OMNITEC

VALOR QUE INSPIRA

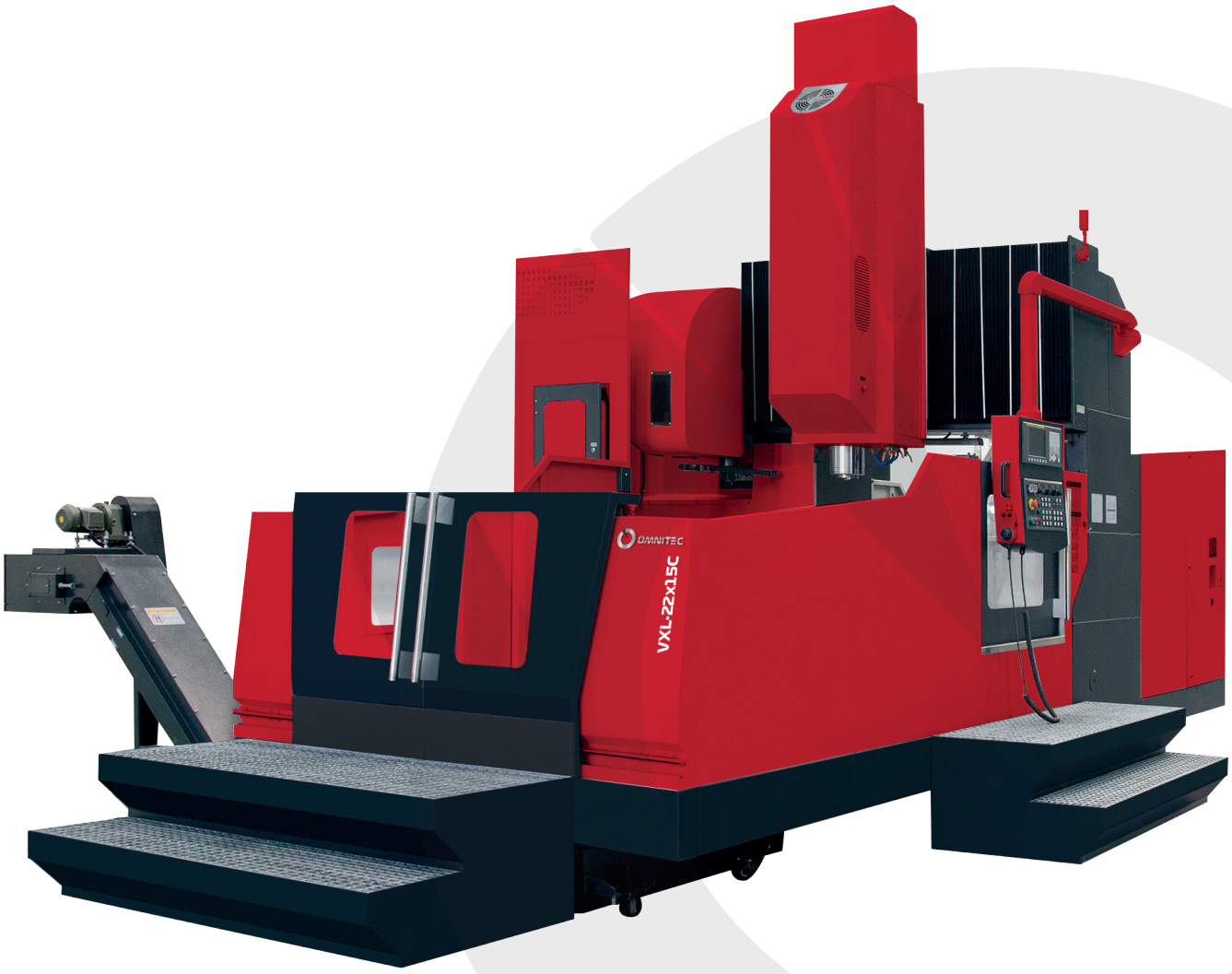
VXL-22x15C

Double Column Machining Center

VXL-22x15C

High Speed Double Column Machining Center

VXL-22x15C is very suitable for various industries, such as aviation aerospace, automobile, military, energy, mold, etc. This model is with high speed, high precision, high flexibility and good environmental protection. This model machine is designed by modularization and can be produced by serialization and customization according to market requirements to meet customers' requirements for large workpiece machining.



SPECIFICATIONS:

- **CAPACITY**

Worktable travel (X axis)	2200mm
Saddle travel (Y axis)	1500mm
Spindle travel (Z axis)	800mm
Distance from spindle nose to worktable	200—1000mm
Distance between columns	1600mm

- **MOTION:**

X axis rapid traverse rate	24 m/min
Y Axis rapid traverse rate	24 m/min
Z axis rapid traverse rate	15 m/min
Cutting feed rate	12m/min
Positioning accuracy	0.012/0.012/0.012mm
Repeatability	0.008/0.008/0.008mm

- **WORK TABLE:**

Table size	1300×2100mm
Max. table load	3500kg
T-slots (width X number)	22mm×7

- **MAIN SPINDLE**

Tool shank	BT50
Pull stud	P50T-1
Spindle speed	40-8000rpm
Max. output torque	352/470 N.m
Spindle motor power	15/18.5Kw
Spindle box section	400mmx395mm
Counter weight system	Hydraulic cylinder with nitrogen control
Spindle Orientation	By sensor

- **GENERAL**

Machine gross weight	16500kg
Machine Size (L x W x H)	6450x5550x4000mm

- **UTILITY:**

Power required	40 kVA
Compressed air pressure	0.6~0.8 Mpa
Compressed air consumption	500 L/min
Coolant tank capacity	500L

- **PACKING**

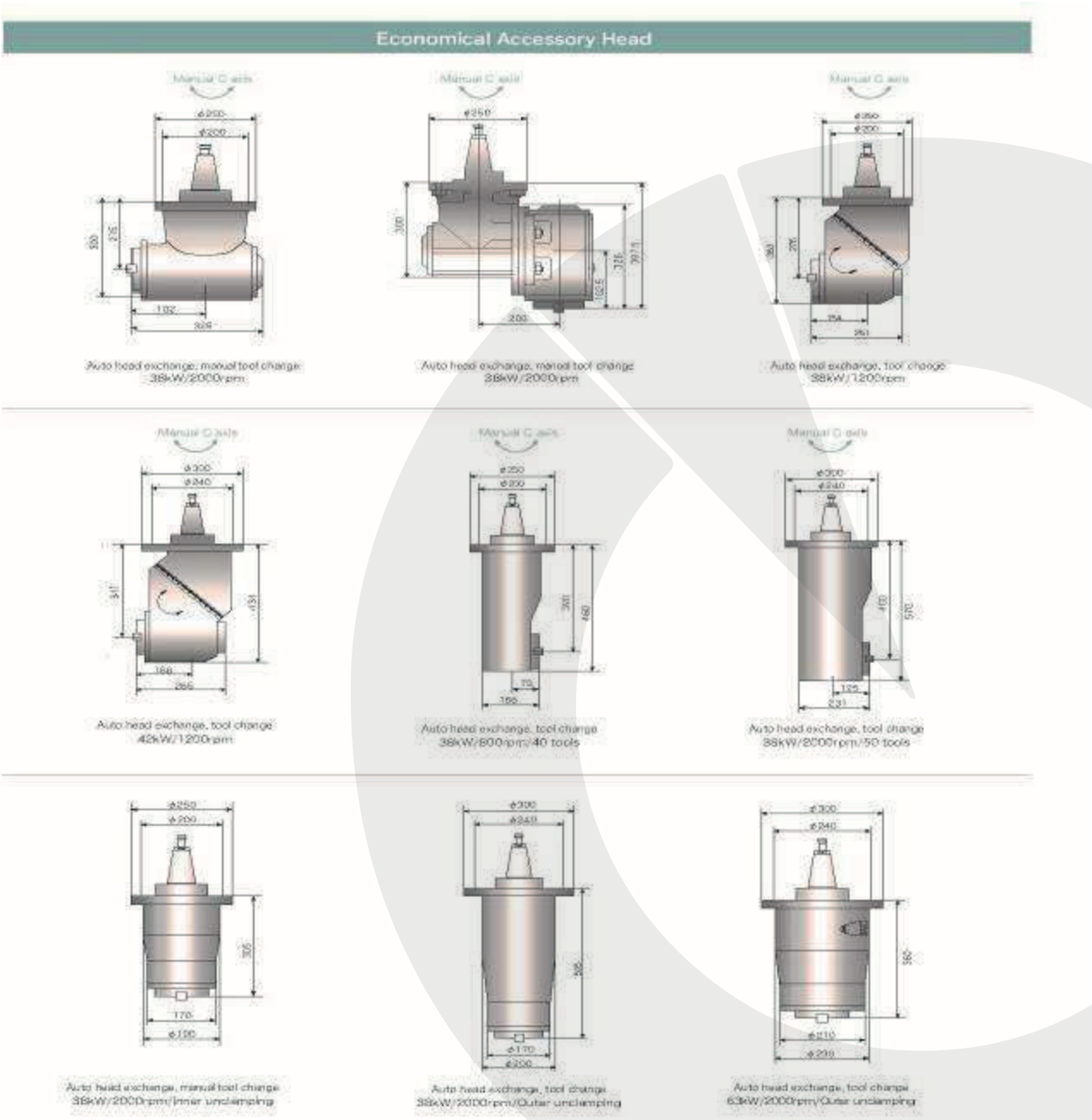
Packing type	wooden plate/steel plate
Required container	One 40' FR

