

# MITSUBI SEIKI

## 5-AXIS

SIMULTANEOUS CONTROL  
MACHINING CENTER SERIES

# mitsui seiki

# 5-AXIS

## SIMULTANEOUS CONTROL MACHINING CENTER SERIES

Page

**2** Introduction

**14** General Features and  
Benefits

**22** Trunnion Type  
Horizontal Machining Centers

**HU50A-5X**  
**HU63A-5X**  
**HU80A-5X**  
**HU100A-5X**  
**HU100A-5XL**

**30** Table on Table Type  
Horizontal Machining Centers

**HU40-T**  
**HU50-T**  
**HU63-T**  
**HU100-T**

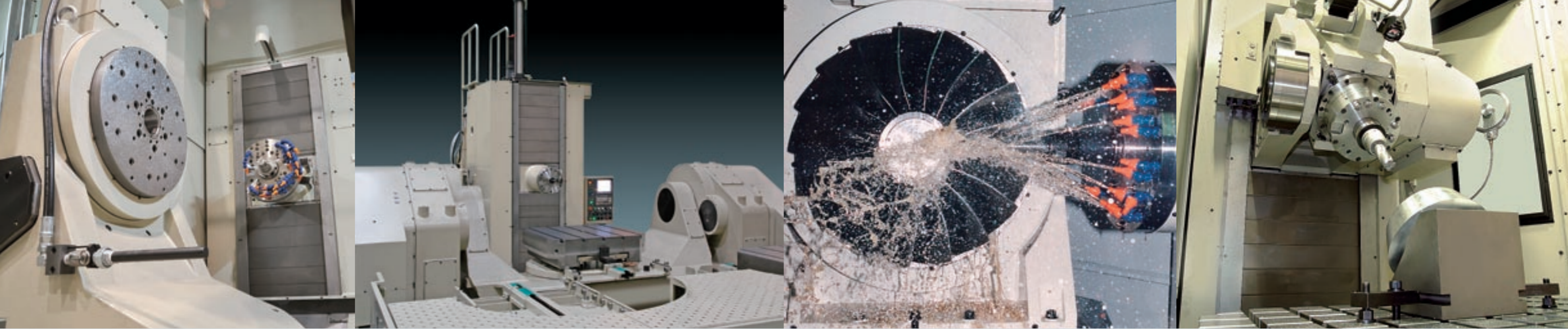
**36** Tilt Spindle Type  
Horizontal Machining Centers

**HU100-TS**

**40** Trunnion Type  
Vertical Machining Centers

**Vertex550-5X**  
**Vertex750-5X**  
**VL30-5X**

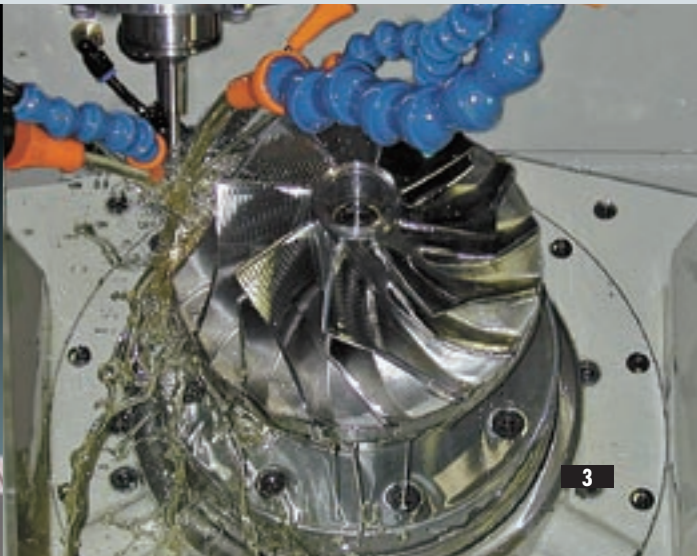
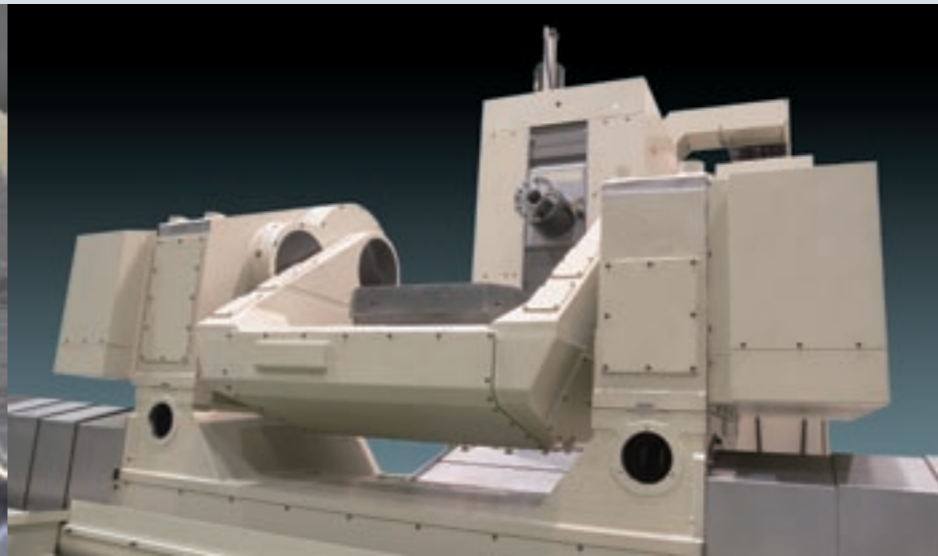
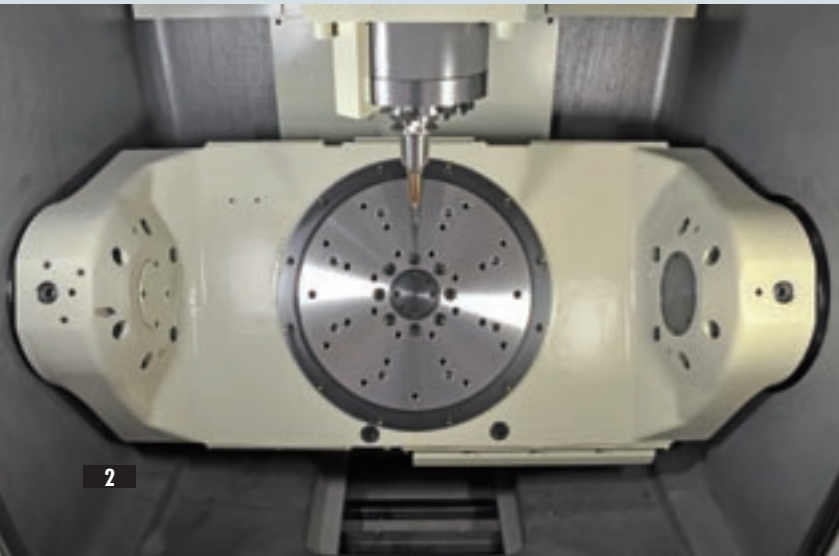
**48** Application Examples

