TAKUMI When Precision Matters

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HURCO COMPANIES, INC.

V-01-EN-202206

Vertical Boxway Machining Center

V10/V11/V12
V15/V18
V20/V22/V32

Takumi Machines-Built To Last!

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CONTENTS

High rigidity frame structure

The V Series achieves a high-rigidity and optimal machine structure by using FEM analysis from the design.

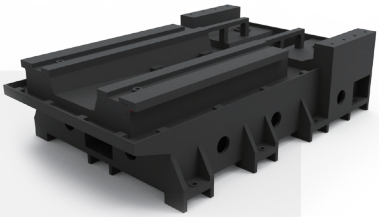
Highly rigid box way structure

The V Series are equipped with box type guideways, which features higher durability as well as rigidity and stability.

V Series

The V Series can handle a wide range of workpieces for all kind of applications thanks to a highly versatile versions that comes with V10, V11, V12, V15, V20, V22, V32. The V Series are designed for heavy duty cutting capability and powerful cutting performance.

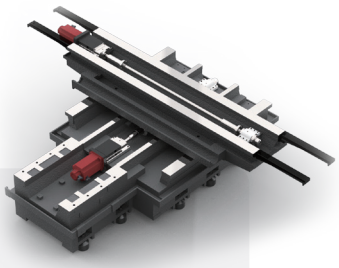
Basic Structure



01

Robust one-piece casting bed

High rigidity one-piece bed provides excellent stability for the casting to absorb the thrust forces of rapid feedrates, coupled with roller guideways enhanced rigidity, which enables spindle to be stable and powerful at high speed.



02

Highly rigid box way structure

V Series are equipped with box guideways an all axes. It guarantees excellent heavy-duty cutting performance, stability and minimizes vibration.

03

Highly performance spindle

The high-power direct drive spindle limits vibration, noise and power loss during high-speed rotations to achieve superior part finish.

04

ATC and magazine

The tool magazine can store up to 24 tools as standard and up to maximum 40 tools as option depending on the model.

V Series

Rapid traverse rate (X/Y/Z axis)

V10 | V11 | V12 : **24/24/20** m/min

V15 : **18/18/16** m/min

V18 : **16/16/14** m/min

V20 | V22 : **14/14/12** m/min

V32 : **12/12/10** m/min

Travel (X/Y/Z axis)

V10 : **1000/660/610** mm

V11 : **1100/660/610** mm

V12 : **1200/660/610** mm

V15 : **1524/762/720** mm

V18 : **1800 / 850 / 750** mm

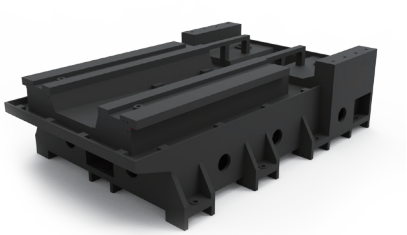
V20 : **2000/1066/750** mm

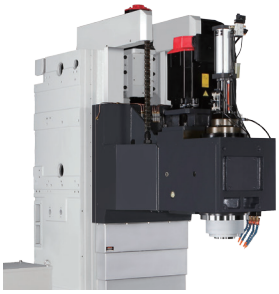
V22 : **2200/1066/750** mm

V32 : **3200/1066/750** mm

Robost One-Piece Casting Bed

Integrated bed frame ensures high rigidity and excellent vibration absorption compare with separate structure providing excellent surface finishes.
The base width provides stability for large table loads and the increased weight absorbs the inertia of high rapids and fast cutting speeds.





Counter Balance Design on Spindle Head

The machine has a guided counterbalance system to eliminate vibration and provide smooth support for the extended head structure, resulting in superior part finish.

Hand Scraping

Accuracy is ensured by hand scraped contact points. Contact surfaces such as column to base components, spindle cartridge to spindle housing, ball screw bearing block seats to bearing retainer and worktable to linear guide trucks and motor seat.
Hand scraping results in better mating surfaces of key components and will provide consistent results over a longer period of time.