STANDARD CONFIGURATION

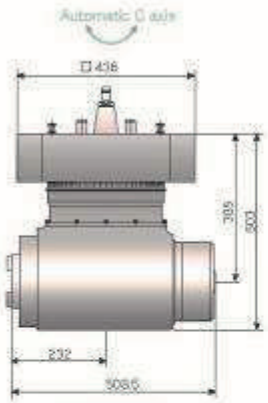
- Fanuc 0i MF(5) controller with USB Port, CF card Port and 10.4" Color LCD Display
- 2MB system memory
- 8000rpm direct drive spindle
- Gear box
- Servo motors mounted directly to the oversized, double nuts ball screws
- Flood coolant with large separate coolant tank with oil skimmer
- MPG
- Nitrogen cylinder for ram balance
- Work piece coolant system
- Chain type chip conveyor and screw type chip conveyor
- Hydraulic system
- Automatic lubricating system
- Heat exchanger for electric cabinet
- Air cooling and air gun cleaner
- Air blast around spindle
- Spindle protecting air curtain
- Work light and 3-color signal light
- Full enclosure splash guard without roof
- Telescopic covers for X/Y/Z axis
- Standard accessories (refer to packing list)
- Technical documents (refer to packing list)
- Basal installation kit (refer to packing list)

TYPICAL OPTIONS:

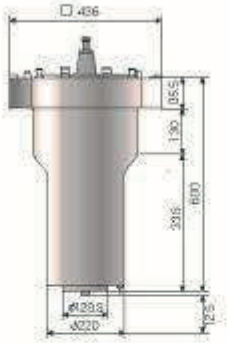
- **Milling head**



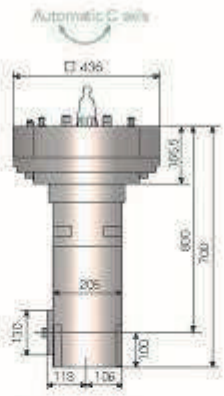
Neway-made Angular Head



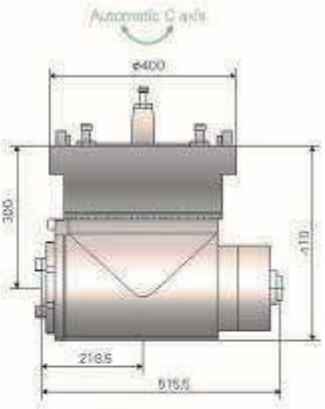
NWM-AR5-75
Auto head exchange, tool change
25kW/2000rpm/750N.m



NWM-AE-75
Auto head exchange, tool change
25kW/2000rpm/750N.m

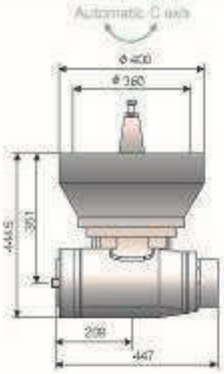


NWM-AER-75
Auto head exchange, manual tool change
25kW/800rpm/500N.m

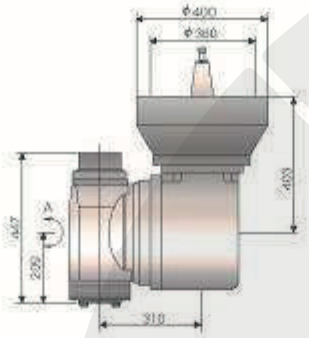


NWM-AR5-50
Auto head exchange, tool change
18kW/2000rpm/500N.m

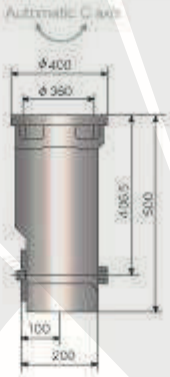
Taiwan Accessory Head



Auto head exchange, tool change
3500rpm/60Nm



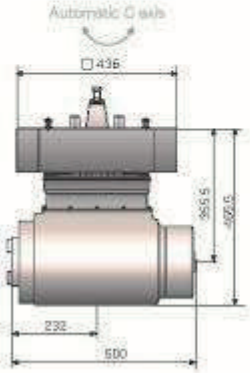
Auto head exchange, manual C axis, manual A axis
3500rpm/60Nm



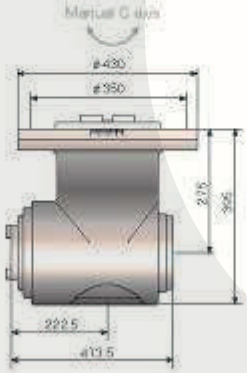
Auto head exchange, manual tool change
3500rpm/60Nm

Auto head exchange, tool change
3500rpm/60Nm

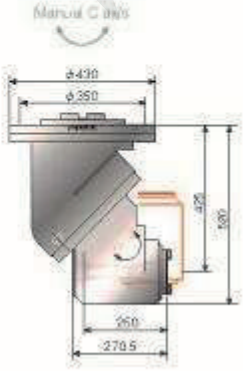
European Import Accessory Head



Auto head exchange, tool change, automatic C axis
Auto head exchange, manual tool change, automatic C axis
25kW/2000rpm/750N.m



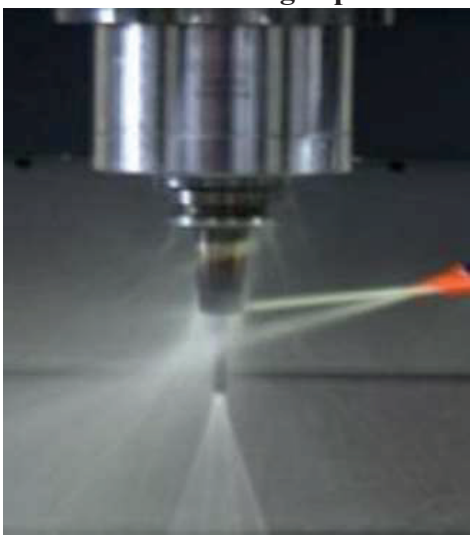
Auto head exchange, manual tool change
30kW/2000rpm/1500N.m



