

DERBY *EVO*



3-4-5 轴加工中心 ■ 3-4-5 AXIS MACHINING CENTERS



DERBY EVO 是从FAGIMA通过总结多年同类型机床的生产经验，以及实际用户的真实机加工情况反馈，结合欧洲最先进的机床设计理念，而研发生产的。

该机型是目前市场上同类机床产品中，无论是科技的高端性，还是性价比，都是最优的选择。

它的特点是高刚性的动柱结构，以及永远不“下垂”的Y轴。机床的快速移动能力和高加速度减少了程序循环时间，提升了加工效率。尤其体现在大型件的加工上。目前机型有三种规格的X轴可供选择，但300机型是用户公认性价比最高的解决方案。

DERBY EVO was born from the the wide experience gained by Fagima in construction of machining centers with moving column. Studied in detail, using the most modern design and calculation systems, it is the best choice that can be found on the market today.

It is characterized by the high rigidity of structures and the absence of the fall on the Y axis. Rapid and high accelerations allow reductions of the cycles times, especially on large pieces. Available in 3 different versions on X axis strokes, 300 version is certainly the most balanced.

DERBY EVO 200 – 300 – 400

■ 行程 / Strokes

X轴 axis	mm 2000 – 3000 – 4000
Y轴 axis	mm 1000
Z轴 axis	mm 1000
主轴鼻端—工作台垂直距离 Distance spindle nose / table – with head in vertical position	mm 25-1025

■ 进给 / Feed speed

X,Y,Z轴 / axis	m/1' 40/40/40
加工进给速度 / Working feed speed	m/1' 20

■ 工作台尺寸 / Table features

工作台尺寸 / Table dimensions	mm 1000 x	mm 2200 - 3200 - 4200
T形槽 / T-slots	n° 7	
中央T形槽 / Central T-Slot	mm 18 H7	
其它 / Others	mm 18 H11	
宽度 / Distance between centres	mm 120	
最大载重 / Max loading	kg/m² 2500	

■ 摇摆铣头-第四轴 / Tilting head - 4th axis

持续扭矩输出 / All torque head rotation	
连续加工、位定 / Continuous operation or positioning	
制动扭矩 / Braking torque	Nm 4000 (40 bar)
倾斜范围 / Tilting range	±120°
铣头旋转分辨率 / Resolution rotating head axis	0.001°

■ 标配电主轴 / Standard electrospindle

刀柄型式 / Cone dimensions	ISO40
主轴电机功率 / Motor spindle power (S6)	Kw 31
主轴电机最大扭矩 / Max spindle motor torque (S6)	Nm 159
主轴转速 / Spindle rotation speed	rpm 12000

■ 42位随机刀库 / Random tool magazine 42 position

拉钉型式 / Spindle taper	DIN 69871-ISO40
最大刀具长度 / Max tool lenght	mm 300
刀库最大装载量	
最大刀具直径（相邻为满/空刀）	mm 72 (120)
最大刀具重量 / Max tool weight	kg 7
刀库刀具最大重量 / Max weight total tools stored	kg 250

■ 数控系统 CNC System

海德汉 TNC 640 - 西门子 840D - 法那科 31B5



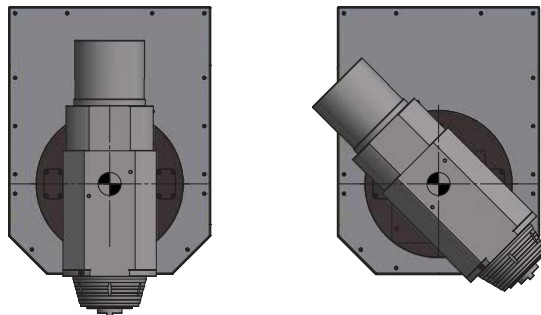
机床采用了高刚性复合材料铸件（工作台采用传统铸铁材料），合同的结构设计让机床在简单的地基条件下就能达到很大的承重。立柱滑座通过直线直导安装在底座上（机床X，Y，Z轴都是采用直线导轨的形式传动）。立柱上安装了刀链机构和换刀机械手，标准配置42位刀库（可选配60位或更多刀位），立柱是专为支撑主轴箱设计的高刚性部件。

机床钣金设计精致完美。两扇大推拉门让机床具有FAGIMA产品的标志个性特征。机床防护把干（非加工区域）、湿（加工区域）区域进行了有效分离。机床可以给用户提供最大程序的加工柔性，以及多样性的扩展和定制加工形式。比如说增加铣/车复合功能。

The structure starts with a monolithic base made up of enriched mineal casting (with annexed cast iron table) ad it is characterized by a high loading capacity without the needs of very complex foundations. The column-holder carriage slides on it, through roller guideways (all X, Y and Z axis have such kind of guideways). Inside the column, two groups are located: the toll changer and the exchange arm. The standard configuration of the tools magazine has 42 positions (60 positions as an option). The column has been studied to grant the highest rigidity of the spindle-holder head.

