



VF 1615

High Speed Bridge Machining Center



VF1615

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VF Series is designed for AUTO part and high precision mould & die and parts production with high speed and accuracy.



All axis with C3 grade pre-stressed precision double nut ball-screws to improve transmission efficiently.

Three axis use high power servo motor to get the 0.7g acceleration.

VF1615 15000rpm
VF1615A 24000rpm
VF1615B 36000rpm

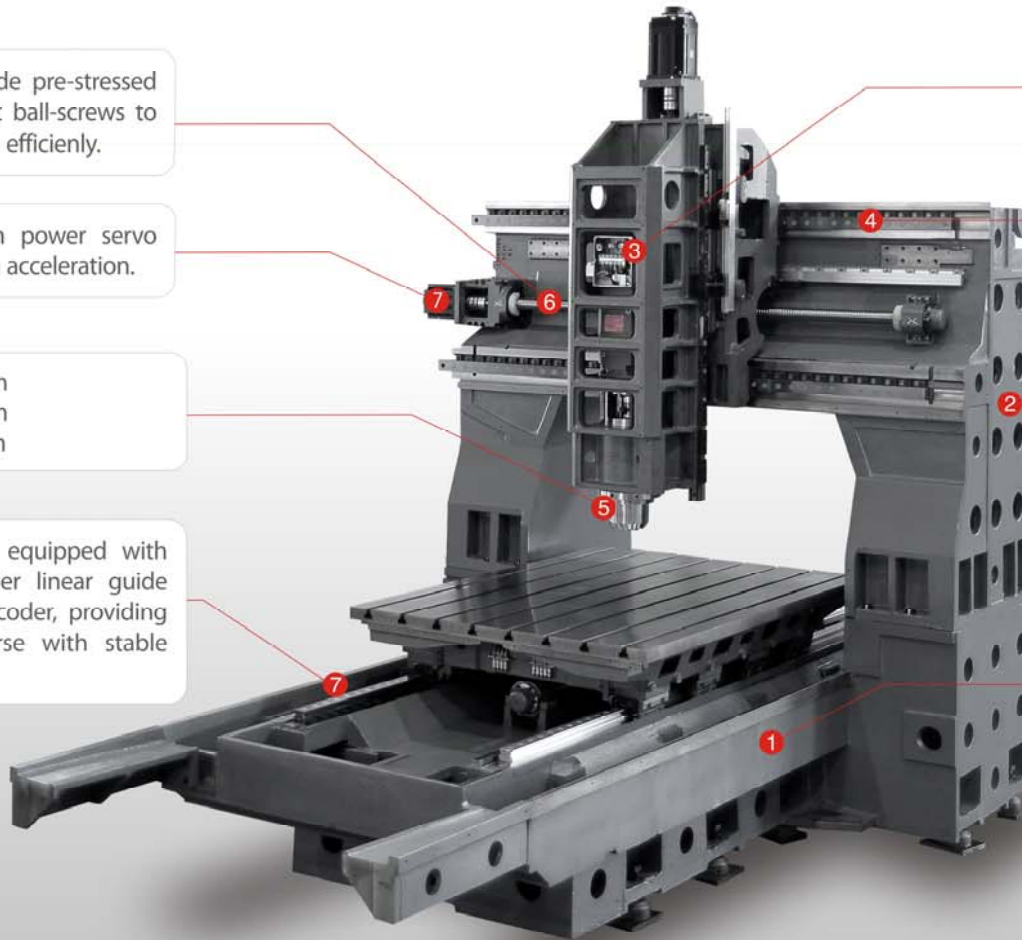
All three axis are equipped with high precision roller linear guide way and linear encoder, providing high speed traverse with stable performance.

Spindle motor adopt coolant in order to prevent thermal deformation.

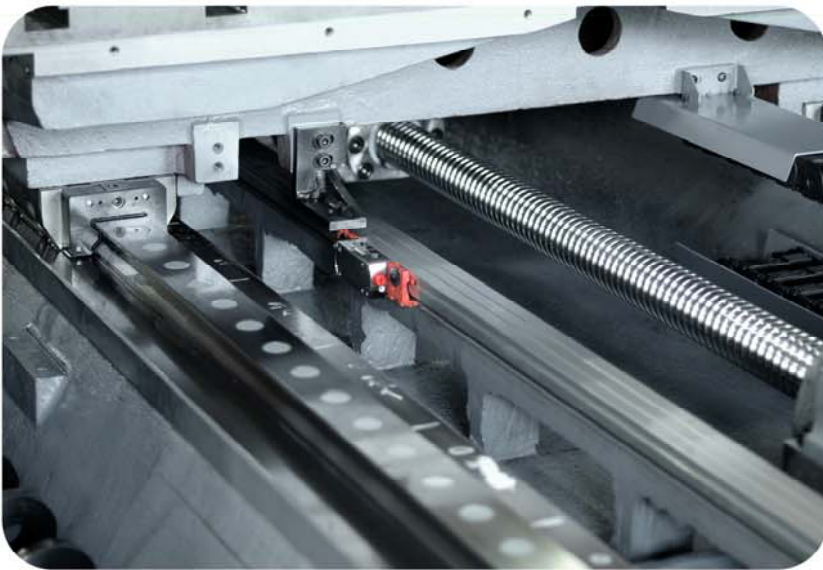
The ladder type design of roll liner guide way on the beam.

