



The Art of Precision

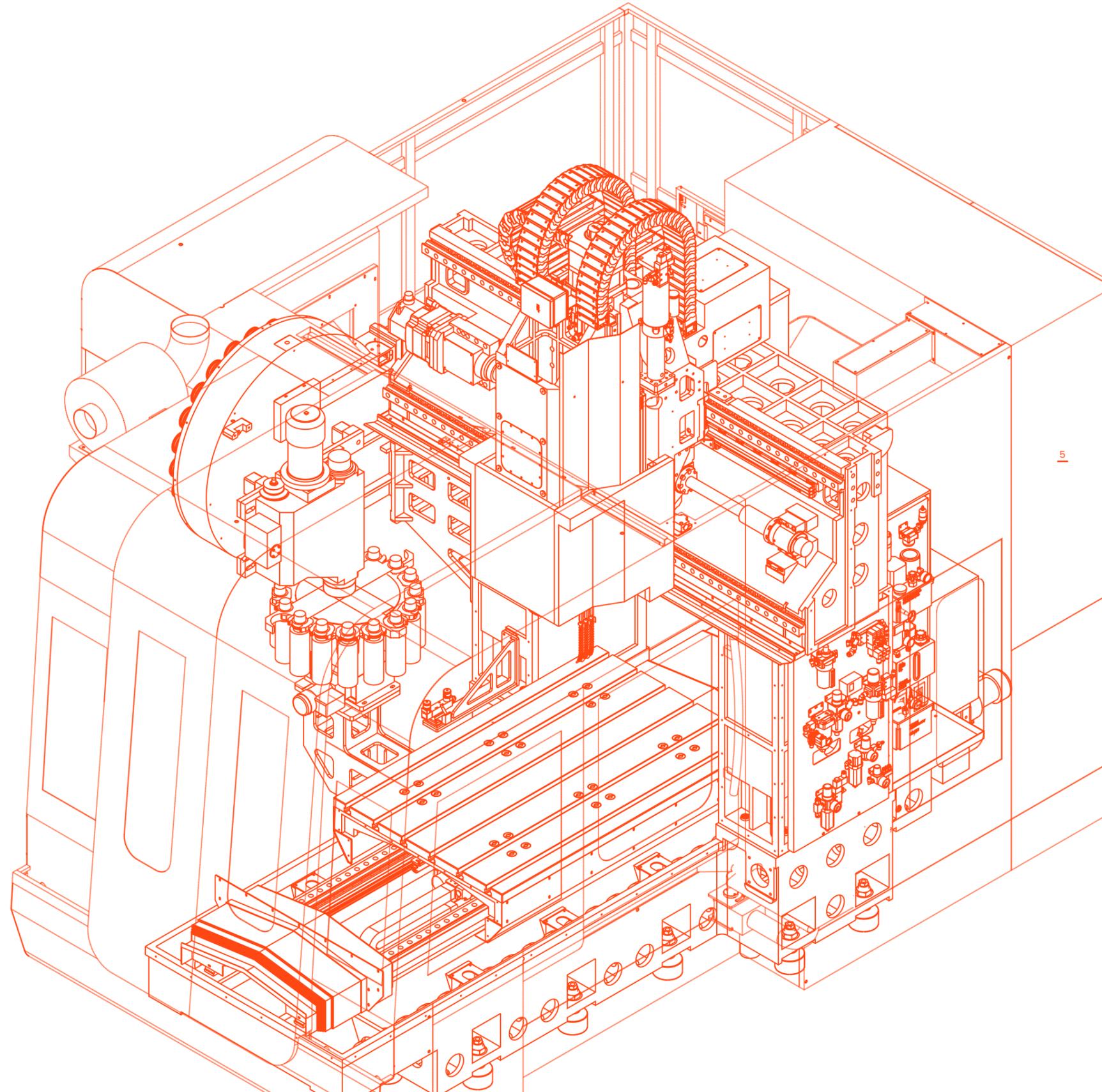
3-Axis Bridge Type Machining Center

Takumi.
The industry standard.

Closer to our customers,
dependable in our per-
formance: As Takumi
stands for mechanical
engineering in highest
level 4 its products are
always a secure invest-
ment in the future.