An elegantly styled fairing with 2 front sliding doors gives a marked personality to the new Fagima machine, and a clear separation was ensured between the dry and the wet working area. The standard configuration is susceptible to large expansion and provides most suitable customization of the machine: an example is the turning / milling kit which unquestionably places this model at the forefront, underlining its clear distinction from competing products.

主轴箱的切角设计最大程度减少了加工干涉
To reduce interference with the pieces to be milled



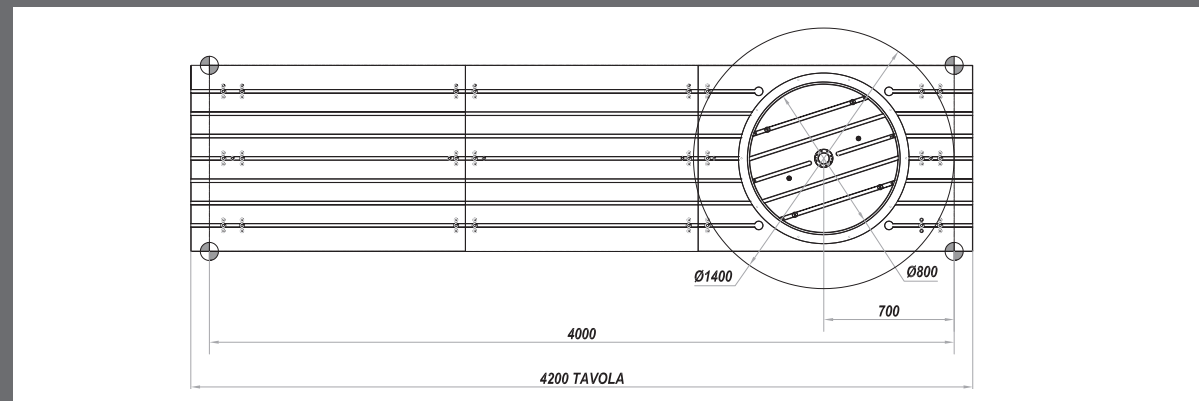
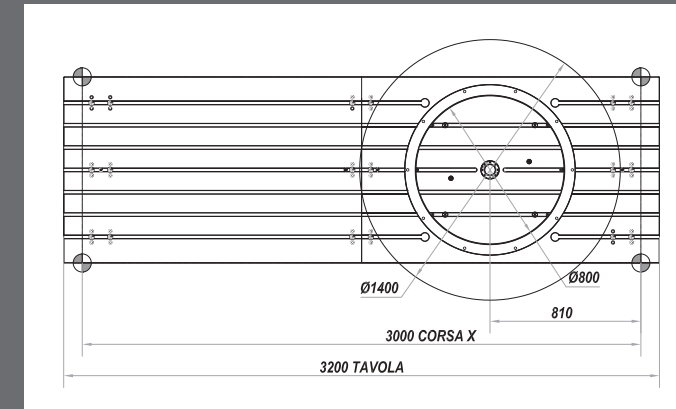
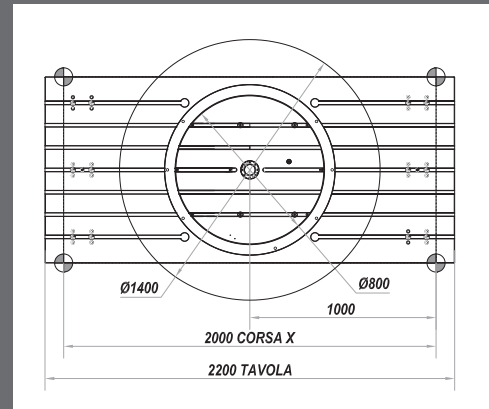
有用信息— Useful information