01 V Series Frame

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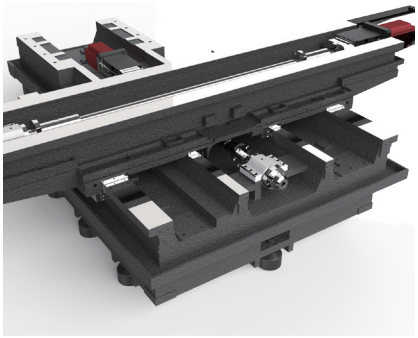
V Series Feed Axis 02

Double Anchored Ballscrew

To eliminate lost motion, the ballscrews are anchored on both ends and pre-tensioned. The motors are directly coupled to the ballscrews.

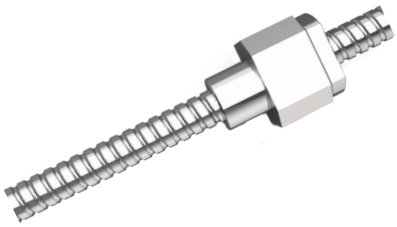


Highly rigid box way structure

V Series are equipped with box guideways on all axes. V10-V20 are equipped with 4 boxways, while V22-V32 are equipped with 6 boxways. It guarantees excellent heavy-duty cutting performance, stability and minimizes vibration.

