

The Art of Productivity



Vertical Machining Centers

- ◆ Bed 4/6 Box Ways Design
- ◆ Heavy Cutting
- ◆ High Stability

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Takumi



The Achievement of Takumi's Innovation and Technology

The Perfect Performance of Heavy Cutting and High Stability.



V series is designed for the machining requirements from the industries of parts production and mold & die. 3 axes are equipped with box ways. The wider supporting space and high loading capacity of box ways provide the best rigidity and stability.

High Rigidity and High Precision Structure



V32 Main Structure

V22/V32 bed is 6 box ways design 4 major ways and 2 supporting ways.



V11 Main Structure

V10-V20 bed is 4 box ways design
The designs of box-shape bed, wider supporting space between bed & column and counter-balanced spindle head provide the best structural rigidity and stable cutting performance.



The swivel operation box allows users to operate at suitable angle and position.

The wider width of door opening makes workpiece easier to be loaded and unloaded.



The design of tilting bed surface and flushing coolant system provides perfect performance of chip-removal.

- ◆ 3 axes travel: X=1000~3200mm · Y=660~1066mm · Z=610~750mm.
- ◆ Bed, column, saddle and other main castings are made of Meehanite grade cast iron and released the stress by heat treatment, ensuring the best structural stability and positioning accuracy.
- ◆ Box-shape bed is made of one piece casting iron.
V10~V20 are 4 box ways design (2 major ways and 2 supporting ways)
V22~V32 are 6 box ways design (4 major ways and 2 supporting ways).
The wider supporting space and high loading capacity provide the best structural rigidity and machining stability
- ◆ 3 axes ball screws pretension design reduces thermal deformation, offering the best accuracy.
- ◆ Absolute encoder motors are used in 3 axes feeding system to ensure the positioning accuracy.
- ◆ 3 axes ball screws and box ways are lubricated by centralized automatic lubrication system (oil type).
- ◆ Spindle oil cooling system reduces the effect of thermal deformation, providing the maximum heat dissipation capacity.
- ◆ The device of oil & coolant separation on machine bed and oil skimmer (optional) on coolant tank prolongs the service life of coolant.
- ◆ Fully enclosed splash guard provides safety and clean operating environment.

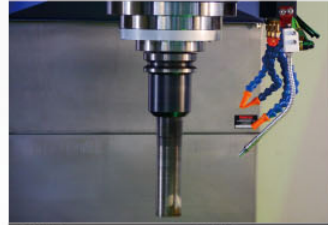


High Efficiency Cutting Performance

V11 Gear type spindle /BT50 /6000rpm /Fanuc α8 / 11kW(Optional) Material : S45C (unit: mm)



Face milling	Ø140 mm
Spindle Speed	500 rpm
Cutting width	100 mm
Cutting depth	5 mm
Cutting feed rate	400 mm/min



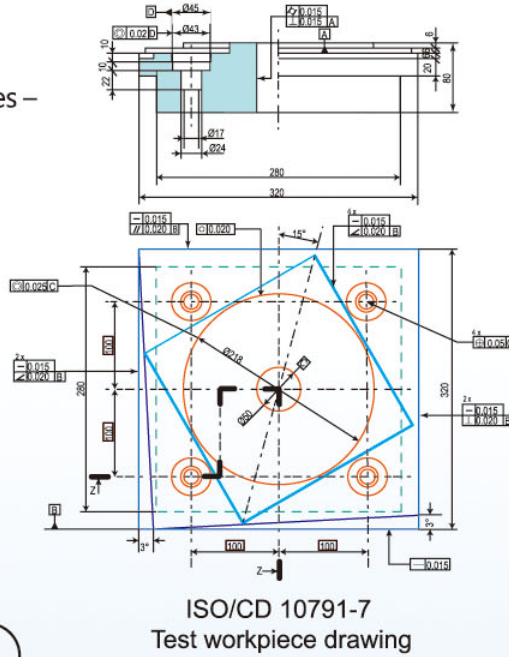
Drilling	Ø59 mm
Spindle Speed	400 rpm
Cutting depth	100 mm
Cutting feed rate	80 mm/min



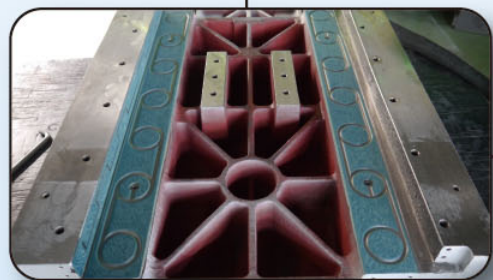
Rigid tapping	M35 mm
Spindle Speed	300 rpm
Cutting depth	50 mm
Cutting feed rate	1050 mm/min