5 轴选配旋转工作台—5th axis option/turntable

- 力矩电机驱动
- 锁紧方式：液压
- 制动扭矩：Nm 4000
- 工作扭矩：Nm 1230
- 配置旋转编码器

- 定位精度：±5 sec
- 重复精度：±2 sec

- Drive by "torque" motors
- Clamp system: hydraulic
- Clamp torque: Nm 4000
- Working torque: Nm 1230
- Rotary encoder with direct position reading
- Accuracy: ±5 sec
- Repeatability: ±2 sec



刀库沿X轴与立柱一起移动，保证了换刀的快捷性，这在双工位状态下尤为重要

The tool magazine that moves along the X axis, alongside and with the column, guarantees a remarkable speed in change operations, as well as the necessary usability even during pendular machinings.

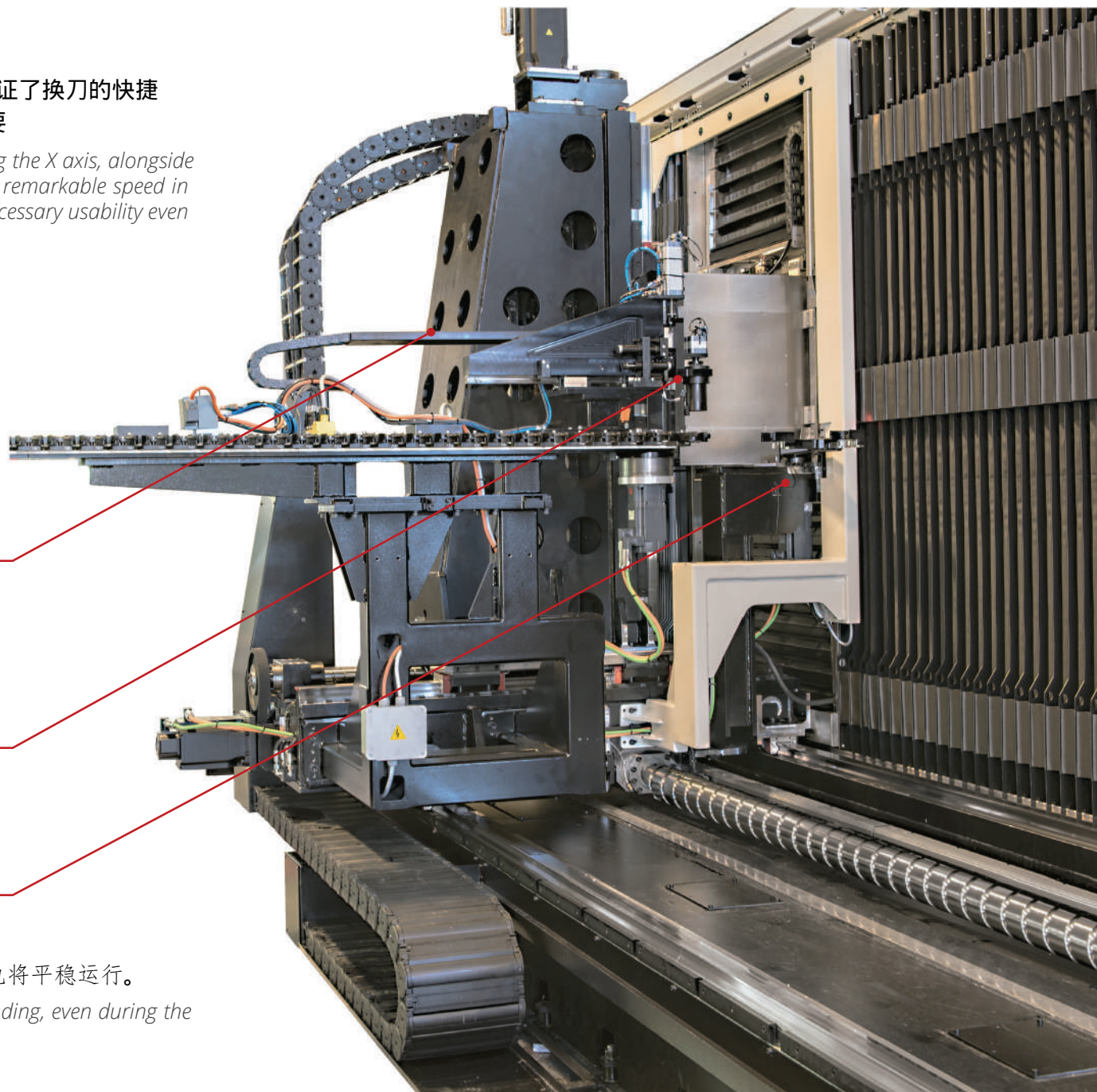
■ 立柱移动
Moving column

■ 拣选装置
Picking device

■ 刀臂
Exchanging arm

在超重型加工的环境下，立柱也将平稳运行。

The moving column avoids any banding, even during the most stressful machinings.