The Takumi Philosophy

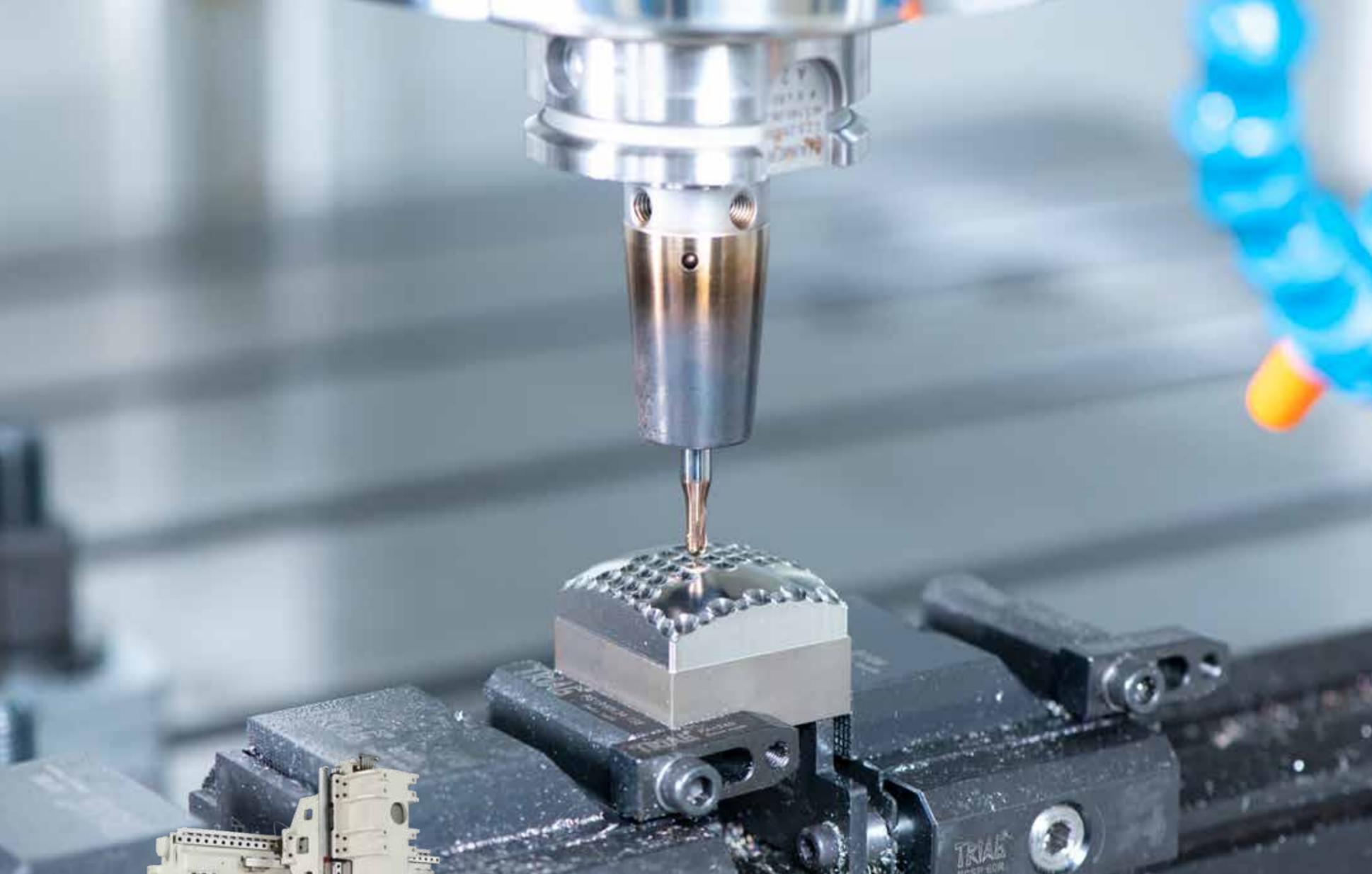
Takumi stands out
thanks to our pursuit of
perfection combined
with our minimal waste
philosophy - and has
for over 30 years.





Takumi stands for unrivaled quality consciousness and strives for the highest level of precision.

The Takumi name originates from the Japanese, in which it equates with craftsmanship and a tradition of quality. It is precisely these values that have always defined how Takumi manufactures its CNC machining centers. It is in our DNA to demand that our customers consistently receive machines embodying first-class quality, manufactured exclusively using components from the premiere producers and technical specialists with whom we maintain long-term partnerships. All Takumi products are crafted in conformity with the ISO 9001:2008 quality management standard.



