TAKUMI®

TakumiUSA.com

When precision matters.

TECHNICAL CATALOG

- Vertical Machining Centers
- 3-Axis Box-Way Machining Centers
- Double-Column Machining Centers
- 5-Axis Machining Centers
- Horizontal Machining Centers
- High Speed Drill / Tapping Machining Centers
- Box-Way CNC Lathes

A DIVISION OF
HURCO COMPANIES, INC.

TAKUMI®

MACHINE DESIGN

At Takumi, we have adapted the world's leading controls and applied them to our rugged, durable machines. The result is higher productivity through speed, accuracy and reliability. We are proud to produce a series of lathes and double-column and C-frame machining centers that are the top of the class in die/mold, aerospace, and other industries that demand speed and precision.

EXPERIENCE

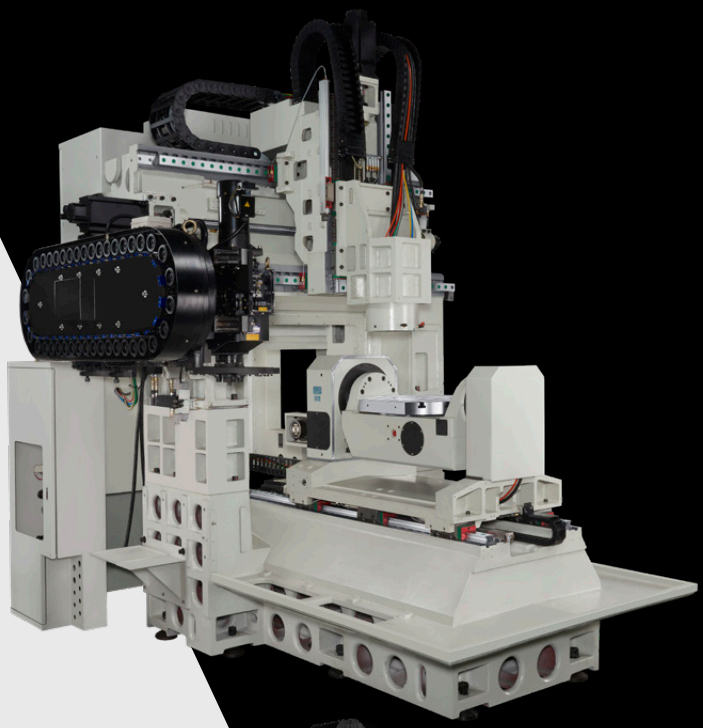
Founded in 1988, Takumi has been exceeding customers' expectations in Europe and Asia for over 30 years. When Takumi was acquired by Hurco Companies in 2015, a new Takumi Technology Center and Showroom was built in Indianapolis to serve the U.S. market, and a comprehensive service and support network was established. Check out our product line of machining centers and visit us at TakumiUSA.com.

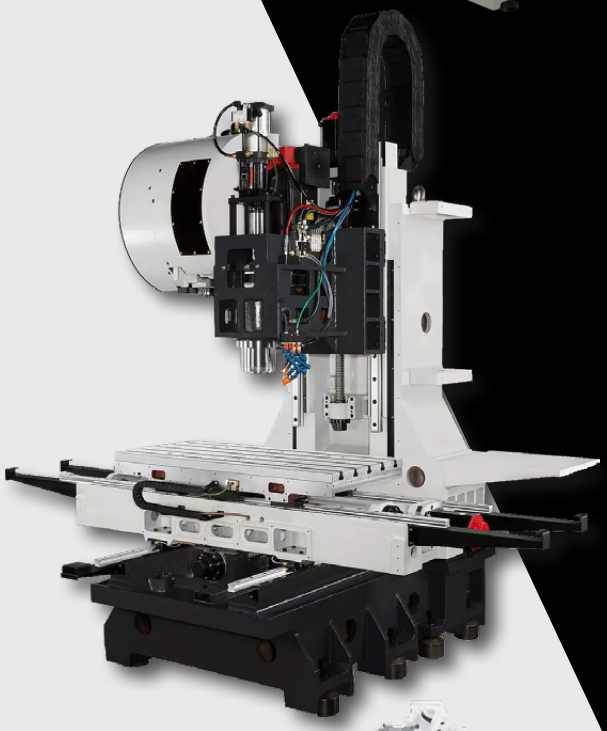
SERVICE AFTER THE SALE

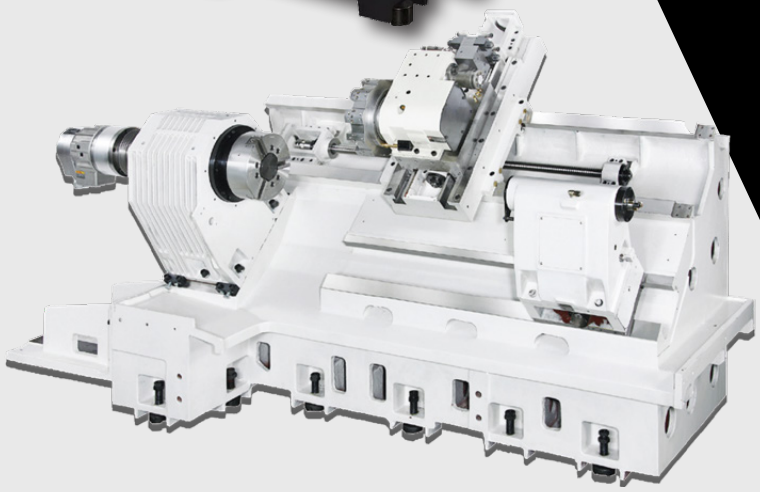
Takumi machines are known for their quality and durability. If a repair does become necessary, we will provide a quick response to reduce downtime.

- Experienced, nationwide service and support network.
- A full-service distributor network
- Regional technical specialists.
- Extensive U.S. inventory of repair and maintenance parts

When precision matters.







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CNC MACHINES THAT EXCEED EXPECTATIONS

CONTENTS

TAKUMI®

At Takumi, we implement stringent processes to design and build rigid and reliable machining centers that exceed our customers' expectations. From our meticulous manufacturing processes, such as hand scraping contact areas, to the use of premium components, we infuse quality into each of our products.

See which one of our models of CNC machines is right for you.

TAKUMI®
When precision matters.

Product Lineup

VC Series

VC0852

VC1052

VC1200

V Series

V10

V11

V15

V18

V22

H Series

H10

H12E

H16

U Series

UA400

U600

U800

HMX Series

HMX400

HMX550

Learn More About the Fanuc® 0*i* Plus Control

To learn more about Takumi machinery and Fanuc® controls, scan this code or turn to pages 6-7.

VT Series

VT500

Standard Machine Features

Takumi machines come standard with these features:

- AICC II with 400 Block Lookahead
- Machine Condition Selection
- Manual Guide I
- 400 Tool Offsets Type C
- 48 Additional Work Offsets

SL Series

SL200

SL250

SL300

SL450

FANUC® 0*i* PLUS CONTROL

ADVANCED CNC CONTROL FEATURES

The processing power and smoothing features needed for maximum cutting speed and superior part finish.

We work closely with Fanuc® to deliver the best features for the customer. Our machines proudly use the Fanuc® 0*i* Plus Series control*, which includes easy setup, large lookahead for path planning, and the ability to decide between roughing and finishing.

The standard Takumi control features are specifically designed to augment our machines for greater speed, superior part finish and easy setup.

* Certain machines will ship with different controls. Consult spec sheets for further information.

THE FEATURES YOU NEED IN ONE STANDARD PACKAGE

Usability

- 2-GB data server consists of an embedded memory card and an Ethernet connection on the CNC.
- 400 pair tool offsets.
- 48 work offsets.
- Manual Guide i provides integrated operation guidance on one screen.

High Speed and Performance

- Nano Smoothing combined with precise nano-calculation and leading-edge servo technology for high-precision accuracy.
- AI Contouring Control II (AICC-II) is effective for high-speed, high-precision machining.
- Machine Condition Slection Function (MCSF) allows the operator to choose the level of speed and accuracy to maximize productivity and quality.
- Smooth Tolerance Control achieves high-quality machining.

More Time Cutting

- Absolute encoders promote quick startup by eliminating the need for machine/axes calibration upon powerup.
- Failure prediction functions (e.g. leakage detection) prevent unexpected maintenance and downtime.
- Enhanced diagnosis and maintenance functions make it easy to locate failures and reduce recovery time.

The Fanuc® 0*i* Plus series is the most reliable and cutting-edge Fanuc® control to date. The latest control features enhance performance for high-speed, high-precision, and high-quality machining, with increased control axes and high-speed control of loader or peripheral equipment.

VC Series: Rigid and powerful for every application.

The VC Series can handle a wide range of parts for all kinds of applications thanks to a highly versatile control system that comes with the VC0852, VC1052, and VC1200. The VC Series machines are designed for high rigidity, reliability, and productivity, as demonstrated in both surface finish quality and repeatable precision.