需要知道的事情

Derby Evo 的主要结构采用了DMP铸件新技术，它是传统焊接钢、铸铁和花岗岩的替代品。

它将焊接成型的结构件浇填满。正如所有知名欧洲机床厂家所做的一样，多种元素混合设计的理念，让机床能达到最优的机械特性。Derby Evo集成了此类中型机床目前最先进的科技成果。

- 高动态稳定性
- 长效的精度保持性
- 刀具接触工件时震动最小
- 刀具/工件区域发热最少

Things to know

Main structures of Derby Evo are made thanks to a new technique, alternative to traditional welded steel, cast iron and granite elements.
It starts from making an external shell, that can be entirely or partially filled.
The exploited conglomerate has a mix design of elements, specifically worked out to optimise the mechanical characteristics requested by the world of machine tools and machines in general.
Several advantages come from this technique, especially for middle dimensions machines like Derby Evo:

- High dynamical stability of the machine
- Non-deformability over time
- Minor vibration in the tool contact area
- Minor thermal generation in the tool/piece area

可选配的电主轴—铣头与工作台

Available electrospindles - Heads and table

■ 电主轴 / Electerspindle

刀柄形式 / Cone dimensions.....	ISO 40
主轴电机转速 / Spindle rotation speed.....	12000 rpm
主轴电机功率 (S6) / Spindle motor power (S6).....	31 kW
主轴电机最大扭矩 (S6) / Maximum spindle motor torque (S6).....	159 Nm

最大功率起始转速Maximum power available starting from.(approx.)..... 1885 rpm

■ 电主轴 / Electerspindle

刀柄形式 / Cone dimensions.....	ISO 50
主轴电机转速 / Spindle rotation speed.....	8000 rpm
主轴电机功率 (S6) / Spindle motor power (S6).....	47,5 kW
主轴电机最大扭矩 (S6) / Maximum spindle motor torque (S6).....	195 Nm

最大功率起始转速Maximum power available starting from.(approx.)..... 2300 rpm

■ 铣头 / Rotating head

最高转速 / Speed rotation.....	90 rpm
锁紧扭矩 / Clamp torque.....	3200 Nm (50 bar)
摆动范围 / Inclination angle.....	±120°
编码器的定位精度 / Positioning accuracy with encoder.....	±5 sec
编码器的重复定位精度 / Repeatability with encoder.....	±2 sec

■ 鼠牙盘式铣头 / Hirth rotating head

最高转速 / Speed rotation.....	90 rpm
锁紧扭矩 / Clamp torque.....	2750 Nm (50 bar)
摆动范围 / Inclination angle.....	±120°
编码器的定位精度 / Positioning accuracy with encoder.....	±5 sec
编码器的重复定位精度 / Repeatability with encoder.....	±2 sec