Auto head exchange, manual tool change
25kW/2000rpm/750N.m

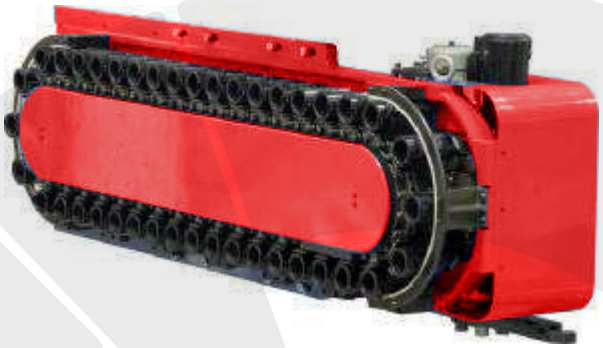
Heidenhain optical scale

Coolant through spindle

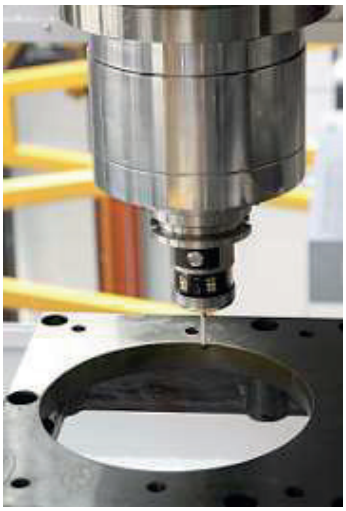


4th axis rotary table

Chain type tool magazine



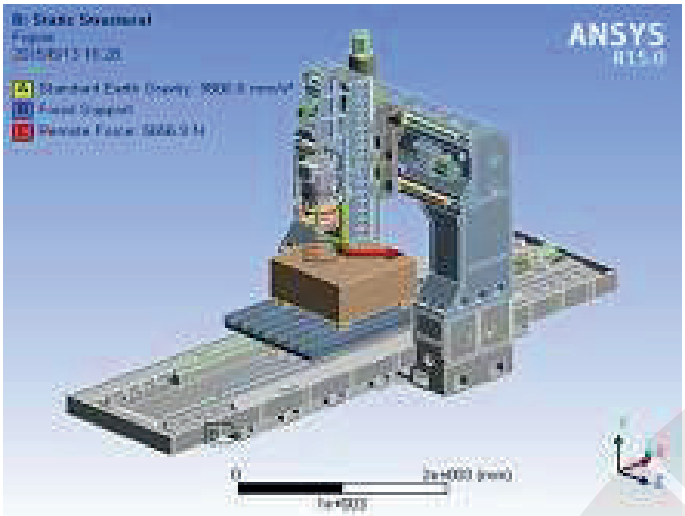
Renishaw measurement

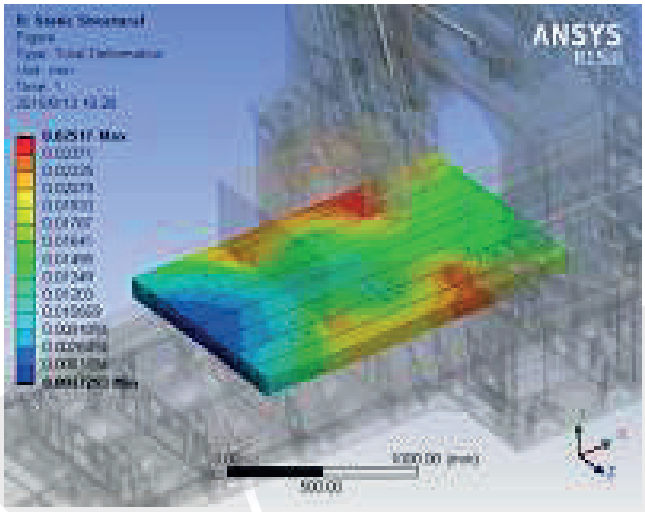


CONSTRUCTION:

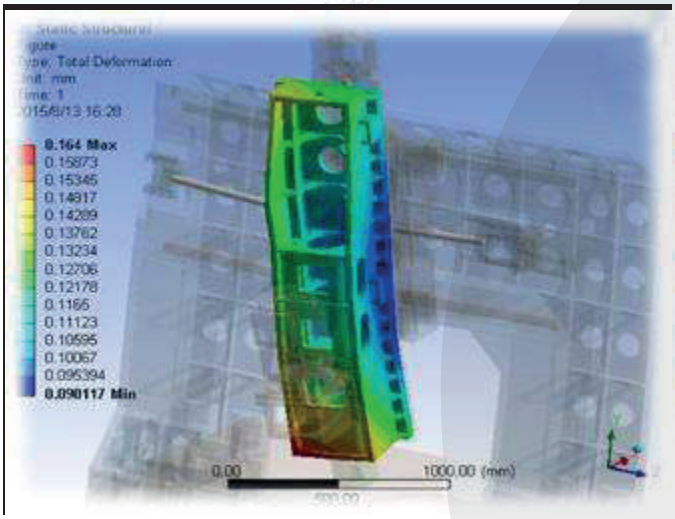
●Machine body structure

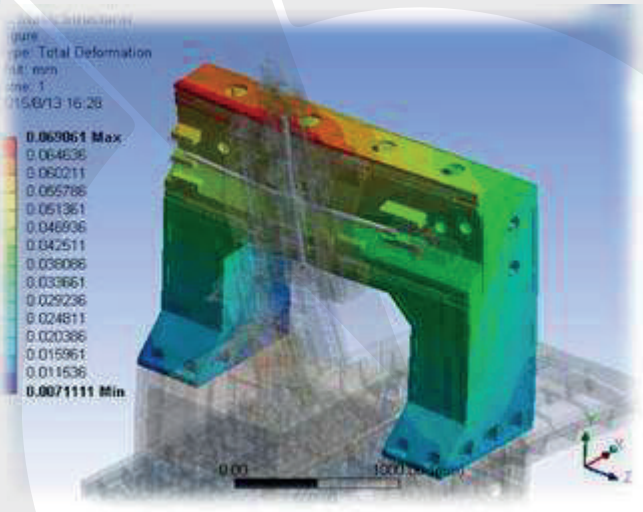
Adopts the structure of gantry framework fixed, worktable moving. The basic cast iron pieces are made of high quality resin sand molding to realize the machine with high rigidity and stable accuracy. The main castings are designed by finite element analysis. The reinforcement ribs layout is very reasonable to fully meet the high torque cutting requirements.