SERIES OVERVIEW

- Rapids of 1,417 inches per minute.
- Perfect combination of fast cutting and high stability.
- Pre-tensioned ballscrews minimize thermal growth and improve accuracy.
- Direct-coupled ballscrews increase accuracy.
- Ergonomic table simplifies setup.
- Swiveling control panel optimizes floor space utilization.
- Robust, precision-machined castings.
- Hand-scraped contact areas.
- 24-tool, CAT 40, swing-arm ATC standard; VC1200 is 30-tool.
- Integrated washdown and chip management system.
- Spindle chiller maximizes heat dissipation.
- Absolute encoders ensure fast startup.
- Fanuc® 0*i* Plus Control.

High-Rigidity Frame Structure

The VC Series achieves high rigidity and optimal machine structure by using FEM analysis throughout the entire design process.

High-Rigidity LM Roller Guideways

The VC Series is equipped with Ø45 mm wide roller-type linear ways, which feature higher load capacity and greater rigidity, even at high acceleration.

High Speed and High Productivity

Higher productivity is achieved by reducing non-cutting time and improving the acceleration and deceleration times of all motion system axes.

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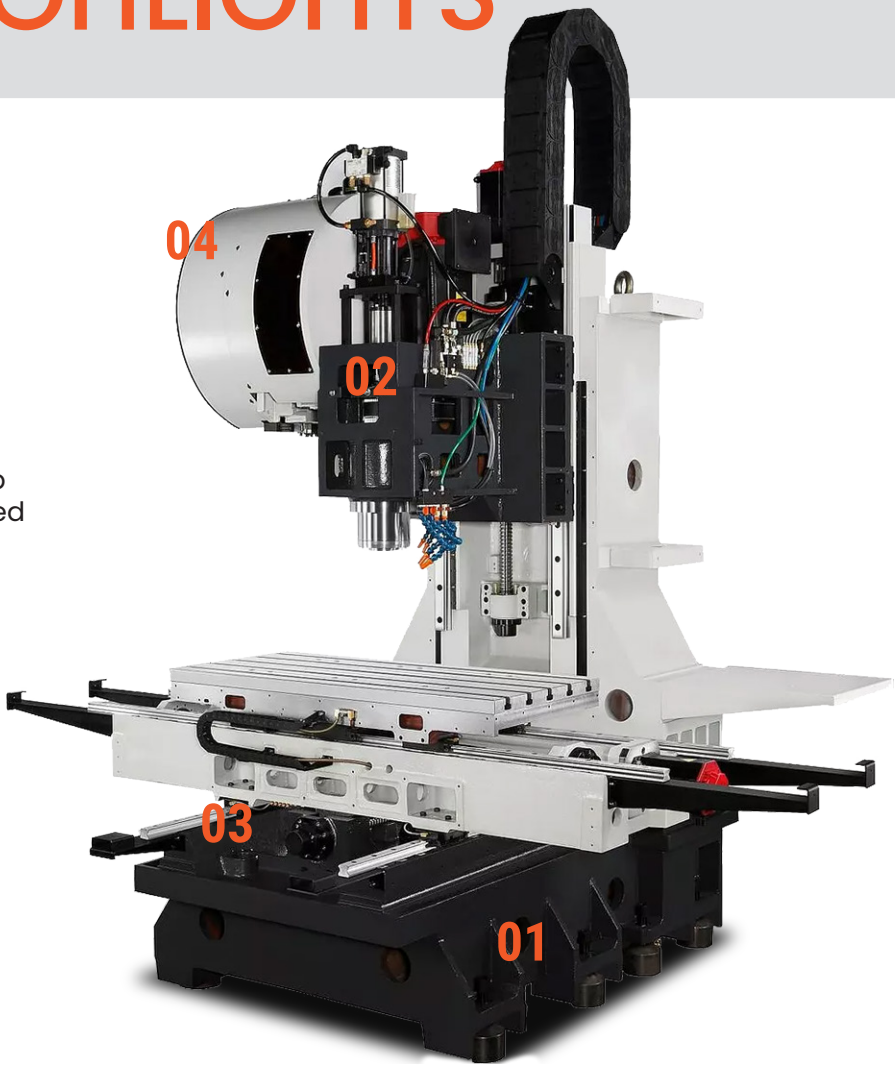
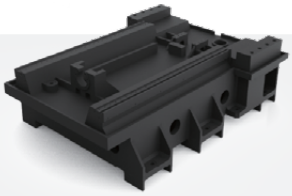
VC Series

HIGHLIGHTS



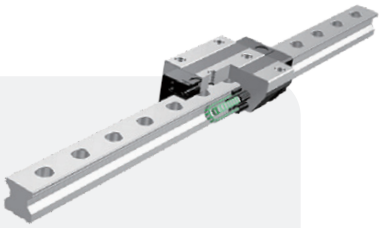


01 Robust One-Piece Casting

The high-rigidity, one-piece bed provides excellent stability for the casting to absorb the thrust forces of rapid feedrates, coupled with roller-type linear ways for enhanced rigidity, which promotes the stability and power of the spindle for high speeds.

02 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.



03 Stable Structure Supports High-Speed Machining

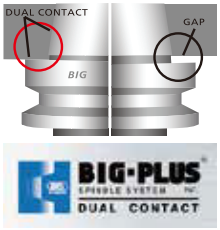
The fine pitch of the ballscrews on the VC machines provides stability to support the fast acceleration and deceleration that is possible due to the roller-type linear guide rails.

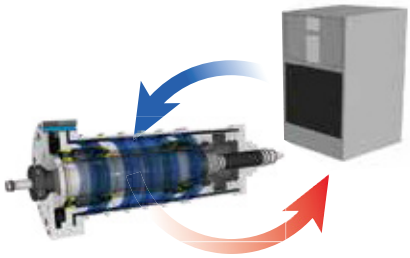
04 ATC and Magazine

The tool magazine can store up to 24 tools (VC0852 / VC1052) and 30 tools (VC1200) as standard and up to 40 tools as an option depending on the model.

TAKUMI®

VC Series: Spindle Information





High-Speed, Direct-Drive Spindle

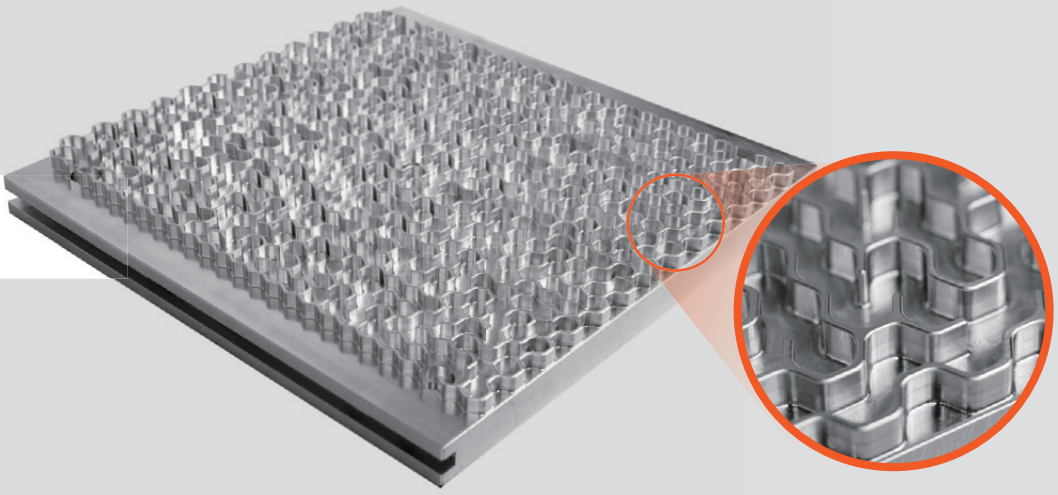
The high-power direct-drive spindle limits vibration, noise, and power loss during high-speed rotations to achieve superior part finish.

Dual-Surface Contact Design

The Big Plus® spindle system ensures superior finish due to the simultaneous fit of the taper, flange, and spindle, which minimizes vibration.

Stable Spindle Cooling Circulation

Spindle temperature is constantly controlled by an oil chiller. Our test results have proven that the temperature of the circulating oil is controlled within a certain variation, which minimizes thermal displacement during continuous operation at high speeds.



The VC Series provides the best cutting performance in its class to optimize productivity.

VC Series: User Convenience

Ergonomic Design

A table height of 36 inches, a front door opening that is wider than the table, and wide side access doors make loading parts and setup easier and faster.

Generous Z-Axis Travel

With 24 inches of Z-axis travel, you can position the spindle nose within 4.5 inches of the table, reducing the need for expensive fixtures to raise the part or to use extended tool holders.

Ergonomic Swivel Control Console

The operation panel can swivel 120°, and the height is designed to be at the operator's viewpoint.

Excellent Chip Removal

The sheet metal of the enclosure is designed with the proper slope to augment the high-volume programmable washdown system, automating cleanup while saving valuable time to run more parts.