Strictly Quality Assurance

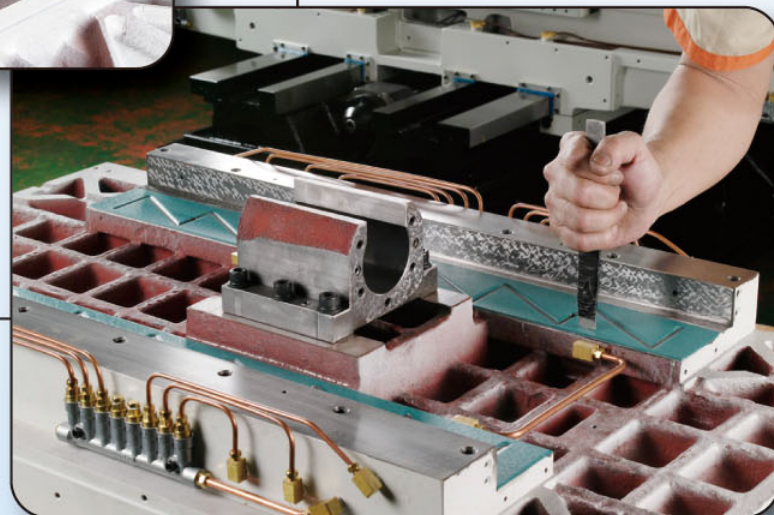
Cutting accuracy test measured up the Test conditions for machining centres – Part 7: Accuracy of a finished test piece.



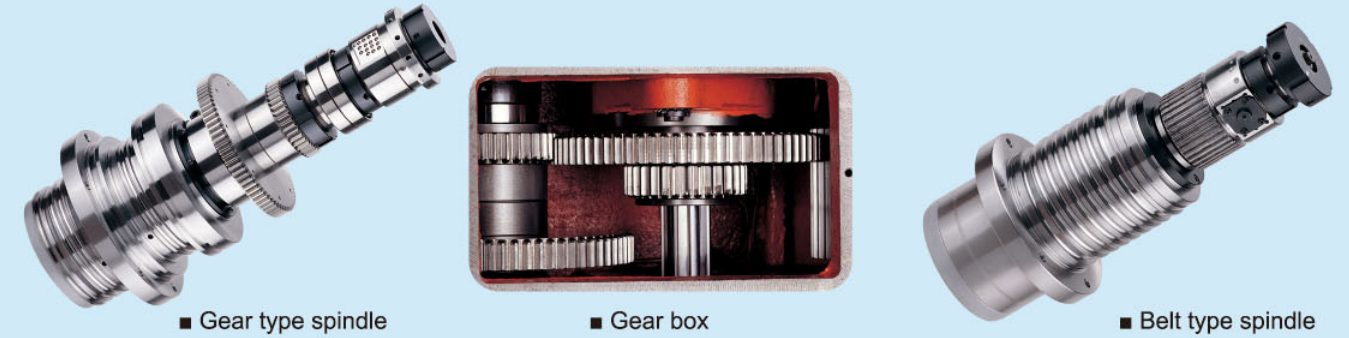
Precision Hand Scraped



Hand scraped contact areas, minimal axis protection with maximum stroke.



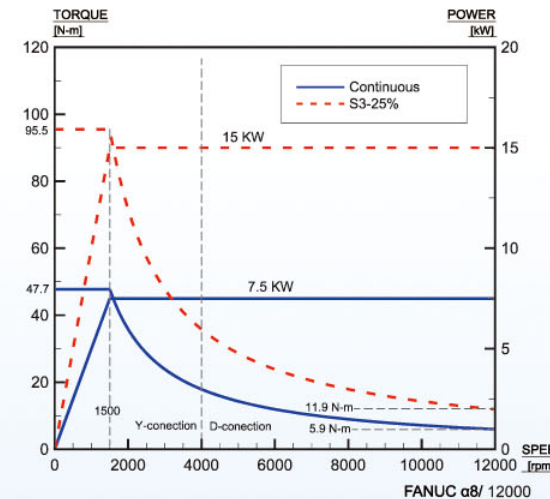
High Accuracy and High Performance Spindle



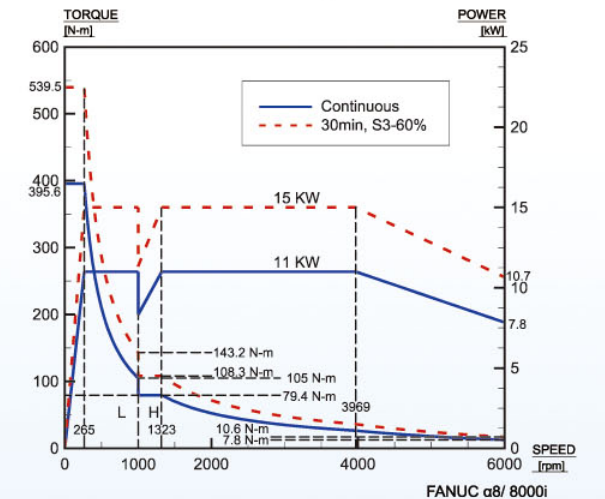
- V series provides gear type spindle and belt type spindle to meet different machining requirements. The spindle speed range is from 6,000 rpm to 12,000 rpm.
- Spindles are 100% manufactured by Takumi, featuring high accuracy and high performance.
- Spindle cooling system reduces thermal variation and prolongs working life of spindle.