■ 旋转工作台 / Turntable

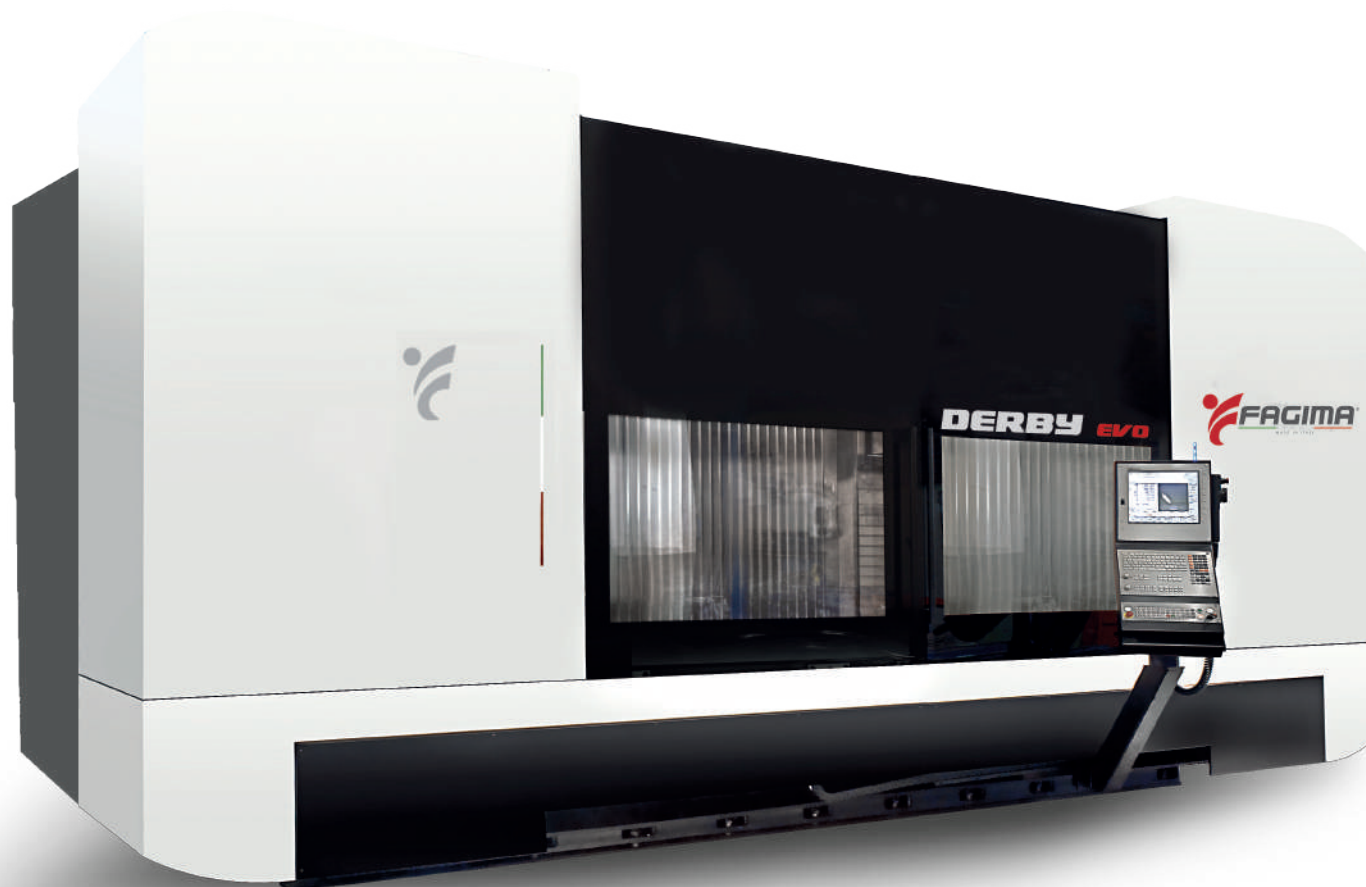
最高转速 / Maximum speed.....	90 rpm
锁紧扭矩 / Clamp torque.....	4000 Nm (40 bar)
转动范围 / Inclination angle.....	360 °
直径 / Diameter.....	800 mm
T形槽 / T-slots.....	5
中央T形槽 / Central T-slot.....	18 H7
其它T形槽 / Other T-slots.....	18 H11
T形槽间距 / T-slots wheelbase.....	120 mm
编码器定位精度 / Positioning accuracy with encoder.....	±5 sec
编码器的重复定位精度 / Repeatability with encoder.....	±2 sec

PALLET CHANGER



DERBY EVO, 和其它FAGIMA产品一样, 可以选配托盘管理系统。最理想的是选择目前由意大利FAGIMA直接设计和生产的, “CrossArm” 托盘管理系统。这套系统经过多年的使用, 技术已经非常成熟稳定。

该系统的主要特点是具有可变容积的仓库, 可容纳不同尺寸的托盘。托盘的数量取决于所选托盘尺寸的大小



***DERBY EVO**, as well as other FAGIMA products, can be combined with pallet change systems. Of course, the most ideal choice is now the new and affordable “CrossArm” pallet change system, made in Italy, designed and produced directly by FAGIMA. It is the right result from the experience gained in the combination of automatic pallet*

