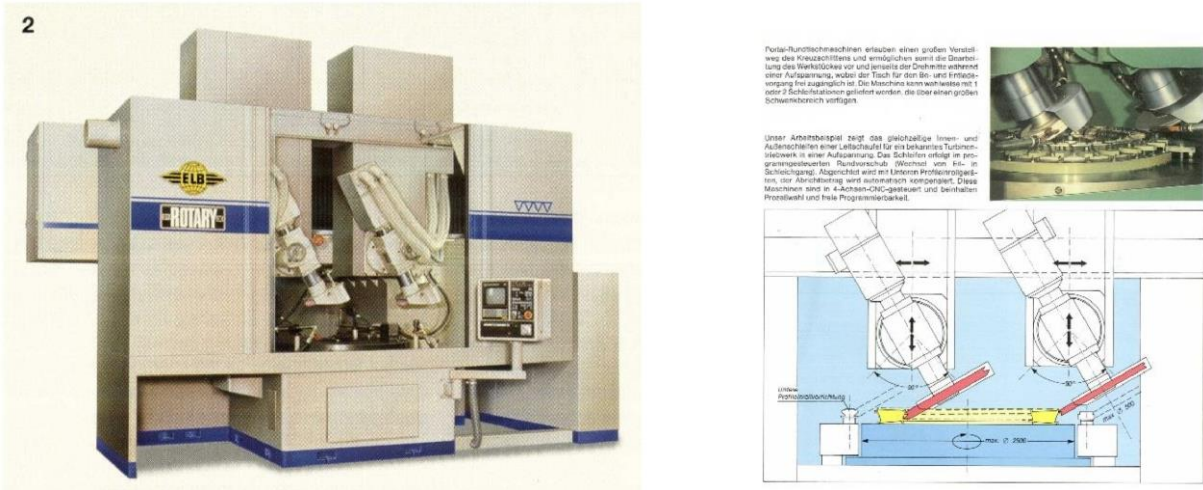


德国 ELB 数控立式磨床

制造厂家：德国 ELB 公司
数控系统：西门子 840 D

机床介绍：本机床由德国 ELB 公司生产制造。作为世界先进磨床制造商，德国 ELB 公司是新中国成立后首家进入中国市场的欧洲磨床企业，也是中国航空发动机工业长期战略供应商。

该机床是为加工高精度大型圆柱、盘型零件而设计制造的高刚性立式磨床，采用龙门式、双滑座和双磨头结构。一次装夹可完成工件的内圆、外圆和端面的复合磨削加工等。磨头可 $\pm 90^\circ$ 搬度，实现锥面高精度加工。



以上为机床示意图

该设备为重型加工设备，磨头滑座坐落在宽大的横梁上，滑座导轨采用斜坡式燕尾和平导轨结合的结构，加强了加工的稳定和精度。回转工作台径向轴承采用辊柱轴承，轴向采用有机材料涂层平面轴承，机床工作台平面精度可达到 $\pm 0.004\text{ mm}$ ，径向精度达到 0.002 mm 。

主要技术参数：

工作台直径	Ø 1500	mm
回转直径	Ø 1700	mm
外部磨削直径范围	Ø 150 - 1500	mm
内部磨削直径范围	Ø 250 - 1300	mm
工件高度(内/外)	350 / 750	mm
工件最大重量	2000	kg
工作台转速	0,02-20	l/min
Y 轴行程	750	mm
Z 轴行程	1700	mm
Y 轴进给速度	0,02 - 500	mm/min
Z 轴进给速度	0,02 - 1800	mm/min
磨头主轴功率	10 - 46	kW
磨头主轴转速	1000 - 4600	l/min
磨头滑座行程	550	mm
砂轮最大尺寸	Ø 400 x 80	mm
磨头主轴搬角范围	$\pm 90^\circ$	

该机床可用于大型辊子轴承的内外环内径、外径、端面及滚道的全面加工。飞机发动机关键零部件的精加工。风电齿轮箱齿轮滚道的磨削等。该设备从德国进口，于 2022 年进行了全面升级改造，升级控制系统为西门子 840D 并更换了全新电气系统，现在国内调试、待售。