One piece cast iron machine bed & one piece cast iron bridge yield in highest rigidity, the whole machine is analyzed by FEM, assure machine accuracy and

All structural parts are manufactured from Meehanite grade cast iron and released the stress by heat treatment , ensuring the best structural stability and positioning accuracy.



VF High Speed Bridge Machining Center
Machine Frame



Worktable size 1800X1300mm
Table loading 4T
THK or REXROTH roller linear guide way



Centralization lubrication system



2 sets of coil chip conveyor intergrated with machine bed combine with set chip conveyor





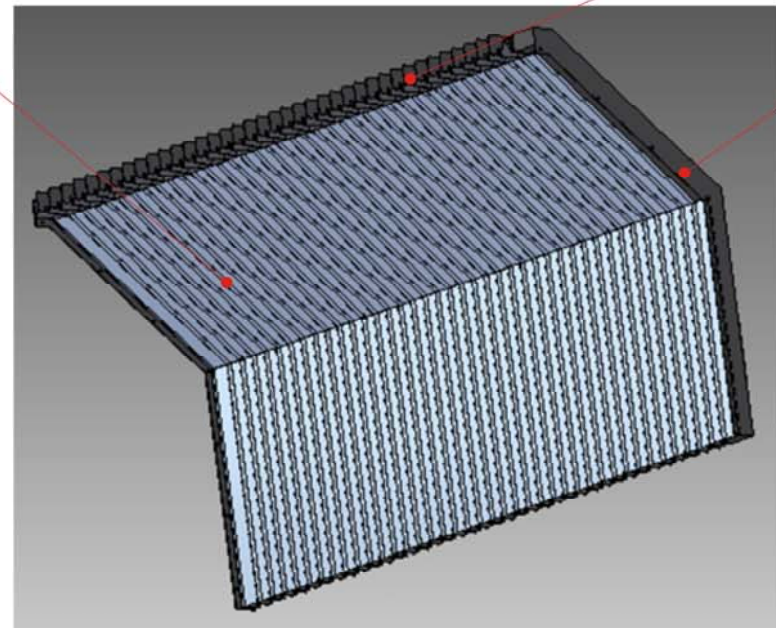
- 15000RPM, HSK-A63 Direct-driven spindle
15/18.5kW 95N.m



- 24000RPM, HSK-A63 electric spindle
25/33kW 95.8N.m
- 36000RPM, HSK-E50 electric spindle
20/26kW 13.5N.m