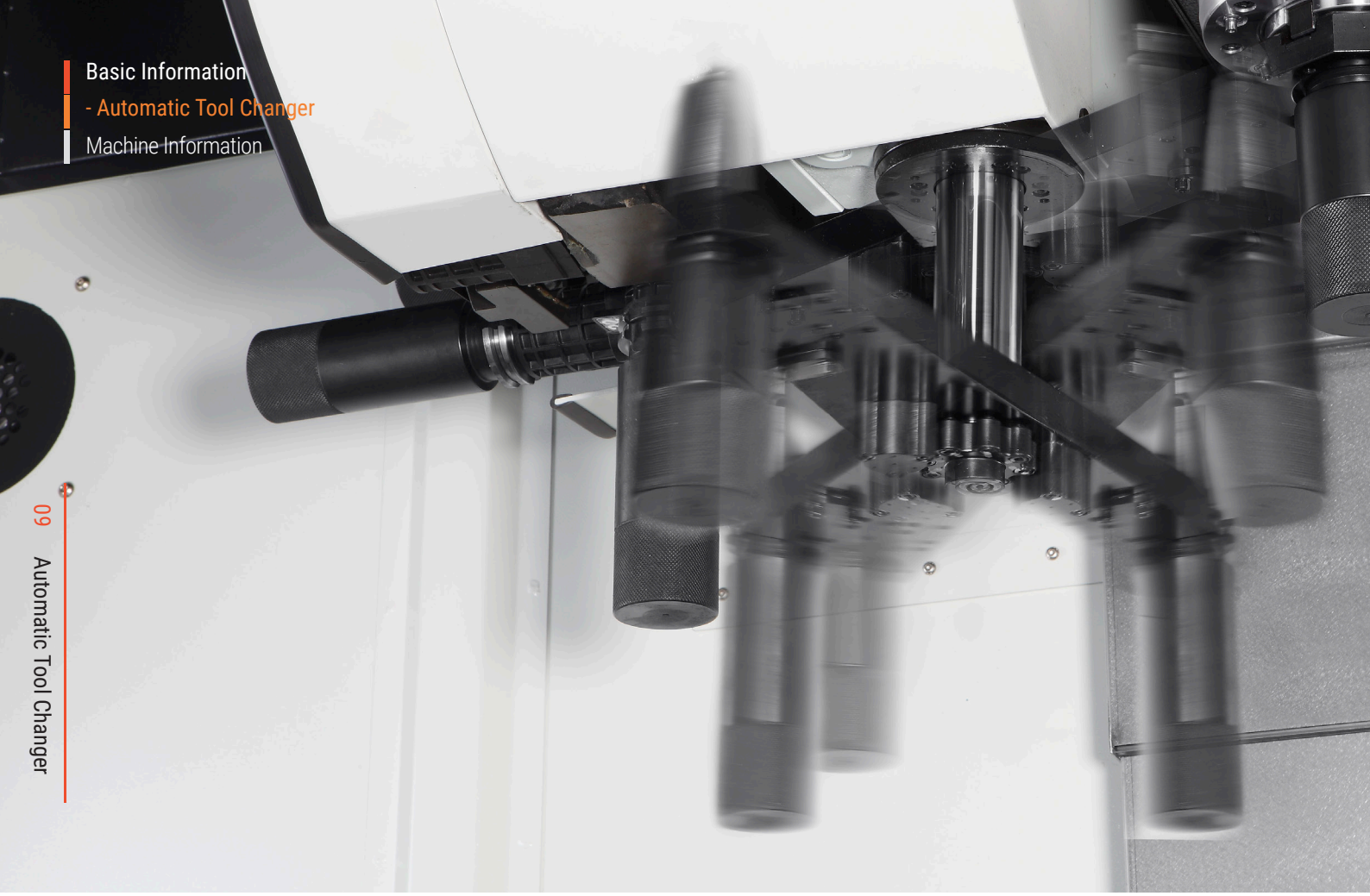
Premium Ballscrews

V Series are equipped with high precision ballscrews, featuring high load capacity while also providing high durability and rigidity during heavy duty cutting.



High-Accuracy Linear Scales option

Linear scales are optional on all 3 axes. Mounted to the table, cross rail and head they take a direct reading of the true position of the axis. This compensates for thermal growth, mechanical flex and backlash, for improved accuracy and repeatability during the life of the machine.



ATC

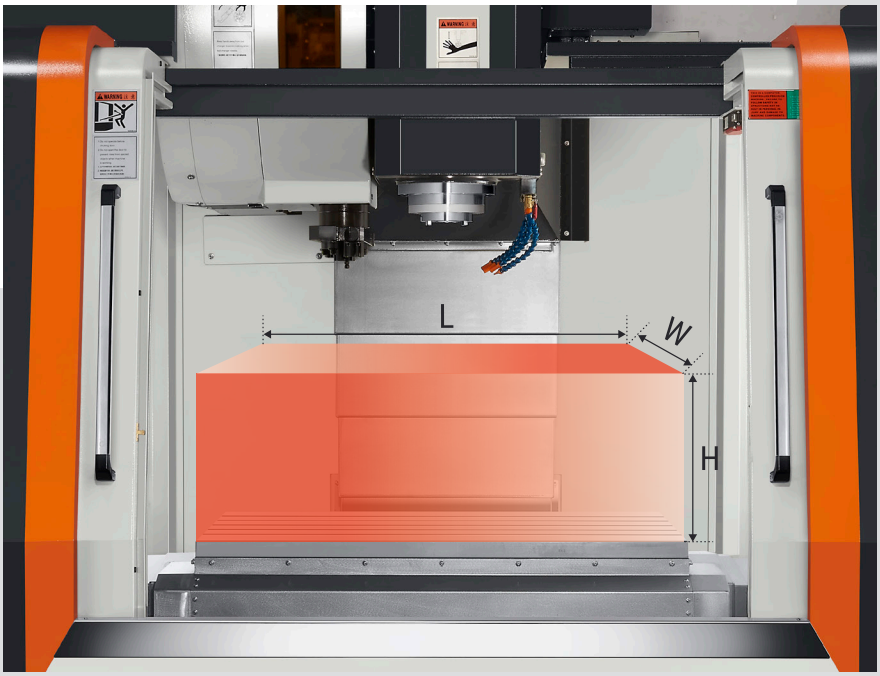
24 tool random pot magazine with a swing arm tool changer, capable of a tool to tool speed of 1.47 seconds. Big tool function allows designating pockets for larger tooling to accommodate tools up to 300 mm.

Tool magazine for various types of tools

The tool magazine can store up to 24 tools as standard and up to maximum 40 tools as option depending on the model.

