

JD-V1165

立式加工中心

Vertical Machining Center





高效率

High efficiency

高精度

High precision

高品质

High quality

高稳定性

High stability

该设备是集铣削、镗削、钻削、攻螺纹加工的一种高度自动化的多功能数控机床。

该设备具有占地面积小，位移速度快，主轴转速高，钻孔攻牙快，换刀速度快的特点。从而具备工作效率高的优点。

高性能主轴设计，满足了重切削和高速切削的要求，主要以加工黑色和有色金属中小型复杂零件为对象，广泛适用于民用航空、汽车、能源、信息和模具等行业的零件加工。

我司已通过ISO9001质量管理体系认证，有完整的人员组织架构，完善的SOP标准作业管理，确保每道工序严格遵守SOP标准作业执行，确保产品的一致性、稳定性。

This equipment is a highly automated multifunctional CNC machine tool that integrates milling, boring, drilling, and thread tapping.

V1165 has the characteristics of compact dimensional size, high movement speed, high spindle speed, fast drilling and fast tool change, and thus the advantage of high cutting efficiency.

High performance spindle design meets the requirements of heavy cutting and high-speed cutting, mainly targeting the processing of small and medium-sized complex parts of black and non-ferrous metals. It is widely applicable for parts processing in industries such as civil aviation, automobiles, energy, information, and molds.

Our company has passed the ISO9001 quality management system certification, has a complete personnel organizational structure, and a comprehensive SOP standard operation management, ensuring that each process strictly follows the SOP standard operation execution, and ensuring product consistency and stability.





■ 铸件由树脂砂铸造，材质为HT300，采用米汉纳铸造工艺制成，经自然时效及两次人工时效处理，充分保证铸件刚性，从而保证产品加工的精度和稳定性。

■ 三轴传动部件全部采用THK（日本）精密级滚珠丝杠，丝杠大小和导轨数量根据机床大小合理选配，充分保证定位精度与重复定位精度。

■ X/Y/Z三向进给采用伺服电机通过联轴器与精密滚珠丝杠直连，专用丝杠轴承座，安装时采用预拉伸，提高了机床的进给运动的刚性和精度。

■ 配置稳定可靠的圆盘式自动换刀装置，刀库容量可选配T24或T30，换刀性能经过严格的运转测试，动作协调精准，快速可靠。

■ 操作系统采用FANUC 0i-MF PLUS，本系统搭载了FANUC最新的CNC、伺服技术、个性化定制功能、丰富的故障预知功能、诊断/维护功能、刀具管理功能以及与云端大数据信息化连接的端口开放功能。

■ The casting is made of resin sand casting, made of HT300 and made of Meehan casting process. It is processed by natural aging and two artificial aging treatments to fully ensure the rigidity of the casting, thus ensuring the accuracy and stability of the product processing.

■ All three-axis transmission parts are made of THK (Japan) precision ball screw. The size of screw and the number of guide rails are reasonably selected according to the size of the machine tool to fully ensure positioning accuracy and repeated positioning accuracy.

■ X/Y/Z three-way feed adopts servo motor through the coupling and precision ball screw directly connected, special screw bearing seat, pre-tensile installation, improve the rigidity and accuracy of the machine feed movement.

■ Equipped with stable and reliable disc automatic tool changing device, the tool library capacity can be selected T24 or T30, the tool changing performance has passed strict operation test, the action is coordinated, accurate, fast and reliable.

■ The operating system adopts FANUC 0i-MF PLUS, which is equipped with FANUC's latest CNC, servo technology, personalized customization functions, rich fault prediction functions, diagnosis/maintenance functions, tool management functions and port opening functions connected with cloud big data information.