Spindle Power & Torque Chart

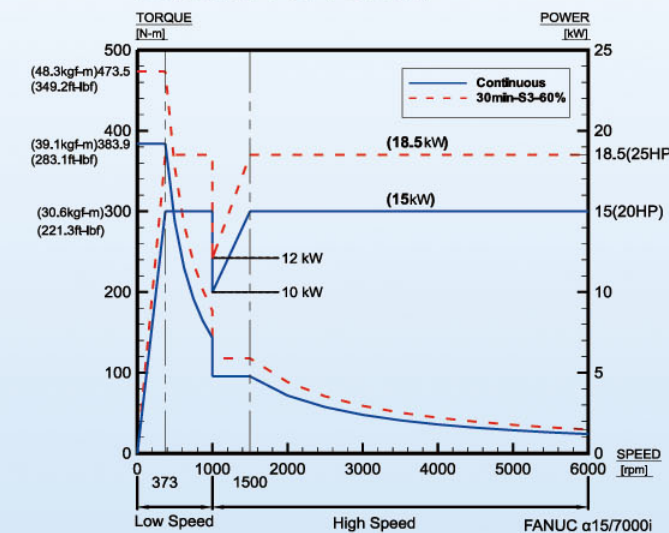
■ Belt type spindle, 7.5/15kW, 12000rpm (Standard: V10/V11/V12)



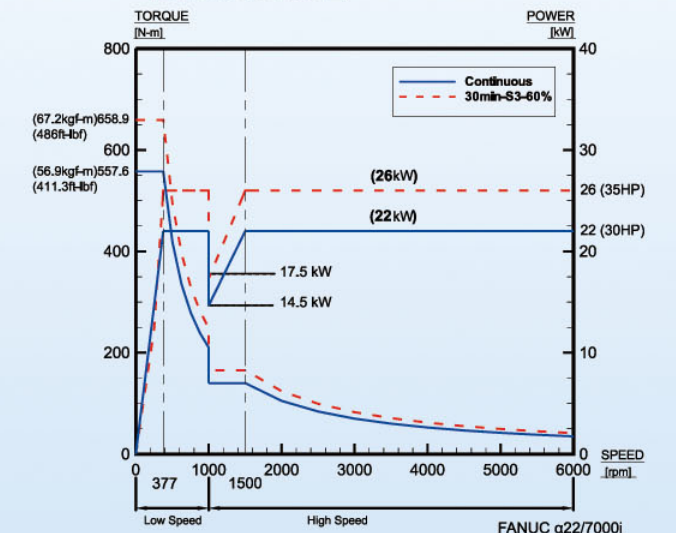
■ Gear type spindle, 11/15kW, 6000 rpm (Optional: V10/V11/V12)



■ Gear type spindle, 15/18.5kW, 6000rpm (Standard: V15/V18/V20)



■ Gear type spindle, 22/26kW, 6000rpm (Standard: V22/32)



