



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



重庆法吉玛机电设备有限公司
重庆市江北区北滨二路星耀天地30栋17层
Tel. +86 023 67731007
Fax +86 023 67731007
info@fagimachina.com



关注我们- follow us



Le specifiche tecniche possono cambiare senza preavviso.
Decliniamo ogni responsabilità su eventuali errori tipografici.

Specifications subject to change without notice.
Not responsible for typographical errors.

© FAGIMA Fresatrici S.r.l. - 07/2020 - C 2500 - IT / ENG



www.fagima.com



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



KREOS加工中心是从FAGIMA在设计和制造立柱移动式加工中心方面积累的丰富经验中诞生的。为了满足每一位潜在客户的需求，我们对其进行了全新设计：在更紧凑的机身下，KREOS也能确保高强度和结构刚性，这使机械加工的灵活性和速度完美融合。

因此，KREOS可以最大化满足目前市场对5轴动柱立加越来越精细化的需求。在标准版本中，X轴提供了2700mm和4000mm两种不同的选择，Y轴和Z轴的行程均达到了800 mm。

*KREOS machining center was born from the wide experience gained by FAGIMA in designing and construction of machining centers with moving column. It was studied to meet every potential Costumer's expectations: even with reduced sizes, **KREOS** ensures a high stiffness and structures' strength, which blend perfectly with agility and speed in machining executions.*

*The **KREOS** therefore faces the market segment where the greatest demand for 5-axis moving column machines is addressed. FAGIMA offers, in the standard version, 2 different alternatives on the X axis (2700 and 4000 mm) while 800 mm determine the stroke both in Z and in Y axis.*

KREOS除了外观简洁大方的设计，细节上也有很多大胆的创新，研发人员尽可能的让机床变得紧凑，这极大的缩小了机床的占地面积。

*Characteristic of **KREOS** is the elegant design, but also some innovations in components. Moreover designers developed the project with aim to reduce as much as possible the overall dimensions of the new machine.*

KREOS 270 - 400

行程 / Strokes

X轴/ X axis	mm 2700-4000
Y轴/ Y axis	mm 800
Z轴垂直位置(第4轴水平)	
Head in vertical position (when 4th axis in horizontal)	mm 800 (880)
主轴鼻端-工作台垂直距离	
Distance spindle nose - table with head in vertical position	mm 25-825
当第四轴处于水平位置时，主轴鼻端-工作台距离	
Distance spindle nose - table with head when 4th axis in horizontal position	mm 280-1160

进给/ Feed speed

X, Y, Z 轴/ X,Y,Z axis	m/min 50/50/50
加工进给速度 / Working feed speed	m/min 20/20/20

工作台尺寸/ Table features

工作台尺寸/ Table dimensions	mm 800 x	mm 2800-4100
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	
最大载量/ Max loading	kg/m² 1500	

摇摆铣头 - 第四轴 / Tilting head - 4th axis

旋转速度/ Rotation speed	max 40 rpm
连续加工、定位/ Continuous operation or positioning	
锁紧扭矩 / Hydraulic braking torque	Nm 4000 (40 bar)
倾斜范围 / Tilting range	±120°
分辨精度/ Tilting resolution	±5°