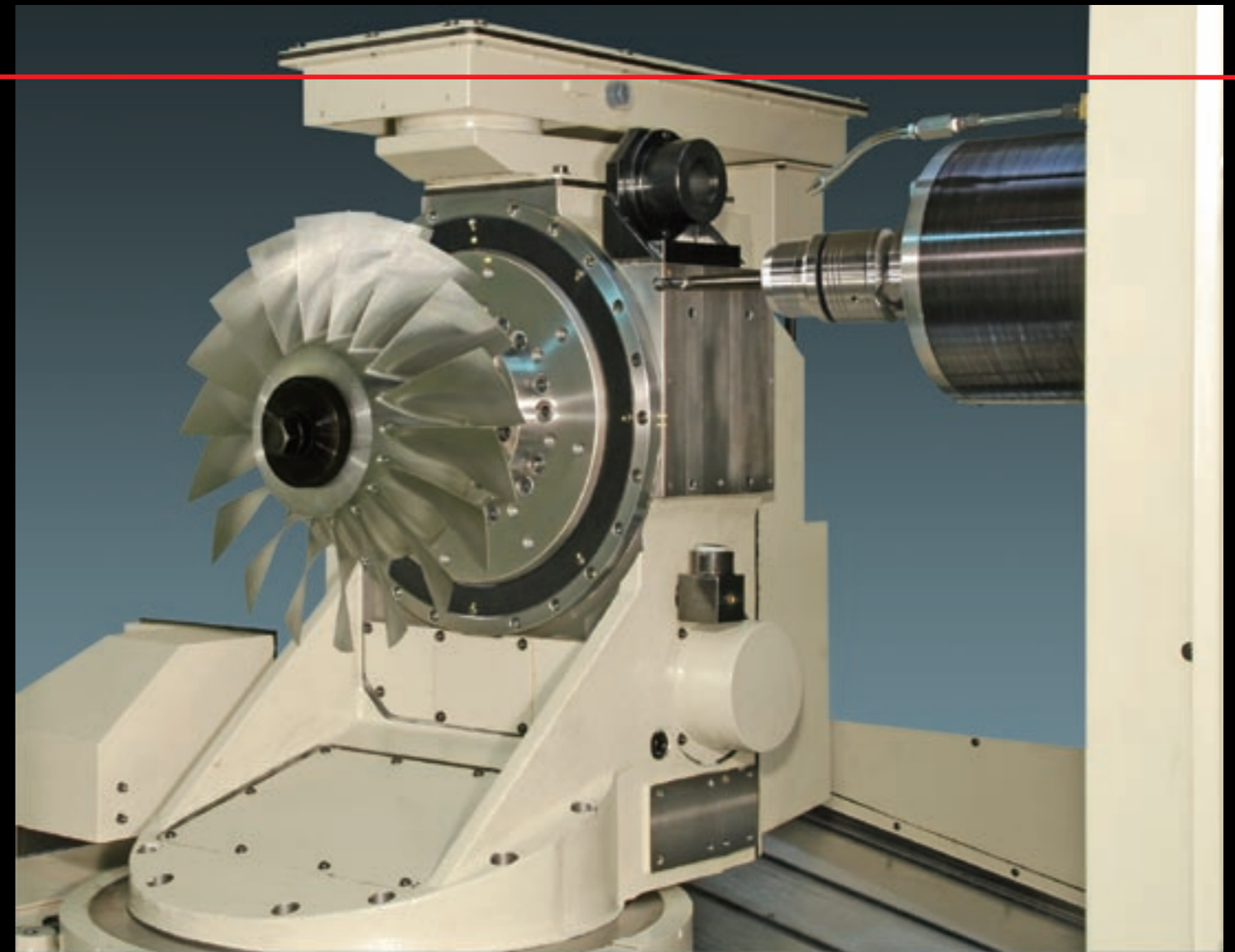


**Mitsui Seiki is the leader in developing 5-axis machining centers for complex machined components for global original equipment manufacturers, top tier suppliers, and contract shops.**

Mitsui Seiki's strategy for the development of 5-axis machining centers is based on market-leading technical advancements addressing specific customers' needs and a long history of applying engineered solutions. In the 1970s, we developed one of the first "table on table" (C-axis table mounted on the B-axis rotary table) machines, offering full 5-axis contouring capabilities

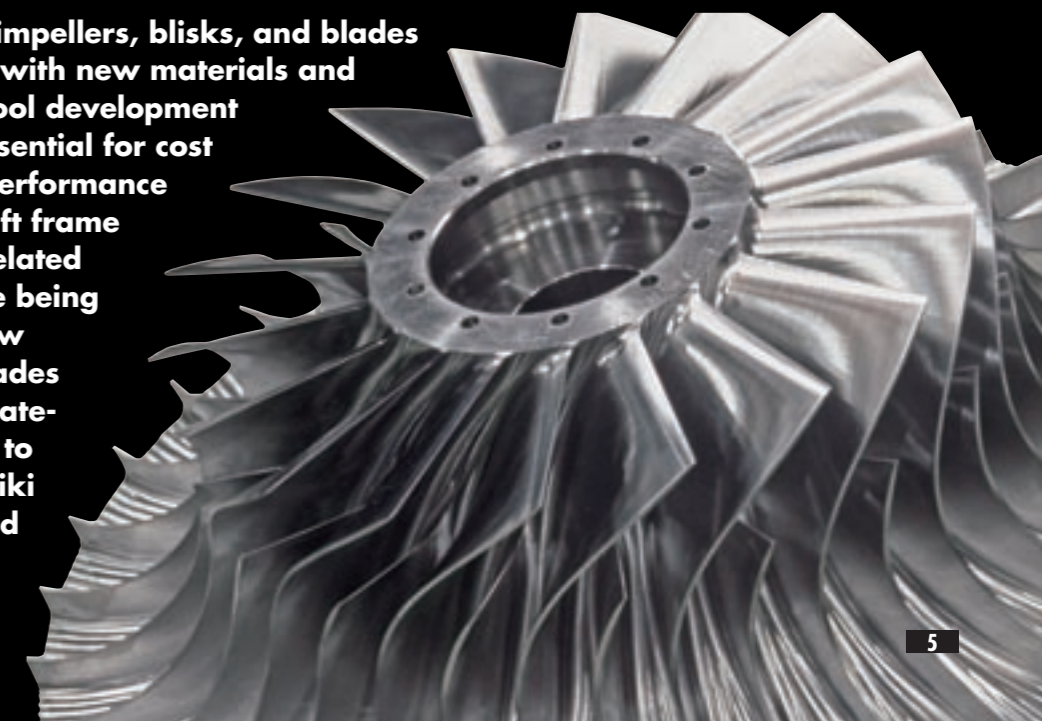
for aircraft engine components. In 1986, we unveiled the HS5A-5X trunnion type horizontal machining center. Today, we lead globally in 5-axis machine tool product diversity for the most demanding, high accuracy applications. This brochure outlines these machines and several of the applications, and attests to the accuracy, efficiency, and acceptance of these products globally.