特点介绍

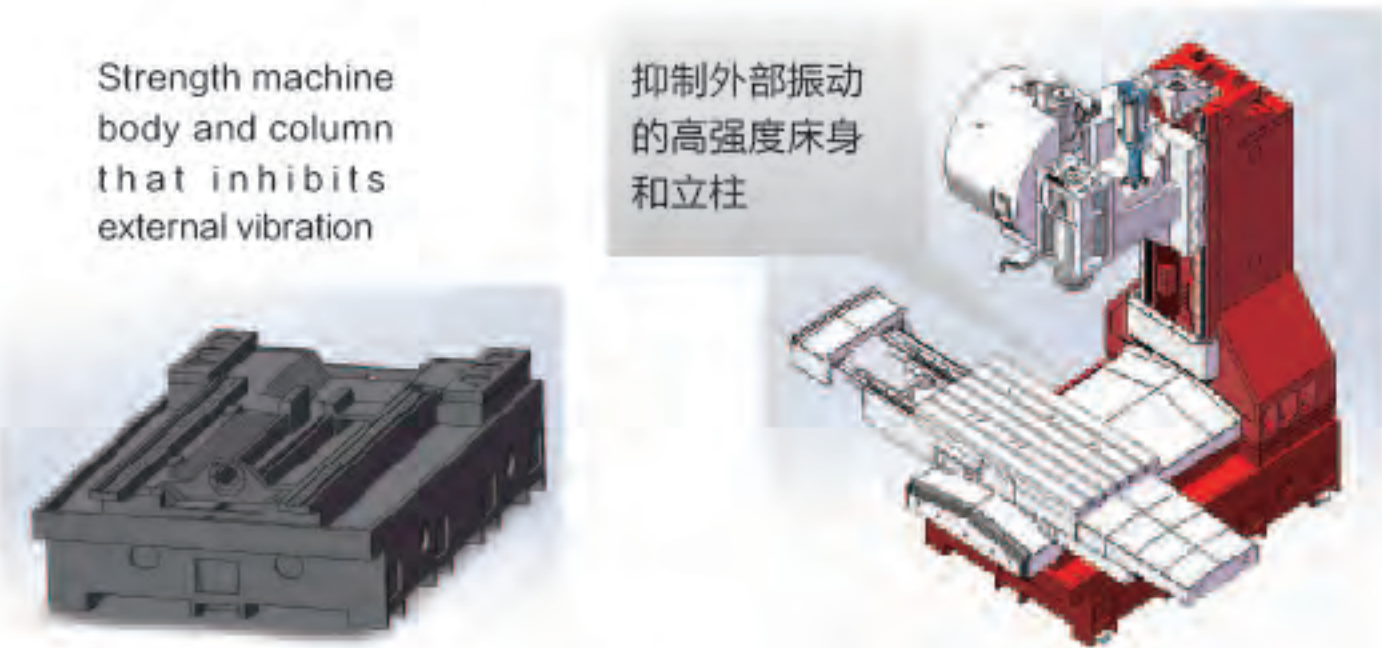
Characteristic introduction



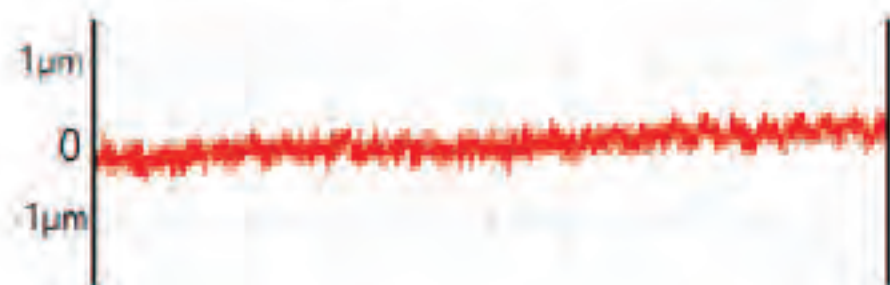
产品优势 Product Advantages

高刚性结构和抑制振动特性 High rigidity structure for vibration suppression

通过大跨度底座设计，立柱加粗设计使整体床身刚性提升，加工中对于周边的振动可抑制到最低，从而得到优质的高亮面品质。
Combined with a large-span base, specially strenthened columns improve the rigidity of the machine body, and the vibration in the cutting process can be suppressed to the lowest level, so as to increase the surface processing quality.



稳定的表面加工质量 Stable surface processing quality



同步动作控制 Synchronous motion control

换刀的同时进行XY轴、附加轴的定位，从而减少非切削时的时间。
Perform the positioning of X/Y axes and additional axis while doing automatic tool change to enhance the cutting efficiency.



高性能主轴 High performance spindle

BT40直联式主轴，短鼻端设计，采用精密P4级轴承，大跨距的排列设计极大程度的提高了主轴的刚性及稳定性。
BT40 directly connected spindle, short nose design, precision P4 bearing, long span arrangement design greatly improves the rigidity and stability of the spindle.

机械主轴
Mechanical spindle



主轴形式	主轴转速 (r/min)
皮带式	8000
	10000
直连式	12000
	15000

过程控制 Process control

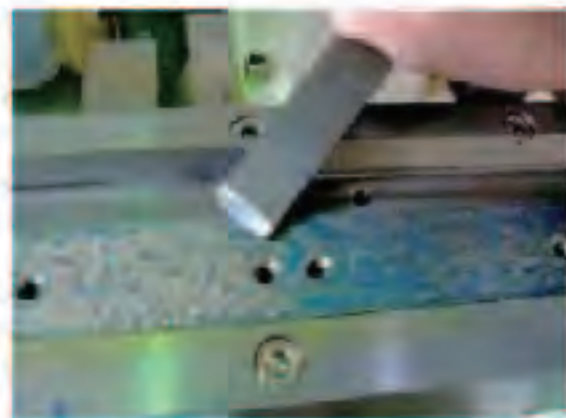
主轴拉力检测
Spindle pull detection



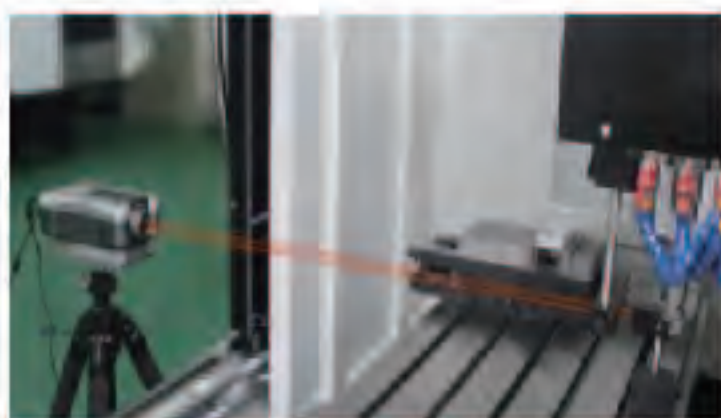
球杆仪检测
Spindle pull detection



底座铲花
Base shovelling



激光干涉仪检测
Laser interferometer inspection



刀库系统 Increased movement range

凸轮驱动刀库，确保高精度旋转，标配圆盘式机械手换刀装置，实现更高的换刀效率，有效提升换刀动作的稳定性，降低维护成本，从而大幅度提高生产效率。
CAM drive tool library, to ensure high precision rotation, standard disc manipulator tool changing device, to achieve higher tool changing efficiency, effectively improve the stability of tool changing action, reduce maintenance costs, thereby greatly improving production efficiency.



切削液水箱装置 Coolant tank unit

标配后排屑，大容量设计，满足机床加工的冷却和要求，双层过滤网，减少冷却泵堵塞现象，可根据客户需求进行定制化设计。
Standard rear chip, large capacity design, to meet the cooling and requirements of machine tool processing, double filter, reduce cooling pump clogging phenomenon, can be customized according to customer needs.



产品优势 Product Advantages

操作性 Operability

■ 数控系统 Numerical control system

标准配置为FANUC系统，新平面设计，外观设计更加洗练，布局更合理，界面显示更多信息，用户体验得到大幅提升，也可以根据客户需求选配国内外各类数控系统。

The standard configuration is FANUC system, the new graphic design, the appearance design is more clean, the layout is more reasonable, the interface displays more information, the user experience has been greatly improved, and various CNC systems at home and abroad can also be selected according to customer needs.