Y axis steel cover

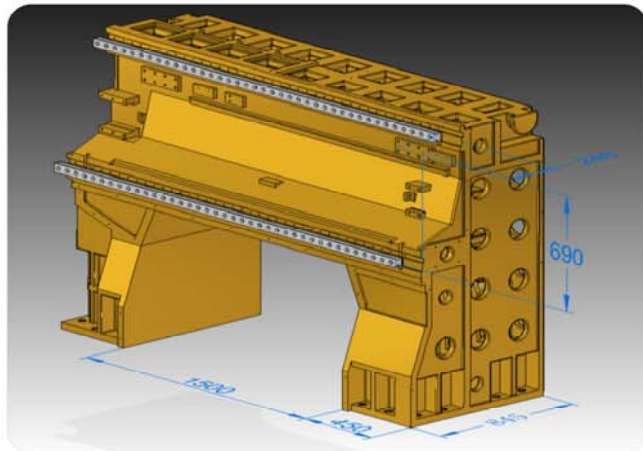
Steel cover



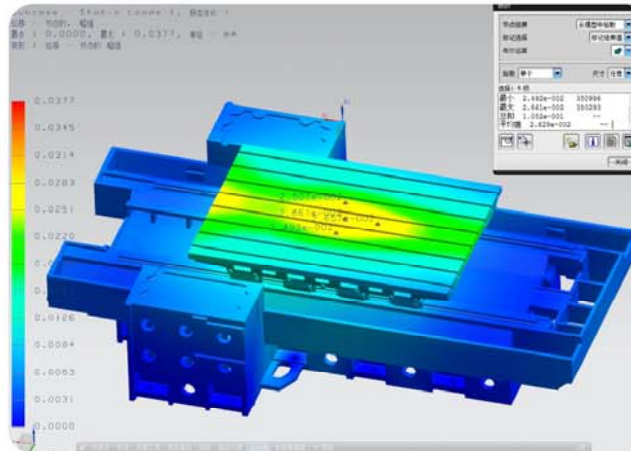
PVC plate

Fix plate

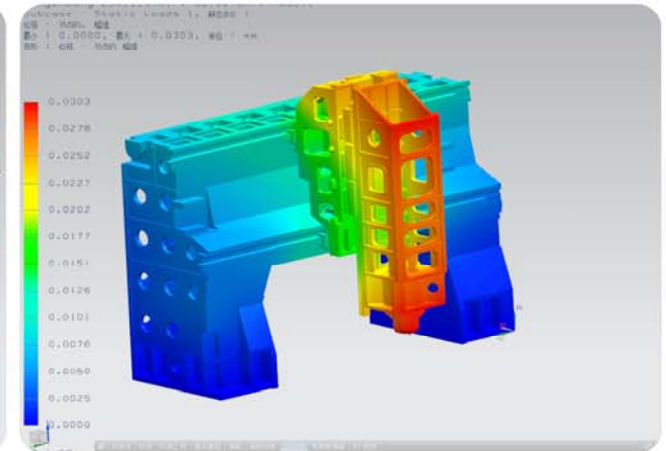
The two side of Y axis use steel cover which prevent the water&chip well.



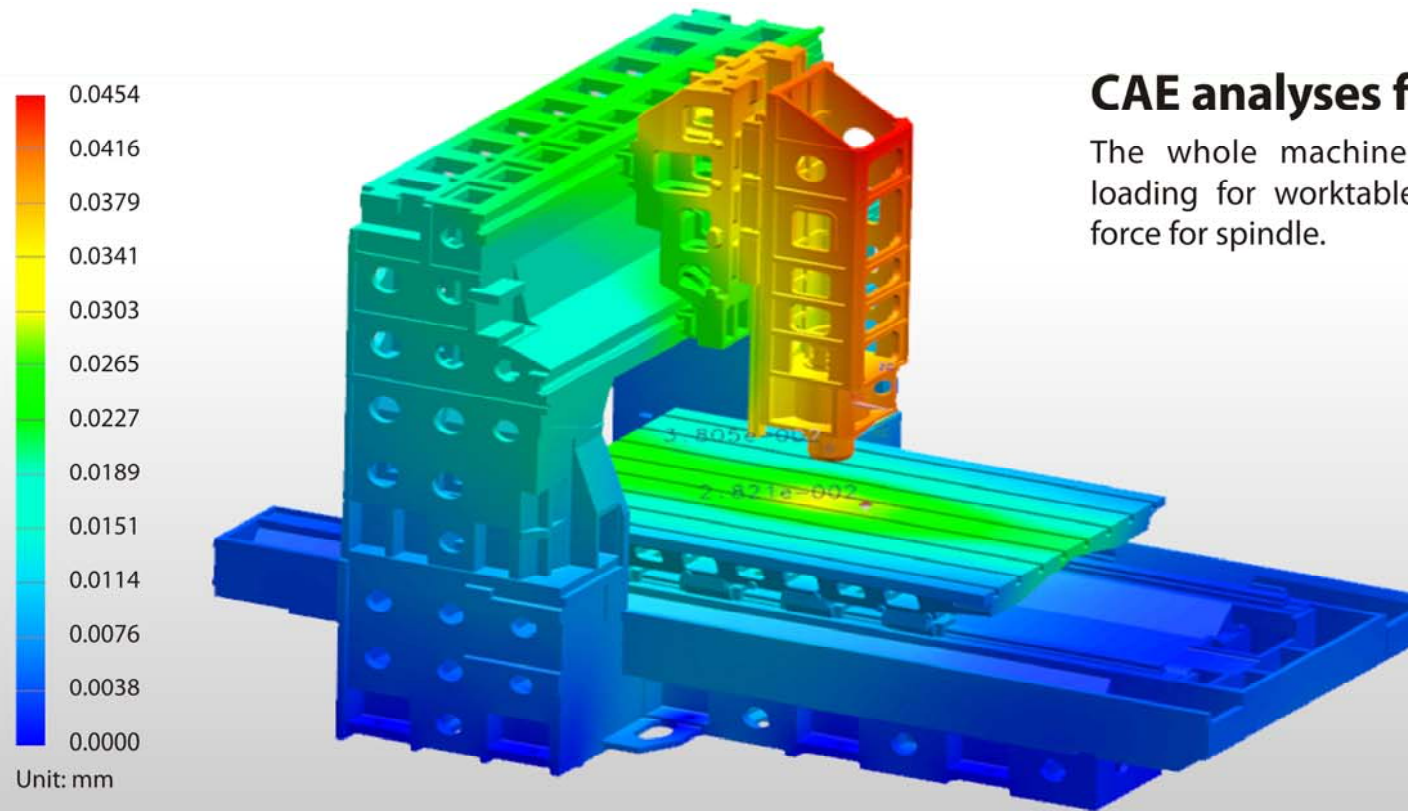
- The column is with large installation interface for bed.
- One piece cast iron machine column.
- Ladder type linear guide way.