Machine Specifications

Control	VC0852	VC1052	VC1200
Control Type	Fanuc® 0*i* Plus	Fanuc® 0*i* Plus	Fanuc® 0*i* Plus
Travel			
X, Y, Z Axis	33.9 x 20.5 x 24 in (861 x 520 x 610 mm)	41.7 x 20.5 x 24 in (1,060 x 520 x 610 mm)	50 x 26 x 24 in (1,270 x 660 x 610 mm)
Distance from Spindle Nose to Table	4.53 ~ 28.54 in (115 ~ 725 mm)	4.53 ~ 28.54 in (115 ~ 725 mm)	5.91 ~ 29.92 in (150 ~ 760 mm)
Table			
Table Size	39.4 x 20.47 in (1,000 x 520 mm)	45.67 x 20.47 in (1160 x 520 mm)	59 x 28.98 in (1,500 x 660 mm)
Maximum Load	1,102 lbs (500 kg)	1,433 lbs (650 kg)	2,990 lbs (1,360 kg)
T-Slot	5 x .71 in on 3.94 in Centers (5 x 18 mm on 100 mm Centers)	5 x .71 in on 3.94 in Centers (5 x 18 mm on 100 mm Centers)	5 x .71 in on 3.94 in Centers (5 x 18 mm on 100 mm Centers)
Spindle			
Spindle Speed	12,000 rpm	15,000 rpm	15,000 rpm
Motor Power	14.8 HP (15 KW)	14.8 HP (15 KW)	14.8 HP (15 KW)
Spindle Taper	Big Plus® CAT 40	Big Plus® CAT 40 Direct Drive	Big Plus® CAT 40
Peak Spindle Torque	87.8 ft. lbs (119 Nm)	87.8 ft. lbs (119 Nm)	87.8 ft. lbs (119 Nm)
Feed			
Rapid Traverse (X, Y, Z)	1,417 x 1,417 x 994 ipm (36 x 36 x 24 m/min)	1,417 x 1,417 x 994 ipm (36 x 36 x 24 m/min)	1,417 x 1,417 x 994 ipm (36 x 36 x 24 m/min)
Cutting Feed	0.04 ~ 472.44 ipm (1 ~ 12,000 mm/min)	0.04 ~ 472.44 ipm (1 ~ 12,000 mm/min)	0.04 ~ 472.44 ipm (1 ~ 12,000 mm/min)
ATC			
ATC Type	Swing Arm	Swing Arm	Swing Arm
Number of Tools	24	24	30
Maximum Tool Diameter	3.15 / 5.91 in (80 / 150 mm)	3.15 / 5.91 in (80 / 150 mm)	3.15 / 4.92 in (80 / 125 mm)
Maximum Tool Length	11.81 in (300 mm)	11.81 in (300 mm)	11.81 in (300 mm)
Maximum Tool Weight	15.4 lbs (7 kg)	15.4 lbs (7 kg)	15.4 lbs (7 kg)
Tool Shank	CAT 40	CAT 40	CAT 40
Space and System Requirements			
Machine Net Weight	12,566 lbs (5,699 kg)	13,007 lbs (5,900 kg)	19,842 lbs (9,000 kg)
Electric Power Supply	30 KVA	30 KVA	35 KVA
Pneumatic Pressure	5 CFM @ 85-115 psi (0.14m3/min @ 6-8 bar)	5 CFM @ 85-115 psi (0.14m3/min @ 6-8 bar)	5 CFM @ 85-115 psi (0.14m3/min @ 6-8 bar)
Operating Dimensions	195.15 x 147.36 x 122.01 in (4,957 x 3,743 x 3,099 mm)	195.15 x 147.36 x 122.01 in (4,957 x 3,743 x 3,099 mm)	207.87 x 139.76 x 122.05 in (5,280 X 3,550 X 3,100 mm)

Information may change without notice. Optimum machine performance is reliant upon installation conditions at the facility, such as power supply, air supply, and ambient air conditions.

V Series

V Series vertical machining centers are heavy-duty, box-way machines built for tough applications such as roughing cast iron. These 3-axis machines feature belt or gear-driven spindles to provide maximum torque.

SERIES OVERVIEW

- Perfect combination of heavy cutting and high stability.
- Designed and built for heavy material removal parts, production, and mold and die industries.
- Large box-ways for rigid and heavy cutting.
- Pre-tensioned ballscrews minimize thermal growth and improve accuracy.
- Direct-coupled motors increase accuracy.
- Swiveling control panel optimizes floor space utilization.
- Spindle chiller maximizes heat dissipation.
- Extra-wide door openings facilitate easy loading and unloading.
- Hand-scraped contact areas.
- Robust, precision-machined castings.
- Box-shape bed made of one piece casting.
- Integrated washdown and chip management system.
- Absolute encoders ensure fast start-up.
- Fanuc® 0*i* Plus Control.

High-Rigidity Frame Structure

The V Series achieves high-rigidity and optimal machine structure by using FEM analysis throughout the entire design process.

High-Rigidity, Box-Way Structure

The V Series machines are equipped with box-type guideways, which provide more durability, rigidity, and stability.

TAKUMI®

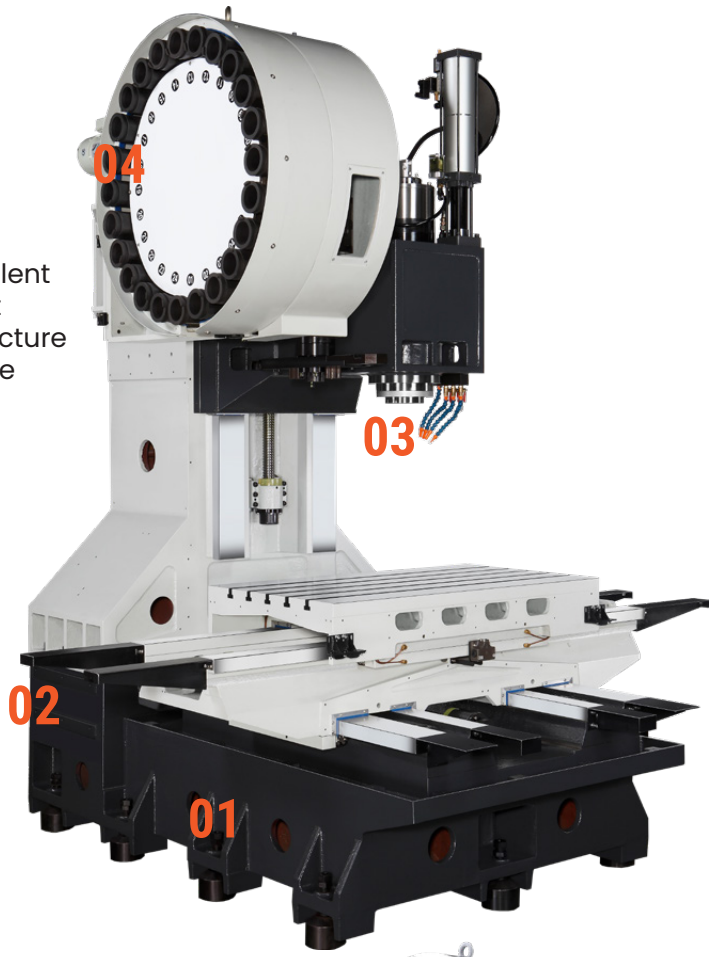
V Series

HIGHLIGHTS

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. The box-way structure enhances rigidity, which enables the spindle to be stable and powerful at high speeds.



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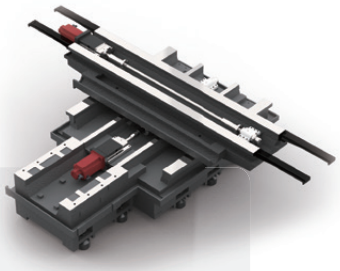


Highly-Rigid, Box-Way Structure

V Series machines are equipped with guideways on all axes, which provides excellent heavy-duty cutting performance, stability, and less vibration.

03

High-Power Spindle

The high-power belted 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 40 tools as an option depending on the model.

V Series: User Convenience

The V Series machines 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.

02 Large Door Opening

Large door opening to the work area gives the operator a greater degree of freedom and handling space.