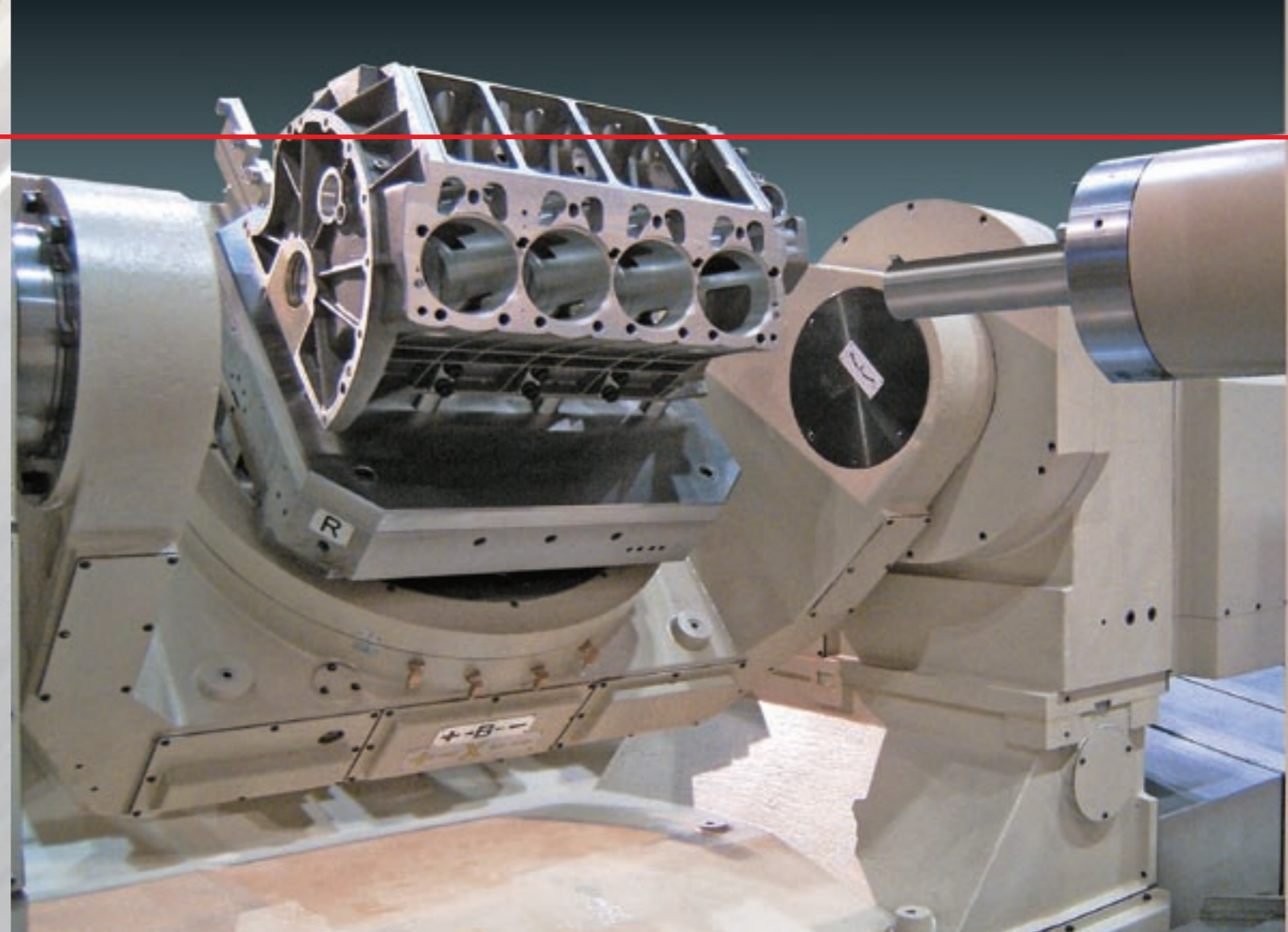




**Aerospace parts manufacturing...Complex part geometries and long cycle times are best processed with efficient 5-axis machining centers.**

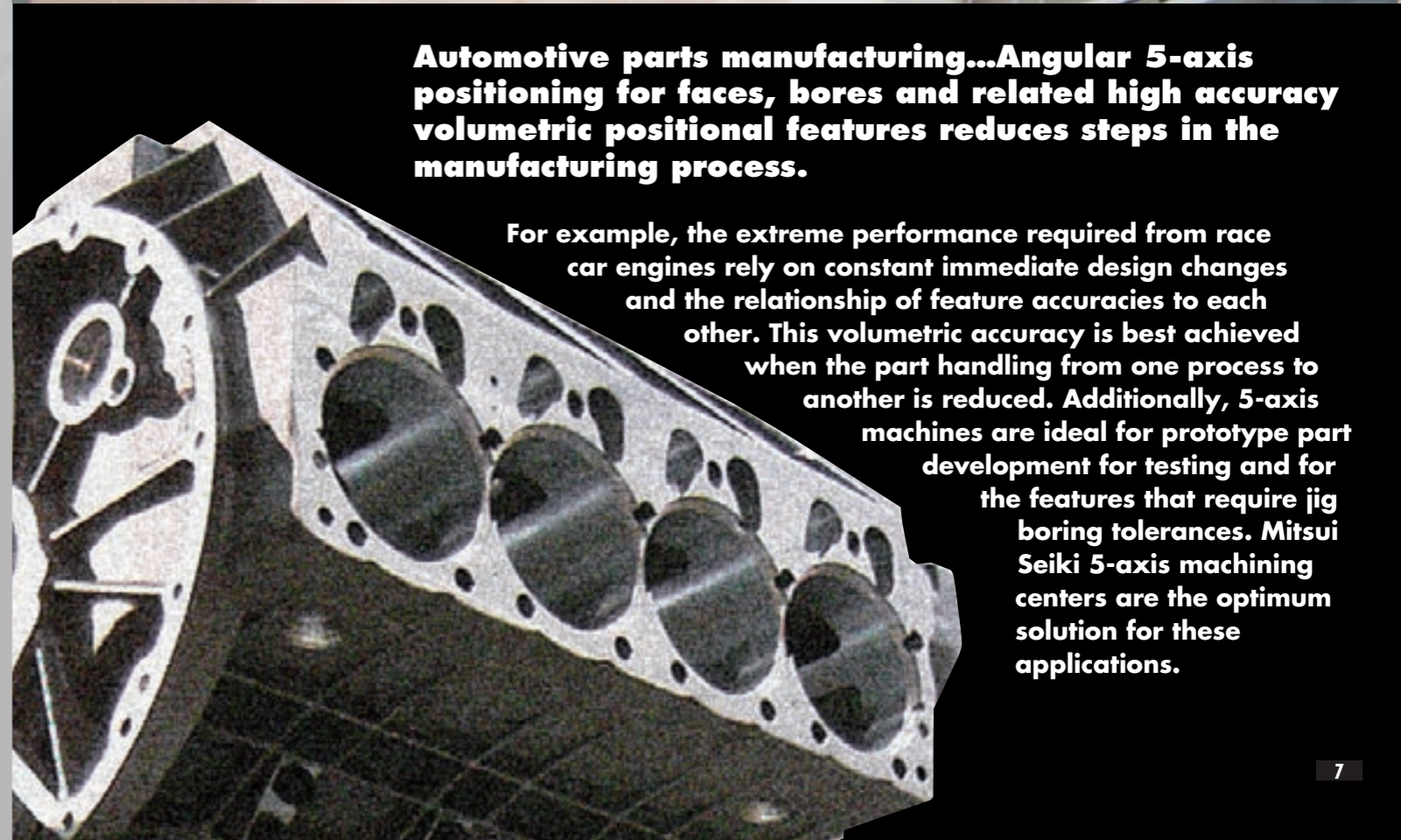
Jet engine components including impellers, blisks, and blades are continually being redesigned with new materials and geometries. Continual machine tool development and applications expertise are essential for cost reduction and improved engine performance for these parts. Manifolds, aircraft frame components, landing gear, and related structural aircraft components are being designed with new materials. New titanium, steel, and composite grades are expensive. Those high raw material costs are driving the demand to reduce machining costs. Mitsui Seiki 5-axis machine tools have evolved to meet this demand.