标配电主轴 / Standard electrospindle

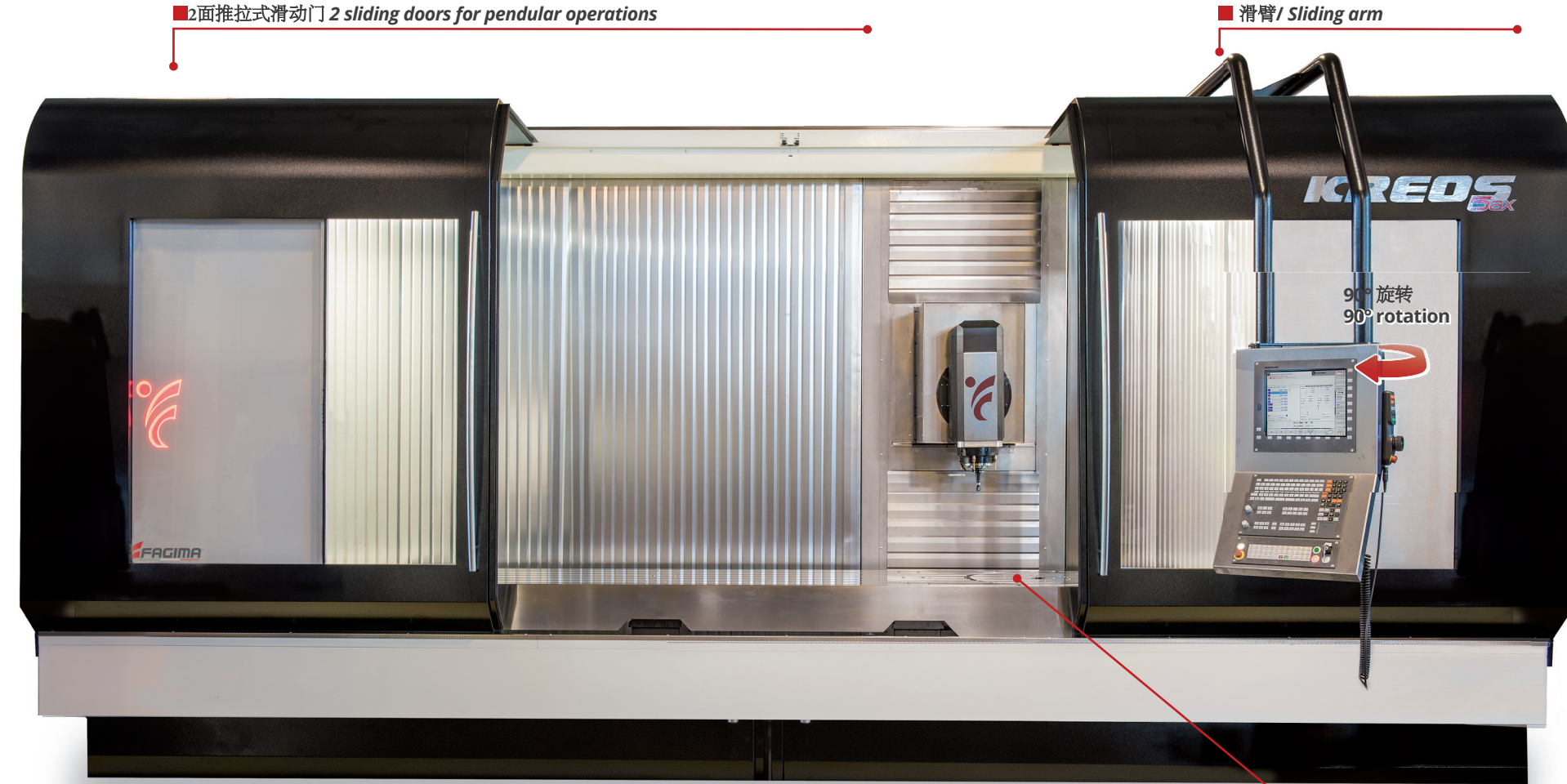
刀柄形式/ Cone dimensions	ISO40
主轴电机功率/ Motor spindle power (S6)	Kw 31
主轴电机最大扭矩 / Max spindle motor torque (S6)	Nm 149
主轴电机转速 / Spindle rotation speed	rpm 12000
最大功率转速/ Max power available from	rpm 2000

42位随机刀库/ Random tool magazine 42 position

主轴型式/ Spindle taper	DIN 69871-ISO40
最大刀具长度/ Max tool lenght	mm 300
最大刀具直径（相邻为满/空时）	
Tool max diameter with full (empty) adjacent position	mm 75 (120)
最大刀具重量 / Max tool weight	kg 8
平均刀具重量 / Average tool weight	kg 5
刀库刀具最大重量/ Max weight total tools stored	kg 250

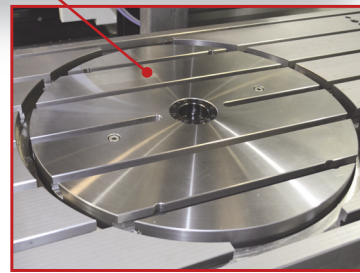
数控系统 CNC System

Heidenhain TNC 640 - Siemens 840D - Fanuc 31iB - Fagor 8065



KREOS具有高承载能力的整体式结构，没有任何复杂的设计。立柱滑座通过滚柱导轨在底座上运动（X、Y、Z三轴均为直线导轨形式）。刀库和换刀机械手均安装于立柱上，并随立柱移动。

KREOS structure is a monolithic base with high loading capacity, without any complex foundations requirement. The column holder-carriage slides on it, through roller guideways (feature in common for all 3 axis X, Y and Z). Inside the column, two groups are located: the tool changer and the exchange arm.

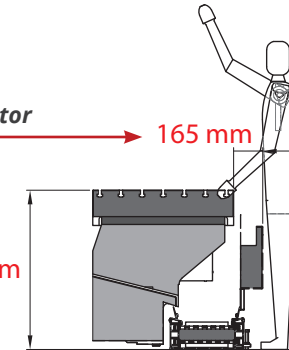


■ 嵌入式旋转工作台
Embedded rotary table

通常会将注意力集中在组件上，这些组件原产地为意大利，其遵守了FAGIMA众所周知的产品特征。标准版本容易受到不同组合的影响，并保证根据每个客户的特殊需求最大程度地定制机器，直至X轴上的额外行程。

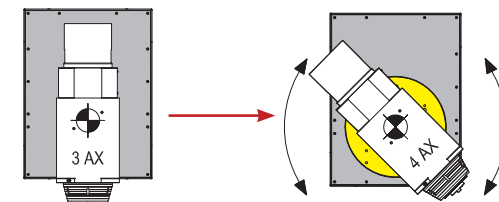
The usual and timely attention was obviously reserved for the components, predominantly of Italian origin, a feature that respects a well known characteristics of FAGIMA products. The standard version is susceptible to different combinations and guarantees the largest customization of the machine according to the particular needs of each Customer, up to the extra-strokes on the X axis.