*change systems with our 3, 4 and 5 axis milling machines. The main element is a structure with a non-variable volume, on which pallets of different sizes are accommodated. The quantity of the pallets that can be placed inside the “CrossArm” depends directly from the size of the pallets (CA **) chosen.*

主要选配项— *Main options*

- X, Y, Z 轴配置海德汉光栅尺 DERBY EVO 200 / Heidenhain optical scales in X, Y, Z axis
- X, Y, Z 轴配置海德汉光栅尺 DERBY EVO 300/ Heidenhain optical scales in X, Y, Z axis
- X, Y, Z 轴配置海德汉光栅尺 DERBY EVO 400/ Heidenhain optical scales in X, Y, Z axis
- 60位随机刀库 ISO-40 / BT-40 / 60 pos. Tool Magazine
- 60位随机刀库 ISO-50 / HSK-100 / 60 pos. Tool Magazine
- 42位随机刀库 HSK-63/ 42 pos. Tool Magazine
- 60位随机刀库 HSK-63/ 60 pos. Tool Magazine
- 电主轴 ISO-40 16000/18000/24000 rpm / Electrospindle ISO-40 6000/18000/24000 rpm
- 通过高压自动冷却系统, 主轴线泵压力20/40 bar , 冷却液箱容量约400

/Automatic high-pressure cooling system through the spindle line with pump pressure 20/40 bar, coolant tank of about 400 l capacity

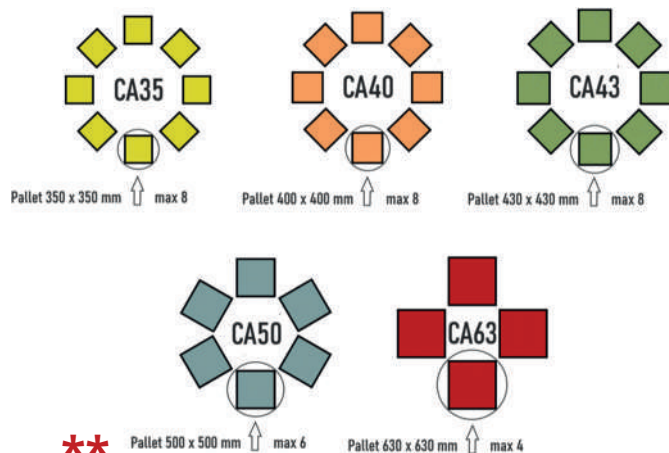
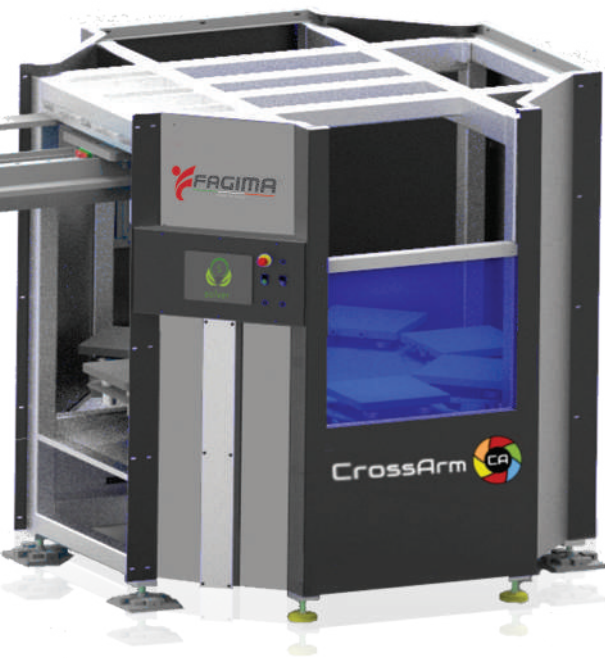
- META自动纸带过滤系统, 配有40/60 bar高压泵, 冷却液通过主轴和1000 l容量的冷却液罐
/ META automatic paperbelt filter system with high pressure pump 40/60 bar for coolant through spindle and coolant tank with 1000 l. capacity

- 支持双工位模式 */Wall for pendular operations*
- 用于工作部件尺寸和传感器的跟踪系统
/ Tracking system for work piece dimensions and alignment control by means of radio wave sensor

- 利用激光传感器测量刀具长度/半径和刀具完整性的系统
/System for measuring the tool length/radius and tool integrity function by means of a laser sensor