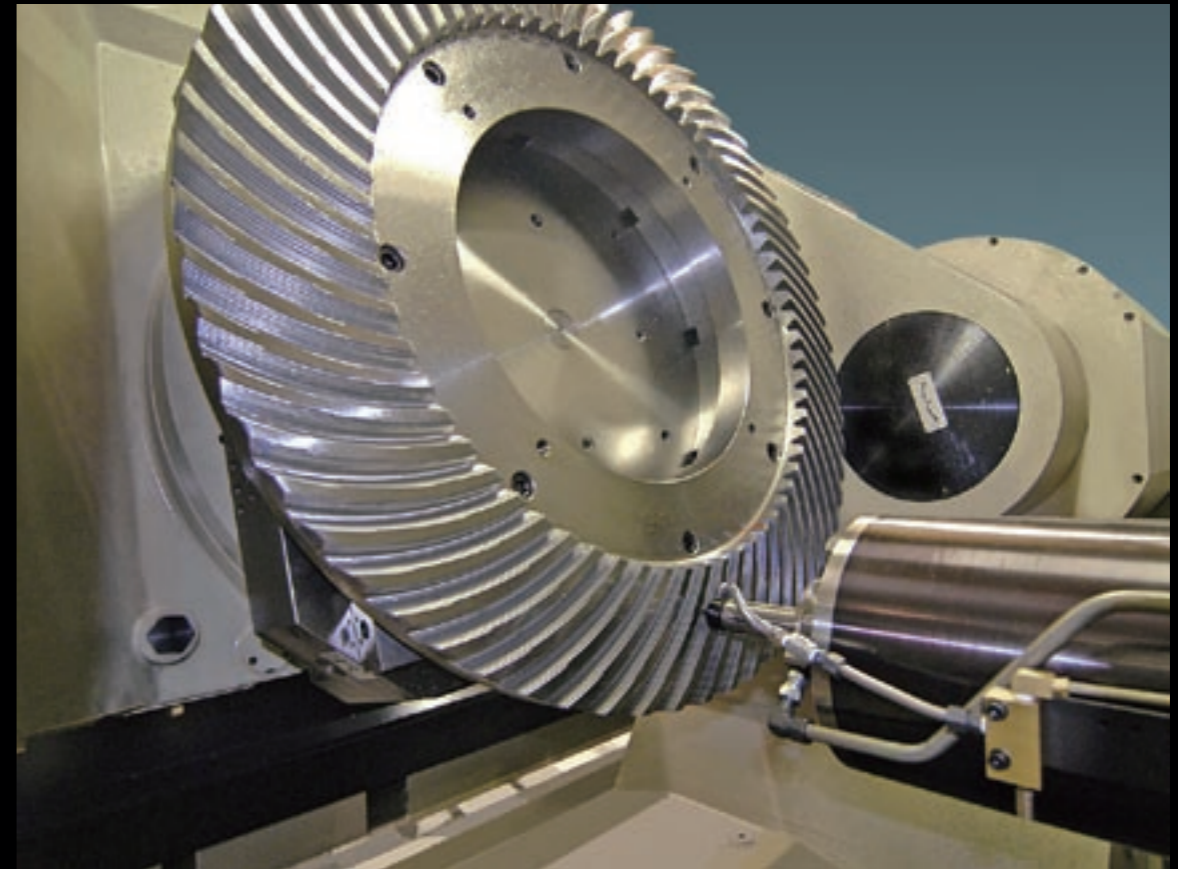
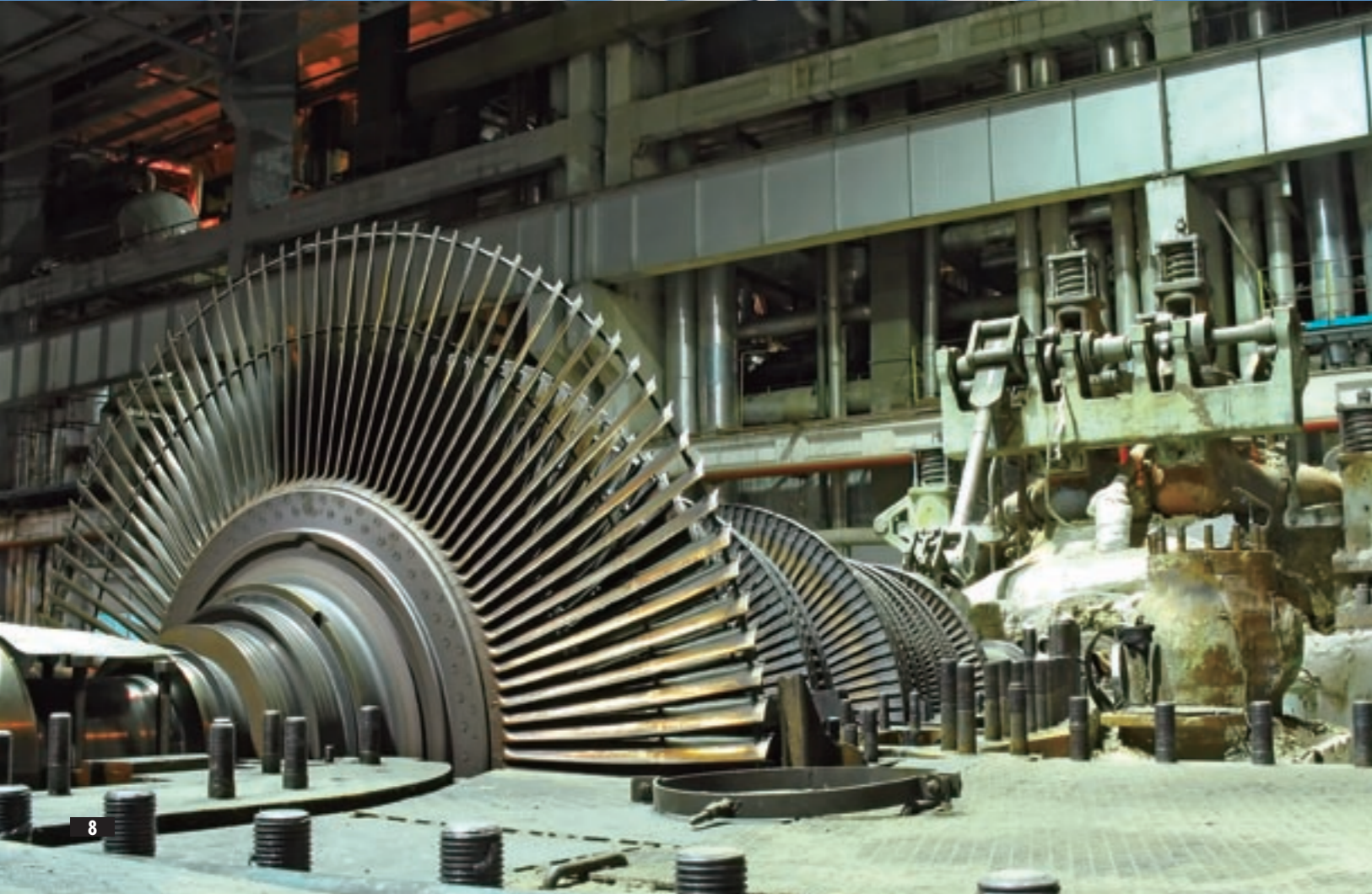


**Automotive parts manufacturing...Angular 5-axis positioning for faces, bores and related high accuracy volumetric positional features reduces steps in the manufacturing process.**

For example, the extreme performance required from race car engines rely on constant immediate design changes and the relationship of feature accuracies to each other. This volumetric accuracy is best achieved when the part handling from one process to another is reduced. Additionally, 5-axis machines are ideal for prototype part development for testing and for the features that require jig boring tolerances. Mitsui Seiki 5-axis machining centers are the optimum solution for these applications.