04 V Series Automatic Tool Changer

	Maximum workpiece weight	Maximum working area (L x W x H)
V10	1000 kg	1000 x 660 x 610mm
V11	1100 kg	1100 x 660 x 610mm
V12	1200 kg	1200 x 660 x 610mm
V15	1500 kg	1524 x 762 x 720mm
V18	2000 kg	1800 x 850 x 750mm
V20	2000 kg	2000 x 1066 x 750mm
V22	3000 kg	2200 x 1066 x 750mm
V32	4500 kg	3200 x 1066 x 750mm



The V series are built ergonomically for simple operation and uncomplicated maintenance.

01 Optimal Ergonomic Design

The operation panel can swivel 90° , and the height can be adjusted to the operator's viewpoint.

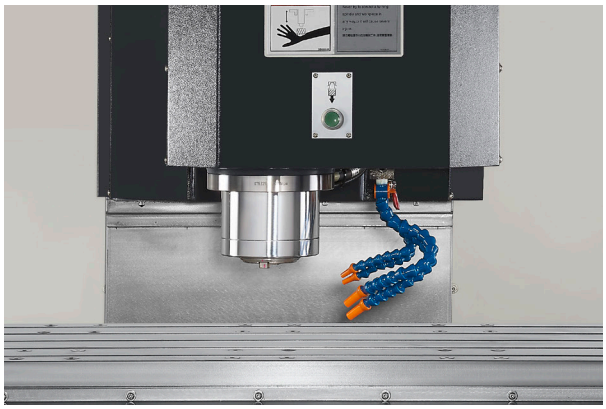
02 Large Door Opening

Large door opening to the working area gives the operator impressive freedom and handling space.

05 V Series User Convenience

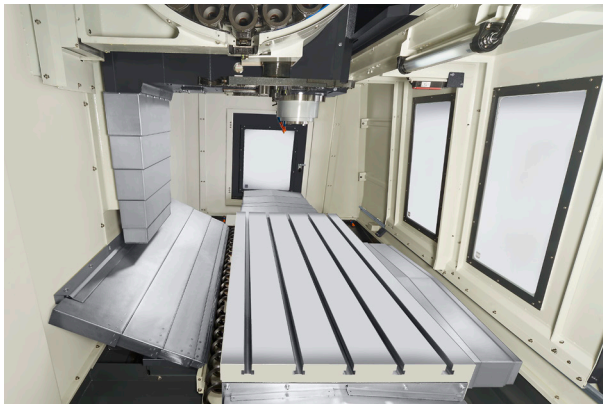
Ergonomic Design

Table height of 931 mm, front door opening wider than the table and wide side access doors make loading parts and set up easier and faster.



Large Z Axis Travel

Large 610 mm Z axis travel capable of positioning the spindle nose within 150 mm of the table, reducing the need for expensive fixtures to raise the part or extended tool holders.



Effective Chip Removal

The sheet metal of the enclosure is designed with the proper slope to augment the high-volume programmable wash down system, automating cleanup while saving valuable time for running parts.

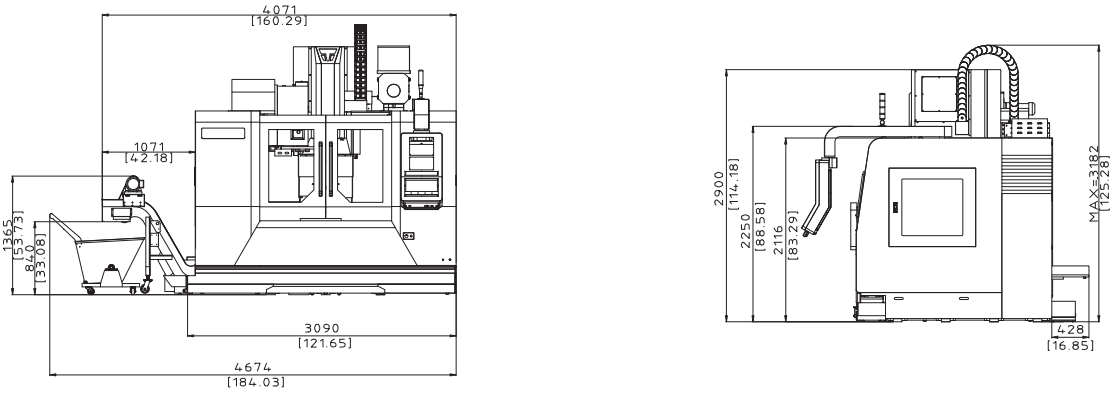
Dual Chip Auger

Chip removal efficiency is greatly enhanced thanks to the dual screw type augers.