The Bridge type design concept of Takumi machining centers ensures maximum precision - in every single workpiece.

H as in High End:

The H-Series Bridge Type Machining Centers

The 3-axis Bridge type machining centers exemplify first-class performance in highly dynamic mold-and-die manufacturing applications, as demonstrated in both surface quality and consistent precision. These multifaceted CNC machines achieve absolutely optimal results regardless of product size, extending from machining small components during microforming to processing large and particularly heavy parts. Outstanding mechanical precision and low-vibration machining operations combine with excellent thermal stability to produce surfaces that continue to meet the most stringent demands for quality and precision throughout extensive running times, eliminating the need for extensive post-machining finishing processes.

H-Series Highlights:

- » Thermal dimensional stability thanks to solid, substantial and rigid Bridge type design
- » Conceived for workpieces with stringent demands for accuracy and surface quality
- » Low spindle overhang (distance between spindle axis and suspension) enhances torsional rigidity to minimize the potential for vibration.
- » Bridge type frame featuring stepped design improves force distribution into the main bed while enhancing the spindle head's dynamic response
- » Swiveling control unit for optimal ergonomics
- » Doors open extra-wide for easier loading and unloading
- » Generously dimensioned cabin windows for optimal visibility
- » Rugged, precision-machined cast components
- » Hand scraped contact surfaces on the linear guides
- » Roller guides on all axes for additional rigidity
- » Integrated chip flushing and chip management system
- » Carefully configured cooling system combines with cleverly conceived sensor system to create the thermal stability needed to satisfy demands for precision during extending machining sessions
- » Absolute direct measuring systems for fast machine startup
- » In-line and motorspindles furnish high rotation speeds and torques, depending on your own specific requirements

H-SERIES

At home in demanding manufacturing sectors

Aeronautics

There is hardly any other industry that makes such uncompromising demands for extended service life along with quality and perfection embracing the most minute details. It is these challenges that make aerospace firms the ideal customers for Takumi. After all, we are also uncompromising when it comes to the quality of our products.

In our drive to deliver perfect machine tools to the aircraft industry, we focus on the following assets:

- » Torsionally rigid machine structure featuring high-density Meehanite casting
- » Massively solid supporting elements designed to absorb process oscillations and vibrations
- » Hand scraped support surfaces for machine components and guides



First-class performance for dynamic applications Machines from Takumi provide reliable precision with no need for time consuming finishing processes.



Automotive

Assured calculation security assumes prime priority among our customers in the automotive sector. Takumi supplies this security with machines bearing a name synonymous with reliability and long life. Our depot in Pliening near Munich operates in tandem with our proven logistics partners to ensure rapid response to requests for replacement components and wear parts.

This is why the automotive industry can place 100% confidence in machines from Takumi:

- » Exclusive reliance on premium components
- » Process reliability through carefully conceived discharge of chips and shavings along with wear-resistant materials
- » Rapid delivery of replacement and wear parts



Aerospace

This is a market in which high production numbers are irrelevant as the focus remains firmly fixed on uncompromising quality, sometimes in production batches consisting of a single part. To achieve this level of perfection in every part and component, our clients need machines with quick, streamlined set-up procedures.

Our machines place priority on these assets:

- » User convenience
- » Excellent machine access
- » Ergonomically ideal control environment



Energy sector

Regardless of whether the task entails machining non-ferrous metals in semiconductor and PCB production or milling tough high-alloy materials for application in such sectors as weather-resistant gear-unit components and housings in wind turbine generators: The Takumi H-Series shines with the vibration-attenuating attributes provided by its bridge type design, offering unexcelled precision encompassing everything from HSC High Speed Cutting (models H6 – H10) to machining medium-sized and large parts (models H12 – H32).



Technology and machining center systems

Is every machining center unique? Is each component's design a special solution to meet individual customer requirements? When the object is to evolve individual solutions to meet ultimate demands for flexibility and agility, Takumi is right in its element. With our support, you can be sure that no position will be missed and no angle will be beyond reach. We help you set new records in reducing the time between set-up and the first shaving while also diminishing downtime to an absolute minimum.

Precision is our trademark

Typically Takumi: The robust, solidly substantial structure and high thermal stability guarantee maximum precision, even in the face of temperature fluctuations.

