

 **TAKUMI**

UA Series



High Speed 5-Axis Machining Center

| UA400

UA Series

The Takumi UA series, high speed 5-axis machining center, adopts RAM-type structural design, providing compact and high-rigidity machining features. UA series is designed for multiaxes machining of small and large size parts in market such as automotive and aerospace applications.



Aerospace Precise Parts

1 : Blisk



Aerospace Precise Parts

2 : Valve



Automobile

3 : Wheel rim

01

UA Series Basic Structure

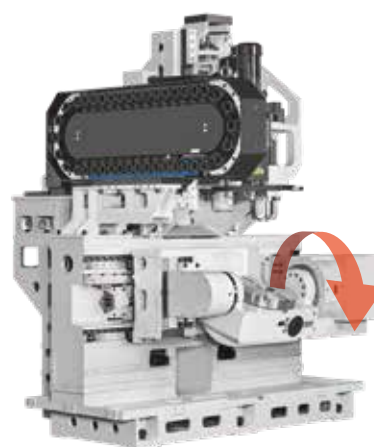


High speed direct drive spindle

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

Effective chip removal solutions

Special structure design for work table which provides easy chip removal. The special design of the work table and flushing coolant system on UA400 provides excellent chip removal.



Robust and compact rotary table

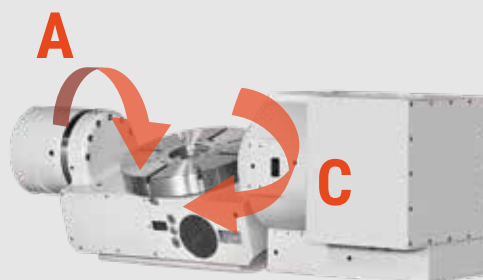
The rotary table uses worm gear promoting quicker response, higher torque, outstanding position accuracy and lower service maintenance. High precision rotary encoders installed on A/C axis guarantees high accuracy.

A/C rotation range

-120° ~ +30°/360°

A/C rotation speed

22.2 rpm



| Spindle Power - Torque Curve

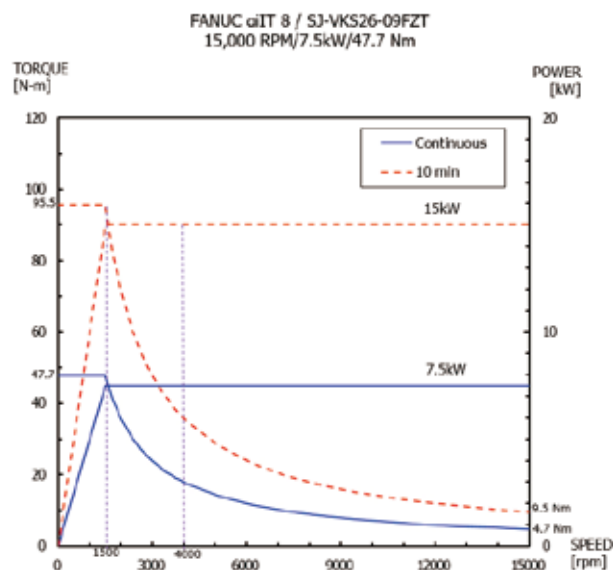
15,000rpm Direct drive spindle

7.5/15

47.7/95.5

kW Power (Cont./S2-10min)

N.m Torque (Cont./S2-10min)



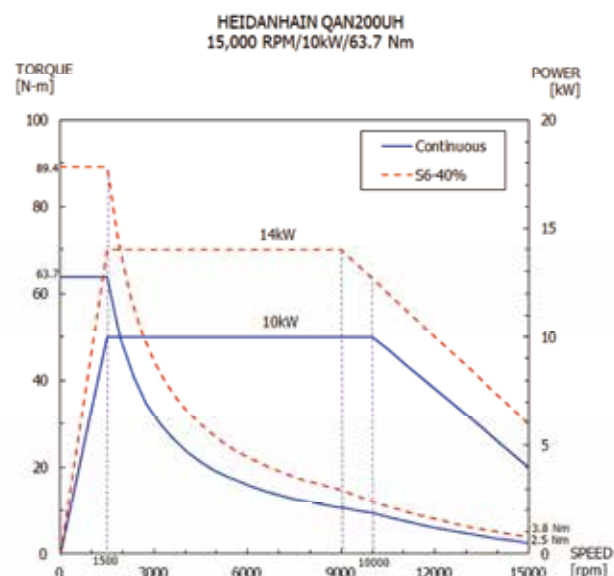
15,000rpm Direct drive spindle

10/14

63.7/89.4

kW Power (S1/S6-40%)

N.m Torque (S1/S6-40%)



02 UA Series
Spindle

UA400 equips with AUTOMAC automatic loading and unloading clamp system, provides customer automatic production, saving the loading and unloading setup time as well as the human operation cost.