- 工作台距操作员最短距离
Shortest distance table - operator
- 地面与固定工作台之间的距离
Distance between floor and fixed table surface



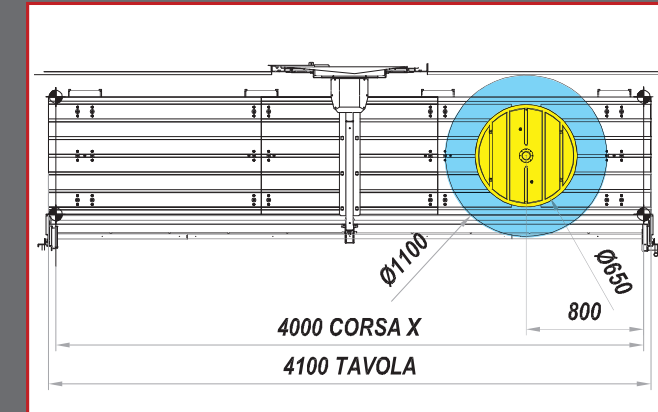
KREOS 可实现3轴到4轴或5轴的转化

Even after installation KREOS 3 axis can be upgraded to 4 and /or 5 axis



有用信息-Useful information

关门时工作的最大旋转尺寸 - Max dimension to be rotated with closed doors

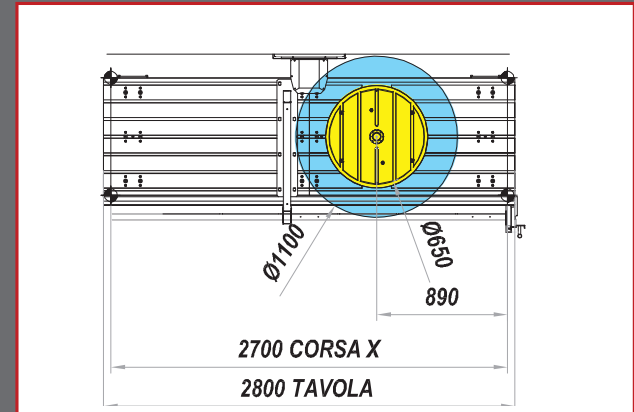


KREOS加工区域

5轴带摆头和嵌入式转台

- KREOS配有直径650mm的可选转台，可以旋转和加工直径1100mm的工件。

KREOS, equipped with the 650 mm diameter optional rotary table, can rotate and process a 1100 mm diameter piece.



Working areas of KREOS

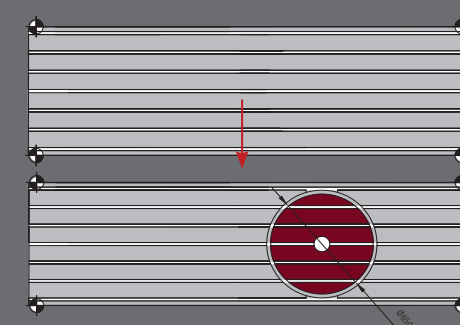
5 axis with tilting head and embedded rotary table

- Ø650mm转台作为第五轴，嵌入固定工作台。它允许定位和连续加工。完全意大利制造。

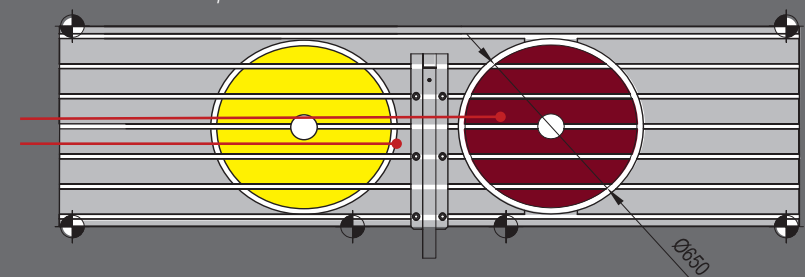
Optional rotary table 650 mm Ø as 5th axis, embedded in fixed table. It allows processings both in positioning and in continuous. Made in Italy.

可用升级KREOS 270-400 AVAILABLE UPGRADES

KREOS 270和400可以配备双嵌入式旋转工作台和隔离墙，以进行双工位操作。



KREOS 270 and 400 may be equipped with double embedded rotary table and wall for pendular operations.