These properties allow Takumi to achieve maximum precision:

- » Torsionally rigid machine structure featuring high-density Meehanite casting.
- » Support elements feature a sturdy structure to absorb vibrations and oscillations during processing.
- » Design incorporates reinforcement bracing for moving components to ensure maximum torsional rigidity.
- » Stepped construction concept reduces mass and spindle overhang to enhance dynamic response and rigidity.
- » Pretensioned ball bearing spindles with cooled core along with spindle stock equipped with cooling jacket for thermal stability.
- » Sensor system for thermal compensation of spindle expansion.
- » Linear scales to ensure precise positioning and repeatability.
- » Reliable oil separators prevent the emulsion from breaking down.

At Takumi, precision is the result of designs featuring extreme torsion resistance and thermal stability.



High-End in the Compact Class

H6/H7/H10

The universal and dynamic high-speed bridge type machine centers for small components satisfy maximum demands with minimal space requirements.

- » Motor spindles for up to 36,000 rpm
- » User-friendly, ergonomically optimized access for loading
- » Stable and rigid Bridge type design featuring reliable resistance to high temperatures
- » Absolute direct measuring systems
- » Thermal compensation system for spindle
- » Cooling system for the recirculating ball-screw assembly
- » Internal coolant feed through the spindle (CTS 30 bar)
- » Spindle cooler

Designation	H6	H7	H10
Travel			
X-axis (mm)	600	750	1,020
Y-axis (mm)	600	600	700
Z-axis (mm)	350	500	500
Arbeitsbereich			
Machine table L x B (mm)	600 x 600	810 x 620	1,050 x 700
Table load (uniform) (kg)	500	500	800