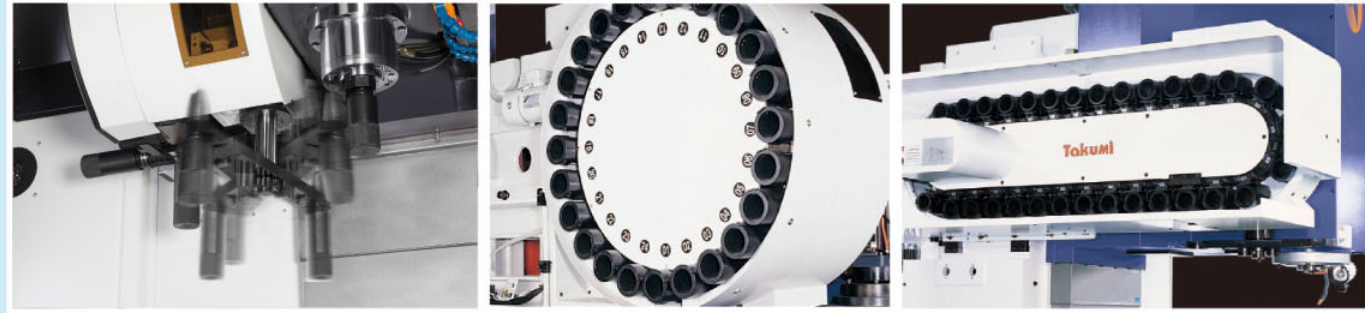


ATC / Optional Accessories / Quality Management

Dimensions



ATC

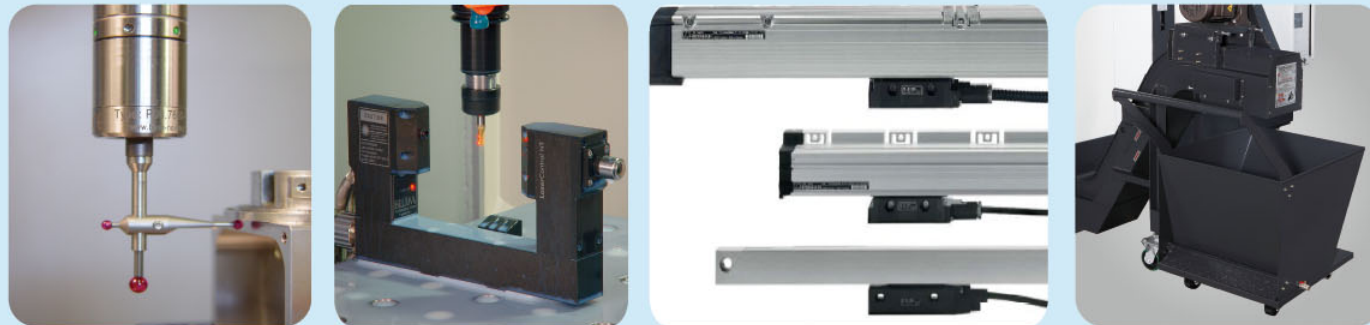


Arm type ATC (Optional)
 ■ V10~V12 : 24 tools/BT50

Arm type ATC (Standard)
 ■ V10~V12 : 24 tools/BT40
 ■ V15~V32 : 24 tools/BT50

Arm type ATC (Optional)
 ■ V10~V12 : 32 tools/BT40
 ■ V15~V32 : 32 tools/BT50

Optional Accessories



■ Workpiece measurement system ■ Tool length measurement system

■ Linear scales ■ Chip conveyor



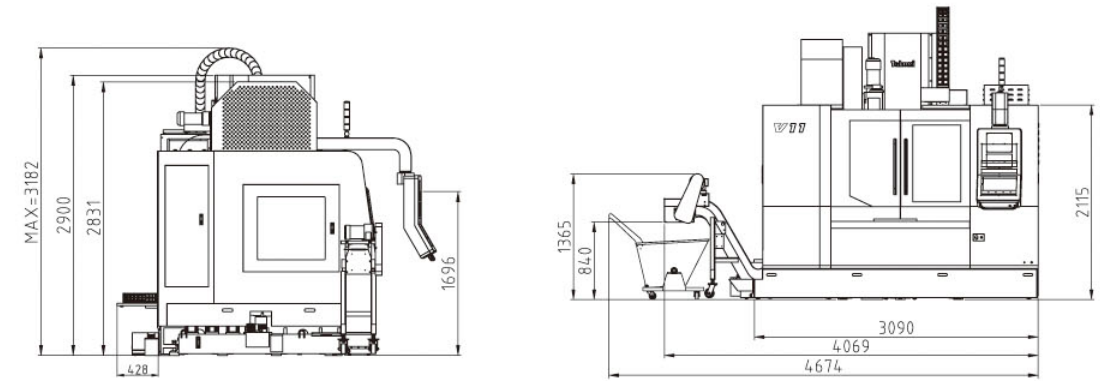
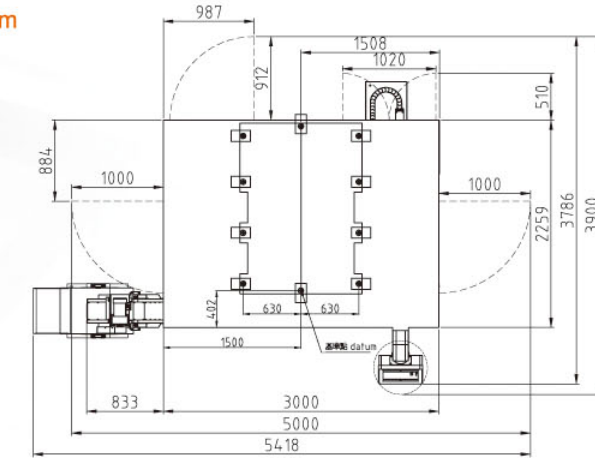
■ Ball screw cooling system ■ Coolant through spindle ■ 4th axis rotary table ■ Oil mist collector

ISO 9001:2008 Quality Management

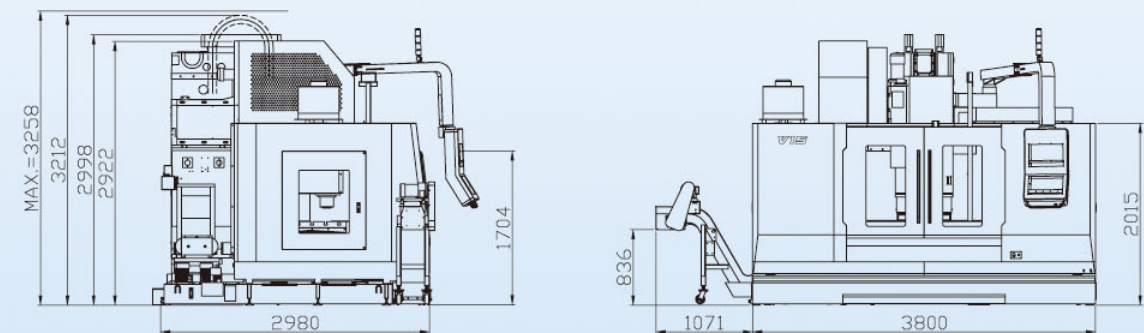
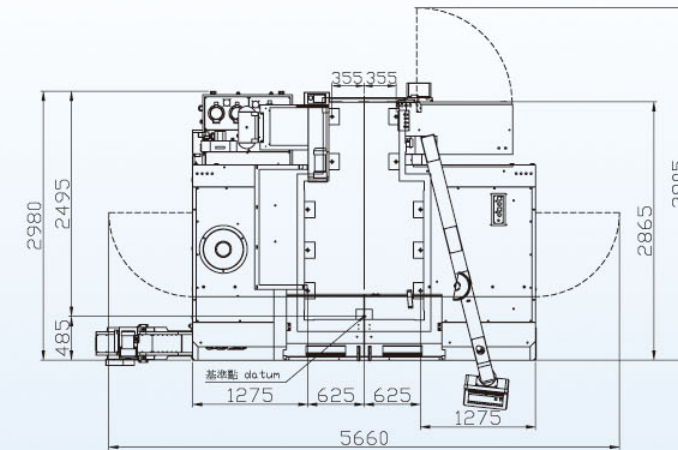