刀库沿X轴与立柱一起移动，保证了快捷换刀的特点，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

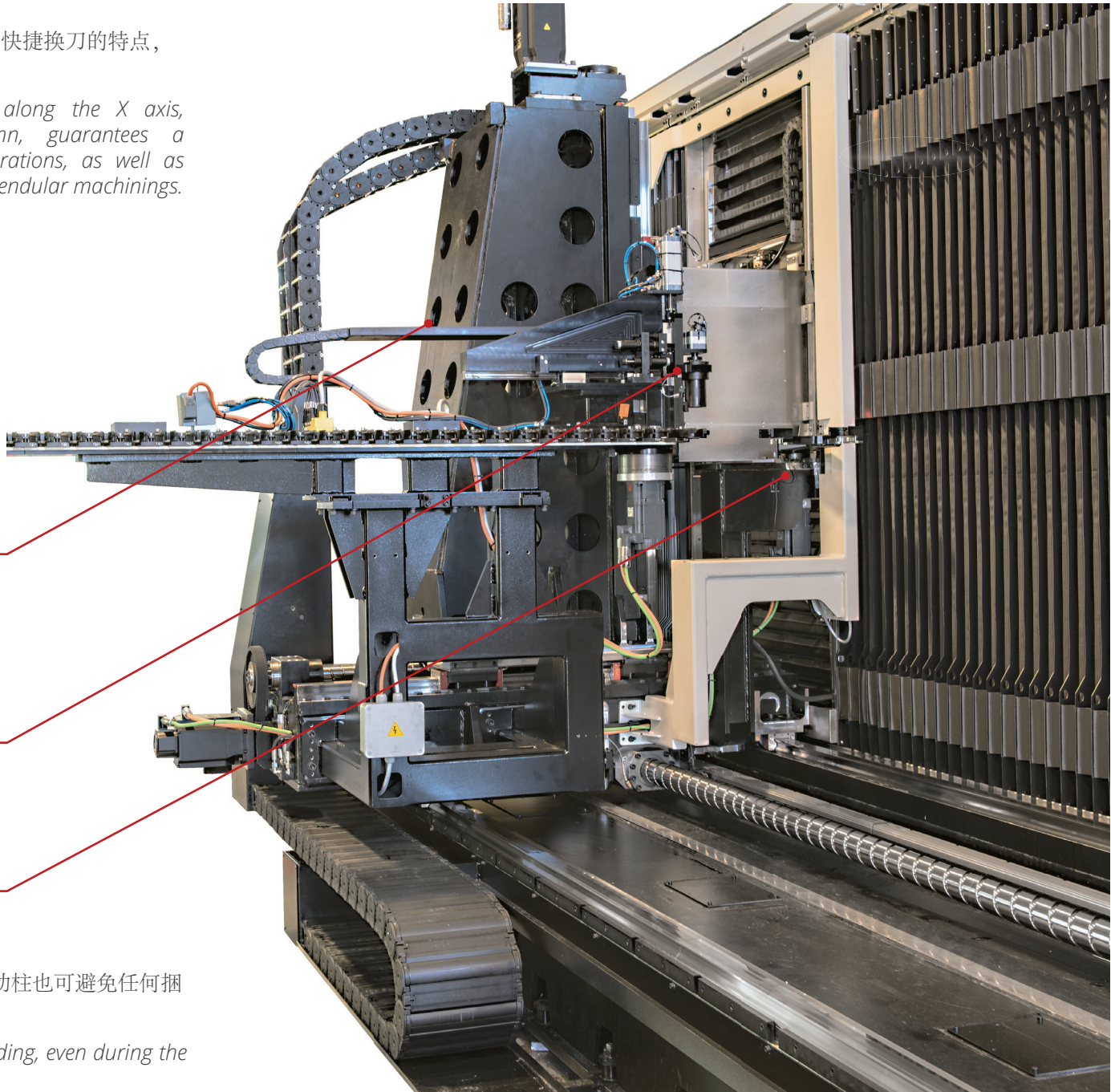
Picking device

■ 刀臂

Exchanging arm

即使在压力最大的加工过程中，移动柱也可避免任何捆扎现象。

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



请了解

Kreos机型的主体结构采用DMP铸件技术制造，它是传统焊接钢、铸铁和花岗岩的替代品。此技术有几个优点：

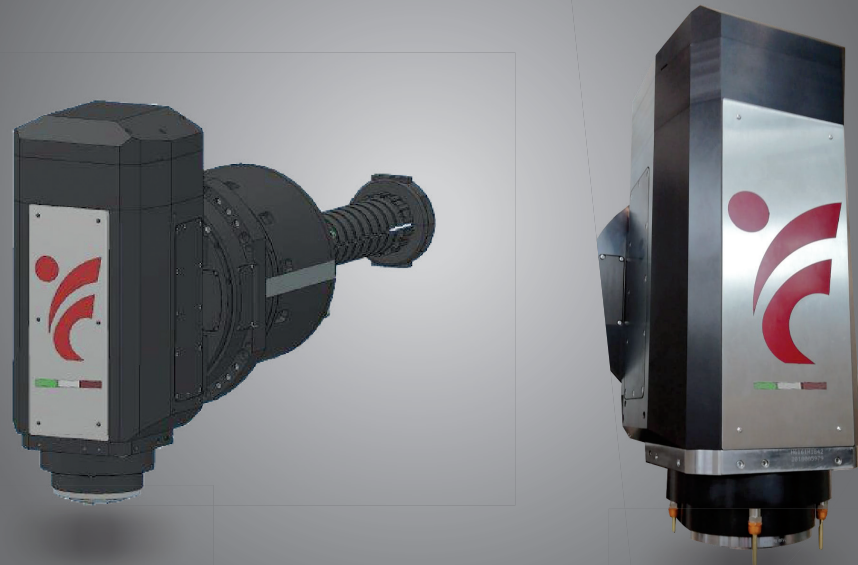
- 提升机床的高动态稳定性
- 随时间变化，结构无变形性
- 刀具接触工件时震动最小
- 刀具/工件区域发热最少区