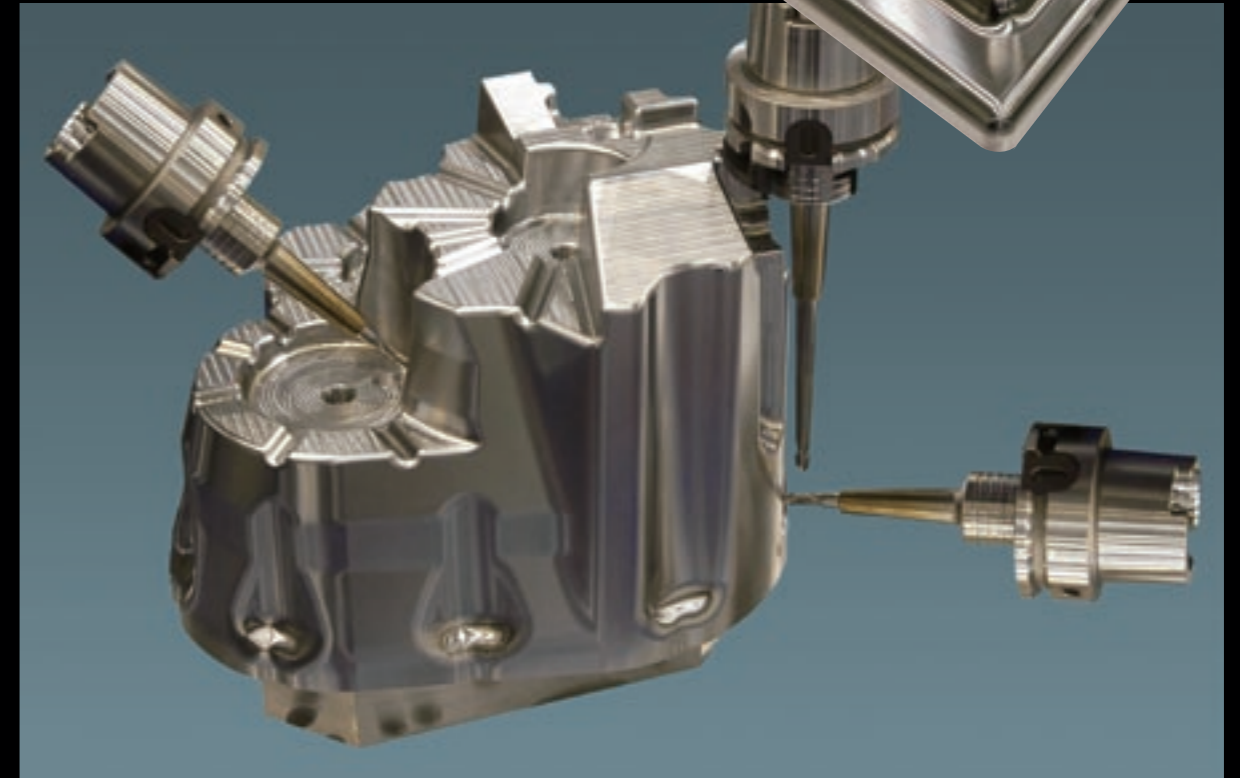
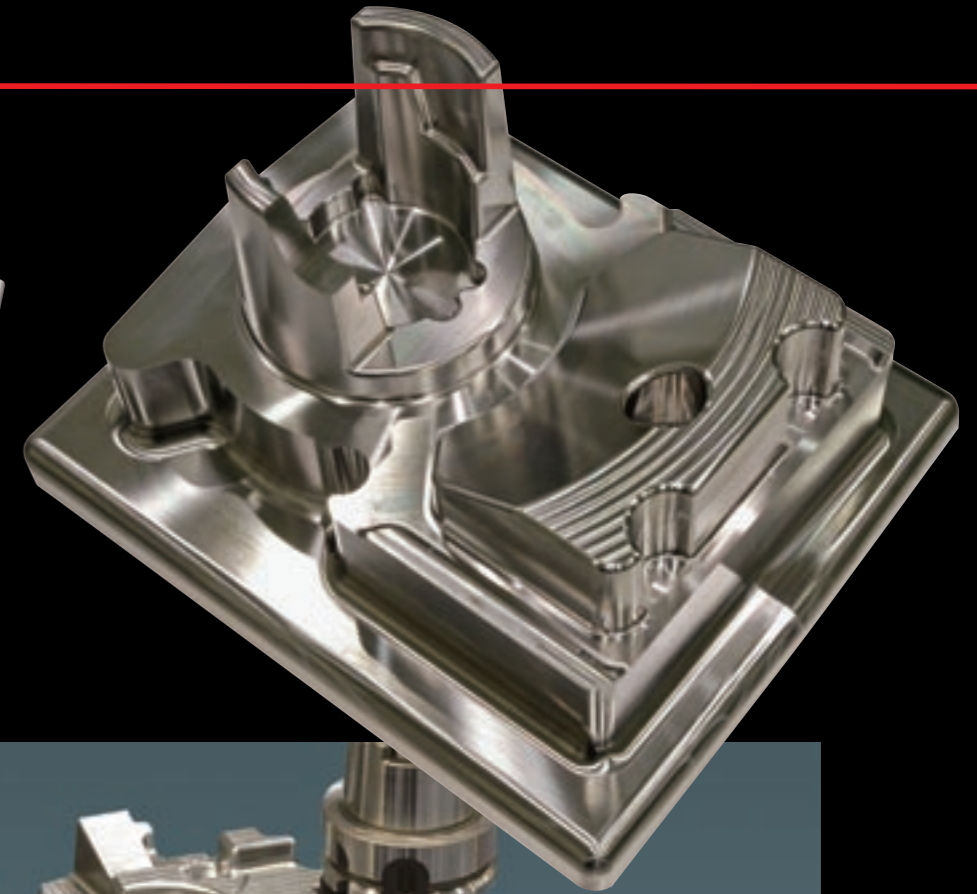
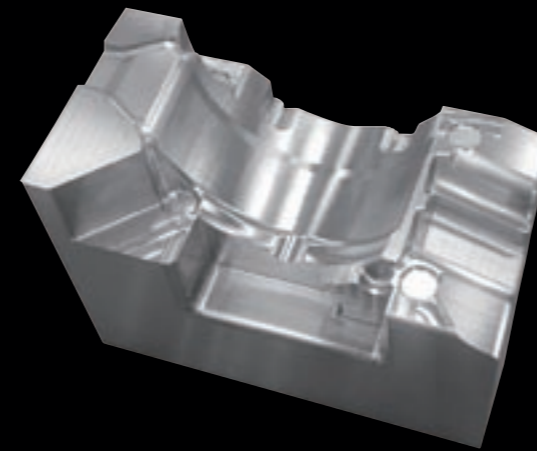
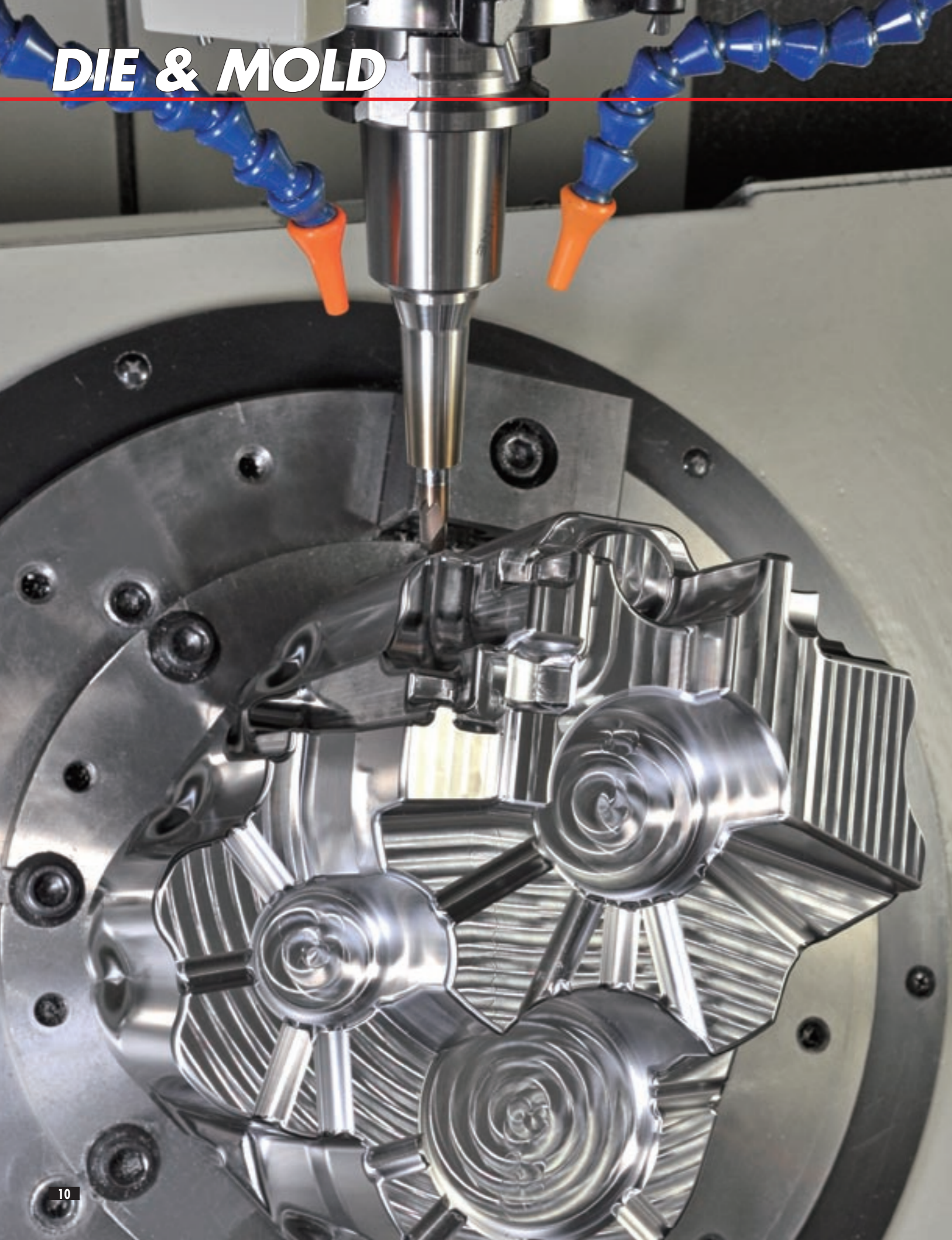
# POWER GENERATION