Worktable analysis with 10t



Beam and slide saddle force drawing



CAE analyses for whole machine

The whole machine passed a CAE analysis, loading for worktable is 10T, make the 1000kg force for spindle.

Cable



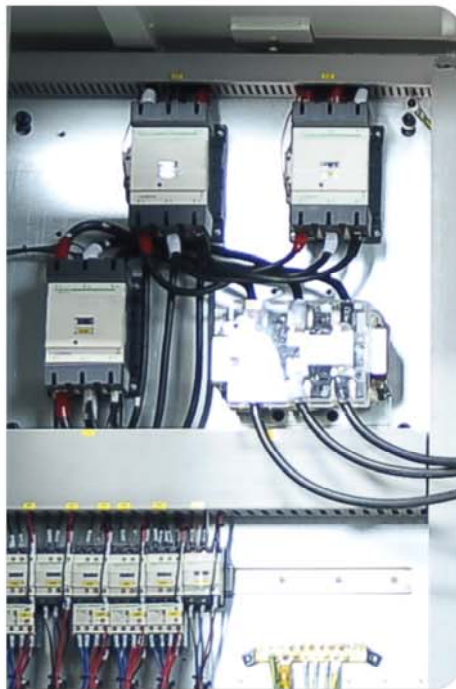
Parts and Brand

NO.	NAME	SPEC.	BRAND
1	CONTROLLER	Mitsubishi M730VW	JAPAN MITSUBISHI
2	BALL SCEW BEARING	40TAC90BSUC10PN7B	JAPAN NSK
3	X BALL SCREW	R55-12T6-FDDC-0.008	TAIWAN HIWIN
4	Y BALL SCREW	R55-12T6-FDDC-0.008	TAIWAN HIWIN
5	Z BALL SCREW	R50-12T6-FDDC-0.008	TAIWAN HIWIN
6	3 AXIS LINEAR GUIDE WAY	55 ROLLER TYPE	JAPAN THK OR GERMANY REXROTH
7	ELECTRIC SPINDLE UNIT	HSK A63-24000rpm	SWISS IBAG
8	LINEAR ENCODER	LC193M ABSOLUTE TYPE	GERMANY HEIDENHAIN
9	PNEUMATIC SYSTEM		JAPAN SMC
10	LUBRICATION SYSTEM		JAPAN SHOWA
11	PROTECT COVER	Steel type	GERMANY HEMAZHAO
12	AIR CONDITION	KAC-6RS	TAIWAN KAOKUNG
13	SPINDLE WATER CHILLER	KO-12PTS	TAIWAN POINT
14	3AXIS DRAG CHAIN		GERMANY IGUS
15	COUPLING	RADEX-NC35-DK/φ35-φ38	GERMANY KTR
16	OPERATING ENCLOSURE		GERMANY MECANO
17	RELAY		OMRON
18	AC CONTACTOR		GERMANY SCHNEIDER
19	BREAKER		GERMANY SCHENIDER
20	MPG		JAPAN TOSOKU

Standard control: Mitsubishi M730vw



➤ Electric cabinet is equipped with air condition and all components in the panel are in industrial quality from world know manufacturer.

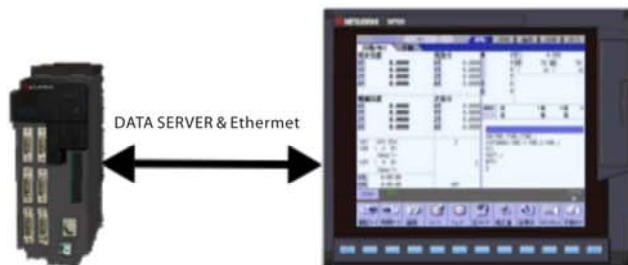


➤ The crystal control panel designed by SKYMASTER, provides operator easy identification in a poor working environment. Keys are coolant-resistant, bump-resistant, oil-resistant and changeable. The control panel is an information processing center and efficiently controls all functions.