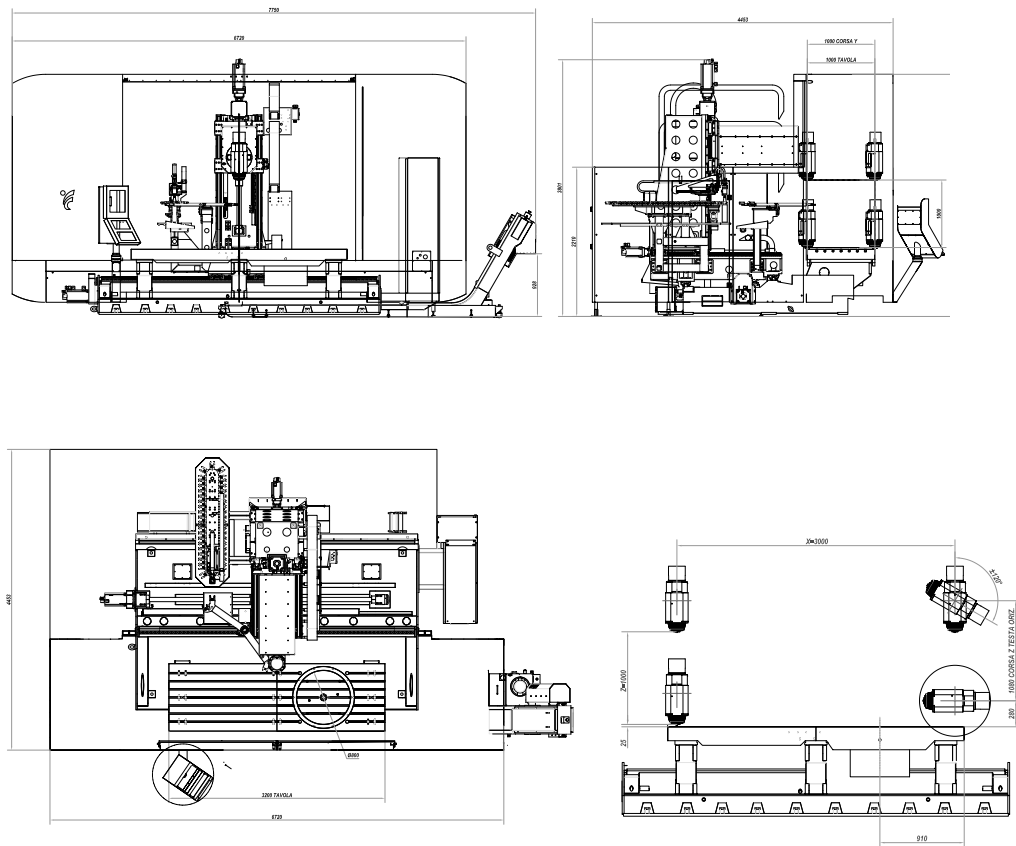
- 通过安装在工作台上的机械传感器测量刀具长度/半径和刀具完整性功能的系统
/ System for measuring the tool length/radius and tool integrity function by means of a mechanical sensor fitted on the table