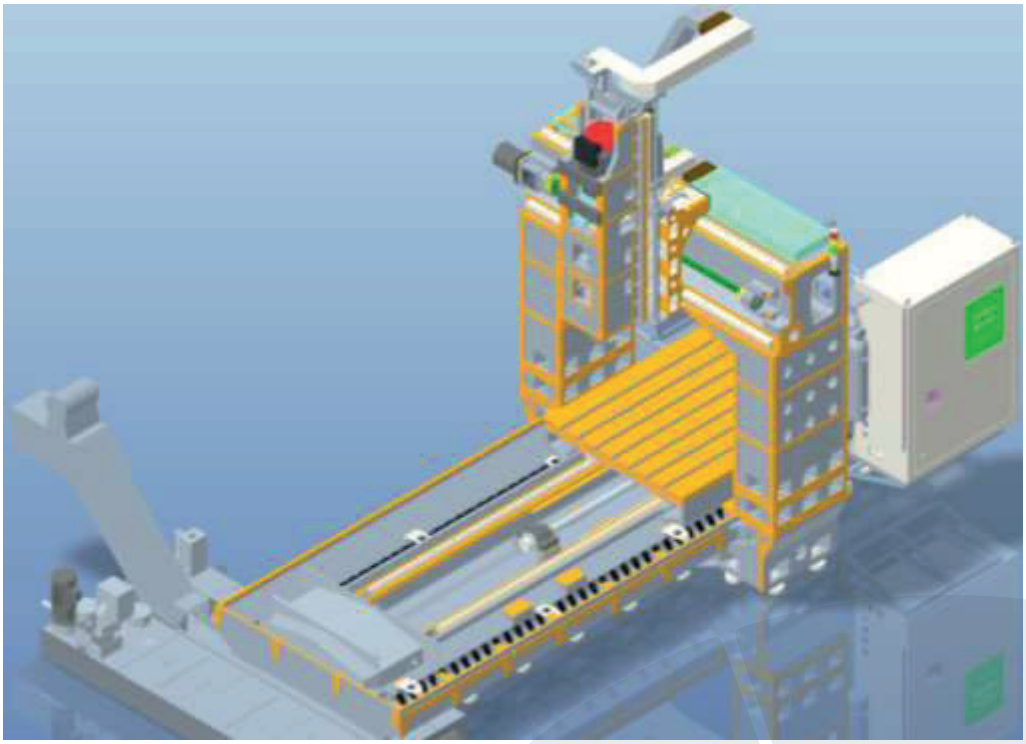
C





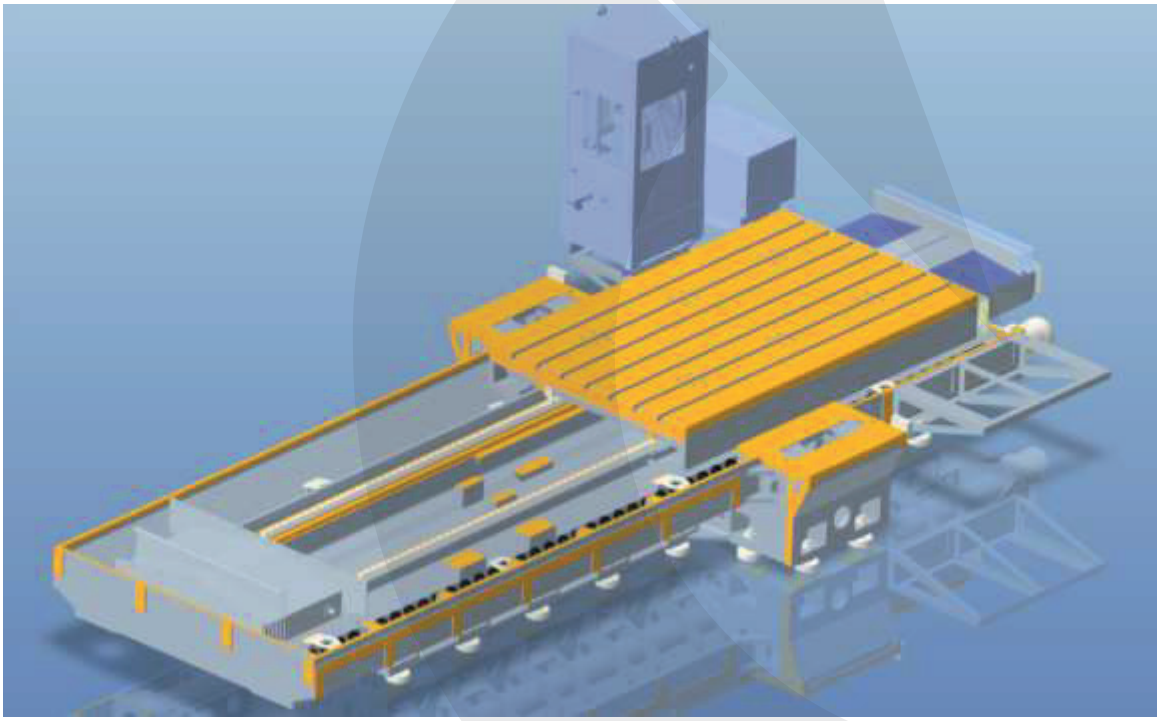
X/Y/Z axis structure

Adopt heavy-loaded roller linear guide ways on X & Y axis, which can provide small friction, heavy carrying capacity, high sensitivity, small vibration with high-speed, non-crawling with low-speed and high positioning accuracy. Z axis apply the box way to realize high rigidity, powerful cutting capacity and high stability. Beam and column adopted the type of integration.



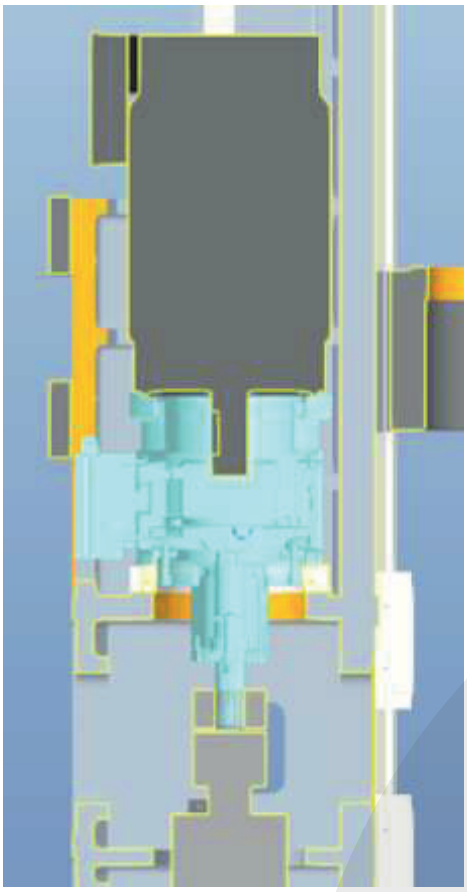
Column and beam are integrated design with reinforcing ribs, insure high rigidity and stable cutting ability.

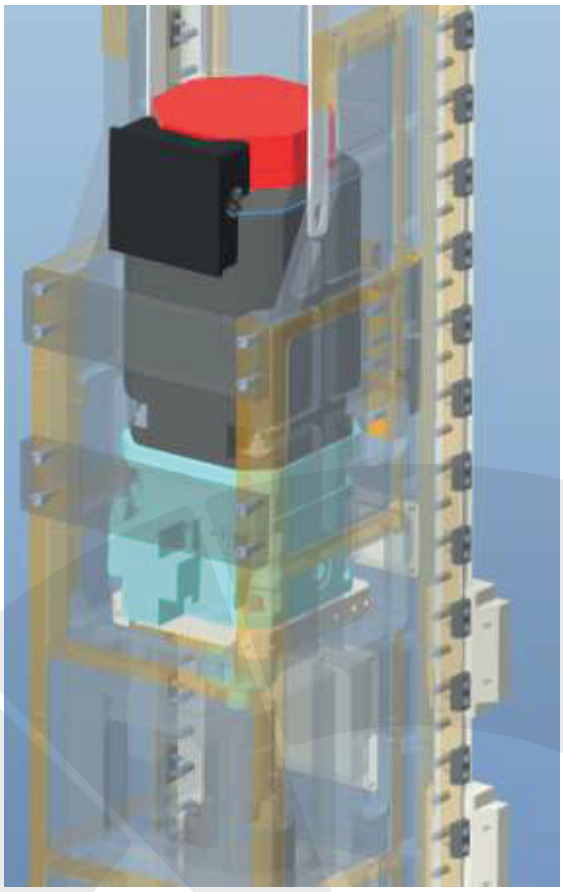
Reasonable guide way span layout to assure machine dynamic rigidity;



●**Beam structure**

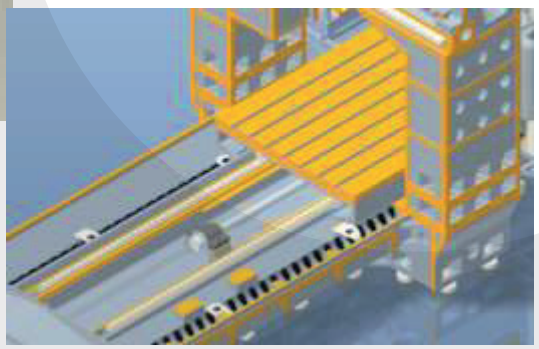
●Ladder type beam, the structure rigidity, guide span is big. The distance from spindle center to Z axis guide surface is short, Minimize turning torque, improves the machine rigidity