MITSUBISHI CNC M730VW SERIES

Compare with the conventional M700 series

- The high processing speed has been expanded from 135k to 151kBMP
- PLC program capacity has been expanded from 42,000 to 128000 steps
- PLC program processing speed has been expanded from 2 to 100 steps/?s
- Full-Fledged Nano-Control
- High-Speed, High-Precision Die/Mold Cutting
- SSS Control for Stable Machining Quality
- 5-Axis Machining Function
-

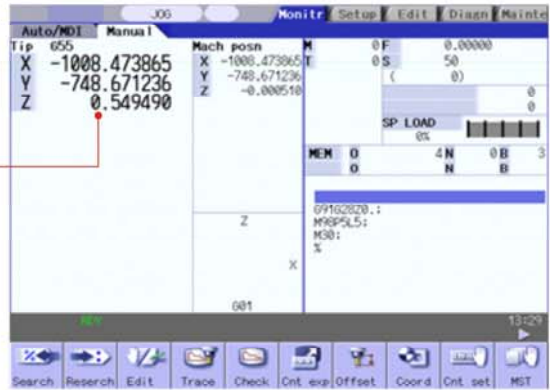


Windows XPe

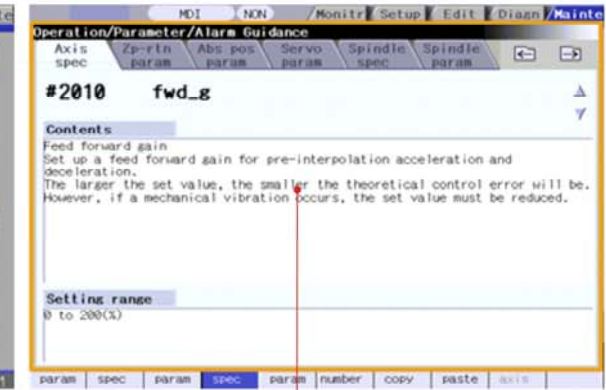
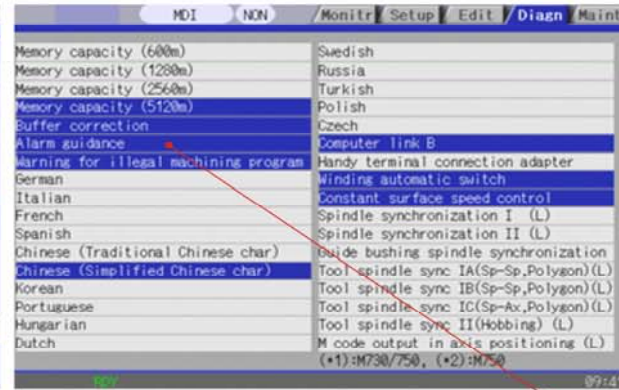
MDI	NON	Monitr	Setup	Edit	Diagn	Mainte
Bklash auto adjust (M)						Automatic tool length measurement
Memory-type pitch error compensation						Manual tool length measurement 1
Memory-type relative posn err compen						Manual tool length measurement 2
External machine coord system compen						Workpiece coord offset measurement (L)
Circular error radius compensation						Workpiece position measurement (M)
Ball screw heat expansion compensation						Rotate measurement (M)
Machine rot center err compen(M)(*1)						Tool life management I
Pos-depend increasing backlash						Tool life management II
Two-way pitch error compensation						Tool life management III (M)
OMR II						Tool life sets (200) (M)
OMR-FF						Tool life sets (400) (M)
Distance-coded ref position detection						Tool life sets (600) (M)
Skip (hi-speed skip)						Tool life sets (800) (M)
Multiple-step skip						Tool life sets (1000)(M)
PLC operation skip						Programmable current limitation
Variable speed skip						Load monitoring I
High-accuracy skip						Stored stroke limit I B
						(*1):M730/750, (*2):M750