Optional

- 01 Safety protection door
- 02 Calibration equipment
- 03 Automatic parts loading and unloading clamp



Automated module features

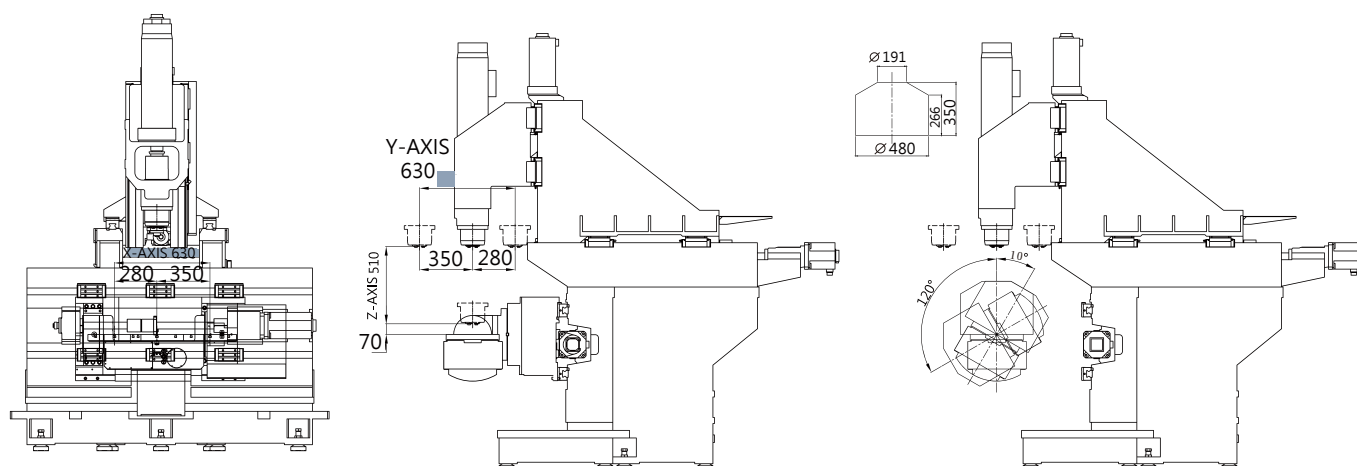
- Modular parts storage which is feasible to be designed based on the characteristic of work-piece: part exchange basis, tray exchange basis, fixture plate exchange basis or 3 in 1 combination.
- Cartridge style parts storage enhances the efficiency. The finished parts can be pulled out directly from the storage while the blank parts are ready on the tray.
- Safety guarding provides the segment area between operator and robot.
- Three-dimensional designed storage, saving the floor space.
- Entire loading & unloading system is movable with manual tractor, provides the convenience to match with all kinds of machining centers.