Machine Specifications

Control	V10	V11	V15
Control Type	Fanuc® 0*i* Plus	Fanuc® 0*i* Plus	Fanuc® 0*i* Plus

Travel

X, Y, Z Axis	39.5 x 26 x 24 in (1,000 x 660 x 610 mm)	43.3 x 26 x 24 in (1,100 x 660 x 610 mm)	60 x 30 x 28.3 in (1,524 x 762 x 720 mm)
Distance from Spindle Nose to Table	5.91 ~ 29.92 in (150 ~ 760 mm)	5.91 ~ 29.92 in (150 ~ 760 mm)	5.91 ~ 34.3 in (150 ~ 870 mm)

Table

Table Size	41.73 x 25.59 in (1,060 x 650 mm)	45.2 x 25.6 in (1,150 x 650 mm)	63 x 30 in (1,600 x 760 mm)
Maximum Load	2,204.62 lbs (1,000 kg)	2,425.01 lbs (1,100 kg)	3,300 lbs (1,500 kg)
T-Slot	5 x .71 on 3.94 in Centers (5 x 18 mm on 100 mm Centers)	5 x .71 on 3.94 in Centers (5 x 18 mm on 100 mm Centers)	5 x .87 on 5.91 in Centers (5 x 22 mm on 150 mm Centers)

Spindle

Spindle Speed	12,000 rpm	8,000 rpm	6,000 rpm
Motor Power	20 HP (15 KW)	20 HP (15 KW)	25 HP (18.5 KW)
Spindle Taper	CAT 40	CAT 50	CAT 50
Peak Spindle Torque	70.8 ft. lb (96.01 Nm)	397 ft. lb (539 Nm)	437.2. ft lb (592.76 Nm)
Coolant Through Spindle	30 bar (435 psi)	30 bar (435 psi)	30 bar (435 psi)

Feed

Rapid Feed (X, Y, Z)	945 x 945 x 787 ipm (24 x 24 x 20 m/min)	945 x 945 x 787 ipm (24 x 24 x 20 m/min)	708 x 708 x 630 ipm (18 x 18 x 16 m/min)
Cutting Feed	315 ipm (8 m/min)	315 ipm (8 m/min)	0.04 ~ 196.85 ipm (1 ~ 5, 000 mm/min)

ATC and Magazine

ATC Type	Swing Arm	Swing Arm	Swing Arm
Number of Tools	24	24	24
Maximum Tool Diameter	3.15 / 5.91 in (80 / 150 mm)	4.1 / 7.9 in (105 / 200 mm)	4.331 / 8.66 in (110 / 220 mm)
Maximum Tool Length	11.81 in (300 mm)	9.8 in (250 mm)	11.81 in (300 mm)
Maximum Tool Weight	15.4 lbs (7 kg)	33 lbs (15 kg)	33 lbs (15 kg)
Tool Shank	CAT 40	CAT 50	CAT 50

Space and System Requirements

Machine Net Weight	14,770 lbs (6,700 kg)	14,960 lbs (6,800 kg)	30,865 lbs (14,000 kg)
Electric Power Supply	35 KVA	35 KVA	35 KVA
Pneumatic Pressure	5 CFM @ 85-115 psi (0.14m3 /min @ 6-8 bar)	5 CFM @ 85-115 psi (0.14m3 /min @ 6-8 bar)	5 CFM @ 85-115 psi (0.14m3 /min @ 6-8 bar)
Operating Dimensions	248.03 x 165.35 x 124.02 in (6,300 x 4,200 x 3,150 mm)	248.03 x 165.35 x 124.02 in (6,300 x 4,200 x 3,150 mm)	275.59 x 220.47 x 128.19 in (7,000 x 5,600 x 3,256 mm)

V18	V22
Fanuc® 0*i* Plus	Fanuc® 0*i* Plus
70.8 x 33.4 x 29.5 in (1,800 x 850 x 750 mm)	86.6 x 41.96 x 29.52 in (2,200 x 1,066 x 750 mm)
7.87 ~ 37.40 in (200 ~ 950 mm)	7.87 ~ 37.40 in (200 ~ 950 mm)
74.8 x 33.4 in (1,900 x 850 mm)	86.6 x 40.35 in (2,200 x 1,025 mm)
4,400 lbs (2,000 kg)	6,614 lbs (3,000 kg)
5 x .87 on 5.91 in Centers (5 x 22 mm on 150 mm Centers)	7 x .87 in on 5.91 in Centers (5 x 22 mm on 150 mm Centers)
8,000 rpm	6,000 rpm
25 HP (18.5 KW)	25 HP (18.5 KW)
CAT 50	CAT 50
349 ft lb (473.18 Nm)	488.6 ft lb (662.4 Nm)
30 bar (435 psi)	30 bar (435 psi)
630 x 630 x 551 ipm (16 x 16 x 14 m/min)	551 x 551 x 472 ipm (14 x 14 x 12 m/min)
0.04 ~ 196.85 ipm (1 ~ 5, 000 mm/min)	0.04 ~ 196.85 ipm (1 ~ 5, 000 mm/min)
Swing Arm	Swing Arm
24	24
4.1 / 7.9 in (105 / 200 mm)	4.33 / 8.66 in (110 / 220 mm)
11.81 in (300 mm)	11.81 in (300 mm)
33 lbs (15 kg)	33 lbs (15 kg)
CAT 50	CAT 50
35,274 lbs (16,000 kg)	54,013 lbs (24,500 kg)
45 KVA	50 KVA
5 CFM @ 85-115 psi (0.14m3 /min @ 6-8 bar)	5 CFM @ 85-115 psi (0.14m3 /min @ 6-8 bar)
-	280.70 x 224.40 x 138.19 in (7,130 x 5,700 x 3,510 mm)

Information may change without notice. Optimum machine performance is reliant upon installation conditions at the facility, such as power supply, air supply, and ambient air conditions.

H Series

The Takumi H Series machining centers are designed to be dynamic and accurate as demonstrated in both surface finish, quality, and consistent precision.

SERIES OVERVIEW

- Designed for parts that require outstanding speed and accuracy, and unparalleled surface finish.
- H-Series machines offer an extremely rigid and thermally stable double-column design.
- These 3-axis models feature high-speed, direct drive spindles with up to 15,000 rpm.
- World-class performance for die/mold, aerospace, and other high-speed applications.
- Close proximity of spindle to bridge casting reduces overhang.
- Ladder design of bridge provides greater support for the head casting.
- Swiveling control panel optimizes floor space utilization.
- Extra wide door openings facilitate convenient loading and unloading.
- Large windows provide optimal visibility.
- Robust, precision-machined castings.
- Hand-scraped contact areas.
- Linear scales ensure repeatability and accuracy.
- Roller-type rails on all axes add rigidity.
- Integrated washdown and chip management system.
- Direct-coupled ballscrews increase accuracy.
- Absolute encoders ensure fast startup.
- Big Plus® spindles increase rigidity and reduce tool deflection.
- Fanuc® 0*i* Plus Control.

High-Rigidity Frame Structure

The solid one-piece bed, column, and cross-rail design with no weldments, provides excellent support. The base width provides stability for large table loads. The cross-rail saddle carries a constant weight, which results in excellent part finish at fast cutting speeds.

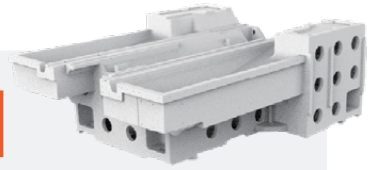
High-Speed and High-Accuracy Machines

The H Series machines meet the requirement of high accuracy and high speed simultaneously due to the optimal mechanical structure, high-response axial transmission system, low vibration, and excellent thermal controlled spindle.

Largest Y-Axis Travel in Its Class

The H Series large work envelope can machine large workpieces that are difficult to handle by other machines in the same class.

HIGHLIGHTS



01

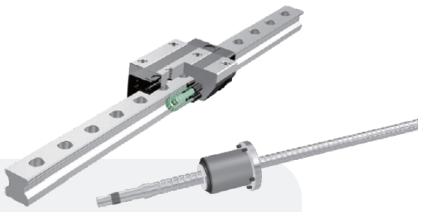
High-Rigidity Frame Structure

A high-rigidity, one-piece bed, column and cross-rail provide excellent stability as the casting absorbs the thrust forces of high rapids, while the ladder design of the cross rail enables the spindle to be stable and powerful at high speeds.

02

Intelligent Spindle Thermal Compensation (*i* Spin-TC™)

Sophisticated thermal control system achieves precision despite variations in ambient temperature.



03

High-Speed and Stable Axis Structure

The H Series machines are equipped with roller-type linear motion guideways that offer the best combination of high speed and superior rigidity. High-precision ballscrews are connected directly to axis motors.

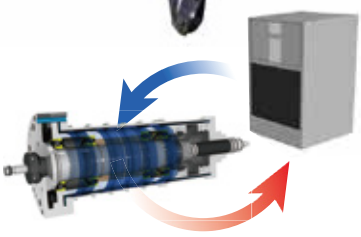
04

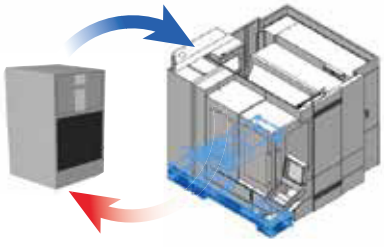
Double-Column Structure

The double-column design and one-piece structure provide increased rigidity, enabling higher speeds and accuracy for a superior part finish.

TAKUMI®

H Series: Spindle Information





High-Speed Direct Drive Spindle

The high-speed direct drive spindle limits vibration, noise, and power loss during high speeds to achieve superior part finish. The helical cooling channel design minimizes thermal distortion and enables precision over extended cycle times.

Stable Spindle Cooling Circulation

Spindle temperature is constantly controlled by the oil chiller. Our test results have proven that the temperature of the circulating oil is controlled within ±0.2°C, which minimizes thermal displacement during continuous operation at high speeds.