Products may vary from catalog illustrations



The bespoke solution for your application

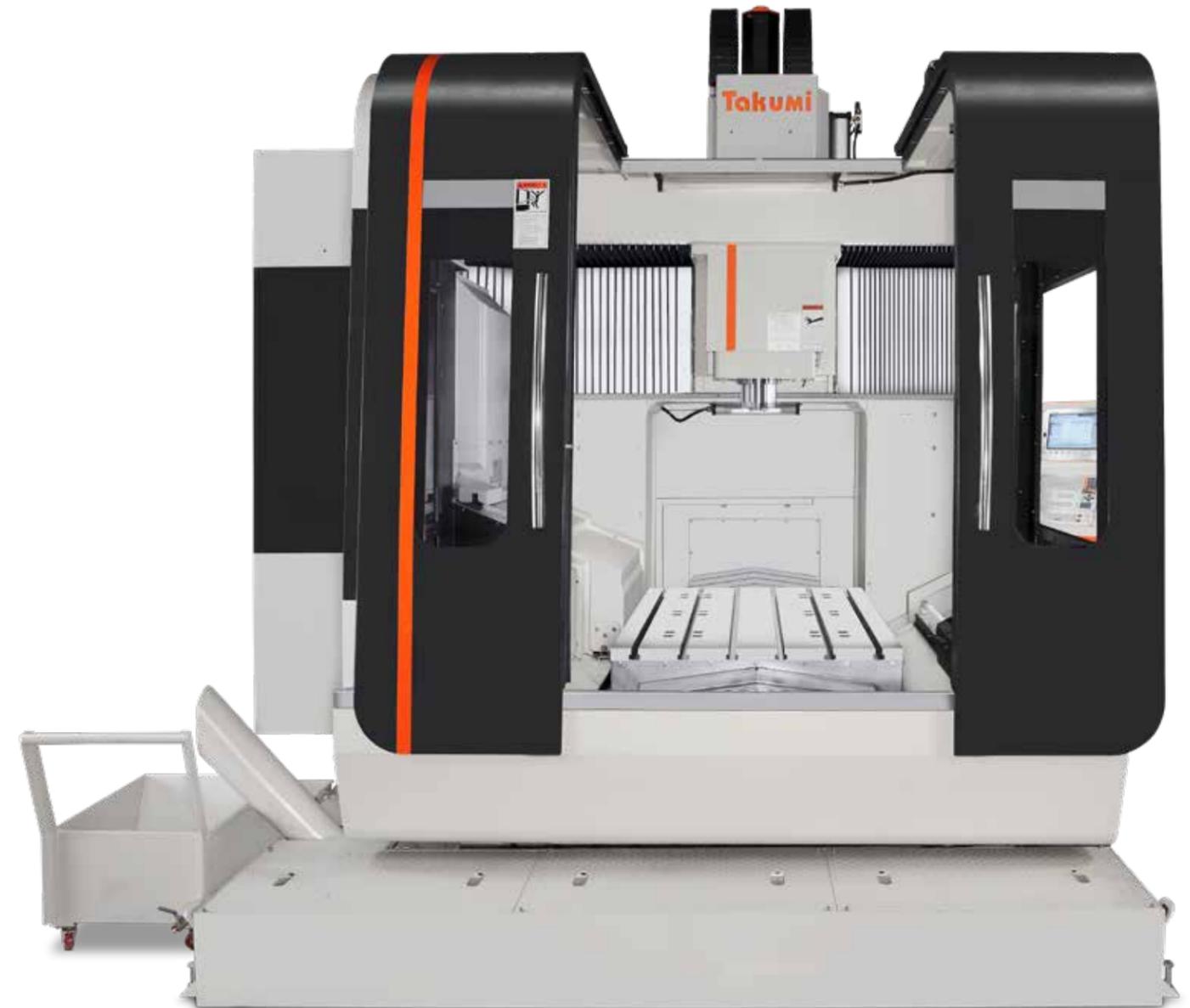
H12/H13/H16

The Bridge type machining centers for medium-sized parts are distinguished by exceptional versatility and precision: This produces perfect results with optimal efficiency in both time and costs.

- » Ideal for crane loading
- » Extreme rigidity and dynamic response for perfect milling results
- » User-friendly, ergonomically optimized access for loading
- » Stable and rigid bridge type design featuring reliable resistance to high temperatures
- » Absolute direct measuring systems
- » Thermal compensation system for spindle
- » Cooling system for the recirculating ball-screw assembly
- » Internal coolant feed through the spindle (CTS 30 bar)
- » Spindle cooler

Designation	H12	H13	H16
Travel			
X-axis (mm)	1,350	900	1,600
Y-axis (mm)	950	1,300	1,300
Z-axis (mm)	600	700	700
Arbeitsbereich			
Machine table L x B (mm)	1,500 x 960	900 x 1,400	1,900 x 1,300
Table load (uniform) (kg)	2,500	3,500	6,000

Products may vary from catalog illustrations