■ Laser inspection ■ Ball bar inspection ■ Spindle test running

V10/V11/V12 Unit: mm



V15 Unit: mm

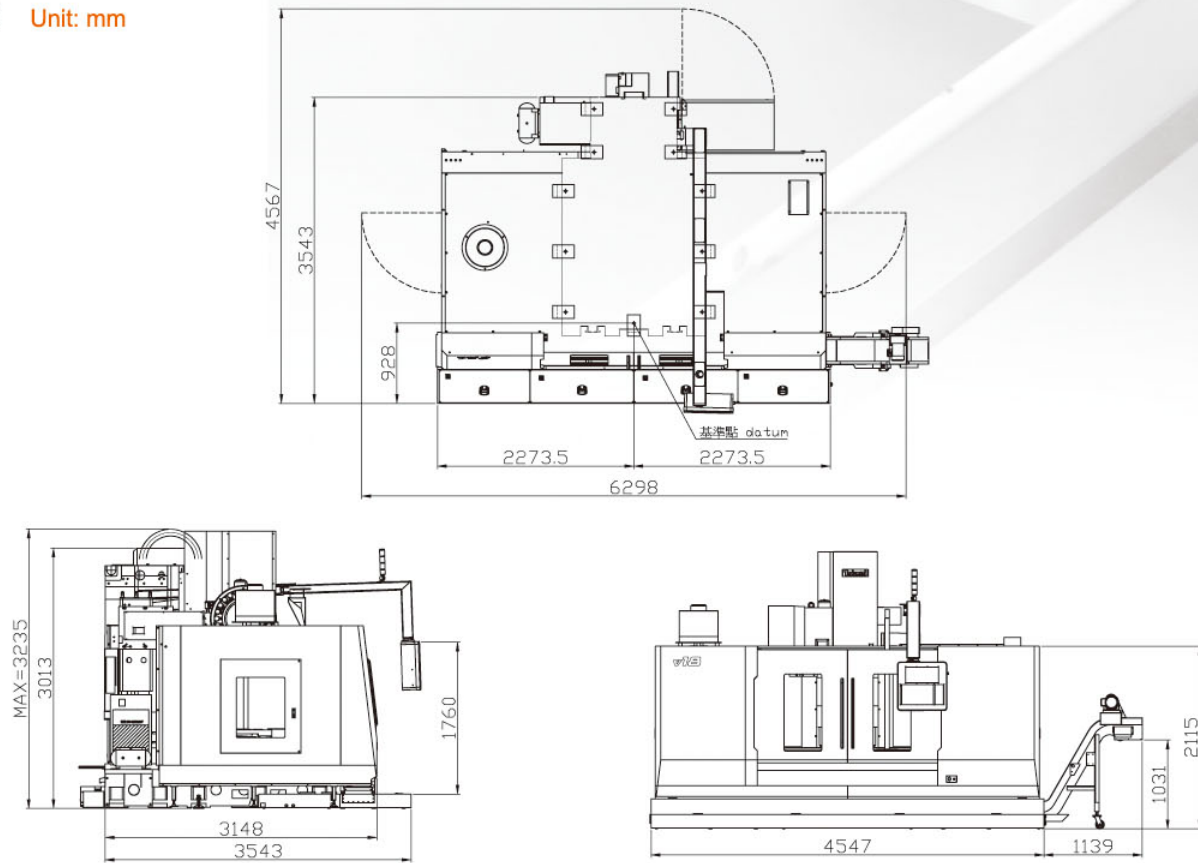




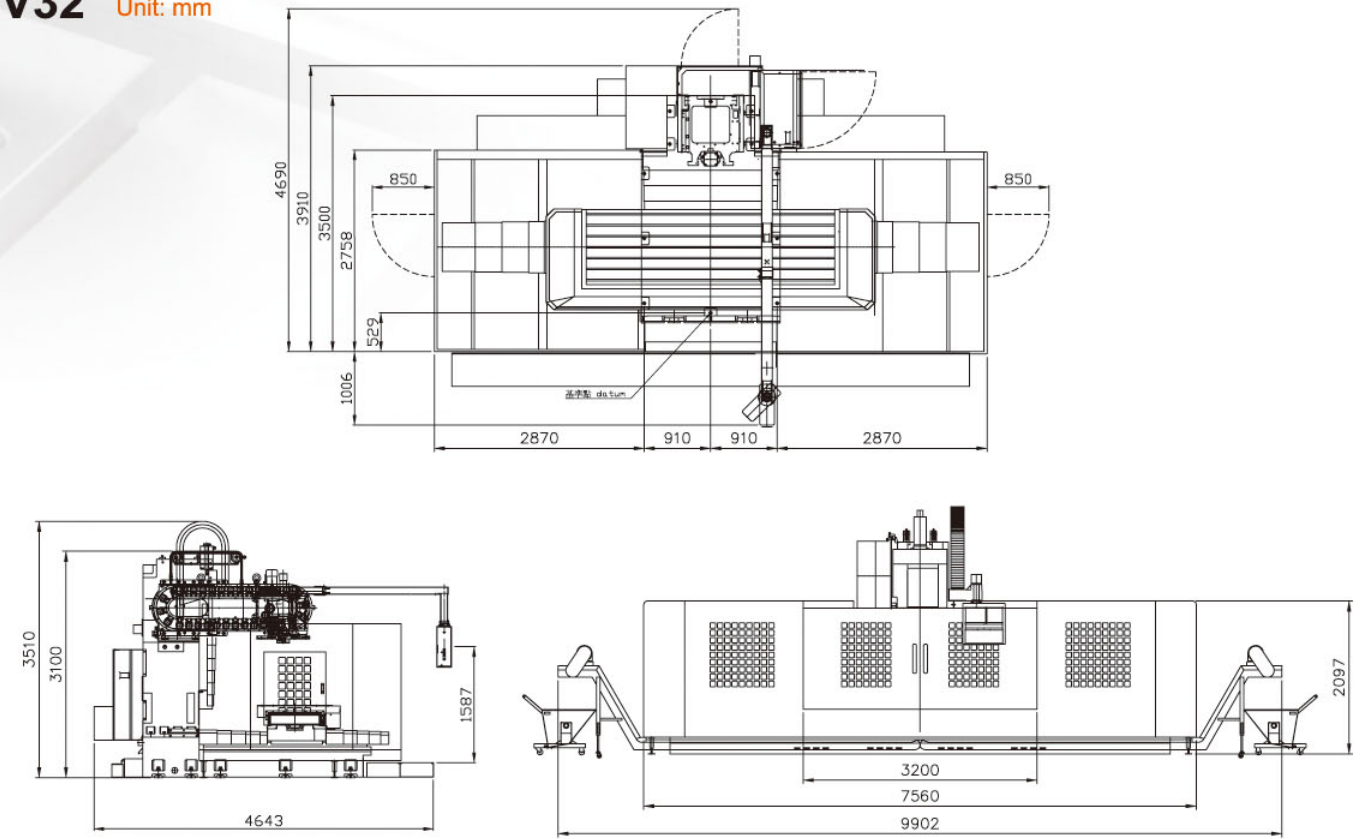
Machine Dimension & Space Requirement



V18 Unit: mm



V32 Unit: mm



V22 Unit: mm

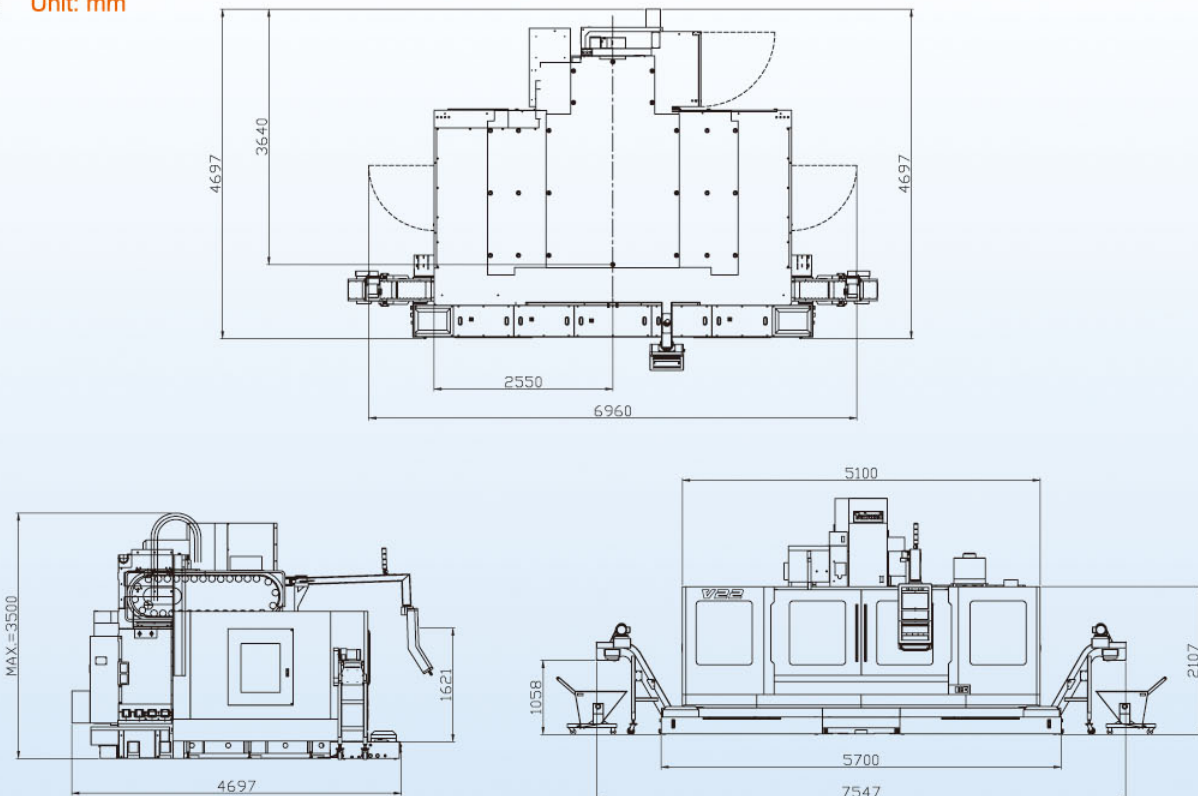
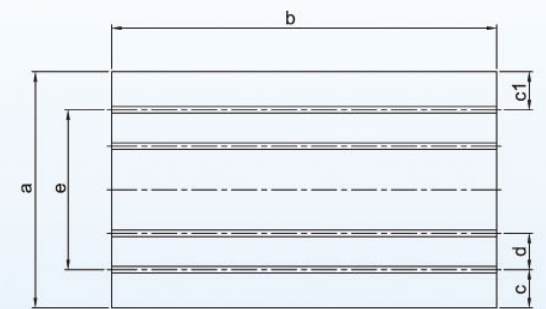
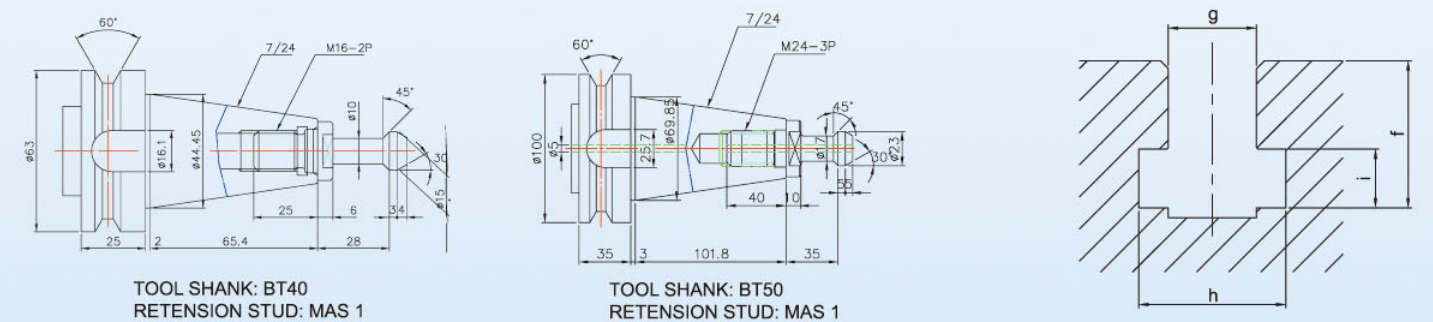


Table size & T-slot Unit: mm

	V10	V11	V12	V15	V18	V20	V22	V32
a	650	650	650	760	850	1025	1025	1025
b	1050	1150	1250	1600	1900	2200	2200	3200
c	125	125	125	80	125	80	80	62.5
c1	125	125	125	80	125	125	125	62.5
d	100	100	100	150	150	150	150	150
e	5	5	5	5	5	6	7	7
f	30	30	30	38	38	38	41.5	41.5
g	18	18	18	22	22	22	22	22
h	30	30	30	37	37	37	37	37