Things to know

Main structures of Kreos are made with DMP technique; it is an alternative to traditional welded steel, cast iron and granite elements. Several advantages come from this technique, especially for middle dimensions machines like Kreos:

- 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

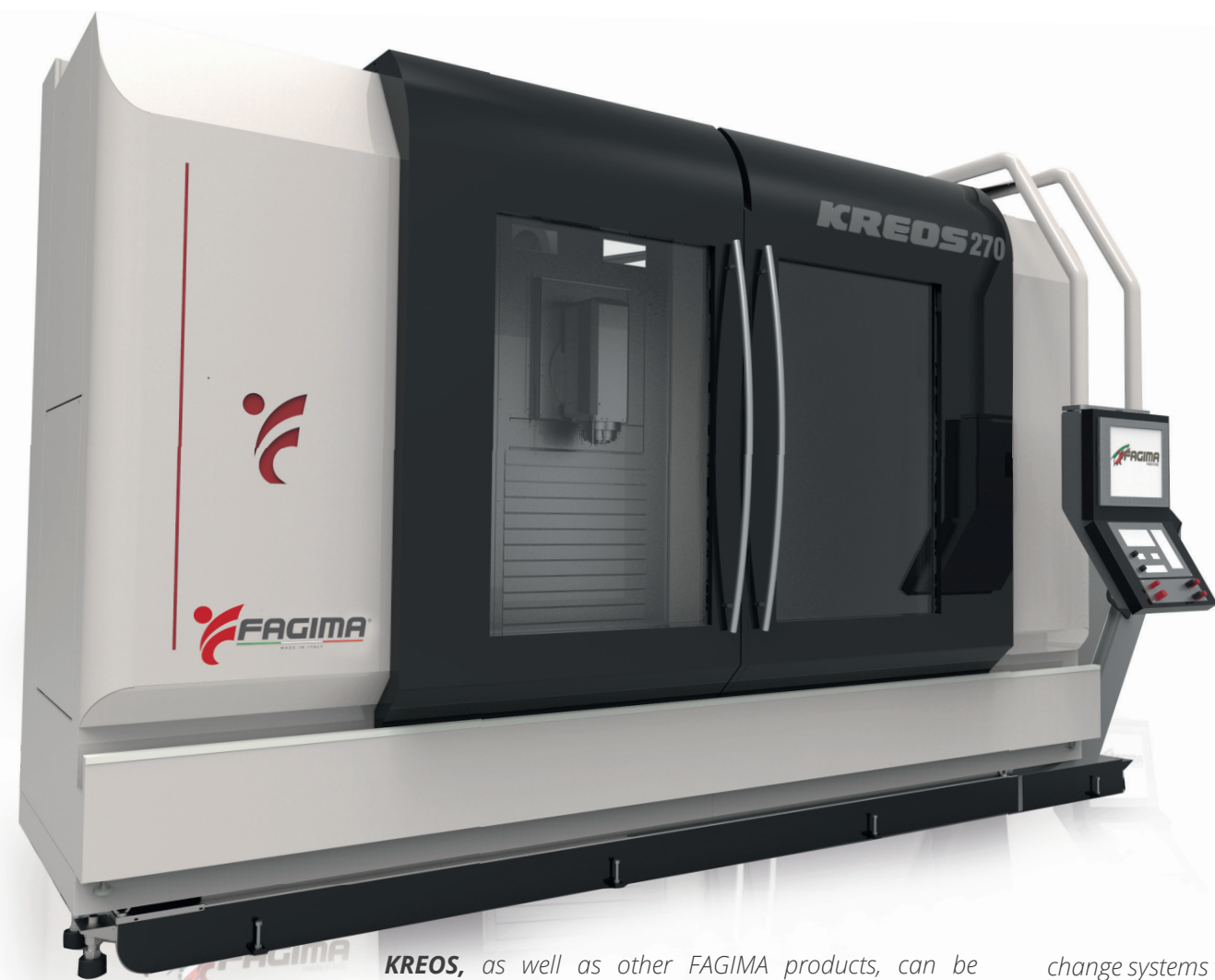
力矩电机驱动的电主轴摆头 Head with torque motor and electrospindle



在4/5轴Kreos版本中，意大利制造的电主轴由扭矩电机驱动，并装配有新的倾斜头（B轴）。机头采用意大利制造，旋转范围为±120°，采用力矩电机驱动。机头可配备直接编码器，以保证最高精度。

In 4/5 axis Kreos versions, the made in Italy electrospindles are driven by torque motors and assembled with the new tilting head (B axis). The head, having a rotation range of ±120°, is made in Italy and moved by torque motor too. The head can be equipped with a direct encoder, in order to guarantee the highest precisions.