Versatile allrounder with impressive support capacity

H22S / H22T / H32S / H32T

Your production part defines our engineering approach: Takumi supplies the right table size for every part, regardless of size and weight. With us, the quest for perfection means building the ideal machine for your demands.

- » Optimized for large and heavy workpieces
- » Extended door opening angles for extra convenience when loading the machine
- » Stable and rigid Bridge type design featuring reliable resistance to high temperatures
- » Absolute direct measuring systems
- » Thermal CTS compensation system for spindle
- » Cooling system for the recirculating ball-screw assembly
- » Internal coolant feed through the spindle (CTS 30 bar)
- » Spindle cooler

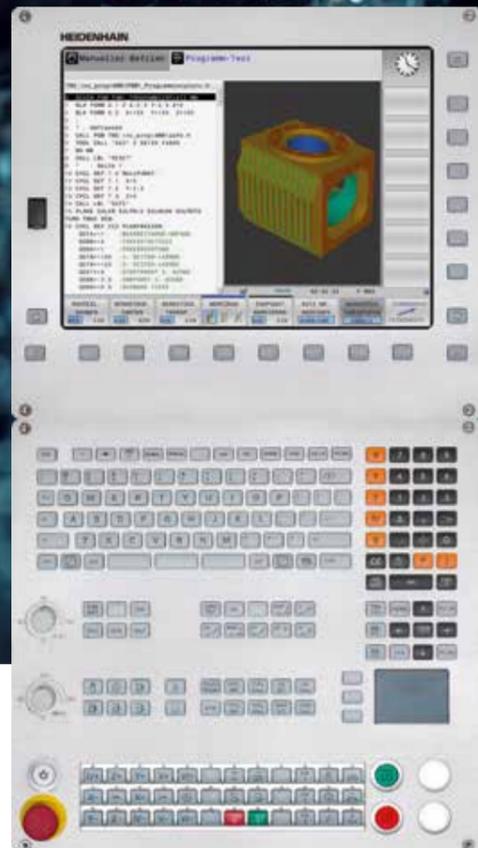


Designation	H22S	H22T	H32S	H32T
Travel				
X-axis (mm)	2,200	2,200	3,200	3,200
Y-axis (mm)	1,650	2,250	1,650	2,250
Z-axis (mm)	800	800	800	800
Arbeitsbereich				
Machine table L x B (mm)	2,400 x 1,600	2,400 x 2,100	3,320 x 1,600	3,320 x 2,100
Table load (uniform) (kg)	8,000	8,000	8,500	8,500