Cutting Coolant Chiller

The coolant chiller reduces the temperature of the cutting fluid before circulating it through the machine. The cooler effectively reduces the deviation and leads to superior workpiece accuracy, and extends the life of the cutting tool by stabilizing coolant temperature.

H Series: User Convenience

01 Optimal Ergonomic Design

The operation panel can swivel 120°, and the height can be adjusted to the operator's viewpoint.

02 Large Door Opening for Easy Access

The large door opening gives the operator easy access to the work area.

Machine Specifications

Control	H10	H12E	H16
Control Type	Fanuc® 0*i* Plus	Fanuc® 0*i* Plus	Fanuc® 0*i* Plus

Travel

X, Y, Z Axis	40.16 x 27.56 x 19.69 in (1,020 x 700 x 500 mm)	49.2 x 37.4 x 22.8 in (1,250 x 950 x 580 mm)	62.9 x 51.1 x 27.5 in (1,600 x 1,300 x 700 mm)
Distance from Spindle Nose to Table	7.09 ~ 26.77 in (180 ~ 680 mm)	7.87 ~ 30.7 in (200 ~ 780 mm)	7.9 ~ 35.4 in (200 ~ 900 mm)

Table

Table Size	41.3 x 27.6 in (1,050 x 700 mm)	53.5 x 37.8 in (1,360 x 960 mm)	74.8 x 51.18 in (1,900 x 1,300 mm)
Maximum Load	1,760 lbs (800 kg)	4,400 lbs (2,000 kg)	13,200 lbs (6,000 kg)
T-Slot	6 x .71 on 4.92 in Centers (6 x 18 on 125 mm Centers)	6 x .9 on 6.3 in Centers (6 x 22 on 160 mm Centers)	8 x .87 on 6.3 in Centers (8 x 22 on 160 mm Centers)

Spindle

Spindle Speed	15,000 rpm	15,000 rpm	15,000 rpm
Motor Power	25 HP (18.5 KW)	25 HP (18.5 KW)	25 HP (18.5 KW)
Spindle Taper	Big Plus® CAT 40	Big Plus® CAT 40	Big Plus® CAT 40
Peak Spindle Torque	105.5 ft. lb (143.04 Nm)	105.5 ft. lb (143.04 Nm)	105.5 ft. lb (143.04 Nm)
Spindle Type	Direct Drive	Direct Drive	Direct Drive
Coolant Through Spindle	30 bar (435 psi)	30 bar (435 psi)	30 bar (435 psi)

Feed

Rapid Feed (X, Y, Z)	1,259 x 1,259 x 1,259 ipm (32 x 32 x 32 m/min)	1,181 x 1,181 x 1,181 ipm (30 x 30 x 30 m/min)	1,181 x 1,181 x 1,181 ipm (30 x 30 x 30 m/min)
Cutting Feed	0.04 ~ 787 ipm (1~ 20,000 mm/min)	0.04 ~ 787 ipm (1~ 20,000 mm/min)	0.04 ~ 787 ipm (1~ 20,000 mm/min)

ATC and Magazine

ATC Type	Swing Arm	Swing Arm	Swing Arm
Number of Tools	30	30	30
Maximum Tool Diameter	2.95 / 5.91 in (75 / 150 mm)	2.95 / 5.85 in (75 / 148 mm)	2.95 / 5.85 in (75 / 148 mm)
Maximum Tool Length	11.81 in (300 mm)	11.81 in (300 mm)	11.81 in (300 mm)
Maximum Tool Weight	15.4 lbs (7 kg)	15.4 lbs (7 kg)	15.4 lbs (7 kg)
Tool Shank	CAT 40 (BT 40 Optional)	CAT 40 (BT 40 Optional)	CAT 40 (BT 40 Optional)

Space and System Requirements

Machine Net Weight	20,020 lbs (9,100 kg)	21,627 lbs (9,810 kg)	40,000 lbs (22,000 kg)
Electric Power Supply	50 KVA	60 KVA	75 KVA
Pneumatic Pressure	5 CFM @ 85-115 psi (0.14m3 /min. @ 6-8 bar)	5 CFM @ 85-115 psi (0.14m3 /min. @ 6-8 bar)	5 CFM @ 85-115 psi (0.14m3 /min. @ 6-8 bar)
Operating Dimensions	177.95 x 168.74 x 120.01 in (4,520 x 4,286 x 3,050 mm)	157.48 x 157.48 x 125.98 in (4,000 x 4,000 x 3,200 mm)	191.45 x 204.92 x 156.69 in (4,863 x 5,205 x 3,980 mm)

Information may change without notice. Optimum machine performance is reliant upon installation conditions at the facility, such as power supply, air supply, and ambient air conditions.

U Series

The Takumi U Series 5-axis, double-column machining centers are designed for high-precision finishing of parts of all sizes, especially for die/mold, aerospace, and medical applications. The U Series has an extremely robust structure that ensures enough rigidity to perform roughing and has the speed and acceleration for finishing.

SERIES OVERVIEW

- One-piece casting absorbs the thrust forces of high rapids and fast cutting feeds.
- One-piece, double-column design increases rigidity, enabling higher cutting feeds while maintaining superior part finish.
- Ladder design of cross rails increases rigidity and eliminates head deflection.
- Over 35 components are hand scraped for fit.
- Roller-type linear ways support faster feedrates, higher rigidity, and smoother linear motion due to larger contact area compared to ball-type linear rails.
- Large-diameter, pre-loaded and pre-tensioned ballscrews with fine pitch for accurate motion control.
- U600 has 15,000 rpm, Big Plus®, CAT 40, motorized, direct drive spindle; UA400 has 15,000 RPM, BBT40, direct drive spindle; U800 has built-in spindle.
- U600 and U800 are equipped with the latest Heidenhein TNC 640 control; UA400 comes with Fanuc® 0*i* Plus control.

Machine warmup is not needed.

High processing stability over continuous runs.

High-precision cutting performance is guaranteed.

Save money and reduce the time and cost on cutting workpieces.

TAKUMI®

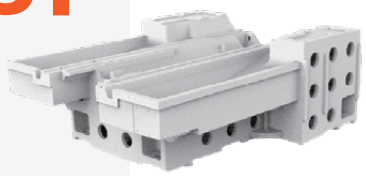
U Series

HIGHLIGHTS

01

Robust One-Piece Casting Bed

Integrated bed frame ensures high rigidity, excellent vibration absorption, and outstanding surface finishes, especially when compared to separate structures. The base width provides stability for heavy table loads even when operating at high speeds.



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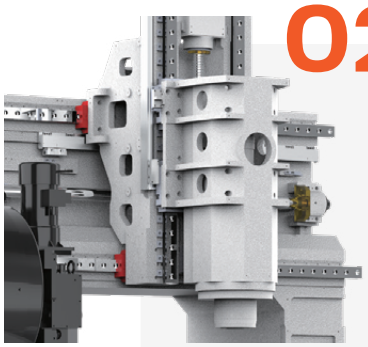


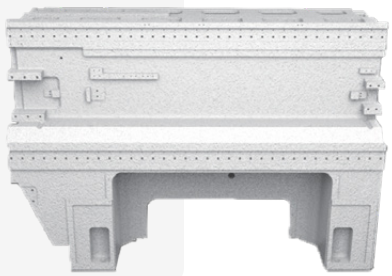
Outstanding Ladder Structure on the Beam

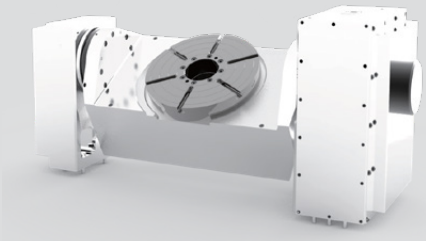
The bridge utilizes a ladder design head casting and saddle which increases rigidity, reduces overhang, and eliminates head deflection. The Y-axis cross rail saddle carries a constant weight, allowing for faster cutting while maintaining excellent part finish.

03

Double-Column Structure

The increased weight of the one-piece design absorbs vibration and increases rigidity. The dual contact areas eliminate pitch in the Y-axis and reduce the effect of machine leveling changes over time.