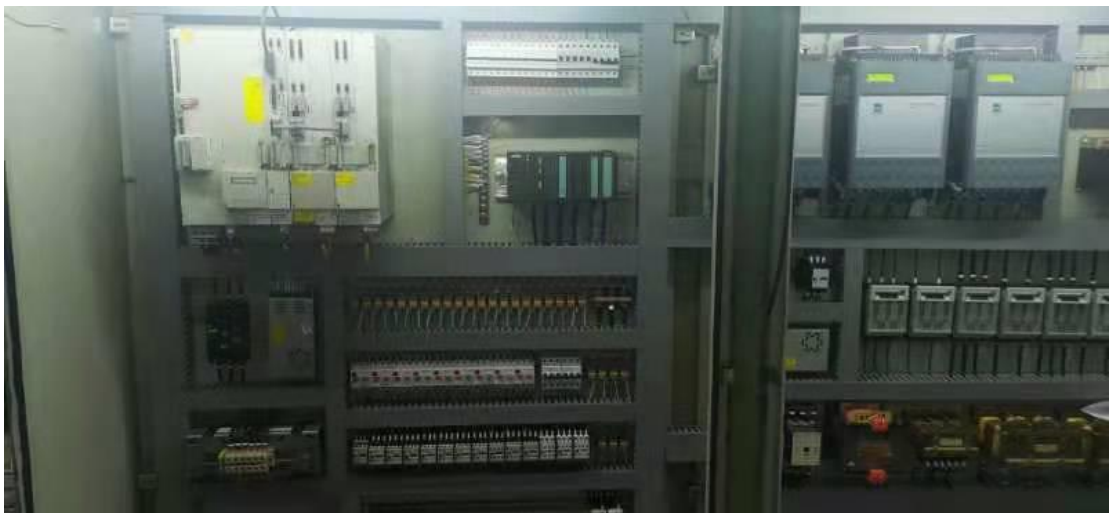
设备照片:





数控系统照片（已升级为西门子 840 D 系统）：





German ELB CNC Vertical Grinding Machine

Manufacturer: German ELB Company
CNC System: Siemens 840 D

Machine Tool Introduction: This machine tool is manufactured by the German ELB Company. As a world-leading manufacturer of grinding machines, the German ELB Company was the first European grinding machine enterprise to enter the Chinese market after the founding of the People's Republic of China. It is also a long-term strategic supplier for China's aero-engine industry.

The machine is a high rigidity vertical grinding machine designed and manufactured for processing high-precision large cylindrical and disc parts, featuring a gantry, double-slide, and double-grinding head structure. A single clamping can complete the compound grinding processing of the workpiece's inner and outer circles and end faces. The grinding head can be tilted $\pm 90^\circ$ to achieve high-precision taper processing.

The above is a schematic diagram of the machine tool.

This equipment is a heavy-duty machining tool with the grinding head slide located on a wide beam. The slide guide rail adopts a combined structure of ramp-style dovetail and flat guide rail, enhancing the stability and precision of processing. The radial bearing of the rotary worktable uses a roller bearing, and the axial direction uses a plane bearing with organic material coating. The machine tool worktable plane accuracy can reach ± 0.004 mm, and the radial accuracy reaches 0.002 mm.

Main Technical Parameters:

Worktable diameter \varnothing 1500 mm
Swing diameter \varnothing 1700 mm
External grinding diameter range \varnothing 150 - 1500 mm
Internal grinding diameter range \varnothing 250 - 1300 mm
Workpiece height (internal/external) 350 / 750 mm
Maximum workpiece weight 2000 kg
Worktable speed 0.02-20 rpm
Y-axis travel 750 mm
Z-axis travel 1700 mm
Y-axis feed rate 0.02 - 500 mm/min
Z-axis feed rate 0.02 - 1800 mm/min
Grinding head main shaft power 10 - 46 kW
Grinding head main shaft speed 1000 - 4600 rpm
Grinding head slide travel 550 mm
Maximum grinding wheel size \varnothing 400 x 80 mm
Grinding head main shaft tilting range $\pm 90^\circ$

This machine can be used for comprehensive processing of inner and outer rings, inner and outer diameters, end faces, and raceways of large roller bearings. It is also suitable for precision machining of key components of aircraft engines and grinding of gear raceways in wind power gearboxes. The equipment was imported from Germany and underwent a comprehensive upgrade in 2022, upgrading the control system to Siemens 840D and replacing the entire electrical system. It is now being commissioned and for sale in China. Equipment photos: CNC system photo (upgraded to Siemens 840 D system).