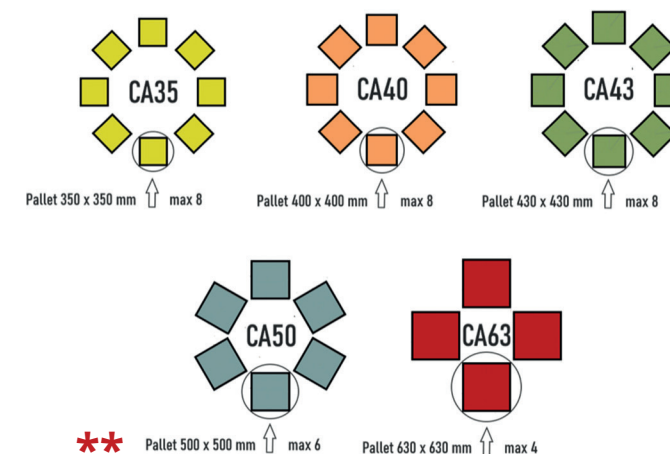
C40不锈钢用标准电主轴加工表现 - Standard electropindle performances with stainless steel C40				
				<div> <div>插入刀具</div> <div>tools with inserts</div> </div>
<div> <div>钻/drilling</div> <div>d Ø 35x a 0,20 (280 rpm)</div> </div>				切削体积 / chips volume
	d 40 x p 9 x a 731 (1350 rpm)			69 cm³/min
		d 80 x p 4 x a 325 (680 rpm)		263 cm³/min
		d 120 x p 2,4x a 253 (450 rpm)		104 cm³/min
			d G3/4 - p 14"	73 cm³/min
			d M30 x p 2	



KREOS以及其他FAGIMA产品均可与托盘管理系统结合使用。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，已经相当成熟。

