

轴插补  
叶片抛磨机  
BLADE POLISHING  
AXES INTERPOLATION

**MY13**



**C.B.Ferrari**

ITALIAN EXCELLENCE SINCE 1966



## 公司简介 THE COMPANY

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### 传统与创新

伴随着自1966年起的不断突破、创新以及坚持对性能与精度的不懈追求，C.B.Ferrari 在广泛的加工应用领域内皆游刃有余，获得了市场的肯定与信任，这奠定了其在世界上高精度五轴加工中心生产商中的领导地位。

意大利是欧洲第二大机床生产国，也是世界第五大机床生产国。目前C.B.Ferrari在意大利运营两家工厂，共有170余名积极的高技术员工，在生产高精度机床上具备丰富的经验与优秀的传统，同时自主生产包含电主轴和旋转工作台在内的绝大多数机床部件，这一切使得C.B.Ferrari能保证产品优异的质量和可靠性。

C.B.Ferrari在世界范围内安装超过4500台机床，并就近提供及时的销售和售后服务。C.B.Ferrari确保客户能够获得极高水平的技术支持，并享受业内顶尖水准的机床性能与精度。

### TRADITION AND INNOVATION

*Since 1966 constant innovation, performance based approach and market recognized and consolidated superior accuracy, achieved in a wide variety of manufacturing applications, have led C.B.Ferrari to a world leading position in high precision 5-Axes CNC machining centers solutions.*

*Currently C.B.Ferrari operates with two manufacturing facilities in Italy, the second major machine manufacturing country in Europe and the fifth in the World. 170 skilled and highly motivated employees, enjoying the homeland long-standing tradition in precision mechanics, design and manufacture all machines in house including electro-spindles and rotary tables, ensuring extraordinary quality and reliability over the time.*

*With more than 4500 machines successfully installed worldwide, supported by a complete and prompt sales and service network, C.B.Ferrari ensures its customers the ultimate manufacturing support, achieving state-of-the-art results in terms of accuracy and performances.*



## 服务内容 SERVICES



C.B.Ferrari 提供广泛的技术服务，包括：

- 全球范围的销售和服务网络
- 专有主轴、分度头的制造与维修
- **顶尖的专有CAM软件和仿真模拟软件**
- 交钥匙解决方案
- 机床操作示范及加工效率优化
- 精度和重复定位精度测试
- 定制自动化解决方案
- 旧机床翻新
- 全面的技术培训



*C.B.Ferrari offers comprehensive consulting, including:*

- *Worldwide Sales and Service Network*
- *Proprietary Spindles and Dividing Heads Manufacturing and Repair*
- ***Proprietary CAM and Simulation Software products***
- *Turnkey Projects*
- *Machine Demonstration and Time Studies*
- *Accuracy and Repeatability Tests*
- *Customized Automation Solutions*
- *Used machines Overhauls*
- *Training programs*

# MY13



## MY13

虽然各类叶片的需求量十分之大，但仍有不少厂家依然使用传统的手工方式精抛叶片型面；作为供应商中的佼佼者，C. B. Ferrari 适时在中国推出领先于世界的叶片抛光解决方案——MY13。

其行程达到 $X=650$ ,  $Y=320$ ,  $Z=320$ 。

MY13通过新的“数学插补”方式来实现叶片的磨削和抛光，是市面上唯一能够改变叶片几何形状和纠正形状误差的叶片抛光机。

MY13配置有两个独立的工作头，仅一次定位即可连续完成粗加工和精加工过程。

配置序中同步测量系统，加工过程中可对叶片进行接触式或非接触式测量。

其加工过程快速、经济，在欧洲市场售出的3台MY13目前已完成了超过300,000叶片的抛光，稳定性极高，同时易集成于FMS柔性制造单元或自动生产线中。

Although the demand for various types of blades is very large, many manufacturers still use traditional manual methods to polish the blade profile; as a leader among suppliers, C.B.Ferrari brings the world's leading blade polishing solution in China - MY13.

Its slide travel reaches  $X=650$ ,  $Y=320$ ,  $Z=320$ .

MY13 uses the new "mathematical interpolation" method to achieve grinding and polishing of the blade. It is the only blade polishing machine on the market that can change the blade geometry and correct the shape error.

The MY13 is equipped with two independent working heads for continuous roughing and finishing in one position.

The synchronous measuring system is configured in the sequence, and the blade can be measured either contacted or non-contacted during the processing.

The whole process is fast and economical. The three MY13 machines sold in the European market have now completed the polishing of more than 300,000 blades, and it is extremely stable and easy to integrate into FMS or automatic production lines.