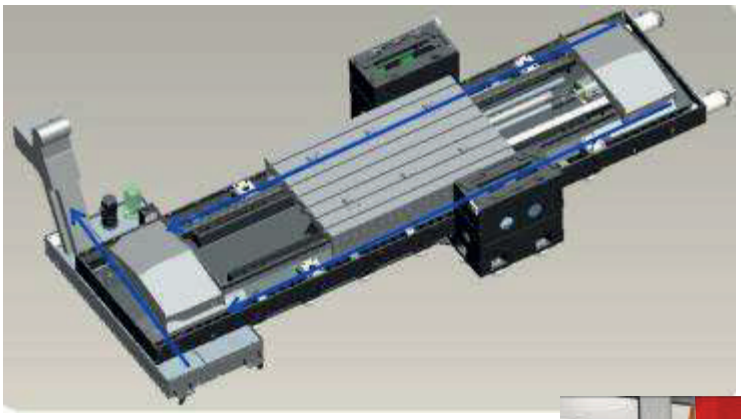
●**Bed grid layout**

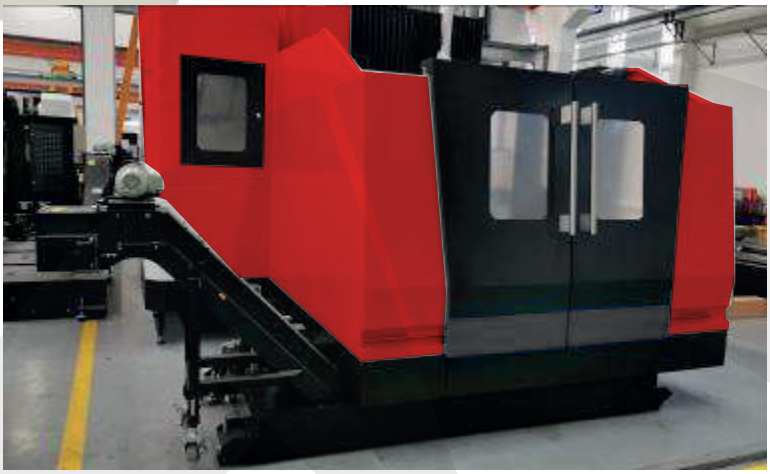
UM form annular grid layout, effectively increase the whole strength of the machine tool cutting intensity, rigidity, torsion and bending resistance.



●Auto chip conveyer

Auto-chip removal system: Integrated machine bed design, better rigidity. The double helix chip conveyer + chain type chip conveyer.





●X/Y/Z axis linear way

German made, G2 level, 55mm wide roller linear way on X and Y axis the heavy loading, stable running, high precision. X, Y, Z axis is equipped with preload German INA thrust roller bearings to eliminate backlash and increase stability during the axial movement. The machine bed guide way (X axis), cross beam guide way (Y axis) and the ram (Z axis) apply the top brand heavy load roller linear way, which is with small friction, strong loading capacity, without creeping on low speed and high positioning accuracy.

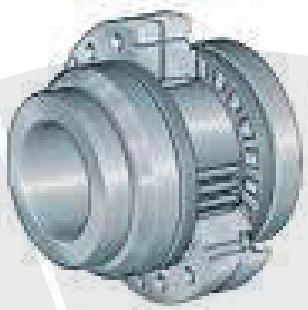
●X/Y/Z axis ball screw

VXL-22x15C, C5 level, doubt nut, double preload, strong lead screw toguarantee the machine with high stability, high rigidity and super precision.

X/Y/Z axis lead screw diameter* pitch: 63*20/50*12/50*10.

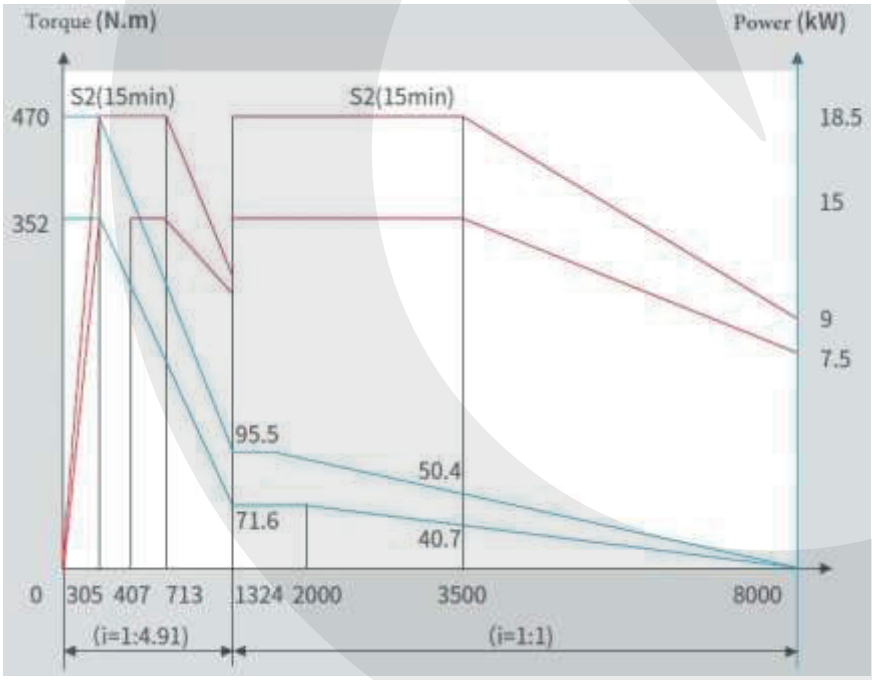
●X/Y/Z axis bearings

NSK bearings on all axis to provide axial & radial support and reduce back lash problem.



●Spindle

The machine apply Taiwan imported spindle, which is with high torque, high speed, low noise, to meet the various boring, milling and drilling requirements completely. By equipped with FANUC ß I spindle motor, ZF gear box (1:1 and 1:5.5), and oil cooling system (to cool down the spindle temperature), to improve bearing using life and reduce the impact on the machining accuracy induce by the spindle thermal deformation.

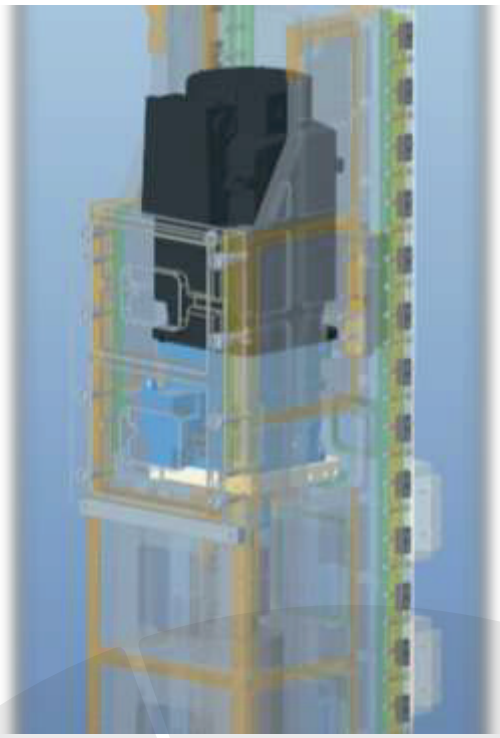


ZF gear box

2-speed gear box generates maximum 470N.m

Spindle power: 15/18.5kW

Spindle torque: 352/470Nm

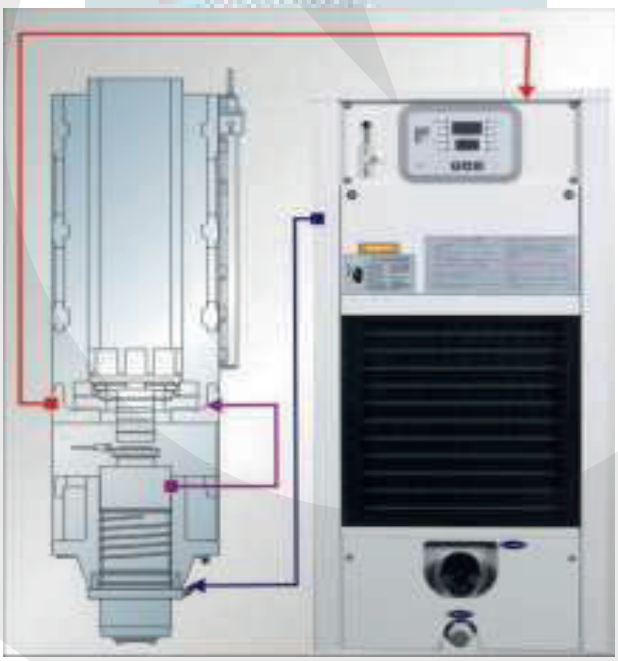


●**Spindle air blow**

Provide the positive air pressure to prevent contaminents influnce the spindle.