KREOS, 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

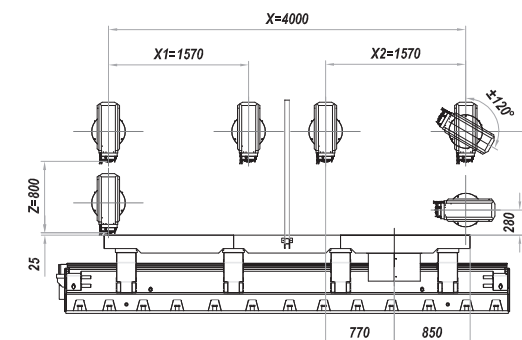
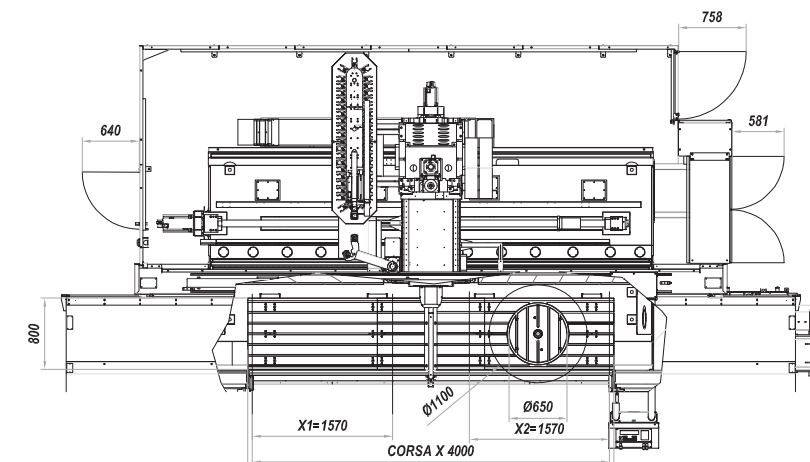
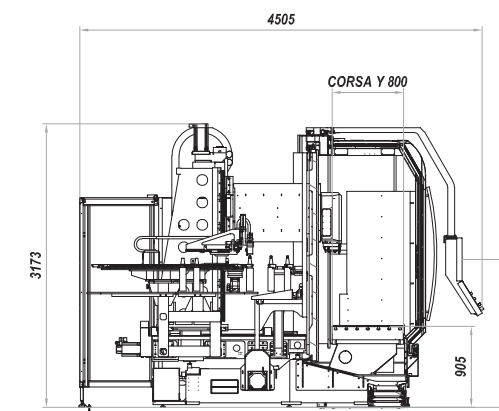
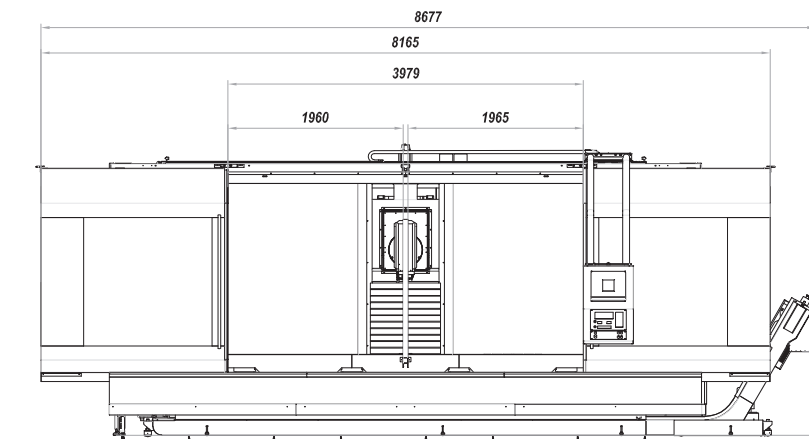
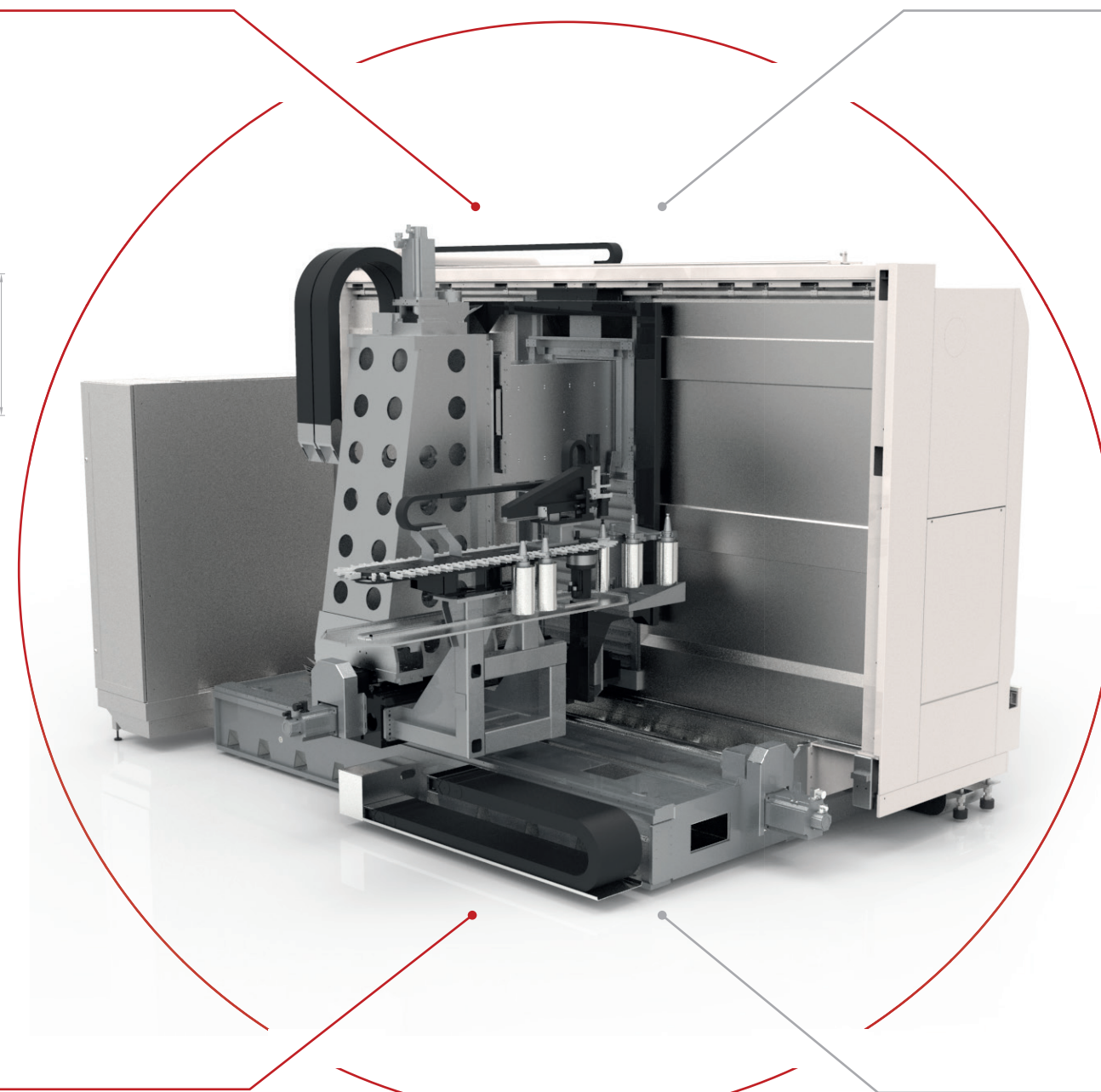
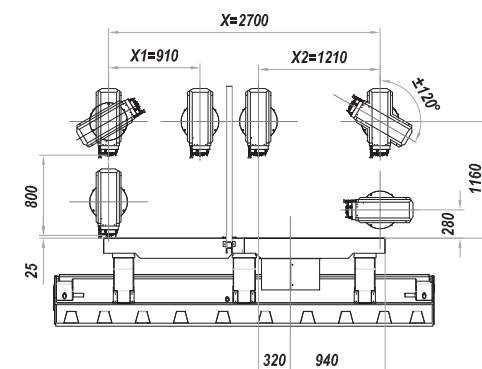
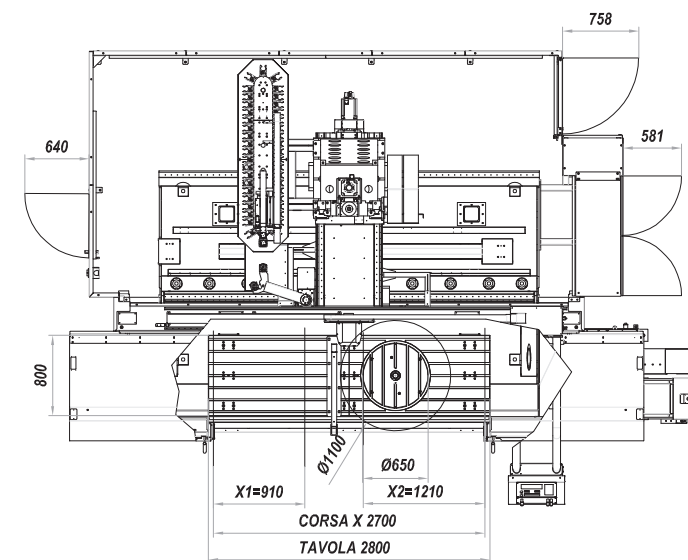
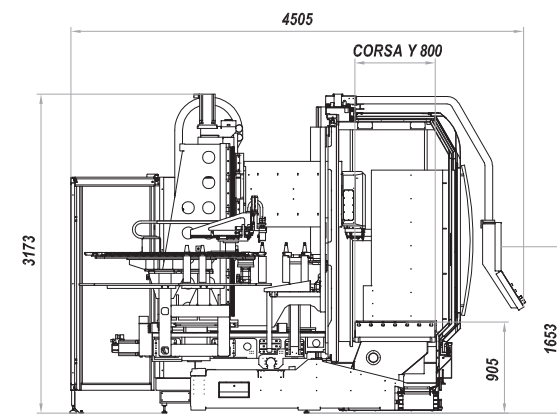
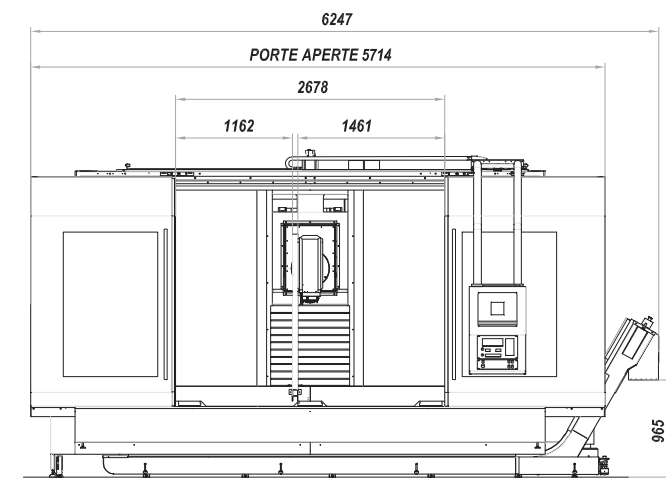
该系统的主要特点是具有非可变容积的仓库，可容纳不同尺寸的托盘。托盘的数量取决于所选托盘的大小 (CA^{**})。