Products may vary from catalog illustrations

Heidenhain TNC 640

The latest controls for modern
production orders



The latest in CNC control systems for milling machines and lathes is superbly suited for dynamic processing of complex three-dimensional geometries with high data content using 5-axis machining centers with pivot bridges or heavy-duty machines with forked swivel heads. It is not for nothing that the clear, convenient and user-friendly control system with its intuitive cycle programming features has advanced to become the standard by which others are measured. The simple controls combine with the robust, modern design to guarantee maximum machining speeds along with unparalleled precision.

Discover the advantages of the Heidenhain control system in the Takumi machining center

Success lies in the details

The Heidenhain TNC 640 control system impresses with extensive equipment and capabilities:

Standard:

- » Dialog programming
- » ISO NC programming
- » FK open contour programming
- » Expanded milling and boring cycles
- » Touch probe system cycles
- » Heidenhain DNC parallel programming
- » Integrated help system
- » Simulation graphics
- » Block scan of up to 1,024 blocks
- » Block processing time of 0.5 ms
- » ≥ 21 GB data memory capacity
- » ≥ 2 GB RAM
- » 15.1-inch LCD display
- » Smallest input increment of 0.01 μm or 0.0001°
- » 2 Gigabit Ethernet adapters
- » 4 USB ports
- » RS-232-C and RS-422 interface
- » Expanded data interface for remote access

Optional:

- » DXF converter
- » CAD import
- » Adaptive Feed Control (AFC)
- » Dynamic Collision Monitoring (DCM)
- » 4th and 5th Axis
- » Heidenhain DNC
- » Remote Desktop Manager
- » Extended tool administration
- » Dynamic precision
- » Dynamic efficiency

The Takumi bridge type machining centers are equipped with the latest version of the Heidenhain TNC 640 control system.

This provides clear advantages for our users:

- » Multifaceted continuous path control with as many as five controlled axes and regulated spindle
- » Programming functionality with shop-floor orientation featuring graphic support
- » Multiple cycles reflecting real-world conditions
- » User-friendly operating concept

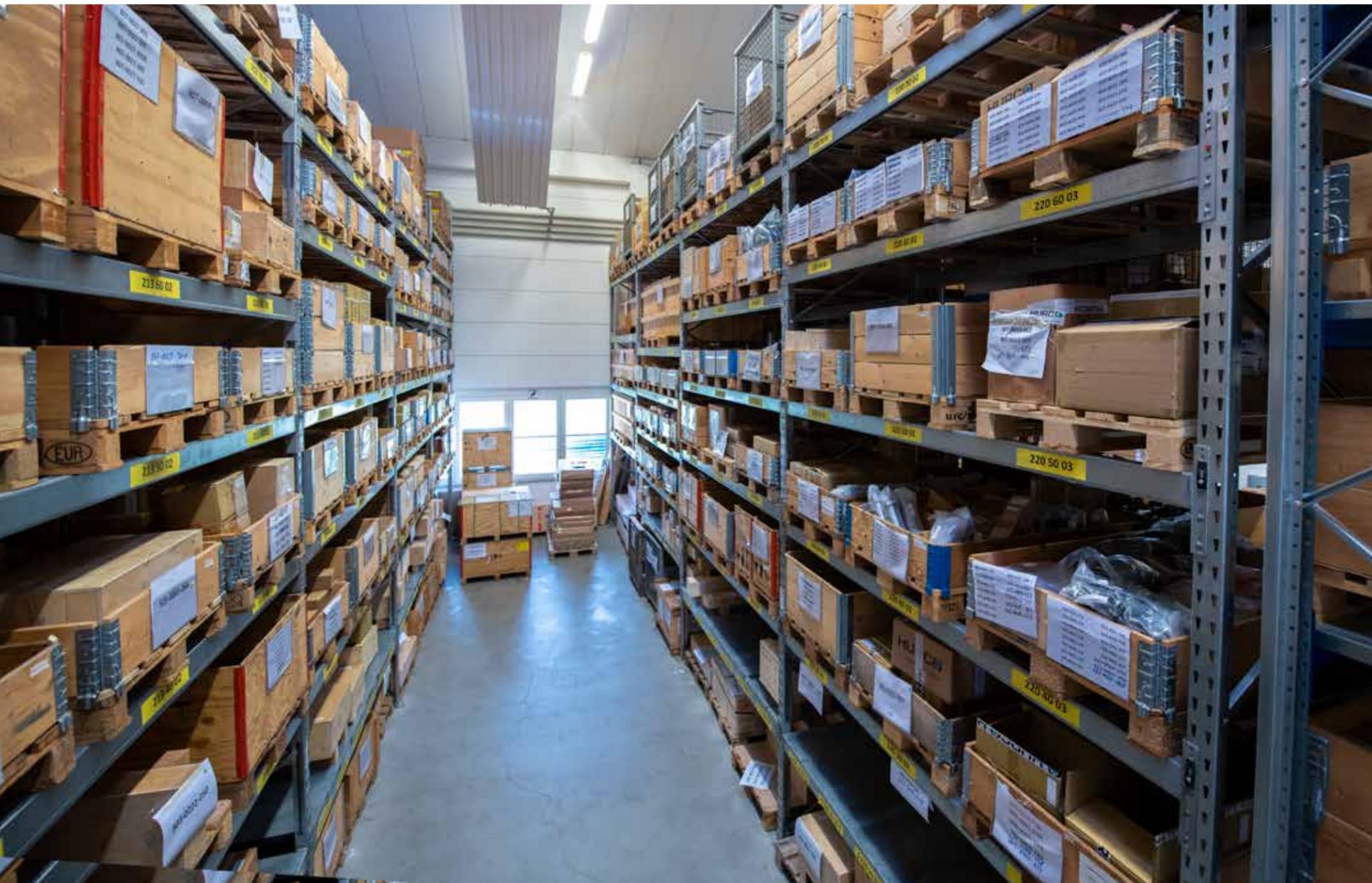
Takumi CNC machining centers operate in optimized harmony with Heidenhain drive systems and Heidenhain control systems to guarantee a perfect synergy of man and machine. And Takumi's CNC experts receive continuous training and advanced instruction on Heidenhain control systems so they are always ready to support our customers while responding to every information request with results-oriented competence. The outstanding performance potential and unrelenting orientation toward results inspire the tremendous trust that our customers place in our technology as demonstrated in partnerships and customer relationships extending over many years.