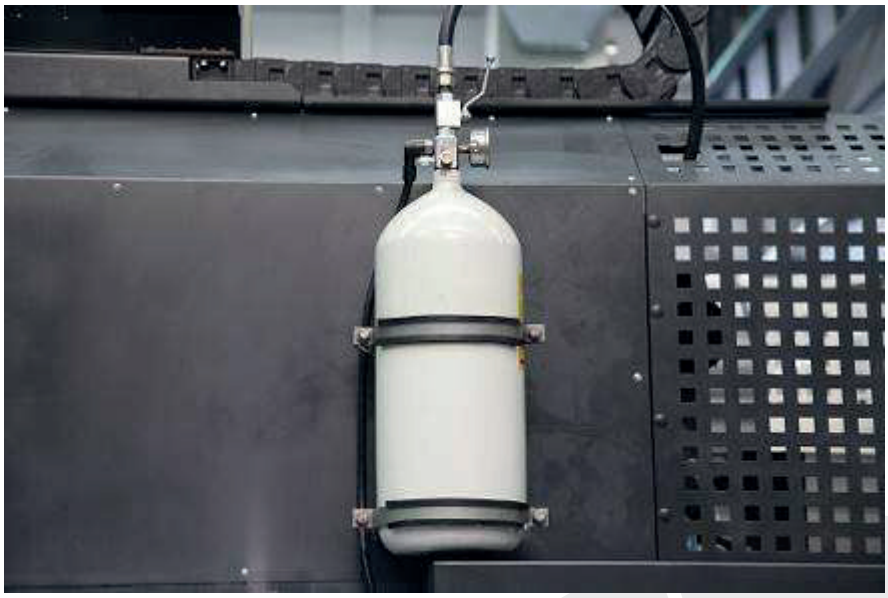
●**Spindle oil chiller**

To make the coolant circulation around the spindle, realize the constant temperature of the spindle, reduce the spindle thermal deformation and keep the high spindle precision.

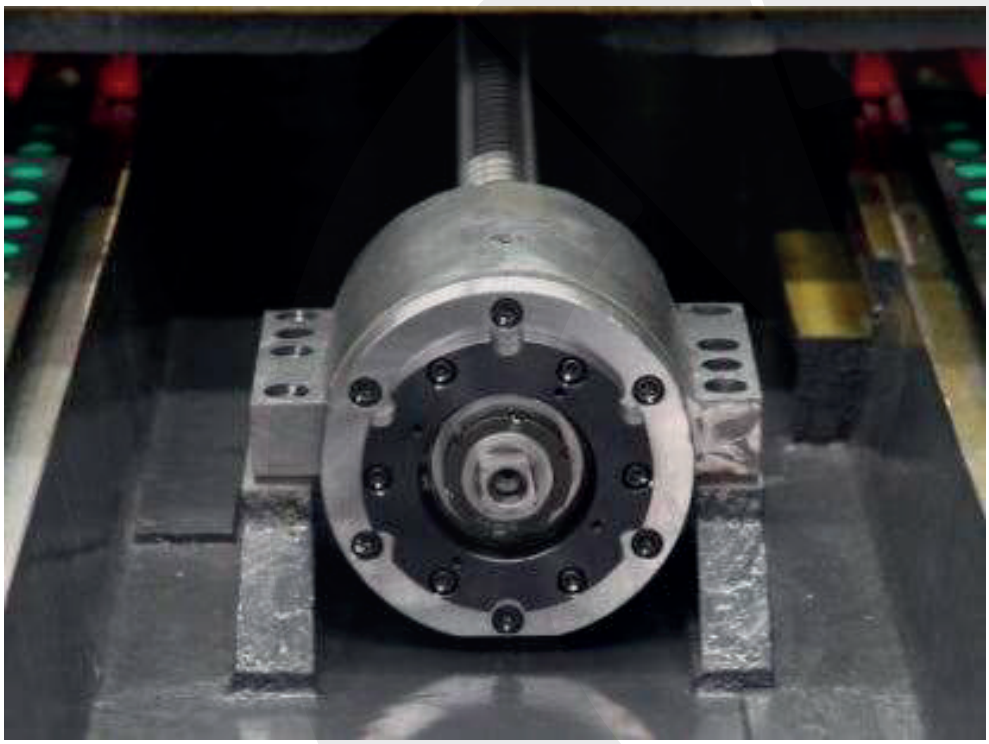


●Z axis counterbalance

Nitrogen balance system provide smooth Z-axis movement



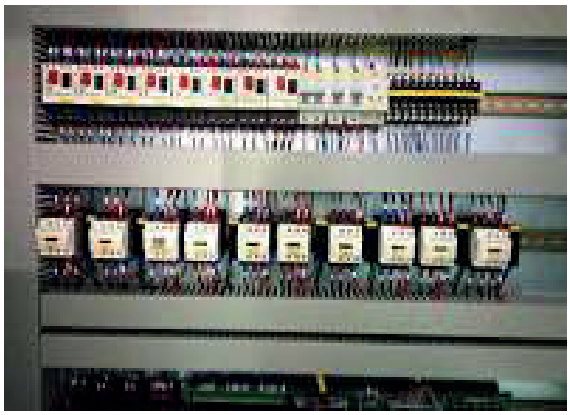
Each side with 4 bearings and pre-stretching structure for ball screw, reduce the thermal deformation



●Neat line layout

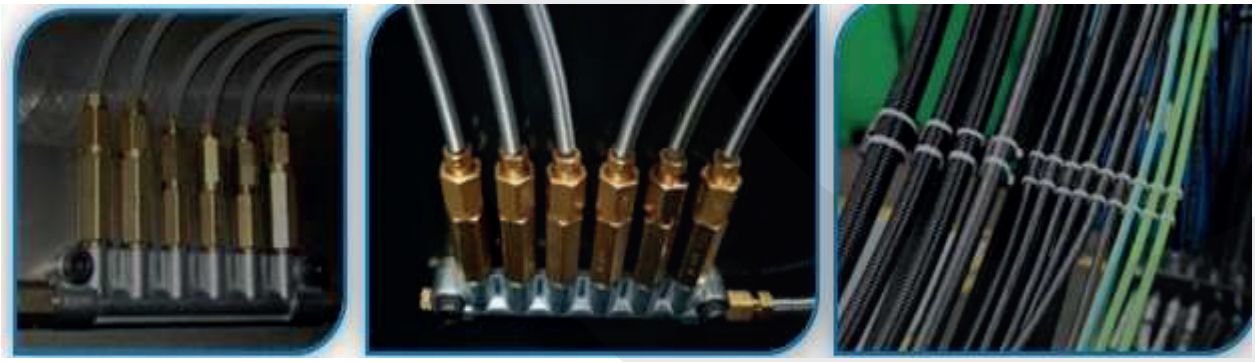
Neat line (pipes, wires and cables) layout will be very convenient for maintenance