■ 进给轴加减速

Feed shaft acceleration and deceleration



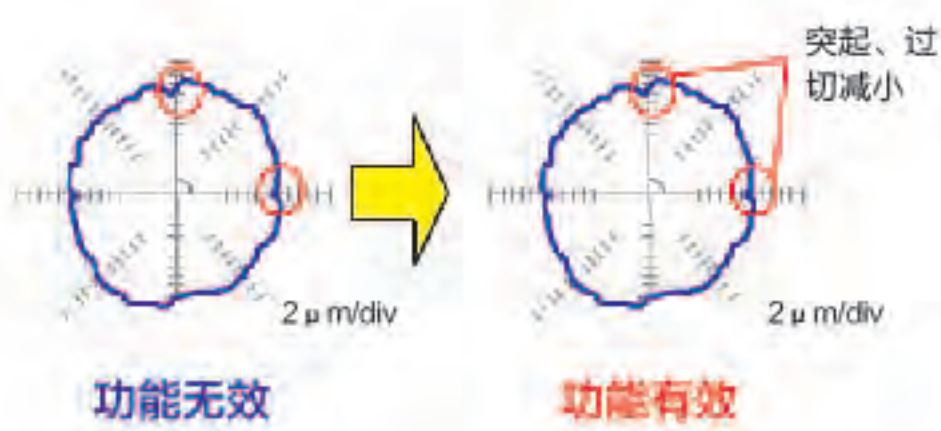
丰富多彩的功能 Colorful features

■ 智能背隙补偿

Intelligent backlash compensation

利用算法模型对背隙误差进行预估并对误差进行补偿，大大提高机床的精度和稳定性，大幅度减少机床机器零件跳动和震荡的情况，增加机器的运行稳定性。

The back backlash error is estimated and compensated by the algorithm model, which greatly improves the accuracy and stability of the machine tool, greatly reduces the pulsation and vibration of the machine parts, and increases the running stability of the machine.



■ 高速传输 High-speed transmission

在不使用数据服务器的情况下，也可以实现高速的以太网与 CF 之间的传输，利用 FANUC 提供的传输软件。在不使用数据服务器的情况下，也可以实现高速的以太网与 CF 之间的传输，利用 FANUC 提供的传输软件 Program Transfer Tool, 实现便捷的连接和操作。

High-speed transmission between Ethernet and CF can also be realized without the use of data servers, and the transmission software Program Transfer Tool provided by FANUC can be used to achieve convenient connection and operation.

根据工件的转动惯量，自动调整切削进给和快移的加减速时间参数，根据工件优化时间参数，可以缩短加工时间，并提高伺服控制的稳定性。

■ AICC+

在当前加工领域使用CAM软件生成高精度加工程序已经成为主流，刀具使用小线段，拟合，在这种情况下，CNC 必须具备大量极小线段处理能力，才能实现高精度的轮廓控制，而AICC正是这样一种功能。

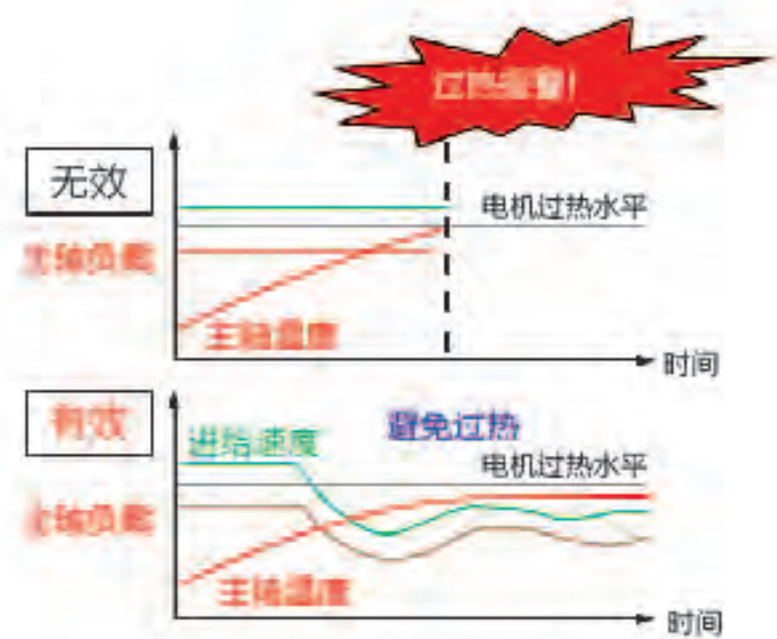
In the current machining field, the use of CAM software to generate high-precision machining programs has become the mainstream, the tool uses small line segments, fitting, in this case, CNC must have a large number of small line segment processing capabilities, in order to achieve high-precision contour control, and AICC is such a function.

■ 智能自适应控制

Intelligent adaptive control

依据主轴负载和温度自动控制进给运动，在避免过热报警的情况下优化利用主轴输出能力。

Automatic control of feed motion based on spindle load and temperature optimizes the use of spindle output capacity without overheating alarms.



According to the workpiece's moment of inertia, automatically adjust the cutting feed and fast shift acceleration and deceleration time parameters, according to the workpiece optimization time parameters, can shorten the processing time, and improve the stability of servo control.



■ 质量级别调整

Quality level adjustment

在不同的加工场景下，用户对加工分别有效率和精度的要求，使用加工模式选择功能来满足实际加工需求。

In different machining scenarios, customers have critical needs for efficiency and accuracy, and machining mode selection can adjust parameters respectively according to specific machining needs to optimize machining process.

模式	粗加工	半精加工	精加工
进给速度	4000.000	1500.000	320.000
主轴速度	24	16	16
主轴功率	1000.000	650.000	320.000
	3000.000	1300.000	900.000

辅助机械 Auxiliary Machinery

机床附属设备 High rigidity structure for vibration suppression



油雾收集器装置
Oil mist collector

能够充分回收机床内油雾，优化车间环境。

Can fully recover the oil mist inside the machine tool, optimize the workshop environment.