External Dimension

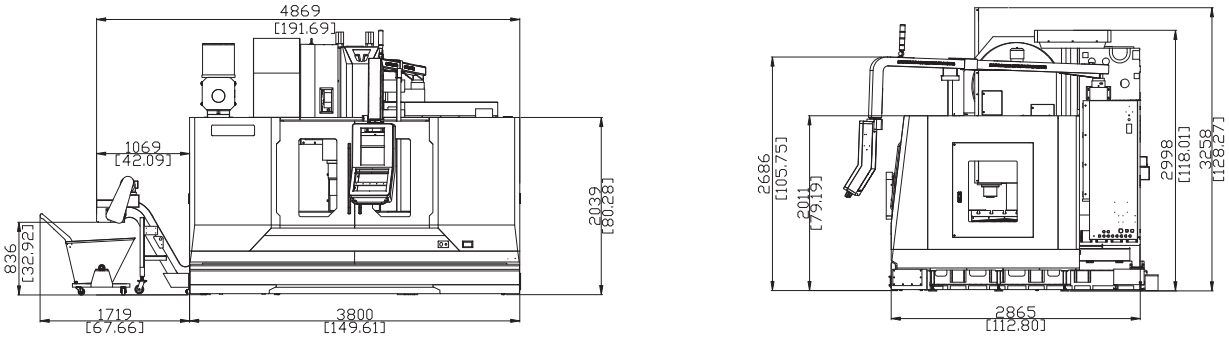
V10/V11/V12

Unit : mm



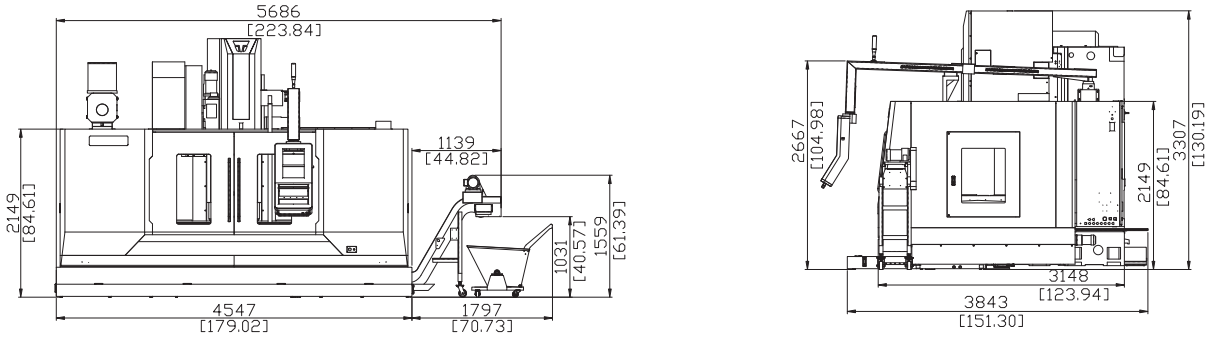
V15

Unit : mm



V18

Unit : mm



V20/V22

Unit : mm

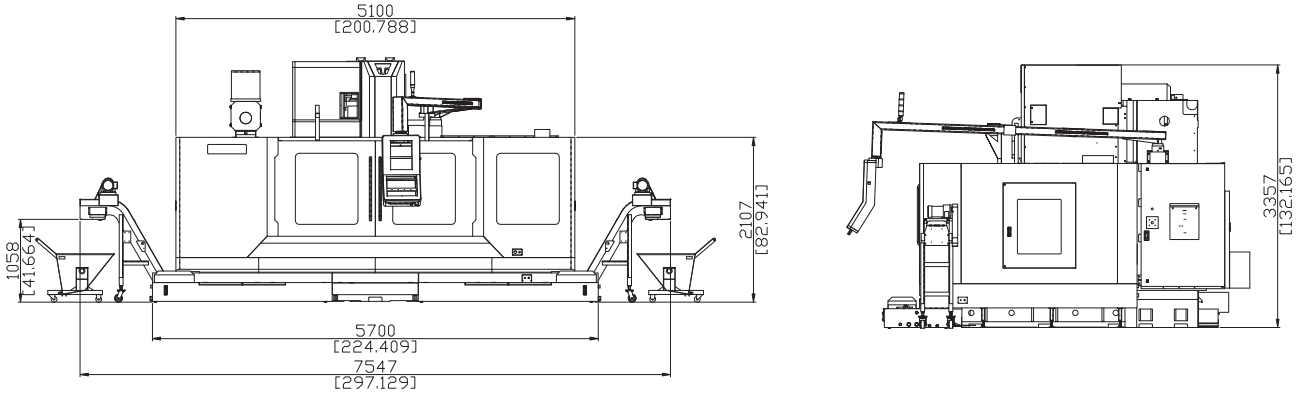
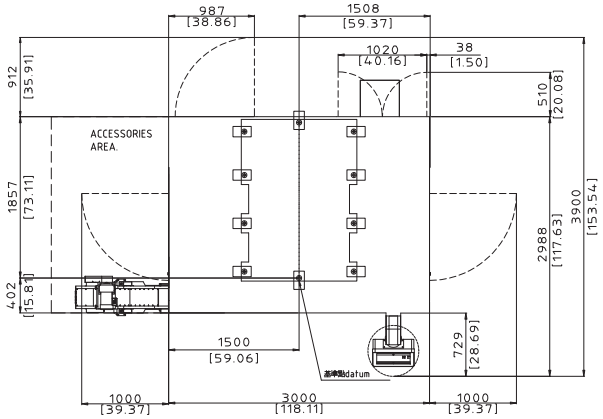
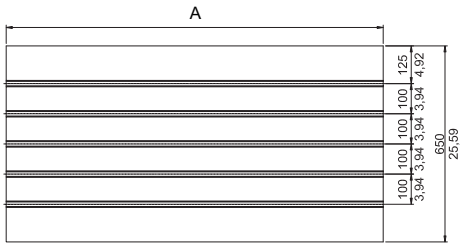