**Power generation parts manufacturing...Hard material machining, high volumetric accuracy, and high precision contouring requirements match perfectly to our 5-axis machining centers.**

Wind power generation relies on ultra precise, multi featured gear boxes. The gas turbine blades, blings, and flades made of hard exotic materials require rigid 5-axis contouring capabilities as do the gears and related drive train components. These types of applications are best suited for our 5-axis machine tools.

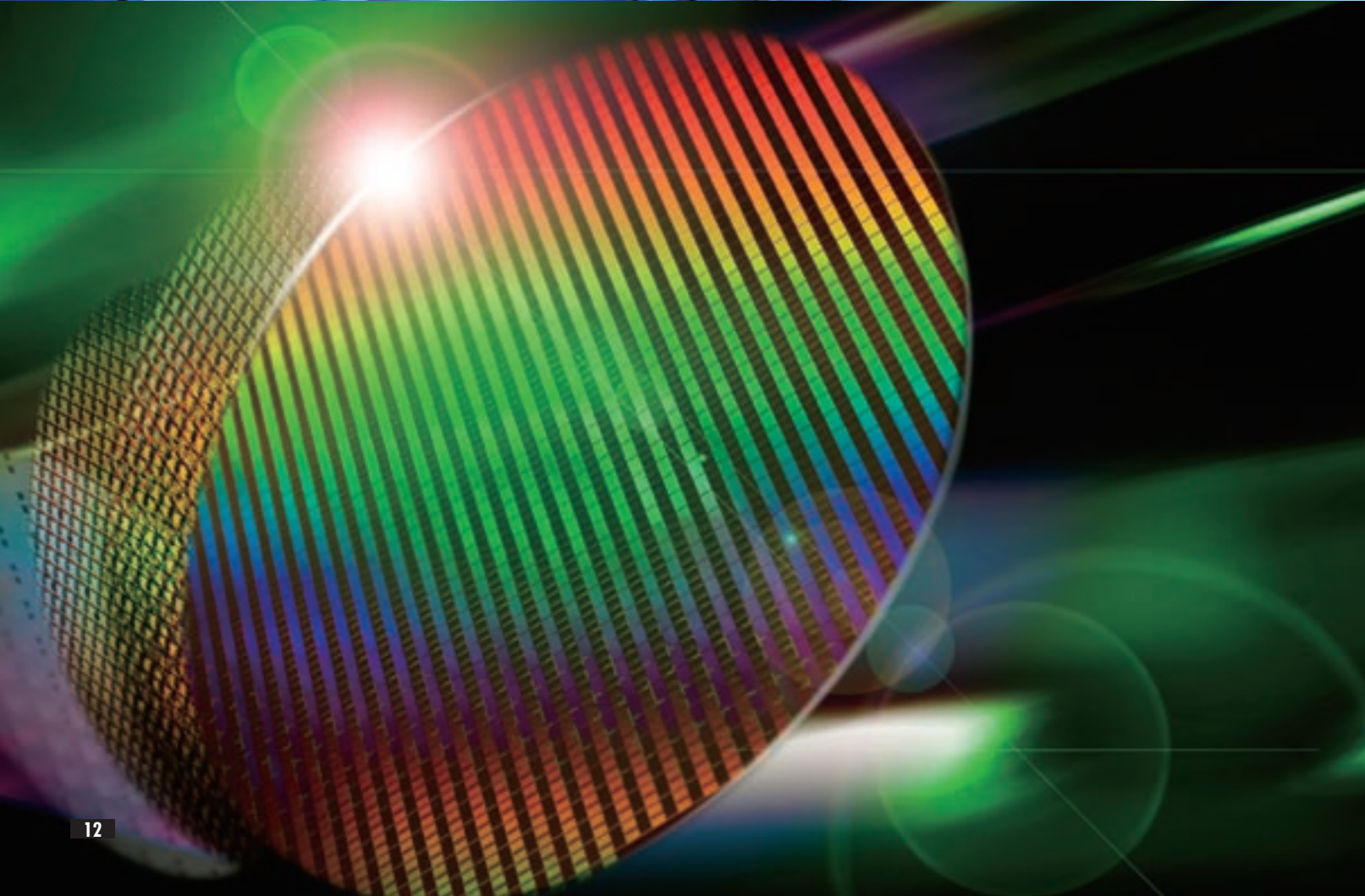
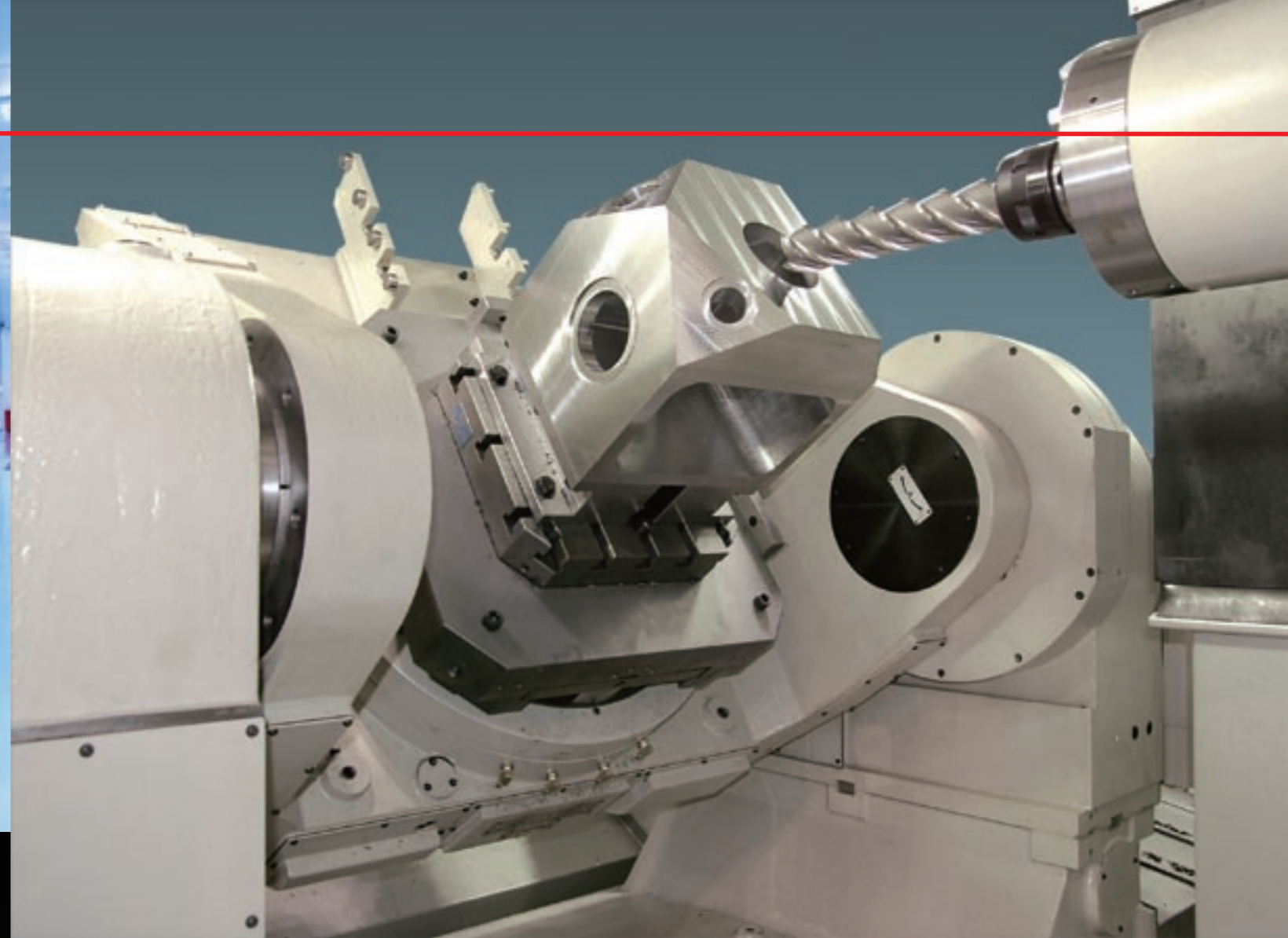
# DIE & MOLD



**Die and Mold manufacturing...High quality surface finishes, superior form accuracy, and reduced cycle times are the result when parts are processed on Mitsui Seiki 5-axis machines.**

Ultra high speed spindles coupled with optimal tangential tool positioning on mold and die surfaces have replaced EDM (electrical discharge machining) in hardened materials. This new process