03 UA Series Core Technology for Automation

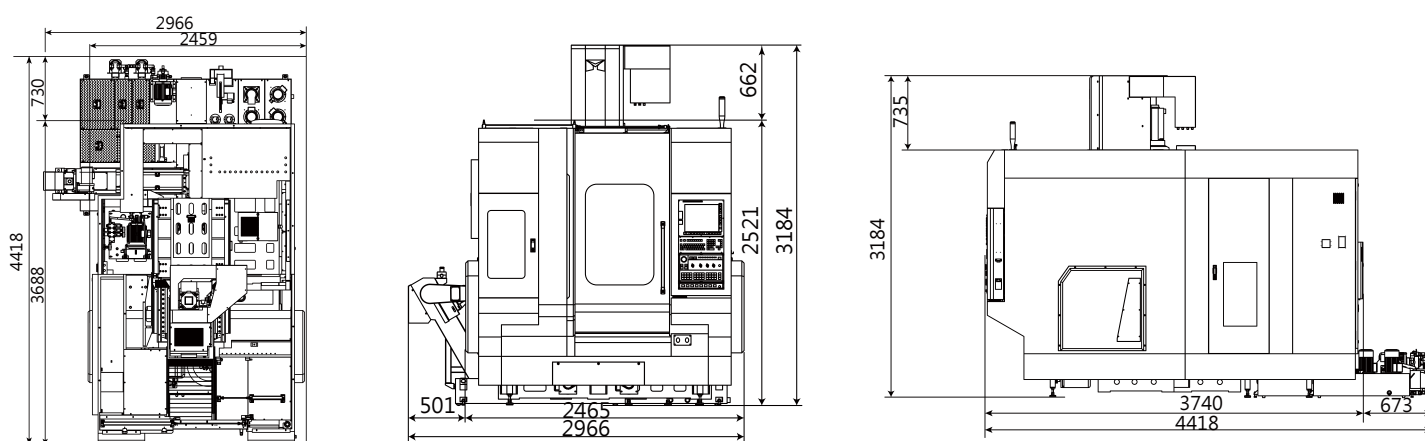
Machining and Inteference Area

UA Series

Unit : mm



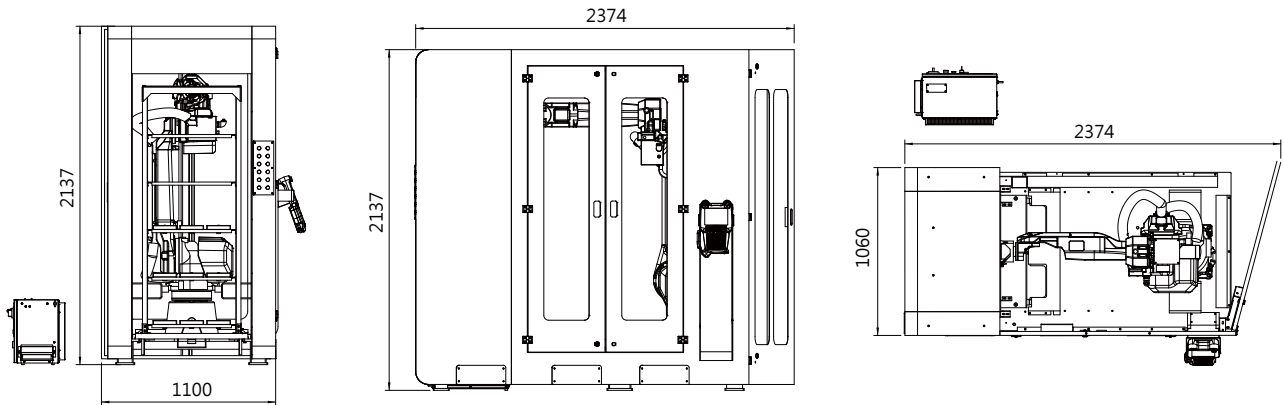
External Dimension



Safety Door Dimension

UA Series

Unit : mm



Standard & Optional

Standard:

- FANUC 0iMF-Plus controller (3+2 axis machining)
- HEIDENHAIN TNC7 controller (5 axis simultaneous machining)
- 15,000rpm, BBT40, direct drive spindle
- 40T, arm type tool magazine
- Spindle cooling system
- Spindle oil air lubrication device
- Cutting coolant system
- Centralized automatic lubrication system
- Air blast through spindle taper
- Full enclosed splash guard
- Washing gun & air gun
- Coolant tank & coolant flushing system
- Working lamp
- 3-color signal lamp
- Air conditioner
- Rotary encoders for rotary A/C-axis
- Foundation pads & bolts kits
- Manual pulse generator
- Operation manuals, PLC & electrical circuit diagrams
- RS232, RJ45 interface
- Scraper type chip conveyor
- Tool kits

Optional:

- Linear scales (X/Y/Z)
- Coolant through spindle system (30/70 bar)
- Oil mist cutting device
- Oil mist collector
- Automatic tool length measurement system
- Automatic workpiece measurement system
- Transformer
- Spindle thermal compensation
- CE safety standard

Machine Specification

Travel	UA400
X-axis	630 mm
Y-axis	620 mm
Z-axis	510 mm
Distance from spindle nose to table	100-610 mm (Direct drive)

Table	
Dimension	Ø400 mm
Max. load	200 kg (Horizontal) / 150 kg (Vertical)
T-slot (Width x Number x Distance)	12 x 8 x 45° mm

Spindle	
Spindle type	Direct drive
Spindle speed	15,000 rpm
Spindle motor power (Cont./10 min.)	7.5/15 kW
Spindle taper	BBT40

Feed rate	
X/Y/Z-axis rapid feed rate	36 / 36 / 36 m/min
Cutting feed rate	1~12,000 mm/min

ATC	
Magazine type	Chain type
Number of tools	40 pcs
Max. tool weight	7 kg
Max. tool length	280 mm
Max. tool diameter (next pockets empty)	75 / 125 mm

C-axis	
Table diameter	Ø 400 mm
Rotation range	360°
Positioning accuracy	±5"
Rotation speed	22.2 rpm
Working torque	756 Nm

A-axis	
Rotation range	-120° ~ +30°
Positioning accuracy	±5"
Rotation speed	22.2 rpm
Working torque	756 Nm

Space & System Requirement	
Controller	FANUC 0iMF-Plus (3+2 axis machining) Heidenhain TNC7 (5 axis simultaneous)
Pneumatic pressure	6 kgf/cm ²
Electrical power consumption	60 KVA
Machine net weight	9500 Kg
Max. floor space (W x L x H)	4,418 x 2,966 x 3,184 mm



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