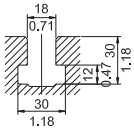


Table & T-Slot Dimension

Unit : mm

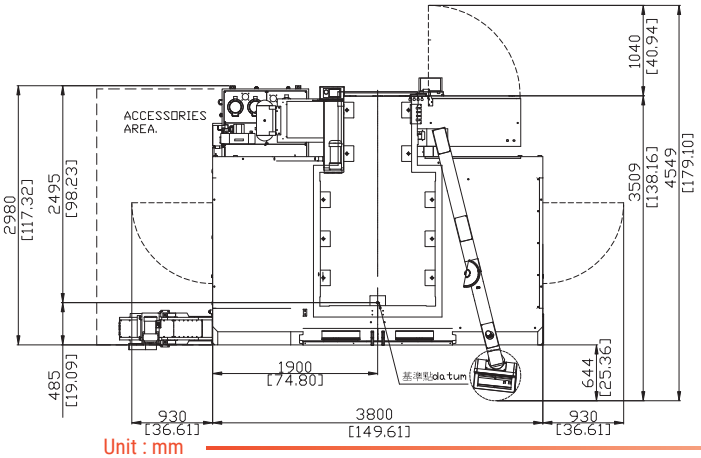


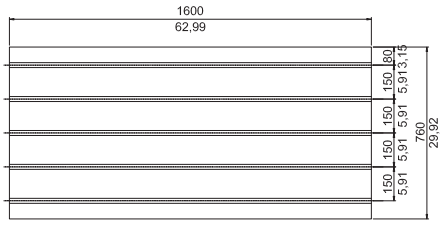


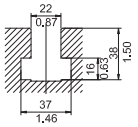


Item	A
V10	1050 mm [41,34]
V11	1150 mm [45,28]
V12	1250 mm [49,21]