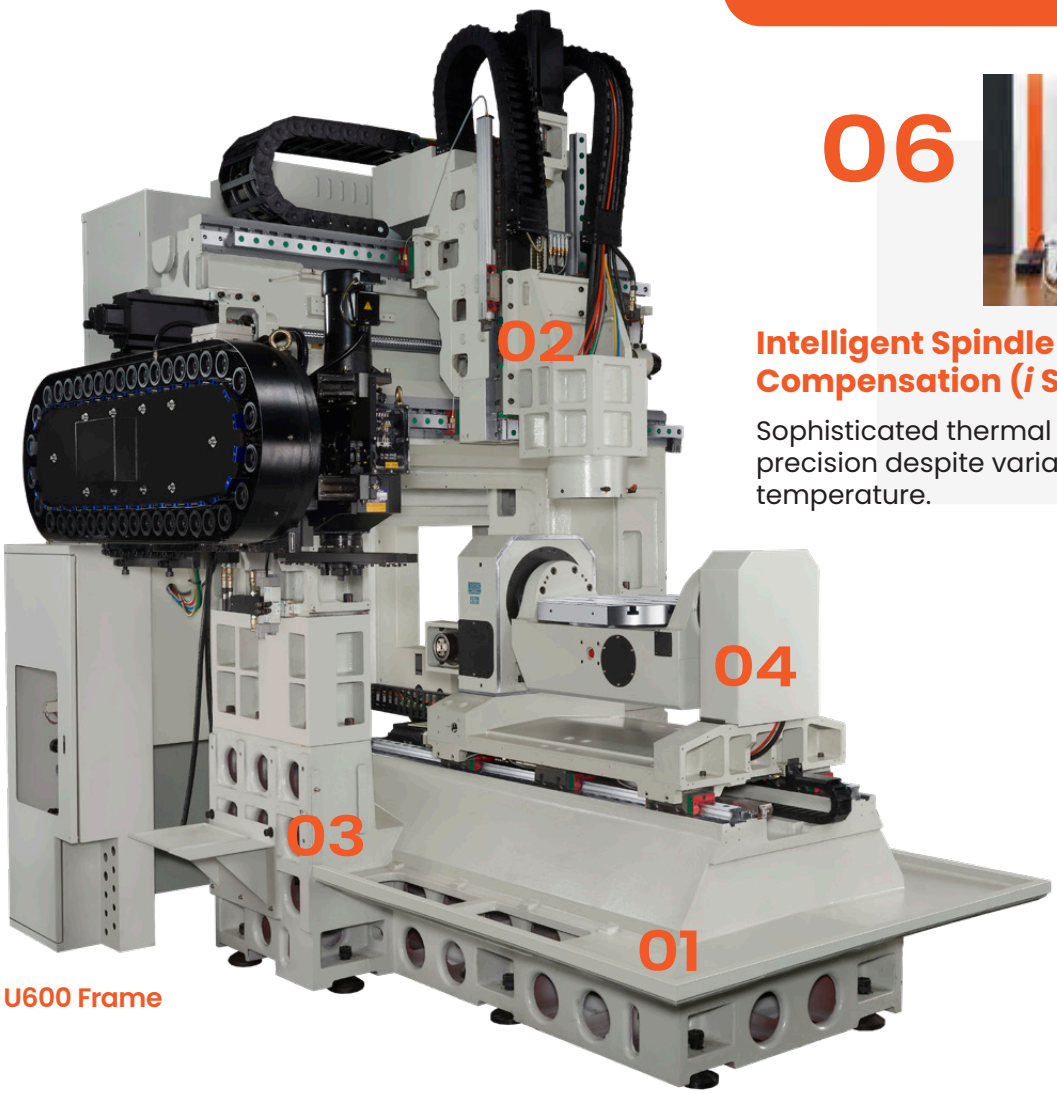


High-Performance Rotary Table

The U Series has a tilting rotary table which is designed to present high performance in heavy cutting and high-speed machining.

04

U Series: Frame



U600 Frame

06

Intelligent Spindle Thermal Compensation (*i* Spin-TC™)

Sophisticated thermal control system achieves precision despite variations in ambient temperature.

05

High-Speed, Built-In Spindle

The high-power, built-in spindle limits vibration, noise, and power loss during high speeds to achieve superior part finish. The helical cooling channel design minimizes thermal distortion and enables precision over extended cycle times.

Machine Specifications

Control	UA400	U600	U800
Control Type	Fanuc® 0*i* Plus	Heidenhein® TNC 640	Heidenhein® TNC 640
Travel			
X, Y, Z Axis	24.80 x 24.41 x 20.08 in (630 x 620 x 510 mm)	25.98 x 40.16 x 19.68 in (660 x 1,020 x 500 mm)	31.49 x 45.28 x 29.52 in (799 x 1,150 x 749 mm)
Distance from Spindle Nose to Table	3.94 ~ 24.01 in (100 ~ 610 mm)	6.30 ~ 25.98 in (160 ~ 660 mm)	4.92~ 34.45 in (125~ 875 mm)
A Axis	+30/-120°	+30/-100°	+/-120°
B Axis	-	-	-
C Axis	360°	360°	360°
Table			
Table Size	15.75 in (400 mm) diameter	23.62 in (600 mm) diameter	31.49 in (800 mm) diameter
Maximum Load	440 lbs (200 kg)	1,102 lbs (500 kg)	2,205 lbs (1,000 kg)
T-Slot	12mm x 8 x 45°	.55 x 3.94 x .20 in (14 x 100 x 5 mm)	.55 x 3.94 x .28 in (14 x 100 x 7 mm)
Spindle			
Spindle Speed	15,000 rpm	15,000 rpm	20,000 rpm
Motor Power	20.1 HP (15 KW)	18.8 HP (14 KW)	33.3 HP (25 KW)
Spindle Taper	BBT40	Big Plus® CAT 40	Big Plus® CAT 40
Peak Spindle Torque	70.4 ft. lb (95.5 Nm)	65.9 ft. lb (89.4 Nm)	99.5 ft. lb (135 Nm)
Coolant Through Spindle	30 bar (435 psi)	30 bar (435 psi)	30 bar (435 psi)
Feed			
Rapid Feed (X, Y, Z)	1,417 x 1,417 x 1,417 ipm (36 x 36 x 36 m/min)	1,417 x 1,417 x 1,417 ipm (36 x 36 x 36 m/min)	1,890 x 1,890 x 1,890 ipm (48 x 48 x 48 m/min)
Cutting Feed	472 ipm (12 m/min)	787 ipm (20 m/min)	945 ipm (24 m/min)
ATC and Magazine			
ATC Type	Swing Arm	Swing Arm	Carousel
Number of Tools	40 (60 or 120 Optional)	30 or 50	64
Maximum Tool Diameter	2.95 / 4.9 in (75 / 125 mm)	2.95 / 5.91 in (75 / 150 mm)	3.54 / 4.92 in (90 / 125 mm)
Maximum Tool Length	11 in (280 mm)	11.81 in (300 mm)	11.81 in (300 mm)
Maximum Tool Weight	15.4 lbs (7 kg)	17.64 lbs (8 kg)	15.43 lbs (7 kg)
Tool Shank	BBT 40	CAT 40 (BT 40 Optional)	HSK-63A
Space and System Requirements			
Machine Net Weight	20,944 lbs (9,500 kg)	30,865 lbs (14,000 kg)	39,683 lbs (18,000 kg)
Electric Power Supply	60 KVA	60 KVA	80 KVA
Pneumatic Pressure	85.34 psi (6 kgf/cm²)	85.34 psi (6 kgf/cm²)	85.34 psi (6 kgf/cm²)
Operating Dimensions	173.93 x 116.77 x 125.35 in (4,418 x 2,966 x 3,184 mm)	128.15 x 151.77 x 138.58 in (3,255 x 3,855 x 3,520 mm)	165.35 x 120.28 x 162.20 in (4,200 x 3,055 x 4,120 mm)

Information may change without notice. Optimum machine performance is reliant upon installation conditions at the facility, such as power supply, air supply, and ambient air conditions.

HMX Series

The HMX Series exceeds all of your expectations as it provides high speed, high performance, and maximum productivity.

SERIES OVERVIEW

- One-piece stepped machine base.
- Three-point machine leveling.
- Roller guides on all three axes.
- Direct-coupled ballscrews.
- CAT 40 Big Plus® dual-contact spindle.
- Features 10,000-rpm spindle (HMX550) or 12,000-rpm, high-torque, direct drive spindle (HMX400).
- Chilled spindle motor seat.
- Spindle thermal chiller.
- Coolant through spindle, 435 psi | 30 bar.
- Six coolant nozzles and washdown system.
- Air through spindle.
- Programmable cutting air-blow.
- 0.001° full 4th axis rotary table (B-axis).
- 33.3 rpm table rotation speed.
- 5-second APC pallet exchange.
- Mechanical pallet clamp x 4 cones.
- Pressurized oil-air lubrication system.
- 1G acceleration.
- Full enclosure with front and operator access.
- Dual interior chip augers.
- Scraper-type lift up chip conveyor.
- Overhead automatic pallet wash system.
- Fanuc® 0*i* Plus Control.
  - AICC II Nano with 200 block look ahead.
  - Manual pulse generator (MPG).
- Leveling bolts and pads.

High-Rigidity, One-Piece Bed

HMX Series machines are designed with a one-piece bed structure with dual-wall design on the X-axis column and stepped traveling column.

High Speed

Best-in-class rapid traverse rate of 60 m/minute provides maximum productivity.

Excellent Extendability

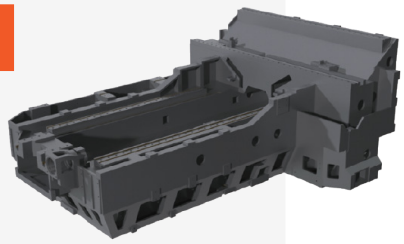
Superior pallet extension and diverse tool changer provide users with maximum productivity and rapid installation.