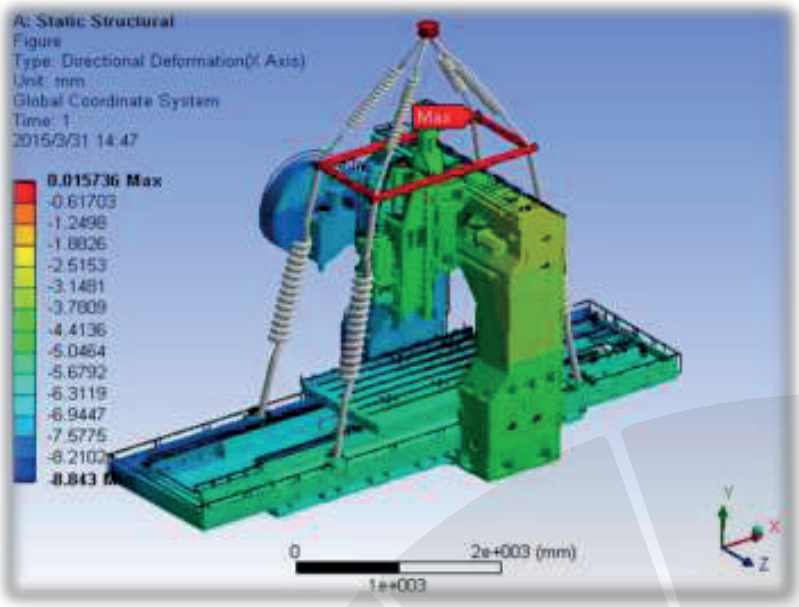
●Lubrication:

Automatic oil pump provides lubrication to the guide ways and ball screws which precisely controls the volume of oil to these critical components. A low-level alarm reminds operator before machine stop. The grease type lubrication is an optional, which is thought by some to be more environmentally friendly.

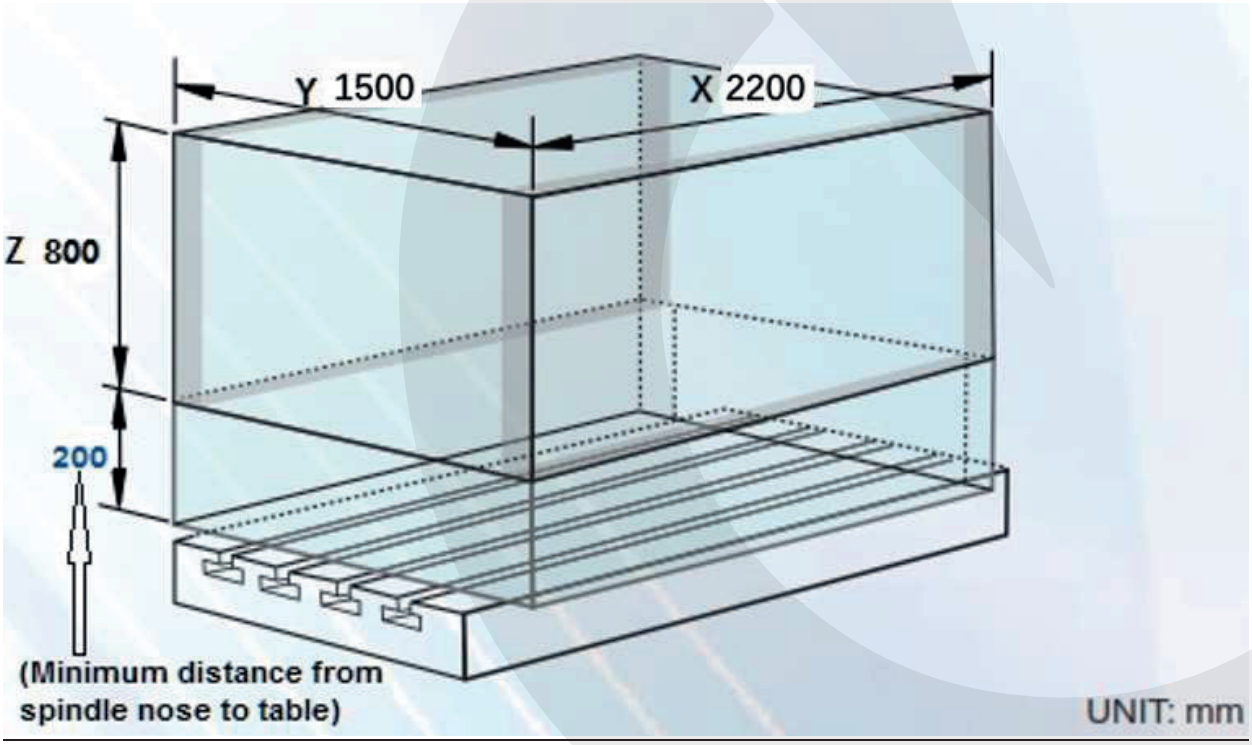


●Reasonable machine lifting design

Reasonable whole machine lifting position to guarantee the machine precision, reduce the installation time in customer's facility.



WORK RANGE:



CONTROLLER

SYSTEM CONTROLLER :

1.FANUC

● Standard ○ Optional X N/A

No.	Item		Spec.	0I-MF Plus	
				Type 1	Type 5
1	Controlled axis	Controlled axes		5	5
2		Additional controlled axes		7	6
3		Least command increment	0.001 mm / 0.0001"	●	●
4		Least input increment	0.001 mm / 0.0001"	●	●
5		Interpolation type pitch error compensation		●	●
6	Interpolation & Feed Function	2nd reference point return	G30	●	●
7		3rd / 4th reference return		●	●
8		Inverse time feed		●	X
9		Cylindrical interpolation	G07.1	●	○
10		Bell-type acceleration/deceleration before look ahead interpolation		●	●
11		Automatic corner override	G62	●	●
12		Automatic corner deceleration		●	●
13		Manual handle feed	Max. 3unit	●	●
14		Handle interruption		●	●
15		Manual handle retrace		●	●
16		Nano smoothing	AI contour control II is required.	○	X
17		AICC I	40 BLOCK	X	●
18		AICC II	200 BLOCK	●	X
19		AICC II(Preview block number increase)	400 BLOCK(Special hardware and AI contour control II)	○	X
20	Spindle & M code	M- code function		●	●
21		Retraction for rigid tapping		●	●

22	Function	Rigid tapping	G84, G74	●	●
23	Tool Function	Number of tool offsets	400	400 ea	400 ea
24		Tool nose radius compensation	G40, G41, G42	●	●
25		Tool length compensation	G43, G44, G49	●	●
26		Tool life management		●	●
27		Tool offset	G45 - G48	●	●
28	Programming & Editing Function	Custom macro		●	●
29		Macro executor		●	●
30		Extended part program editing		●	●
31		Part program storage	2MB(5120m)	●	●
32		Inch/metric conversion	G20 / G21	●	●
33		Number of Registerable programs	400 ea	400 ea	400 ea
34		Number of Registerable programs	1000 ea	○	○
35		Optional block skip	9 BLOCK	●	○
36		Optional stop	M01	●	●
37		Program file name	32 characters	●	●
38		Sequence number	N 8-digit	N8 digit	N8 digit
39		Playback function		●	●
40		Addition of workpiece coordinate system	G54.1 P1 - 48 (48 pairs)	48 pairs	48 pairs
41		Addition of workpiece coordinate system	G54.1 P1 - 300 (300 pairs)	○	○
42	OTHER FUNCTIONS (Operation, setting & Display etc)	Embedded Ethernet		●	●
43		Graphic display	Tool path drawing	●	●
44		Load meter display		●	●
45		Memory card interface		●	●
46		USB memory interface	Only Data Read & Write	●	●
47		Operation history display		●	●
48		DNC operation with memory card		●	●
49		Optional angle chamfering / corner R		●	●
50		Run hour and part number display		●	●
51		High speed skip function		●	●
52		Polar coordinate command	G15 / G16	●	●
53		Programmable mirror image	G50.1 / G51.1	●	●

54		Scaling	G50, G51	●	●
55		Single direction positioning	G60	●	●
56		Pattern data input		●	○
57		Jerk control	AI contour control II is required.	○	X
58		Fast Data server with1 GB PCMCIA card		○	○
59		Fast Ethernet		○	○
60		3-dimensional coordinate conversion		○	X
61		Figure copying	G72.1, G72.2	○	○
62		Machining time stamp function		○	○
63		Manual Guide I with 10.4" Color TFT		○	○
64		Dynamic graphic display (with 10.4" screen)		●	●