## 产品优势 **ADVANTAGES**

### **数学插补**

C. B. Ferrari 研发了新概念的通过轴的数学插补来实现叶片的磨削和抛光（原理类似铣刀），重复定位精度达到0.002mm。

同时根据建立好的数学模型，抛光时自动对叶片进行修正，加工完成后轮廓精度将小于0.1mm；而利用压力进行磨削的传统机床无法实现这一点。

### **高效精加工**

叶片可以经铣削完成半精加工，然后用MY13进行快速和更经济的精加工。手动精抛型面将被淘汰。

### **高稳定性和重复定位精度**

MY13采用传统铣床结构，确保了大量叶片的稳定加工过程和高重复性的结果，与精铣相比更为快速经济，无需任何手动操作。

### **功能强劲、防护周全**

MY13可以轻松的加工带有有限圆角的叶片，同时可以防止操作者面对严重的污染和因抛光过程产生的危险烟雾。

## **MATHEMATICAL INTERPOLATION**

*C.B.Ferrari develops a new concept, where grinding and finishing of the blades is achieved through mathematical interpolation of the axes (like a milling tool), its position repeatability reaches 0,002 mm.*

*Meanwhile, defects on the shape of the blade, if any, can be corrected according to the mathematical model to reach a shape accuracy < 0,1 mm which is not possible to achieve on traditional machines working by pressure.*

## **HIGH EFFICIENCY IN FINISHING**

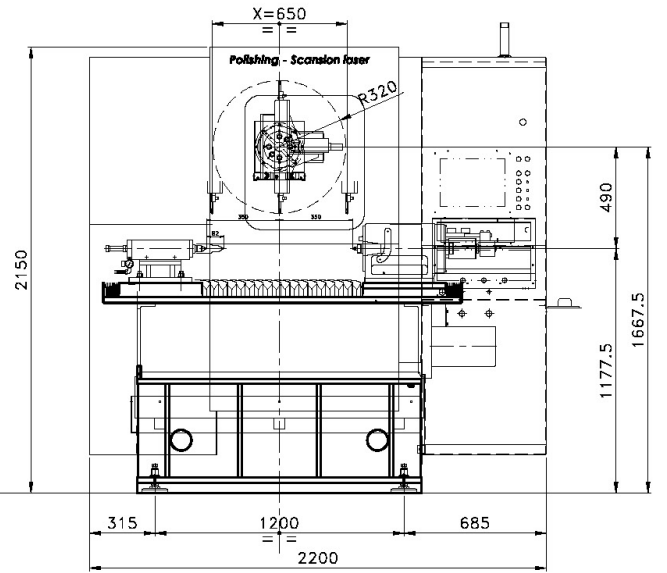
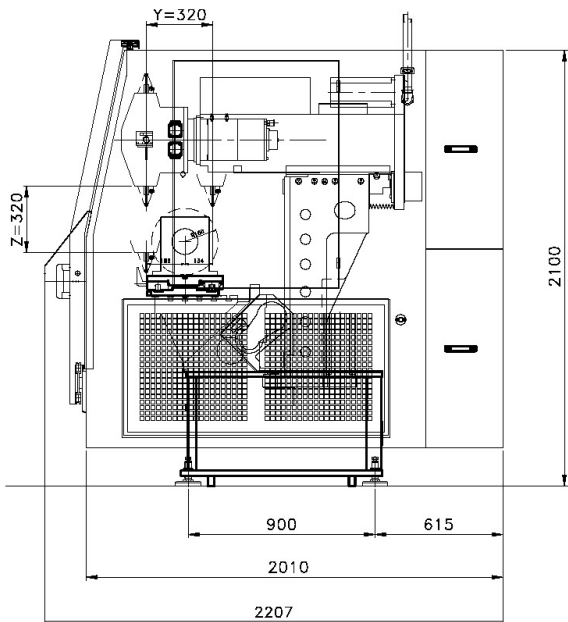
*Faster and more economical than finishing by milling, with no need of any manual operation on the airfoil.*

## **HIGH STABILITY AND REPEATIBILITY**

*The milling machine structure, guarantees a stable process and repeatable results on multiple blades, faster and more economical than finishing by milling, with no need of any manual operation on the airfoil.*

## **POWERFUL & USER-FRIENDLY SOLUTION**

*MY13 can easily machine blades with limited curve radius, with limited wall thickness, or made out of hard materials, also can protect operators from high polluting and dangerous smokes generate by the polishing process.*



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机床布局

**MY13**

MACHINE LAYOUT



# 应用一览

## APPLICATION SECTORS



# C.B.Ferrari

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