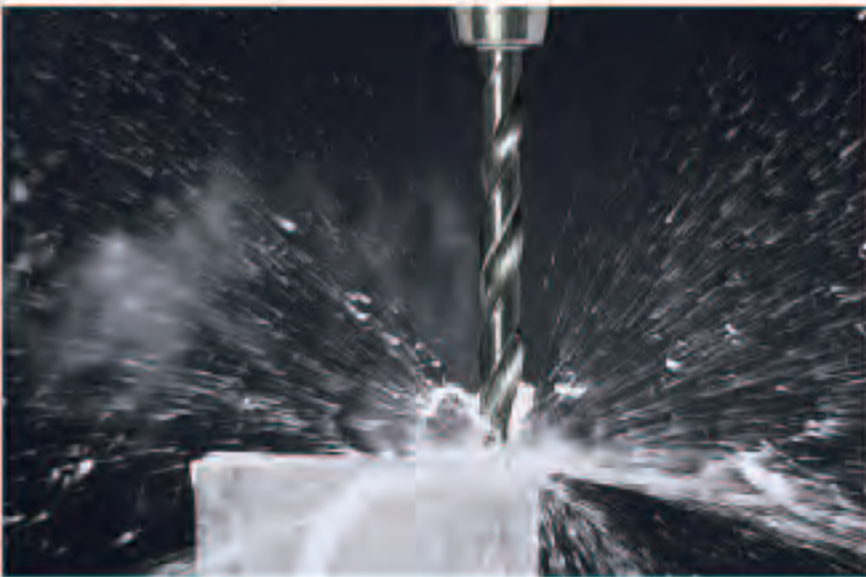


排屑系统装置
Chip removal system device

用于收集各种辊、块、条状切屑，可有效改善作业环境，降低劳动强度，提高整机自动化程度。

Used for collecting various rolls, blocks, strips of chips, available Improve working environment, reduce labor intensity, improve Degree of machine automation.

加工辅助装置 Optional auxiliaries



主轴中心出水：降低切削温度，保持加工面质量，提高进给速度，提高吃刀量，挖掘生产中更多的生产力。

Spindle center water: reduce cutting temperature, maintain Machining surface quality, improve feed speed, improve cutting amount, Tap into more productivity in production.



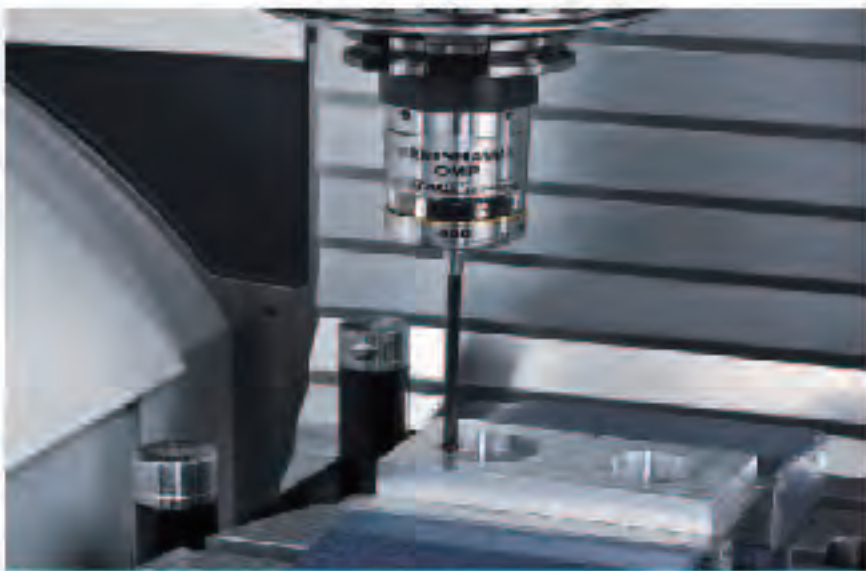
主轴冷却装置：能够确保主轴工作温度恒定，从而达到高精度加工的要求。

Spindle cooling device: Can ensure that the spindle operating temperature is constant, Thus to meet the requirements of high precision machining.



刀库配置：机床标配24T圆盘式刀库，可根据客户需求，可选配门笠式刀库、链条式立式刀库。

Tool library configuration: The machine tool is equipped with 24T disc tool library, according to customer needs, can be selected door hat type tool library, chain type vertical tool library, clamping tool library.



测量仪：对夹具、工件实施“找正”，并据此进行相应的修正、补偿，以及在加工后通过在机测量进行温度、刀具磨损的补偿。

Carry out "alignment" on the fixture and workpiece, and make corresponding correction and compensation accordingly, and compensate the temperature and tool wear through on-machine measurement after machining.



对刀仪：Automatic tool calibration device测量机床上刀具与工件接触点位置关系，确定刀具的位置和方向，来保证加工精度。

Tool setting instrument: measuring the position relationship between the tool and the workpiece contact point on the machine tool, determining the position and direction of the tool to ensure the machining accuracy.



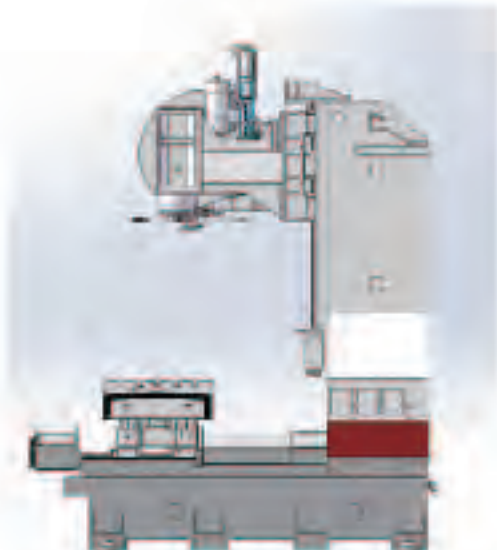
四轴 CNC 电脑数控分度盘：CNC Rotary table在操作的时候拥有精准的传动能力，而且背隙可轻松自如的调整，较长时间使用后，其精度仍然能够很好的维持。

Reduction in the body width secures a wider movement range. Roller gear cam mechanism helps to guarantee high productivity, high accuracy, and high stability.