i	12	12	12	16	16	16	16	16



Tool Shank and Pull Stud Dimension



Specifications are subject to change without notice.

Travel	單位	V10	V11	V12	V15
X axis	mm	1000	1100	1200	1524
Y axis	mm	660	660	660	762
Z axis	mm	610	610	610	720
Dist. from spindle nose to table	mm	150~760	150~760	150~760	150~870
Dist. from spindle nose to Z axis guide way	mm	700	700	700	820
Table					
Dimension	mm	1050x650	1150x650	1250x650	1600x760
Max. load	kg	1000	1100	1200	1500
T-slot (width×pitch×number)	mm	18x100x5	18x100x5	18x100x5	22x150x5
Spindle					
Type	-	Belt	Belt	Belt	Gear
Spindle speed	rpm	12000	12000	12000	6000
Motor power (cont. /30 min)	kW	7.5/15	7.5/15	7.5/15	15/18.5
Spindle taper	-	BT40	BT40	BT40	BT50
Feed rate					
Rapid traverse (X/Y/Z)	m/min	24x24x20	24x24x20	24x24x20	18x18x16
Cutting feed rate	mm/min	1~8000	1~8000	1~8000	1~5000
Motor power (X/Y/Z)	kW	3/3/3	3/4/4	3/4/4	4/7/4
ATC & Magazine					
ATC type	-	Arm	Arm	Arm	Arm
Magazine Capacity	pcs	24	24	24	24
Max. tool diameter (next pocket empty)	mm	80/150	80/150	80/150	110/220
Max. tool length	mm	300	300	300	300
Max. tool weight	kg	7	7	7	15
Tool shank	-	BT40	BT40	BT40	BT50
Pull stud	-	MAS 407	MAS 407	MAS 407	MAS 407
Space & System Requirement					
Pneumatic pressure	kgf/cm ²	6	6	6	6
Electrical power consumption	kVA	35	35	35	35
Machine net wight	kg	7900	8000	8100	14000
Max. floor spece (W x L x H)	mm	5420x3900x3139	5420x3900x3139	5420x3900x3139	6140X4900X3256

Specifications are subject to change without notice.