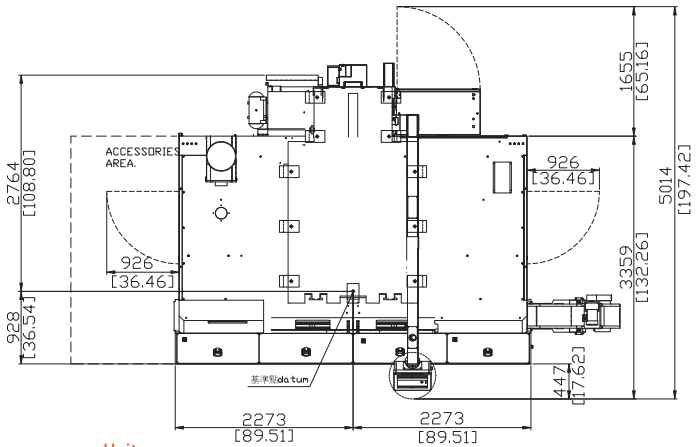
Unit : mm

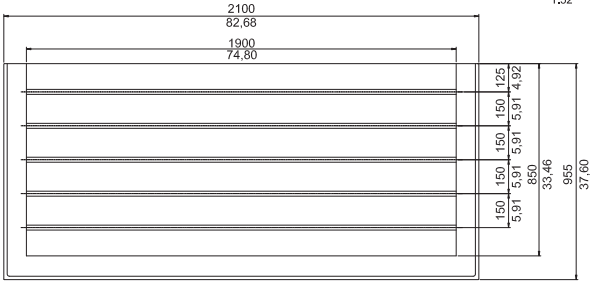


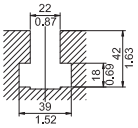




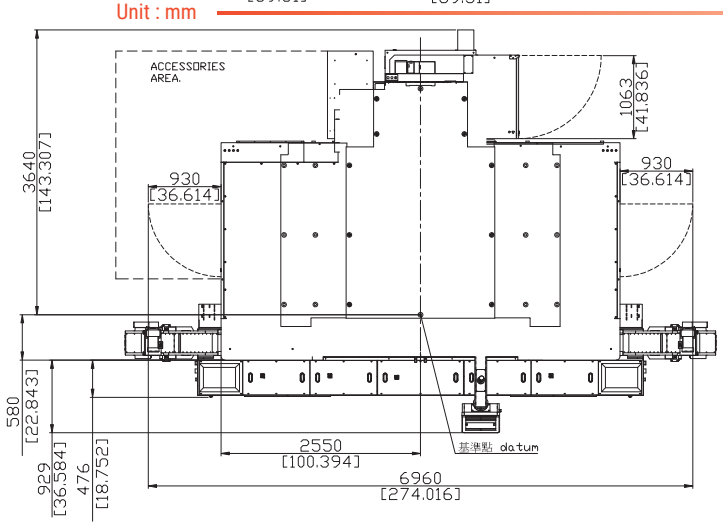
Unit : mm

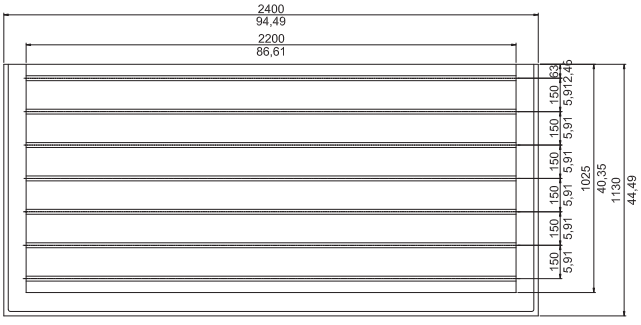


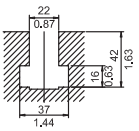




Unit : mm







Machine Specification

Travel	V10	V11	V12	V15	V18
X-axis	1000mm	1100mm	1200mm	1524mm	1800mm
Y-axis	660mm	660mm	660mm	762mm	850mm
Z-axis	610mm	610mm	610mm	720mm	750mm
Distance from spindle nose to table	150-760mm			150-870mm	
Dist. from spindle center to Z axis guideway	700mm			820mm	920mm