五轴CNC电脑数控分度盘：可实现更复杂的曲面加工，五轴转台采用更高的驱动方式，可实现多种工序的连续自动加工。

Five-axis CNC indexing plate: can achieve more complex surface processing, five-axis turntable with a higher drive mode, can achieve a variety of processes of continuous automatic processing.



立柱加高：根据客户需求对应应有150mm、250mm的立柱加高。

Column heightening: 150mm and 250 mm heightening for chosen to meet customer's needs.

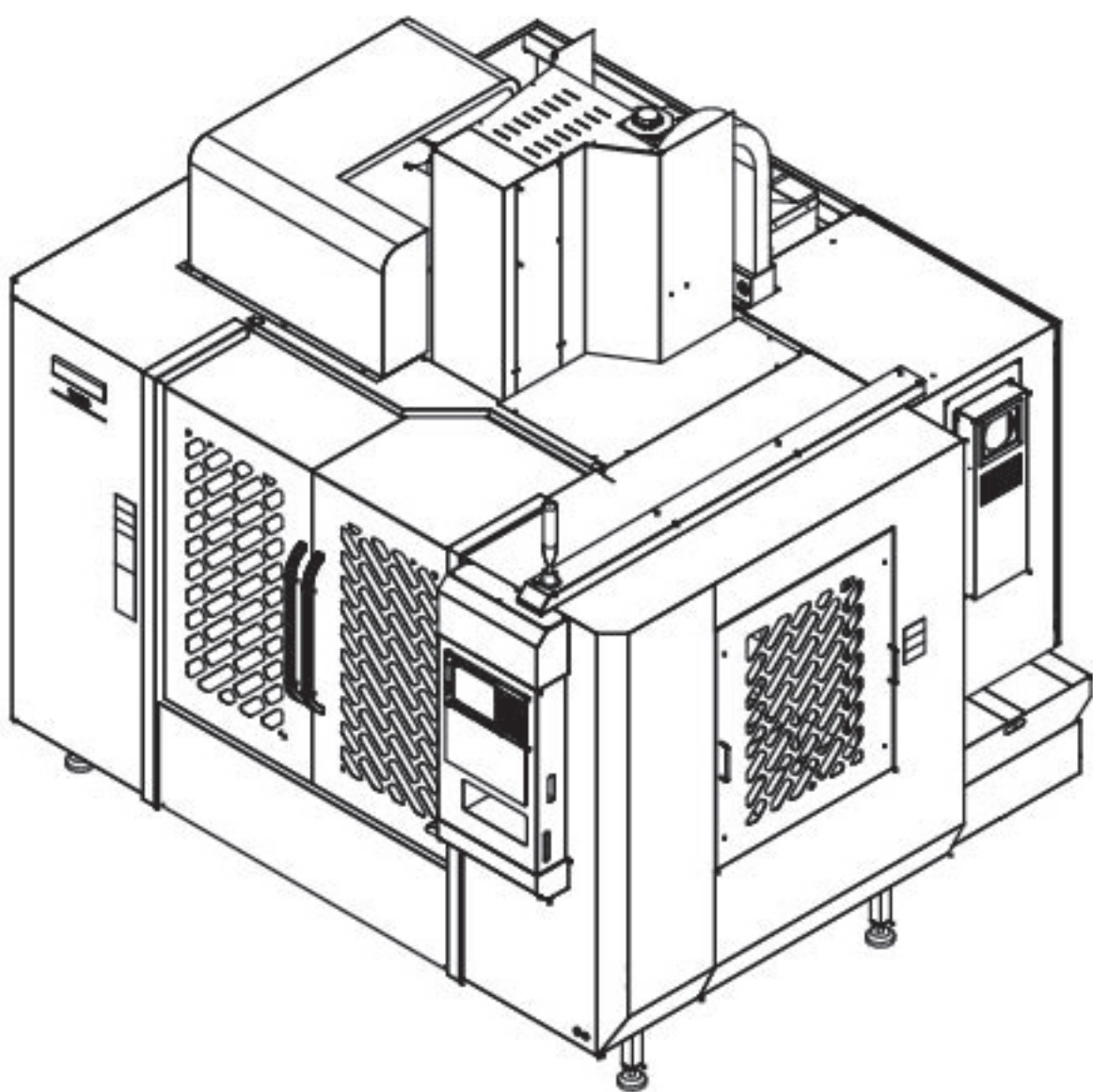
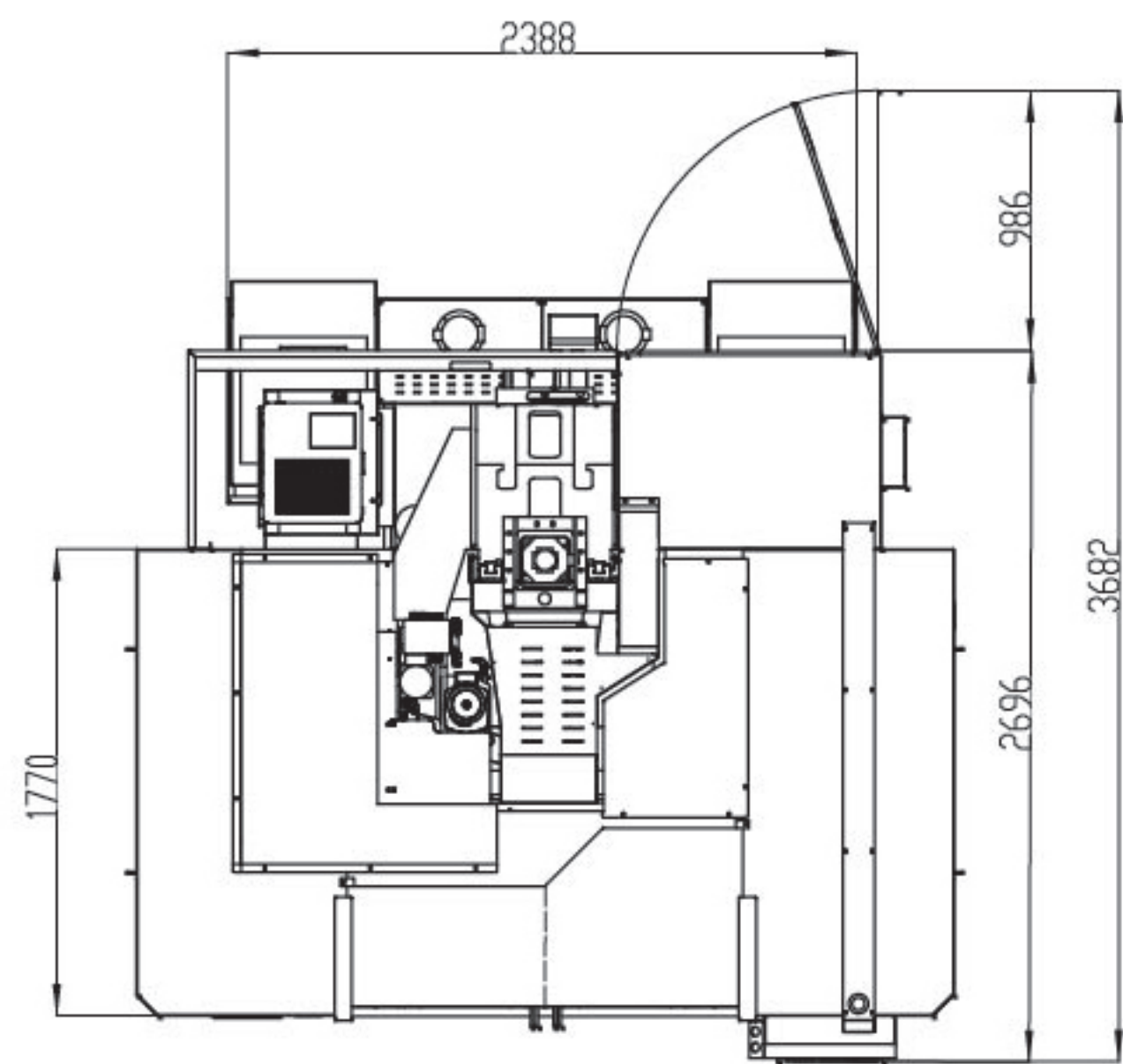
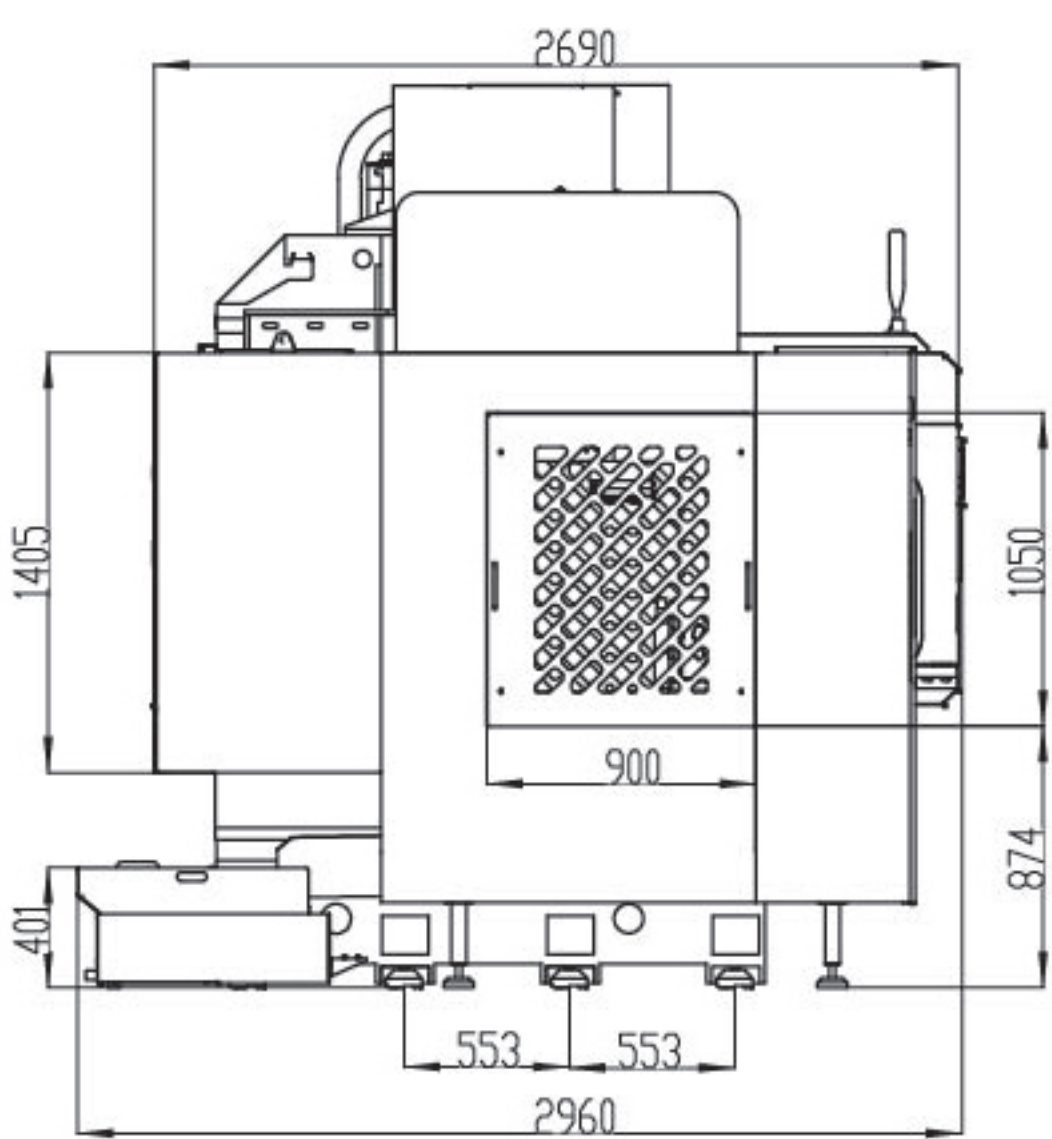
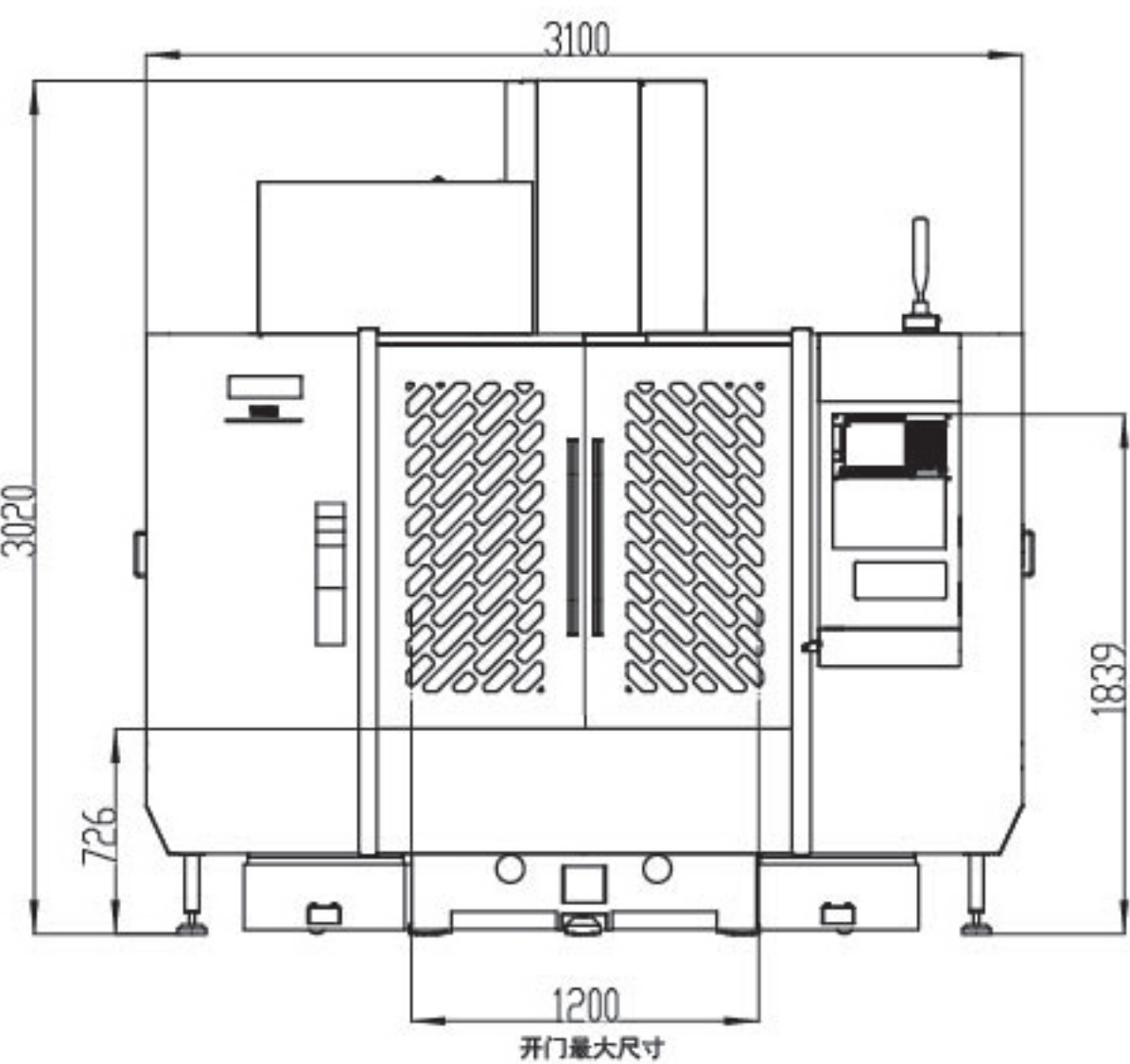