Standard Accessories

- ◆ FANUC 0iMF controller
- ◆ 12000rpm, BT40, belt type spindle (V10/V11/V12)
- ◆ 6000rpm, BT50, gear type (V15/V18/V20/V22/V32)
- ◆ 24T, BT40, Arm type (V10/V11/V12)
- ◆ 24T, BT50, Arm type (V15/V18/V20/V22/V32)
- ◆ Spindle air blast
- ◆ Cutting air blast
- ◆ Centralized automatic lubrication system (oil)
- ◆ Cutting coolant system
- ◆ Spindle cooler
- ◆ Fully enclosed splash guard
- ◆ Working lamp
- ◆ Indication lamp
- ◆ Washing gun & air gun
- ◆ Coolant tank & coolant flushing system
- ◆ Manual Pulse Generator (MPG)
- ◆ RJ45 & RS-232C interface
- ◆ Steel belt type chip conveyor (V18/V20/V22/V32)
- ◆ Heat exchanger for electrical cabinet
- ◆ Tool kits
- ◆ Leveling blocks and bolts
- ◆ Operation manuals, PLC, electrical circuit diagrams
- ◆ One-year machine warranty (Spindle warranty depends upon spindle manufacturer)
- ◆ Controller warranty (FANUC : 24 months from shipping date)

Travel	單位	V18	V20	V22	V32
X axis	mm	1800	2000	2200	3200
Y axis	mm	850	1066	1066	1066
Z axis	mm	750	750	750	750
Dist. from spindle nose to table	mm	200~950	200~950	200~950	200~950
Dist. from spindle nose to Z axis guide way	mm	920	1120	1120	1120
Table					
Dimension	mm	1900x850	2200x1025	2200x1025	3200x1025
Max. load	kg	2000	2000	3000	4500
T-slot (width×pitch×number)	mm	22x150x5	22x150x7	22x150x7	22x150x7
Spindle					
Type	-	Gear	Gear	Gear	Gear
Spindle speed	rpm	6000	6000	6000	6000
Motor power (cont. /30 min)	kW	15/18.5	15/18.5	22/26	22/26
Spindle taper	-	BT50	BT50	BT50	BT50
Feed rate					
Rapid traverse (X/Y/Z)	m/min	16x16x14	14x14x12	14x14x12	12x12x10
Cutting feed rate	mm/min	1~5000	1~5000	1~5000	1~5000
Motor power (X/Y/Z)	kW	4/7/4	7/7/7	7/7/7	7/6/7
ATC & Magazine					
ATC type	-	Arm	Arm	Arm	Arm
Magazine Capacity	pcs	24	24	24	24
Max. tool diameter (next pocket empty)	mm	110/220	110/220	110/220	110/220
Max. tool length	mm	300	300	300	300
Max. tool weight	kg	15	15	15	15
Tool shank	-	BT50	BT50	BT50	BT50
Pull stud	-	MAS 407	MAS 407	MAS 407	MAS 407
Space & System Requirement					
Pneumatic pressure	kgf/cm ²	6	6	6	6
Electrical power consumption	kVA	45	50	50	50
Machine net wight	kg	16000	22000	24500	27000
Max. floor spece (W x L x H)	mm	6730X5000X3230	7130X5700X3510	7130X5700X3510	9470X5700X3510

Specifications are subject to change without notice.

Optional Accessories

- ◆ MITSUBISHI M80 controller
- ◆ 12000rpm, BT40, direct drive (V10/V11/V12)
- ◆ 6000rpm, BT50, gear type spindle (V10/V11/V12)
- ◆ 10000rpm, BT40, belt type spindle (V15/V18)
- ◆ 32T, BT40/BT50, Arm type
- ◆ Coolant through spindle
- ◆ Oil mist cutting device
- ◆ Oil mist collector
- ◆ Chip auger for both sides of Y-axis (V10/V11/V12)
- ◆ Belt chip conveyor for both sides of Y-axis (V15/V18/V20/V22/V32)
- ◆ Front-sided chip auger (V10/V11/V12)
- ◆ Steel belt type chip conveyor (V10/V11/V12/V15)
- ◆ Scraper type chip conveyor
- ◆ Tool length measurement system
- ◆ Workpiece measurement system
- ◆ The 4th axis rotary table
- ◆ Linear scale (3-axis)
- ◆ Tapping lubrication device
- ◆ Coolant through tool adapter
- ◆ Ball screw cooling for X/Y axis
- ◆ Oil skimmer
- ◆ Transformer
- ◆ CE mark (for CE region only)

Specifications are subject to change without notice.

1. All data listed here are based on machines with standard accessories. Data will be altered according to different options. For detailed information, please refer to local agents or Takumi sales.
2. Takumi reserves the rights on the modifications of the machine specifications.