Rich kinds of error compensation and ball screw heat expansion compensation

Error Compensation and Heat Expansion Compensation



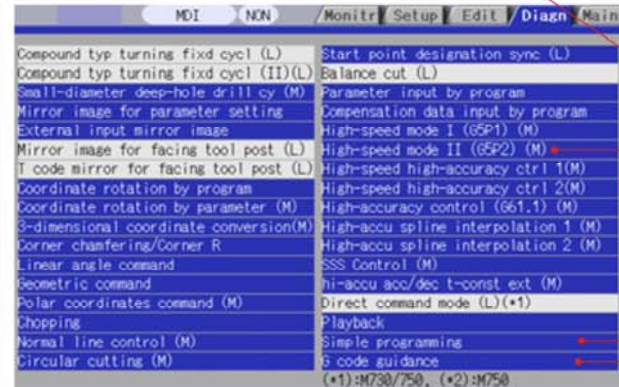
Nano-control



Guide function

Rich kinds of high-speed high-accuracy choice

Simply programming

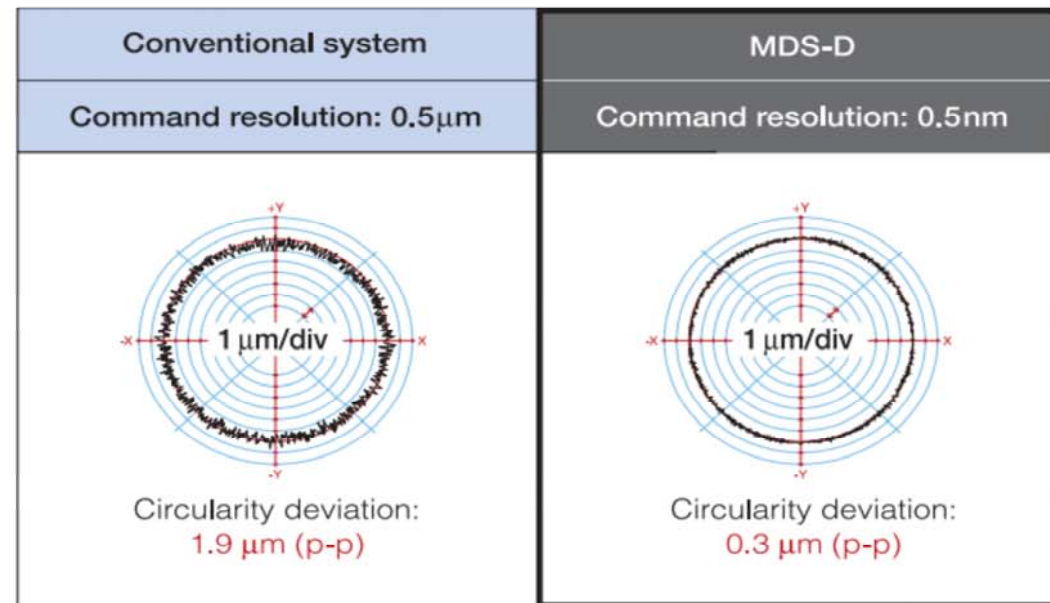


Full-Fledged Nano-Control for Optimum Performance

Full-fledged nano-control performs all processing in nano-units, from NC computation (with a minimum command unit of 1 nano-meter) to servo control processing.

Circularity accuracy comparison

Circular command speed: 10m/min
Radius: 100mm (for motor unit)



Heidenhain 620

15" Screen
HR410 MPG

The TNC620 is a compact but versatile contouring control for up to five controlled axes. Apply the flexible operating concept: workshop-oriented programmability with HEIDENHAIN conversational programming or offline programming, and its scope of features, it is especially suited for use on milling, drilling and boring machines.



High Contour Accuracy

The TNC 620 dynamically calculates the contour in advance. This enables it to adapt the axis velocities to the contour transitions. It controls the axes with special algorithms that ensure path control with the required limits to velocity and acceleration. Special filters specifically suppress machine-specific natural vibration. The desired accuracy and a very high surface quality are attained. Thanks to the short block processing time of 1.5 ms

Fast Machining At Specified Accuracy

You as user specify the accuracy of the machined contour—apart from the NC program. You simply enter in the control through a cycle the maximum permissible deviations from the ideal contour. The TNC 620 automatically adapts the machining to the tolerance that you define. No contour damage occurs with this method.

High Availability

In the uniformly digital control design of the TNC 620, all components are connected to each other via purely digital interfaces: The control components are connected via HSC (HEIDENHAIN Serial Controller Interface), the real-time protocol from HEIDENHAIN for Fast Ethernet, and the encoders are connected via EnDat 2.2, the bidirectional interface from HEIDENHAIN.

Dynamic Precision

The Dynamic Precision stands for a number of HEIDENHAIN solutions for milling that can dramatically improve the dynamic accuracy of a machine tool. It is the result of a new perspective on the competing demand for accuracy, high surface quality and short machining times. The dynamic accuracy of machine tools can be seen in position errors at the Tool Center Point (TCP), which depend on the motion quantities such as velocity and acceleration (also jerk) and result from vibrations of machine components and other causes.