工件吹气装置：Column coolant nozzle易于实施加工后对工件清扫。

Column coolant nozzle: Powerfully removes chips on and around the workpiece to prevent chips building up.

设备尺寸 The equipment size

外观尺寸图：单位（mm） Dimensional overview：in unit (mm)



选配功能 Optional Features

1	主轴中心出水 Coolant Through Spindle (CTS)
2	侧冲洗 Side coolant washdown unit
3	主轴头切削液喷嘴 Spindle head coolant nozzle
4	测量仪 Measuring instrument
5	对刀仪 Automatic tool calibration device
6	四轴CNC电脑数控分度盘 Fourth axis CNC (computerized numerical control) index table
7	立柱加高 Pillar heightening
8	切屑液水箱装置（250L）Coolant tank assembly (250 liters)
9	工件吹气装置 Air-blowing device for workpiece
10	油雾收集器

主要标准附属品 MAIN STANDARD ACCESSORIES

顶罩钣金 Shell plates	1套 1 set
照明装置 Lighting unit(10W)	1套 1 set
过滤减压阀 Air filtration/decompression valves	1套 1 set
工具和工具箱 Tools and toolbox	1套 1 set
机床地脚盘 Machine feet	7个 7 pcs
机床聚乙烯塑料保护袋 Plastic protection	1套 1 set
集中润滑油装置 Automatic lubrication unit	1套 1 set
三色信号灯 Signaling light	1套 1 set
变压器 Voltage transformer	1套 1 set
切屑液水箱装置（250L标准）Coolant tank (standard 250 liters)	1套 1 set
圆盘刀库（24T）Arm-clamping toolset (max. 24 tools)	1套 1 set
主轴吹气装置 Spindle air-blowing unit	1套 1 set