HMX Series: Frame

01

One-Piece Bed Structure

The one-piece bed structure provides high rigidity and excellent stability. With a stepped-guide bed structure, travel stabiity is reinforced by an optimized column weight.



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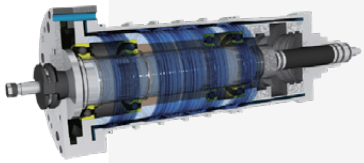


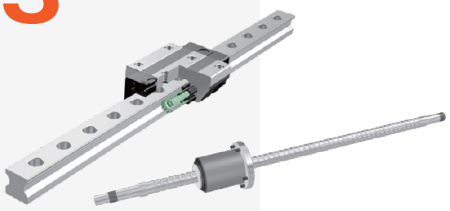
Superior Thermal Stability

High precision is achieved by ceramic ball bearings. Heat shielding and oil cooler system is designed to minimize thermal impact.

03

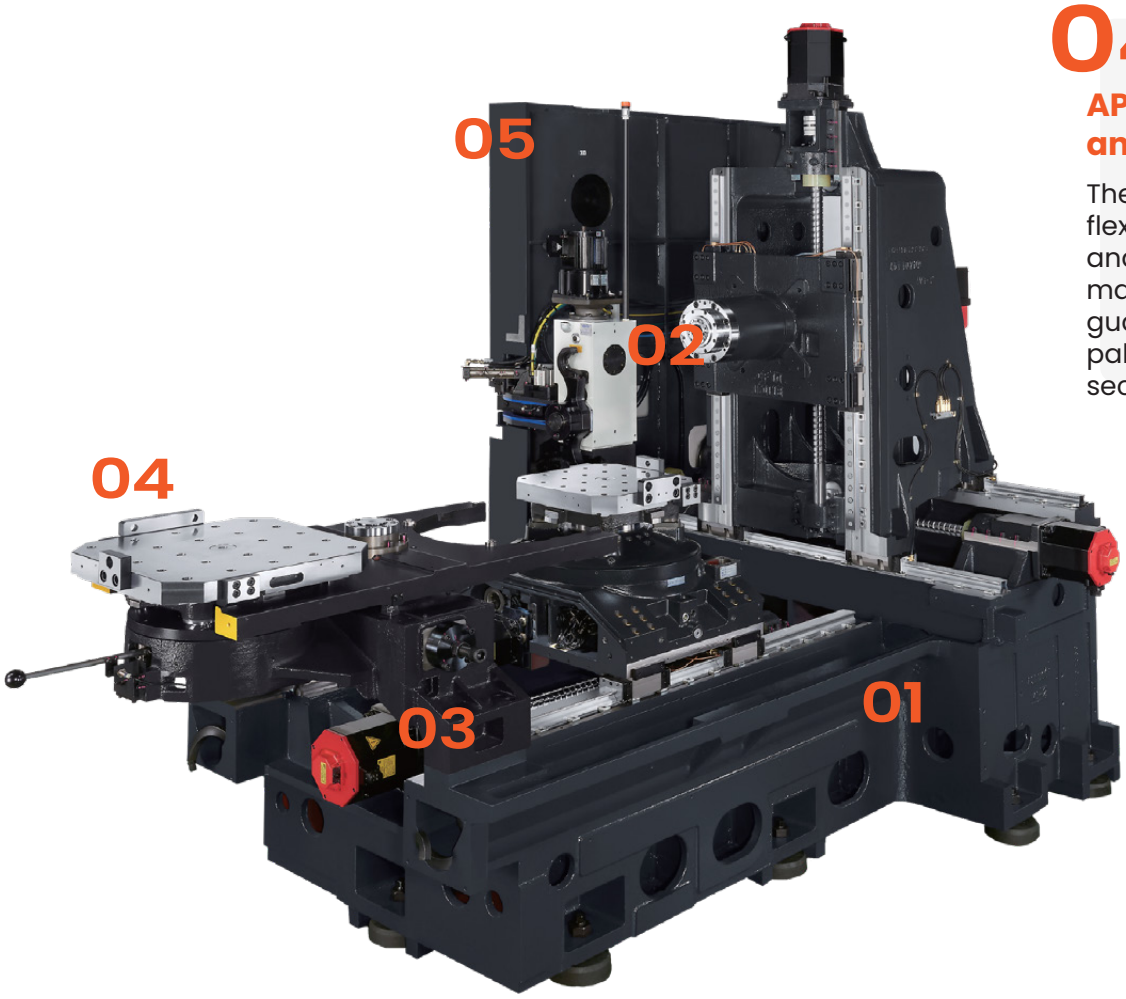
High-Speed, Stable Axis Structure

The HMX Series is equipped with roller-type guideways and ballscrews, providing increased acceleration and high precision.



HMX Series

HIGHLIGHTS



04
APC System and Pallet

The HMX Series provides flexibility with both 400mm and 500mm pallets in one machine. Servo-driven APC guarantees fast and precise pallet changing within 5 seconds.

05
ATC and Magazine

One-second tool change time is achieved by servo motors. 40 tools are provided as standard, and various options are available.

Machine Specifications

For a list of features and options, contact your distributor.

Control	HMX400	HMX550
Control Type	Fanuc® 0*i* Plus	Fanuc® 0*i* Plus
Travel		
X, Y, Z Axis	25.2 x 24 x 26.77 in (640 x 610 x 680 mm)	31.5 x 31.5 x 31.5 in (800 x 800 x 800 mm)
Table		
Table Working Surface (APC - Twin Pallets)	15.75 x 15.75 in (400 x 400 mm)	19.69 x 19.69 in (500 x 500 mm)
Spindle		
Spindle Speed	12,000 rpm	10,000 rpm
Motor Power	50 HP (37 KW)	30 HP (22 KW)
Spindle Taper	Big Plus® CAT 40	CAT 50
Spindle Rotated Torque	183.7 ft. lbs (249 Nm)	418.9 ft. lbs (568 Nm)
Spindle Acceleration/ Deceleration	3.3 seconds (0-15,000 RPM) / 3.4 seconds (15,000 - 0 RPM)	3.6 seconds (0-10,000 RPM) / 3.7 seconds (10,000-0 RPM)
Feed		
Rapid Traverse Rate	2,362 IPM (60 m/minute)	1,969 IPM (60 m/minute)
Maximum Feed Rate	1,575 IPM (40 m/minute)	1,575 IPM (40 m/minute)
Maximum Acceleration	1G	1G
Linear Positioning Accuracy	0.00098 in (0.025 mm)	0.00019 in (0.0050 mm)
Linear Repeatability	0.00059 in (0.015 mm)	0.00011 in (0.0028 mm)
APC		
APC Exchange Time	5 seconds	5 seconds
Number of ATC Stations	60	60
ATC Speed (Tool-to-Tool)	1.0 second	2.2 seconds
ATC Speed (Chip-to-Chip)	3.4 seconds	5.3 seconds
Maximum Tool Diameter	2.95 in (75 mm)	4.53 in (115 mm)
Maximum Tool Diameter (Adjacent Tool Stations Empty)	5.91 in (150 mm)	9.84 in (250 mm)
Maximum Tool Weight	17.6 lbs (8 kg)	55 lbs (25 kg)
Maximum Tool Length	15.75 in (400 mm)	17.72 in (450 mm)
Space and System Requirements		
Machine Net Weight	25,243 lbs (11,450 kg)	33,069 lbs (15,000 kg)
Machine Dimensions (L x W x H)	186.2 x 105.8 x 102.4 in (4,730 x 2,688 x 2,600 mm)	194.1 x 121.5 x 115.8 in (4,931 x 3,086 x 2,492 mm)
Operating Dimensions	211.6 x 157.5 x 102.4 in (5,375 x 4,000 x 2,600 mm)	214.3 x 176.5 x 115.8 in (5,442 x 4,482 x 2,942 mm)

Information may change without notice. Optimum machine performance is reliant upon installation conditions at the facility, such as power supply, air supply, and ambient air conditions.

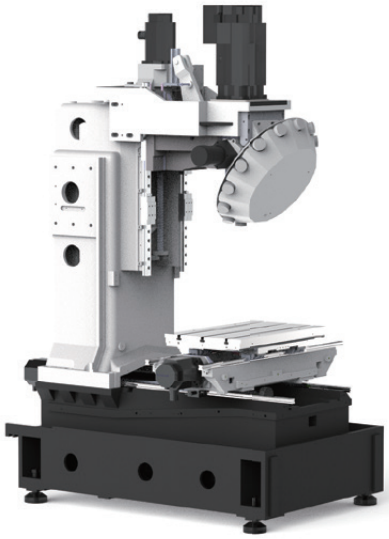
VT Series

The Takumi VT Series of drill-tap mills is designed for light and fast machining of small-to-medium parts and high-precision dies and molds. Due to its high accuracy and speed, the VT Series enables a wider range of machining applications such as the computer, communications, electronics, and automotive industries. Its compact footprint is a major asset for machine shops, where space is a premium.

