特性

### 驱动系统

驱动系统马达 交流无刷伺服马达  
 驱动系统重复精度  $\pm 0.02\text{mm}$   
 分辨率  $\pm 0.010\text{mm}$   
 配置 X, Y1, Y2 & Z轴

### 工作台

线路板定位 两个工作台, 并行排列, 装有特殊或标准夹具  
 线路板位置 由线路板上的定位孔或边来定位  
 装卸方式 人工方式  
 线路板尺寸 350毫米 X 350毫米  
 线路板厚度 0.4毫米—2毫米

### 主轴马达

功率 0.3 千瓦或0.5千瓦 (两种不同的功率供用户选择)  
 最大转速 60,000 转/分钟  
 冷却方式 空冷  
 刀具 标准刀具直径3.175mm (1/8")

### 真空系统

功率 4 千瓦旋转式叶片吹风机  
 过滤 一次性使用的三级工业真空过滤袋

### 电气供应

电源 380 伏, 3 相, 20 安培, 50 赫兹 (可由用户要求决定)  
 气源 气压6巴, 消耗量 < 6 升/分钟

## 操作系统

**主轴转速** 5000—60,000 转/分钟, 由变频器来调节

### 切削性能

非切割速度 1000毫米/秒  
 切割速度 最大100 毫米/秒, 取决于线路板材料和切割质量  
 重复精度 < 0.1 毫米 对于直线, 对直线和曲线的轮廓

### 维护

主轴轴承 陶瓷轴承  
 刀具 切割行程100—300米后需更换, 取决于PCB和夹具  
 过滤袋 切割1000—1500米后需更换  
 安全设置 整机紧急停止开关, 主轴紧急停止开关, 主轴马达过热和伺服马达过载检测  
 噪声 < 76分贝

**系统界面** 视窗系统个人计算机

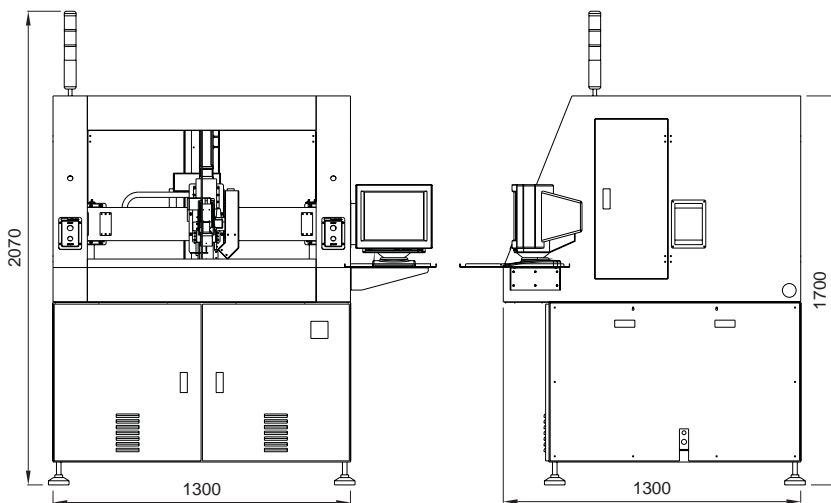
**视觉系统** 高分辨率摄像机

### 编程

在线 借助于视觉的点到点的人工示教或人工输入座标值  
 编辑功能 视觉系统的空载运行和切割点的空载运行  
 可变功能 刀具直径补偿, 过滤袋更换间隔设置和刀具磨损补偿。

### 运行监控器

切割点 刀具寿命跟踪, PCB计数, 刀具断裂传感器  
 真空 真空过滤袋更换警告  
 机器 机器故障记录



AGENT/经销商:



# GETECH

## GETECH AUTOMATION PTE. LTD.

Blk 22, Woodlands Link, #03-67, Woodlands East Industrial Estate, Singapore 738734.  
 Tel: (65) 6756 0777 E-mail: sales@getecha.com.sg  
 Fax: (65) 6756 0770 Website: http://www.getecha.com.sg