- 主轴高压中心出水20 / 40 / 60 bar high pressure through spindle
- X、Y、Z轴配置光栅尺/ Optical scales in X, Y, Z axis
- 摆头旋转编码器，直接定位读数/ Rotary encoder for tilting head, with direct positioning reading Tavola girevole 嵌入
- 嵌入式旋转工作台 Ø 650 mm / Embedded rotary table
- 转台旋转编码器 / Rotary encoder for turntable
- 52位随机刀库/ 52 pos. Random tool magazine..... ISO40-BT40
- 42或 52刀库 / 42 or 52 pos. tool magazine HSK 63
- 双工位操作墙/ Wall for pendular operations
- 带水箱和40/60bar泵的纸带过滤器系统 / Paperbelt filter system with tank and 40/60 bar pump Pistola ad aria /
- 气枪/ Air gun
- 水枪/ Flash gun
- 嵌入式转台设计 / Predisposition for embedded rotary table Convogliatore trucioli a tappeto / Belt chip conveyor
- 加工区清洗系统 / Washing system in the working area
- 前门自动化开启/ Frontal doors opening automatization
- 托盘管理系统解决方案/ Pallet change system solutions
-
- 电主轴 / Electrospindle.....ISO40-16000rpm
- 电主轴 / Electrospindle.....HSK63-24000rpm
- 电柜空调/ Air conditioner for electrical cabinet
- 工件测量仪/ Tracking system for workpiece dimensions and alignment check
- 刀具测量仪 / System for measuring tools' dimension and integrity
- 校准球 / Calibration sphere
- 用激光干涉仪球杆仪校正机床精度/ Precision machine setup by LASER or BALLBAR
- 数控系统CNC: FSiemens

KREOS 270

KREOS 400



■ 机床尺寸是指标准机型尺寸，可能会因客户需求和定制而有所不同

■ Machines dimensions refer to standard models and may vary in consideration of customer needs and customizations