SERIES OVERVIEW

- 3-axis, roller-type linear ways.
- Small footprint.
- High-rigidity structural design.
- Designed for high-speed and high-accuracy machining, the linear guideways are of high-precision grade.
- Main mechanical structures, such as: base, column, saddle, etc., are made of cast iron.
- To ensure accuracy and repeatability that lasts over time, the VT Series uses a box-shaped design with grooves, which increases rigidity, in addition to optimally spacing the blocks on the linear guideways for the headstock. To eliminate intrinsic stress, the casting iron is heat treated.
- The direct-drive couplings for the 3 axes between the ballscrew and motor enhance the rigidity of movement and the accuracy of positioning.
- Centralized automatic lubrication injection system to 3-axis ballscrews and linear guideways.
- The enlarged and widened door makes it easier to load and unload workpieces.
- Due to the stable and straightforward structure of the mechanical tool-changing system, non-machining time is reduced, and operational efficiency is increased.

HIGHLIGHTS

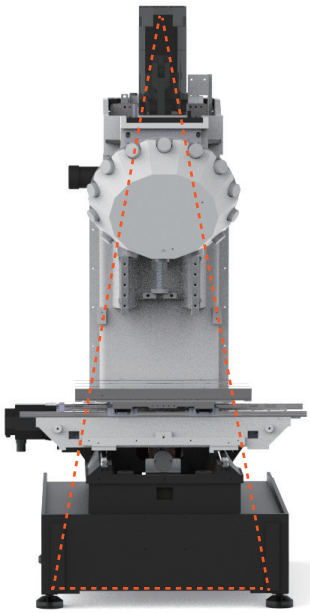


Designed for Enhanced Rigidity

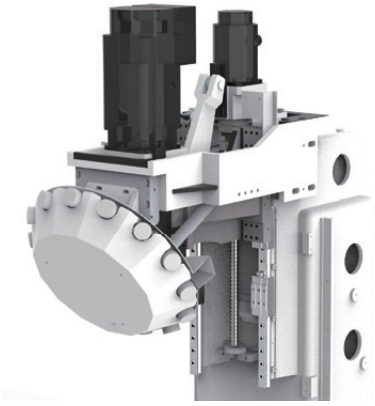
To ensure structural stability and positional accuracy, the bed, columns, saddle, and other main castings are made of high-grade cast iron that is heat treated to remove the internal stress.

Constructed for Increased Stability

The low gravity center strengthens the structural rigidity of the machine base and reduces vibration.



User Convenience



Mechanical ATC System

The mechanical tool changing design optimizes tool-change time and reduces non-cutting time. The tool change is synchronized with the movement of the Z-axis to increase speed and productivity.

Machine Specifications

Control	VT500
Control Type	Fanuc® 0*i* Plus

Travel	
X, Y, Z Axis	19.68 x 15.75 x 12.60 in (500 x 400 x 320 mm)
Distance from Spindle Nose to Table	Short Column: 6.30-18.90 in (160-480 mm)
	Long Column: 10.24-22.83 in (260-580 mm)

Table	
Dimension	25.59 x 15.74 in (650 x 400 mm)
Maximum Load	550 lbs (250 kg)
T-Slot (Width x Pitch x Number)	.55 x 4.92 x .12 in (14 x 125 x 3 mm)

Spindle	
Spindle Type	Direct Drive
Spindle Speed	20,000 rpm
Spindle Motor Power	7.3 HP (5.4 kW)
Spindle Taper	CAT30

Feed	
Rapid Feed (X, Y, Z)	1890 x 1890 x 1890 ipm (48 x 48 x 48 m/min)
Cutting Feed	1 - 10,000 mm/min
Motor Power (X, Y, Z)	1.5 / 1.5 / 2.2 kW

ATC and Magazine	
ATC Type	Tool Turret
Number of Tools	21
Maximum Tool Diameter	3.15 in (80 mm)
Maximum Tool Length	5.91 in (150 mm)
Maximum Tool Weight	6.61 lbs (3 kg)

Supply	
Pneumatic Pressure	85.34 psi
Electric Power Supply	20 kVA

Space and System Requirements	
Machine Net Weight	5,512 lbs (2,500 kg)
Machine Dimensions (L x W x H)	102.49 x 66.93 x 101.52 in (2,603 x 1,700 x 2,579 mm)

Information may change without notice. Optimum machine performance is reliant upon installation conditions at the facility, such as power supply, air supply, and ambient air conditions.

SL Series

Box-Way SL Series CNC turning centers are designed for heavy and interrupted cutting with superior part finishes.

SERIES OVERVIEW

- True 45-degree slant bed.
- Hardened and ground box-ways on all axes.
- Doublenut pre-loaded pretensioned X/Z axis ballscrews are 1.57" (40 mm) with 10 mm pitch.
- High metal removal rates are achieved with classic design and manufacturing methods.
- The heavily-ribbed casting design prevents twisting and deformation.
- Guideways are wide, rectangular box design for long-term rigidity and accuracy.
- The ways are induction hardened, precision ground and widely spaced to ensure stability. The Turcite B mating surfaces are hand scraped for perfect fit and smooth motion.
- Slant angle allows for easy loading, changing, and inspection of tools.

Machine Specifications

Control	SL200	SL250	SL300	SL450
Control Type	Fanuc® 0*i* Plus	Fanuc® 0*i* Plus	Fanuc® 0*i* Plus	Fanuc® 0*i* Plus

Travel

X- Axis	7.48 in (190 mm)	10 in -(255 mm)	10 in (255 mm)	11.8 in (300 mm)
Z-Axis	27.55 in (700 mm)	27.55 in (700 mm)	27.55 in (700 mm)	49.2 in (1,250 mm)

Table

Chuck Size	8 in (200 mm)	10 in (254 mm)	12 in (305 mm)	18 in (457.2 mm)
Swing Over Bed	16.93 in (430 mm)	23.62 in (600 mm)	23.62 in (600 mm)	26.4 in (670 mm)
Maximum Turning Diameter	12.6 in (320 mm)	17.71 in (450 mm)	17.71 in (450 mm)	22.4 in (570 mm)
Maximum Turning Length	25.59 in (650 mm)	25.59 in (650 mm)	25.59 in (650 mm)	45.3 in (1,150 mm)
Bore / Draw Tube	3.11 / 2.55 in (79 / 65 mm) Inner Diameter	3.54 / 3.07 in (90 / 78 mm) Inner Diameter	4 / 3.58 in (102 / 91 mm) Inner Diameter	1.57 / 4.6 in (40 / 117 mm) Inner Diameter

Spindle

Spindle Nose	A2-6	A2-8	A2-8	A2-11
Spindle Speed	4,000 rpm	3,000 rpm	3,000 rpm	2,000 rpm
Spindle Power	20 HP (14.9 kW)	25 HP (18.6 kW)	25 HP (18.6 kW)	24.8 HP (18.5 kW)
Spindle Motor Torque	72 ft. lbs (98 Nm Peak)	212 ft. lbs (288 Nm Peak)	212 ft. lbs (288 Nm Peak)	365 ft. lbs (495 Nm Peak)

Feed

Rapid Traverse (X, Z)	787 ipm (20 m/min)	787 ipm (20 m/min)	787 ipm (20 m/min)	787 ipm (20 m/min)

Turret and Magazine

Turret Stations / Size	10 / 1 in (25 mm)	10 / 1 in (25 mm)	10 / 1 in (25 mm)	12 / 1 in (25 mm)
Maximum Boring Bar	1.57 in (40 mm)	1.57 in (40 mm)	1.57 in (40 mm)	1.57 in (40 mm)
Positioning (VDI 3441)	+/- .0002 in (+/- .005 mm)	+/- .0002 in (+/- .005 mm)	+/- .0002 in (+/- .005 mm)	+/- .0006 in (+/- .0014 mm)
Repeatability (VDI 3441)	+/- .00012 in (+/- .003 mm)	+/- .00012 in (+/- .003 mm)	+/- .00012 in (+/- .003 mm)	+/- .0004 in (+/- .01 mm)

Space and System Requirements

Machine Net Weight	11,902 lbs (5,400 kg)	15,432 lbs (7,000 kg)	15,510 lbs (7,050 kg)	18,708 lbs (8,100 kg)

Standard Items:

- True 45-degree slant bed
- Hardened and ground box ways on all axes
- Brushless Fanuc® AC servos
- Doublenut pre-loaded pretensioned X/Z axis ballscrews are 1.57" (40 mm) with 10 mm pitch
- Fanuc® AC spindle motor and drive
- Heavy duty belt driven spindle
- Maintenance-free cartridge spindle with permanently greased bearings
- Bi-directional hydraulic turret
- Hydraulic tailstock mounted on box ways

Optional Items:

- Oil skimmer
- Bar feeder interface connector
- Collet chuck

Information may change without notice. Optimum machine performance is reliant upon installation conditions at the facility, such as power supply, air supply, and ambient air conditions.

TAKUMI®

When precision matters.

TAKUMI®

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HURCO COMPANIES, INC.

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