Table					
Dimension	1050 x 650mm	1150 x 650mm	1250 x 650mm	1600 x 760mm	1900 x 850mm
Max. load	1000kg	1100kg	1200kg	1500kg	2000kg
T-slot (width x pitch x number)	18 x 100 x 5mm			22 x 150 x 5mm	

Spindle					
Spindle type	Direct drive	Gear Type	Direct drive		
Spindle speed	12000rpm	8000rpm	12000rpm		
Spindle rated torque	7.5kW/15kW (Cont./30 min)	11kW/18.5kW(Cont./S3-25%)	7.5kW/15kW (Cont./30 min)	15kW/18.5kW (30min/S3-60%)	
Spindle taper	BBT40	BT50	BBT40		

Feed					
Rapid feed (X/Y/Z)	24/24/20m/min			18/18/16m/min	16/16/14m/min
Cutting feed	1-8000mm/min				
Motor power (X/Y/Z)	2.7/2.7/2.7kW	2.7/4/4kW		4/7/4kW	

ATC & Magazine					
ATC type	Arm				
Number of tools	24				
Max. tool diameter (next pockets empty)	75/150mm			105/200mm	
Max. tool length	300mm				
Max. tool weight	7kg				
Tool shank	BT40	BT50	BT40		

Supply					
Air pressure	6kgf/cm²				
Electric power supply	35kVA				45kVA

Machine Weight					
Machine weight	7900kg	8000kg	8100kg	14000kg	16000kg

* The specifications and information may be changed without prior notice.

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Standard & Optional

V20	V22	V32
2000mm	2200mm	3200mm
1066mm	1066mm	1066mm
750mm	750mm	750mm
200-950mm		
1120mm		
2200 x 1025mm		3200 x 1025mm
2000kg	3000kg	4500kg
22 x 150 x 7mm		
Gear type		
6000rpm		
22kW/26kW (30min/S3-60%)		
BT50		
14/14/12m/min		12/12/10m/min
1-5000mm/min		
7/7/7kW		7/9/7kW
105/210mm		
15kg		
BT50		
50kVA		
22000kg	24500kg	27000kg

Standard：

Fanuc 0iMF-Plus 10.4"
12000rpm, BBT40, direct drive spindle (V10/V12)
8000rpm, BT50, gear type spindle (V11)
6000rpm, BT50, gear type spindle (V15/V18/V20/V22/V32)
24T, BT40, arm type (V10/V12)
24T, BT50, arm type (V11)
24T, BT50, arm type (V15/V18/V20/V22/V32)
Spindle air blast
Cutting air blast
Cutting coolant system
Spindle oil cooler
Full chip enclosure
Working lamp
3-Color signal light
Washing gun & air gun
Coolant tank & coolant flushing system
Manual pulse generator(MPG)
RJ45 & RS-232C interface
Steel belt chip conveyor (V15/V18/V20/V22/V32)
Heat exchanger for electric cabinet
Maintenance tools
Leveling block and screws
Manuals

Optional：

Mitsubishi M80A 10.4"
Heidenhain TNC 620
8000rpm, BT50, belt type spindle (V15/V18)
12000rpm, BBT40, belt type spindle (V10/V11/V12)
32T & 40T, BT40 (V10/V12)
32T, BT50 (V11/V12/V15/V18/V20)
Oli mist collector
Oli mist cutting device
Steel belt chip conveyor (V10/V11/V12)
Workpiece measurement
Tool length measurement
The 4th axis rotary table
Linear scales (X/Y/Z)
Tapping lubrication device
Ballscrew cooling (X/Y)
Oil skimmer
Transformer
CE certified