Siemens

● Standard ○ Optional X N/A

No.	Item		Spec.	S828D		
				SW24x	SW26x	SW28x
1	Controlled axis	Controlled axes	3 axes	X, Y, Z	X, Y, Z	X, Y, Z
2		Additional controlled axes		5	6+2	8+2
3		Least command increment	0.001mm (0.0001 inch)	●	●	●
4		Least input increment	0.001mm (0.0001 inch)	●	●	●
5		Travel to fixed stop with Force Control		○	○	○
6	Interpolation & Feed Function	Reference point return	G75 FP=1	●	●	●
7		2nd reference point return	G75 FP=2	●	●	●
8		Inverse time feed rate	G93	●	●	●
9		Helical interpolation		●	●	●
10		Polynomial interpolation		X	X	X
11		Spline interpolation (A, B and C splines)		○	○	○
12		Separate path feed for corners and chamfers		●	●	●
13		Acceleration with Jerk limitation		●	●	●

14		Compressor for 3-axis machining		●	●	●
15		Temperature compensation		●	●	●
16		Look Ahead, recorded part program blocks:	Milling with MDynamics Advanced Surface	150	300	450
17			Milling with MDynamics Top Surface	600	600	600
18		Look Ahead, IPO blocks, buffered:	Milling with MDynamics Advanced Surface	50	100	150
19			Milling with MDynamics Top Surface	200	200	200
20		Cartesian point-to-point (PTP) travel		●	●	●
21		TRANSMIT/cylinder surface transformation		○	○	○
22	Spindle Function	Tapping with compensating chuck/rigid tapping		●	●	●
23	Tool Function	Tool radius compensations in plane		●	●	●
24		Number of tools/cutting edges in tool list		128/256	256/512	768/1536
25		Tool length compensation		●	●	●
26		Operation with tool management		○	○	○
27		Tool list		●	●	●
28		Replacement tools for tool management		○	○	○
29		Monitoring of tool life and workpiece count		●	●	●
30		Manual measurement of tool offset		●	●	●
31		Magazine list		●	●	●
32	Programming & Editing Function	Number of levels for skip blocks 2		●	●	●
33		Number of levels for skip blocks 10		○	○	○
34		Program/workpiece management	On additional plug-in CF card	●	●	●

35			On USB storage medium (e.g. disk drive, USB stick)	●	●	●
36			On network drive	○	○	○
37		Program editor	Programming support for cycles program(Program Guide)	●	●	●
38			CNC editor with editing functions: select, copy, delete	●	●	●
39			Programming graphics/free contour input (contour calculator)	●	●	●
40			ShopMill Machining step programming	○	○	○
41		Technology cycles for drilling/milling		●	●	●
42		Pocket milling free contour and islands stock removal cycle		○	●	●
43		Residual material detection		○	○	○
44		Access protection for cycles		○	○	○
45		Programming support can be extended, e.g. customer cycles		●	●	●
46		2D simulation		●	●	●
47		3D simulation, finished part		○	○	○
48	OTHERS FUNCTIONS (Operation, setting & Display, etc)	Switchover: inch/metric		●	●	●
49		Manual measurement of zero/work offset		●	●	●
50		Automatic tool/workpiece measurement		●	●	●
51		Reference point approach, automatic/via CNC program		●	●	●

52		Execution from USB or CF card interface on operator panel front		●	●	●
53		Execution from network drive		○	○	○
54		10.4" color display		●	●	●
55		15.0" color display		○	○	○
56		Alarms and messages		●	●	●
57		Automatic measuring cycles		○	○	○

Heidenahin

● Standard ○ Optional X N/A				
NO.	Item		Spec.	TNC 620
1	Axes	Controlled axes	3 axes	X, Y, Z
2		Additional Controlled axes	Max. 5 axes in total	○ (Max. 5axes)
3		Least command increment	0.0001 mm (0.0001 inch), 0.0001°	●
4		Least input increment	0.0001 mm (0.0001 inch), 0.0001°	●
5		MDI / DISPLAY unit	19 "color flat-panel display, vertical, touch screen (for MC 8410)	●
6		Program memory for NC programs		1.8GB
7		CFR CF memory card		8GB
8	Commissioning and diagnostics	Data interfaces	Ethernet interface	●
9			USB interface (USB 2.0)	●
10	Machine functions	Look-ahead (Intelligent path control by calculating the path speed ahead of time)	Max. 5000 blocks.	●
11	User functions	Brief description	Basic version: 3 axes plus spindle	●
12			One or two additional NC axes	○
13			Digital current and spindle speed control	●
14		Program entry	HEIDENHAIN conversational and DIN/ ISO formats	●
15		Position data coordinates	Nominal positions for lines and arcs in Cartesian coordinates or polar coordinates	●
16			Incremental or absolute dimensions	●

17			Display and input in mm or inches	●
18		Tool compensation	Tool radius in the working plane and tool length	●
19			Radius-compensated contour look-ahead for up to 99 blocks (M120)	○
20			Three-dimensional tool-radius compensation for changing tool data without having to recalculate an existing program	○
21		Tool tables	Multiple tool tables with any number of tools	●
22		Constant contour speed	Relative to the path of the tool center	●
23			Relative to the tool's cutting edge	●
24		Parallel operation	Creating a program with graphical support while another program is being run	●
25		3-D machining	Motion control with minimum jerk	○
26			3-D tool compensation through surface normal vectors	○
27			Keeping the tool normal to the contour	○
28			Tool radius compensation normal to the tool direction	○
29		Contour elements	Straight line	●
30			Chamfer	●
31			Circular path	●
32			Circle center point	●
33			Circle radius	●
34			Tangentially connecting circular arc	●
35			Corner rounding	●
36		Approaching and departing the contour	Via straight line: tangential or perpendicular	●
37			Via circular arc	●
38		Program jumps	Subroutines	●
39			Program section repeats	●
40			Calling any program as subroutine	●
41		Coordinate transformation	Datum shift, rotation, mirror image,	●

			scaling factor (axis-specifi c)	
42			Tilting the working plane, PLANE function	○
43		Actual position capture	Actual positions can be transferred directly into the NC program	●
44		Programming graphics	In the Programming and Editing mode, the contour of the NC blocks is drawn on screen while the blocks are being entered (2-D pencil-trace graphics), even while another program is running	●
45		Machining time	Calculation of machining time in the Test Run operating mode Display of the current machining time in the Program Run operating modes	●
46		Returning to the contour	Mid-program startup in any block in the program, returning the tool to the calculated nominal position to continue machining	●
47			Program interruption, leaving and returning to the contour	●
48		Preset tables	One preset table for storing reference points	●
49		Datum tables	Several datum tables for storing workpiece-related datums	●
50		Parallel secondary axes	Compensating movement in the secondary axis U, V, W through the principal axis X, Y, Z	●
51			Including movements of parallel axes in the position display of the associated principal axis (sum display)	●
52			Defi ning the principal and secondary axes in the NC program makes it possible to run programs on different machine confi gurations	●
53		Conversational languages	English, Chinese (traditional, simplifi	●

			ed), Czech, Danish, Dutch, Finnish, French, German, Hungarian, Italian, Polish, Portuguese, Russian (Cyrillic), Spanish, Swedish	
54	Fixed cycles	Drilling, conventional and rigid tapping, rectangular and circular pockets		●
55		Peck drilling, reaming, boring, counterboring, (centering)		○
56		Milling internal and external threads		○
57		Clearing level and oblique surfaces		○
58		Multioperation machining of straight and circular slots		○
59		Multioperation machining of rectangular and circular pockets		○
60		Linear and circular point patterns		○
61		Contour train, contour pocket—also with contour-parallel machining		○
62		OEM cycles (special cycles developed by the machine tool builder) can be integrated		○
63	Touch probe cycles	Touch probe calibration		○
64		Compensation of workpiece misalignment, manual or automatic		○
65		Datum setting, manual or automatic		○
66		Automatic tool and workpiece measurement		○

TYPICAL APPLICATION:

info@grupohitec.com

ventas@grupohitec.com

grupohitec.com