has dramatically reduced processing times on all components, providing shorter delivery times and increased profit margins for our customers using our 5-axis products.

# SEMICONDUCTOR



**Semiconductor parts manufacturing...Superior surface finishes and highly precise flat surfaces are required.**



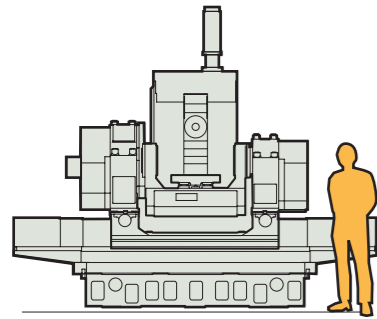
Semiconductor processing chambers or transfer chambers require multi-faceted machining and low RMS surface finish values directly off the machine tool. Additionally, ultra-precise flatness tolerances on surfaces are critical. Mitsui Seiki hand-scraped machine tools with superior straightness of axis travel are ideal for semiconductor work.



# Four Versatile Solutions for Your Complex Part Machining

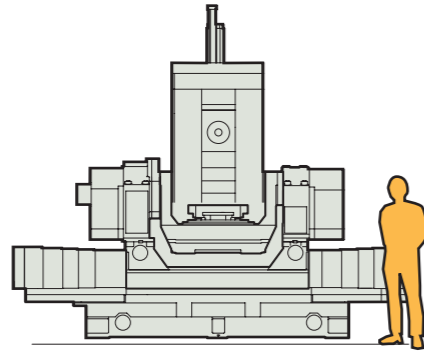
## Trunnion Type (Horizontal Machining Center)

**HU50A-5X**



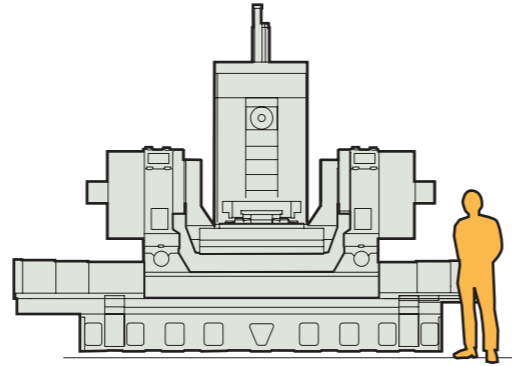
STROKE X: 720mm Y: 850mm Z: 850mm  
B: 360° A: +5~-95°  
PALLET SIZE 500mmx500mm