机械规格 Mechanical Specifications

机械本体标准规格 Mechanical Specifications

名 称 Feature	项 目 Item	规 格 Specification
工作台 Table	工作区域尺寸 Work area dimension (mm)	1200*600
	最大工件重量 Max.loading capacity (uniform load) (kg)	800
	主轴中心至立柱距离 The distance from the center of the spindle to the column (mm)	710
主 轴 Spindle	主轴转速 Spindle speed (r/min)	Max.12000
	主轴锥度 Spindle taper	BT-40
	主轴锥孔 Tapered hole	锥度45° Taper 45°
进给速度 Feed rate	快速速度 Rapid traverse speed (XYZ-axis) (m/min)	X轴 36/Y轴 36/Z轴 36 X axis 36/ Y axis 36/Z axis 36
	切削进给速度 Cutting feed rate (mm/min)	1-10000
行 程 Movement Range	X轴 X axis (mm)	1100
	Y轴 Y axis (mm)	650
	Z轴 Z axis (mm)	600
刀具更换装置 ATC unit	刀柄类型 Tool shank type	BT40
	刀具库存数 Tool storage capacity (T)	24
	最大刀具长度 Max. tool length (mm)	300
	最大刀具直径 (相邻空位) Max. tool diameter (mm)	78 (150)
	最大刀具重量 Max. tool weight (kg)	8kg
	刀具选择方式 Tool selection method	正逆转Clockwise/Counter-clockwise 任意Any
	拉钉型号 Pull stad type	BT40 (45°)
	临刀换刀时间 Tool change time (s)	2
电 机 Electric motor	主轴电机 Main spindle motor (kw)	11
	进给电机 Feed axes motor (kw)	X、Y、Z轴 3 X、Y、Z axis: 3
所需动力源 Power source	电源 Power supply (V)	AC380V±10%、50HZ
	总电气容量 Power capacity (KVA)	25
	常用空气压力 Compressed air pressure (MPa)	0.4-0.6
	所需流量 Min. coolant flow (L/min)	45
精 度 Accuracy	各轴的双向定位精度 Bidirectional positioning accuracy per axis (mm)	±0.004/300
	各轴的双向重复定位精度 Bidirectional positioning repeatability per axis (mm)	±0.0025/300
其 它 Etc.	机床高度 Height (mm)	3020
	机床占地面积 (控制柜开启时) Required space diemensions [with control unit door open] (mm)	3180*3682
	工作台顶面到主轴端 Distance between work table top and spindle head (mm)	130-730
	机床重量 Machine weight (including control unit and machine cover) (kg)	7000kg

NC 装置标准规格 NC unit specifications

控制系统 CNC control system	FANUC 0i-MF PLUS
控制轴数 Control axes	同时4轴 4 axes
输入方式 Input mode	MDI按键输入, 绝对值/增量编程 MDI key input, absolute value / incremental programming
程序储存容量 Program storage space	2 Mbyte
插补功能 Interpolation function	直线插补 圆弧插补 螺纹插补 Linear/Circular/Thread cutting
最小设定单位 Least input increment	X:0.001mm Y:0.001mm Z:0.001mm
最小移动单位 Least command increment	X:0.001mm Y:0.001mm Z:0.001mm
切削进给速度 Feed rate	1-10000mm/min
刀具补偿组数 Tool offset	400
辅助机能 Auxiliary function	M8、S5、T8
切削进给倍率 Feed rate override	0-200%
快速移动倍率 Rapid traverse override	F0、25、50、100%
输入输出接口 Input/output interface	CF卡/USB CF card /USB
表示语音 Interface language	中文、英语、日语 Chinese/ English/Japanese

* 本公司不断研究创新, 设计规格如有变更恕不另行通知。
All specifications and designs are subject to change without notice.

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NC功能 NC functions

1	10.4寸彩色LCD液晶显示屏 10.4 inches LCD display panel
2	快速程序再启动功能 Quick program restart
3	手轮中断功能 Manual handle interrution
4	CF卡界面 CompactFlash Card interface
5	手轮回退功能 Manual handle retract
6	程序储存容量2 Mbyte Program memory space: 2 Mbyte
7	登录程序个数: 400个 Registered program capacity: 400
8	后台编辑 Background editing
9	最多进给轴数: 5 Max. feeding axis: 5
10	最多主轴数: 1 Max. spindles : 1
11	最小指令单位: 0.001mm,0.001inch,0.001deg The unit: 0.001mm,0.001inch,0.001deg
12	公制和英制转换 Metric/inch conversion
13	机械锁定 Machine lock
14	Z轴锁定 Z axis lock
15	软体行程极限设定 Software limit setting
16	移动前行程极限检查 Stroke limit check before move
17	背隙补偿 Backlash compensation
18	插补式螺距误差补偿 Pitch error compensation using numerical control
19	DNC操作 DNC operation
20	单节执行 Single block execution
21	手动数据输入 (MDI) Manual data input
22	手动进给 Manual feed
23	手动进给倍率 Manual feed override
24	程式空跑 Dry Run
25	快速定位 Rapid traverse
26	快速移动百分比 Rapid traverse override
27	切削进给命令 Cutting feed
28	切削进给率百分比 Cutting feed override
29	绝对/增量指令 Absolute / incremental programming
30	平面选择 Plane selection
31	呼叫子程序 Subprogram call
32	固定循环 Canned cycle
33	单节跳跃 Single block skip
34	工件坐标系 Workpiece coordinate system
35	额外工件坐标系 Additional workpiece coordinate system
36	极坐标指令 Polar programming
37	坐标旋转 Coordinate rotation
38	G-code程序镜像功能 G-code programmable mirror image
39	任意角度倒角C, 拐角R Automatic chamfering/corner with an arbitrary angle
40	直线插补 Linear interpolation
41	圆弧插补 Circular interpolation
42	原点复归 Reference position return
43	单向定位 Single direction positioning
44	螺旋插补 Helical interpolation
45	主轴定位 Spindle positioning
46	刚性攻丝 Rigid tapping
47	M-code吹气吹屑 M-code controlled air/chips blowing
48	自动断电 Automatic power off
49	刀具偏置存储器 Tool offset storage
50	警告信息显示 Warning information display
51	警告信息履历显示 Warning information record display
52	操作信息显示 Operation information display
53	操作信息履历显示 Operation information record display
54	智能重叠 Intelligent overlap
55	线性加减速 Linear acceleration/deceleration
56	MST锁住 M-S-T code lock