- 气枪 / Air gun
- 冷却液枪 / Coolant gun

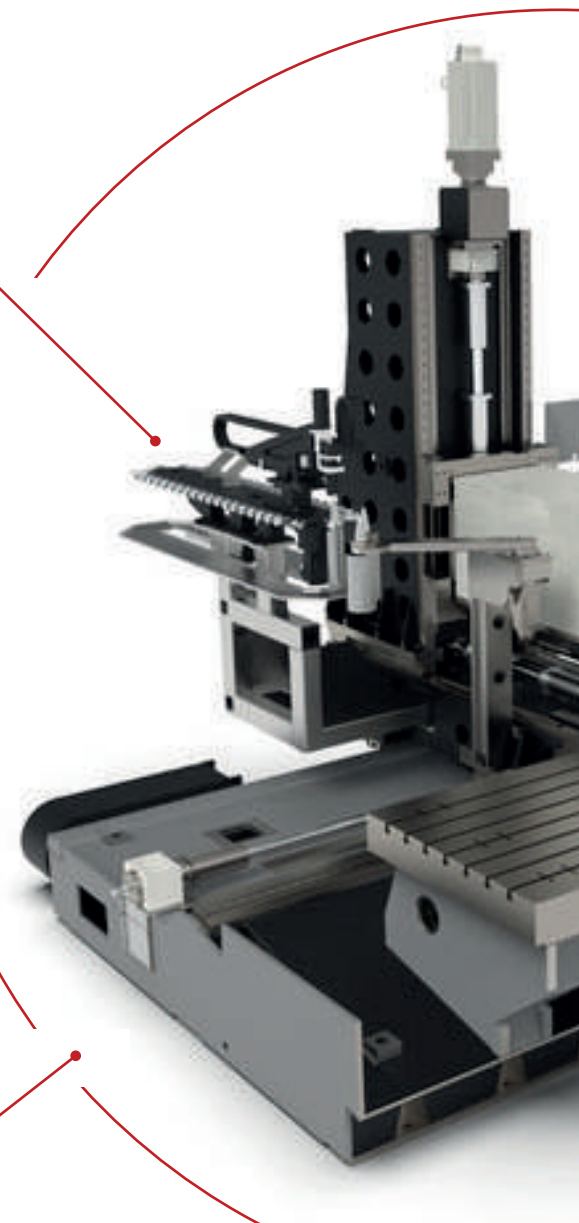


DERBY EVO

EVO 300

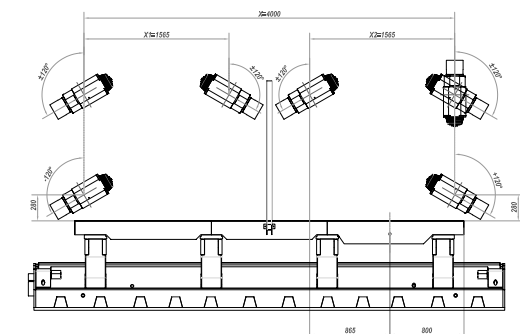
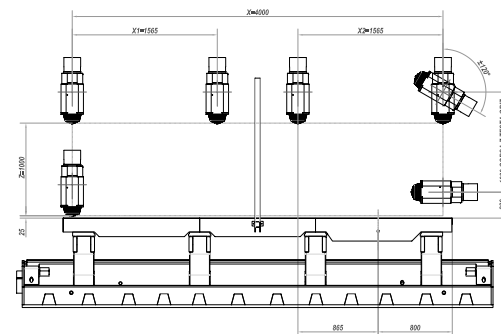
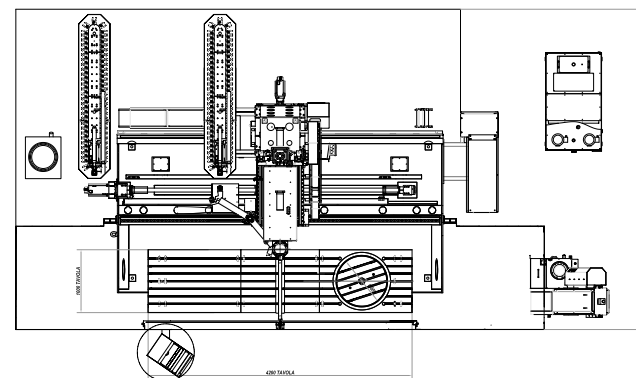
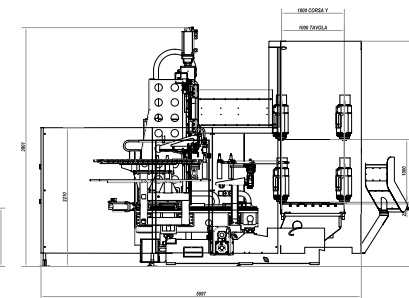
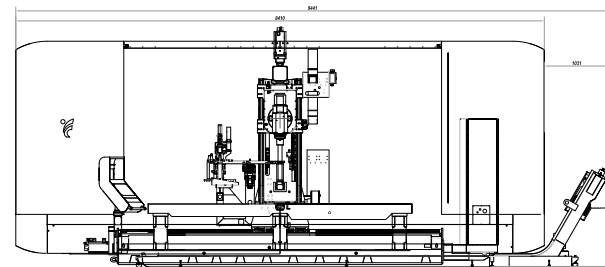


- 机床的大小取决于所选择的型号，会因所选择的型号或定制而有所不同
- *Machines dimensions refer to standard models and may vary in consideration of customer needs and customizations*



DERBY EVO

EVO 400





E conforme ai requisiti della Norma
UNI EN ISO 9001:2008.
Has been in compliance with the standard
UNI EN ISO 9001:2008.



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