Your demands, our solution: The Takumi service pledge

At Takumi, a customer-support team numbering almost 100 staff members is standing by to provide you with effective assistance whenever you need it.

We remain close to our customers at every level – personal, technical and geographical – and we are unequivocally committed to joining you in extracting maximum quality and productivity from your Takumi. Our CNC technical specialists receive ongoing instruction including regular basic and advanced training courses at Heidenhain. To us, service means consistently focusing on our customers' requirements by finding fast and flexible solutions for their individual needs. As consistent reliability and unexcelled quality form the foundation of our firm's philosophy.

You order and we deliver: Our Next-Day-Delivery Guarantee
In order to satisfy the daily requests and challenges from our customers while consistently maintaining smooth production sequences, we guarantee that almost 40,000 spare parts will remain continuously available and ready for shipment at all times. At our disposal is a super-modern and highly efficient spare parts depot housing an extensive product range embracing everything from high-performance spindles to tool changers. You ask for it, we deliver it: Fast and uncomplicated.



Production overview and specifications

Designation	H6	H7	H10	H12	H13	H16	H22S	H22T	H32S	H32T
Travel										
X-axis (mm)	600	750	1,020	1,350	900	1,600	2,200	2,200	3,200	3,200
Y-axis (mm)	600	600	700	950	1,300	1,300	1,650	2,250	1,650	2,250
Z-axis (mm)	350	500	500	600	700	700	800	800	800	800
Operating range										
Spindle nose-table (mm)	120 - 470	150 - 650	180 - 680	200 - 800	150 - 850	150 - 850	150 - 950	150 - 950	150 - 950	150 - 950
Distance between columns (mm)	680	850	1,080	1,060	1,500	1,500	1,750	2,350	1,750	2,350
Machine table L x B (mm)	600 x 600	810 x 620	1,050 x 700	1,500 x 960	900 x 1,400	1,900 x 1,300	2,400 x 1,600	2,400 x 2,100	3,320 x 1,600	3,320 x 2,100
Table load (uniform) (kg)	500	500	800	2,500	3,500	6,000	8,000	8,000	8,500	8,500
Main spindle										
Spindle taper	HSK 40 E	HSK 63 A / SK 40 ^{BigPlus}	HSK 63 A / SK 40 ^{BigPlus}	HSK 63 A / SK 40 ^{BigPlus} SK 50 ^{BigPlus}	HSK 63 A / SK 40 ^{BigPlus} SK 50 ^{BigPlus}	HSK 63 A / SK 40 ^{BigPlus} SK 50 ^{BigPlus}	HSK 63 A / SK 40 ^{BigPlus} SK 50 ^{BigPlus}	HSK 63 A / SK 40 ^{BigPlus} SK 50 ^{BigPlus}	HSK 63 A / SK 40 ^{BigPlus} SK 50 ^{BigPlus}	HSK 63 A / SK 40 ^{BigPlus} SK 50 ^{BigPlus}
Max. spindle speed (rpm)	36,000 - 42,000 ¹	15,000 - 24,000 ¹	15,000 - 24,000 ¹	15,000 - 24,000 ¹	15,000 - 24,000 ¹	15,000 - 24,000 ¹	15,000 - 24,000 ¹	15,000 - 24,000 ¹	15,000 - 24,000 ¹	15,000 - 24,000 ¹
SI/S6 Spindle power (kW)	11 - 15 ¹	10 - 45 ¹	10 - 45 ¹	10 - 43 ¹	10 - 43 ¹	10 - 43 ¹	10 - 43 ¹	10 - 43 ¹	10 - 43 ¹	10 - 43 ¹
SI/S6 Spindle torque (Nm)	7 - 14 ¹	29 - 140 ¹	29 - 140 ¹	64 - 227 ¹	64 - 227 ¹	64 - 227 ¹	64 - 227 ¹	64 - 227 ¹	64 - 227 ¹	64 - 227 ¹
Feed										
X/Y/Z-axis rapid traverse (m/min)	30 / 30 / 30	32 / 32 / 32	32 / 32 / 32	30 / 30 / 30	30 / 30 / 30	30 / 30 / 30	20 / 20 / 20	20 / 16 / 20	16 / 20 / 20	16 / 16 / 20
X/Y/Z-axis cutting feed (m/min)	12	20	20	20	20	20	12	12	12	12
Tool changer										
Tool changer design	Pick-Up	Arm	Arm	Arm	Arm	Arm	Arm	Arm	Arm	Arm
Magazine capacity	20	24	30 - 50 ¹	30 - 90 ¹	30 - 90 ¹	30 - 90 ¹	30 - 90 ¹	30 - 90 ¹	30 - 90 ¹	30 - 90 ¹
Max. tool diameter (mm)	75	75	75	75	75	75	75	75	75	75
Diameter with empty pockets (mm)	100	120	120	120	120	120	120	120	120	120
Max. tool length (mm)	200	300	300	300	300	300	300	300	300	300
Max. tool weight (kg)	1,5	7	7	7	7	7	7	7	7	7
Other data										
Air supply (bar)	6	6	6	6	6	6	6	6	6	6
Electrical power supply (kVA / A)	30 / 50	50 / 72	50 / 72	60 / 87	75 / 160	75 / 160	75 / 160	75 / 160	75 / 160	75 / 160
Shipping weight (kg)	5,500	7,000	9,100	13,000	18,000	22,000	27,000	31,000	33,000	37,000
Required floor space (mm)	2,430 x 2,310 x 2,655	2,730 x 2,320 x 2,760	2,730 x 2,730 x 3,050	4,450 x 3,890 x 3,500	3,300 x 3,790 x 3,940	3,300 x 4,360 x 3,980	4,830 x 6,740 x 3,950	5,460 x 6,740 x 3,950	4,860 x 8,310 x 3,950	5,460 x 8,310 x 3,950

Standard

- » Heidenhain control system: H 6: TNC 620, H 7-H 32: TNC 640
- » H 6: 36,000 rpm, HSK 40 E, motor spindle
- » H 7 - H 32: 15,000 rpm, SK 40 BigPlus, in-line spindle
- » H 7-H32: Internal coolant feed through the spindle (CTS 30 bar)
- » System to compensate for thermal expansion
- » H22-H32 spindles: Cooling system for the recirculating ball-screw assemblies

¹ according to equipment level

Optional

- » Tool and part probe
- » Rotary table (4th/5th axis)
- » H7/H16: Cooling system for the recirculating ball-screw assembly
- » H7-H32: Internal coolant feed through the spindle (ICF 70 bar)

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Devotion to quality and
precision inspired by Japan.



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