Option

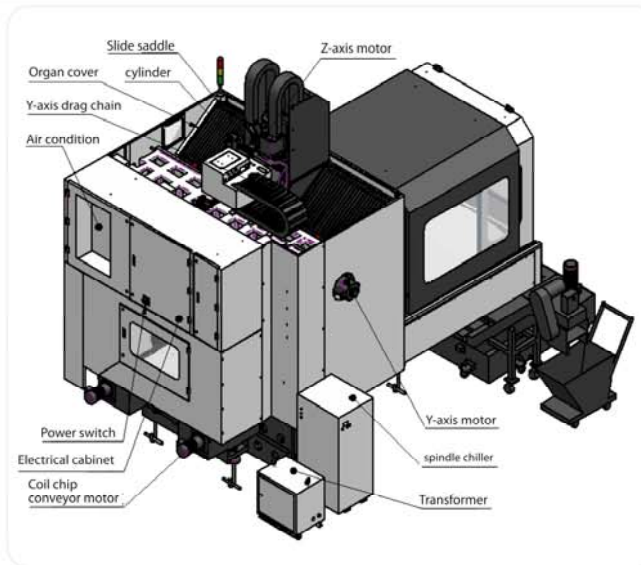
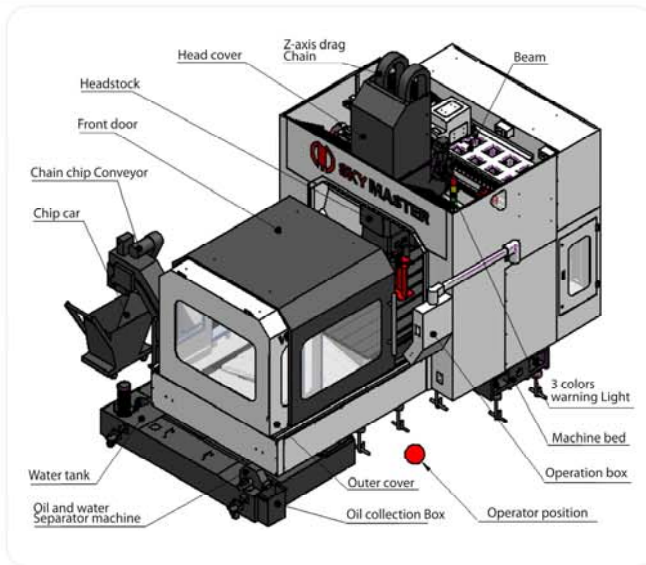
CTC – Compensation of acceleration- dependent position errors at the TCP , thereby increasing accuracy during acceleration phases

AVD – Active vibration damping improves surfaces

PAC – Position-dependent adaptation of controller parameters

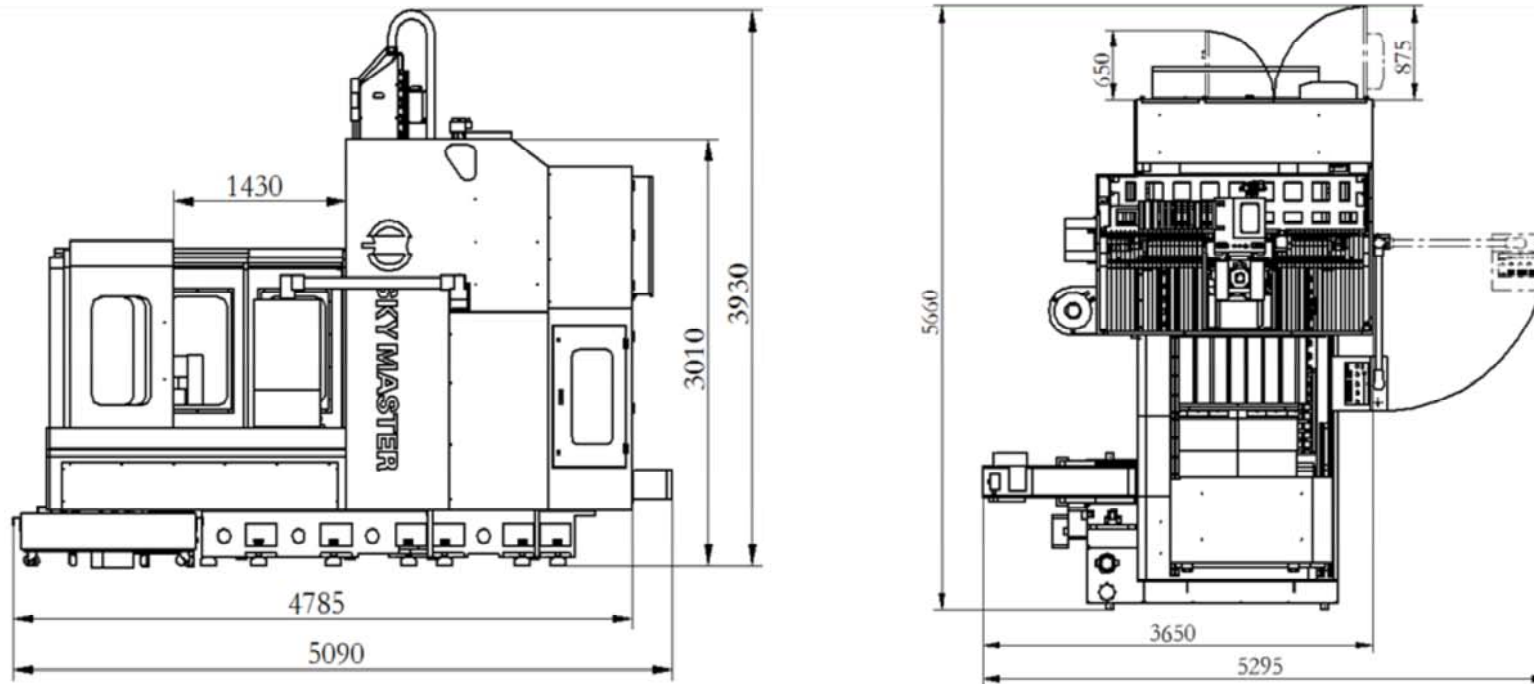
LAC– Load-dependent adaptation of control parameters enhances accuracy regardless of load and aging

MAC – Motion-dependent adaptation of control parameters



Machine size after package: 5400x3000x3580 mm

Machine Layout



Machine size: 5660x5295x3930mm, machine weight: 22000kg

ITEM	单位	VF1615	VF1615A	VF1615B	
Standard Controller		Mitsubishi M730VW			
Travel	X axis travel(work-table)	mm	1600		
	Y axis travel(saddle)	mm	1300		
	Z axis travel(spindle head)	mm	700		
	Distance from spindle nose to table	mm	200 ~ 900	225 ~ 925	250 ~ 950
	Distance between columns	mm	1500		
Work table	Table size(length x width)	mm	1800 x 1300		
	Table load	kg	4000		
	T slot size(width x distance x quantity)	mm	22 x 160 x 8		
Spindle	Spindle taper		HSK-A63	HSK-E50	
	Max. spindle speed	rpm	15000 (Direct driven)	24000 (Build-in)	36000 (Build-in)
	Spindle motor torque (continual working/ 30mins)	kW	15/18.5	25/33	20/26
	Spindle torque	N.m	95/118	72.6/95.8	10.4/13.5
X/Y/Z	Rapid speed (X/Y/Z)	mm/min	30000		
	Cutting federate (X/Y/Z)	mm/min	1 ~ 20000		
ATC (Option)	Tool capacity	pcs	20 (Drum type ATC)	24 (Drum type ATC)	
	Max. tool diameter	mm	φ100/φ130	φ80/φ130	
	Max. tool length	mm	300	220	
	Max. tool weight	kg	8	4	
Accuracy	VDI/DGQ3441 Full travel positioning accuracy	mm	P0.014		
	Repeatability accuracy	mm	Ps0.008		
Air pressure	MPa	0.6~0.8			
Supply voltage & frequency		3 /PE, AC380V, 50Hz			
Power requirement	kVA	60	80		
Machine weight	kg	22000			

STANDARD

- Mitsubishi M730VW absolute nanometer type controller
- High-speed high-accuracy control II, SSS control, 10G hard disk, windows interface
- OMR-FF control, ONR-2 control, machining condition selecting function
- Rigid tapping
- Full enclosure guard
- Spindle air sealing
- Machining air blowing device
- Working area light
- 3 color warning light
- Spindle cooling by external pipe
- Portable MPG
- Coolant system
- Lubrication system
- Pneumatic unit
- Electric cabinet AC
- Air gun flushing function
- Water gun flushing function
- Oil and water separator machine
- Spindle chiller
- Tool box
- Automatically power off
- Adjustable level bolts and foundation Blocks
- Chain type chip conveyor with bucket (1 set)
- Coil chip conveyor (2 sets)
- Door interlock
- Operation manual
- Transformer
- Linear encoder (Heidenhain)

OPTIONS

- HEIDENHAIN TNC620
- Drum type ATC (20pcs)
- Oil mist recycle machine (Italy LOSMA)
- Coolant through spindle center
- 3 axis hollow ball screw coolant system (with spindle chiller)
- Voltage stabilizer
- CE standard
- Warranty prolong 1 year