**HU63A-5X**



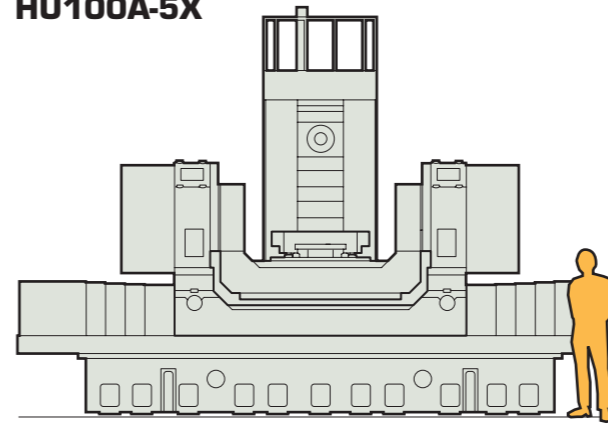
STROKE X: 900mm Y: 900mm Z: 900mm  
B: 360° A: +5~-95°  
PALLET SIZE 630mmx630mm

**HU80A-5X**



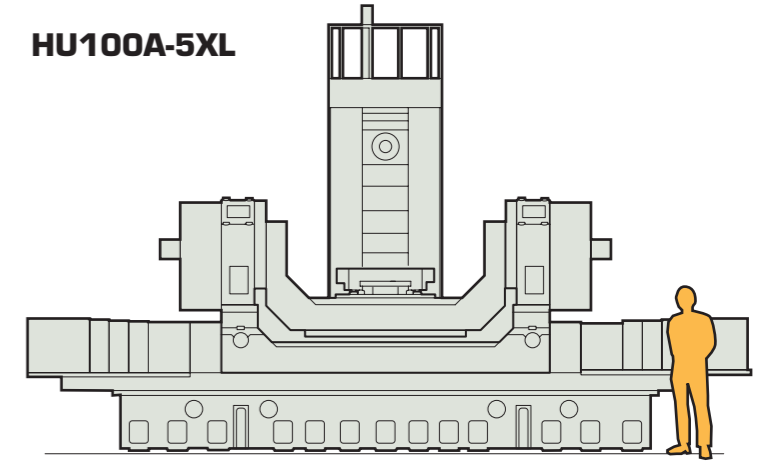
STROKE X: 1200mm Y: 1000mm Z: 1050mm  
B: 360° A: +5~-95°  
PALLET SIZE 800mmx800mm

**HU100A-5X**



STROKE X: 1300mm Y: 1200mm Z: 1200mm  
B: 360° A: +5~-95°  
PALLET SIZE 1000mmx1000mm

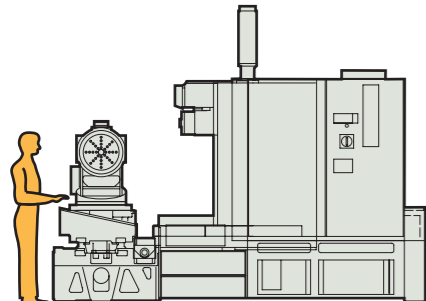
**HU100A-5XL**



STROKE X: 1500mm Y: 1200mm Z: 1200mm  
B: 360° A: +5~-95°  
PALLET SIZE 1000mmx1000mm

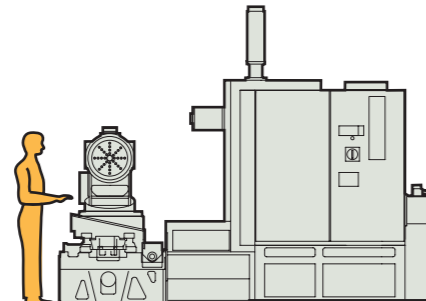
## Table on Table Type (Horizontal Machining Center)

**HU40-T**



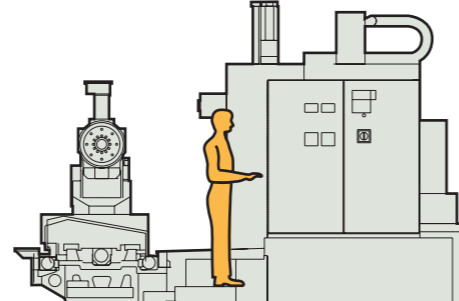
STROKE X: 610mm Y: 560mm Z: 560mm  
B: -90~+180° C: 360°  
PALLET SIZE ø360mm

**HU50-T**



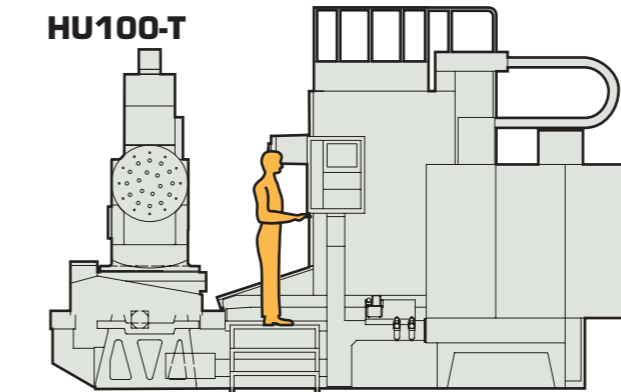
STROKE X: 770mm Y: 700mm Z: 650mm  
B: -90~+180° C: 360°  
PALLET SIZE ø360mm

**HU63-T**



STROKE X: 900mm Y: 800mm Z: 800mm  
B: -90~+180° C: 360°  
TABLE SIZE ø360mm

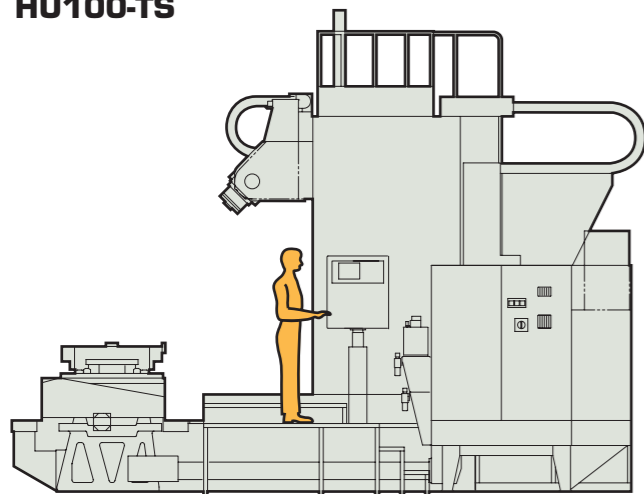
**HU100-T**



STROKE X: 1300mm Y: 1000mm Z: 1000mm  
B: -90~+180° C: 360°  
PALLET SIZE ø600mm

## Tilt Spindle Type (Horizontal Machining Center)

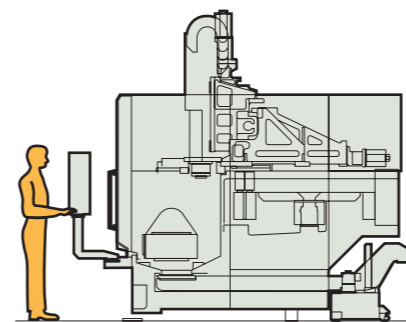
**HU100-TS**



STROKE X: 1300mm Y: 1500mm Z: 1400mm  
B: 360° C: -30~+120°  
PALLET SIZE 1000mmx1000mm

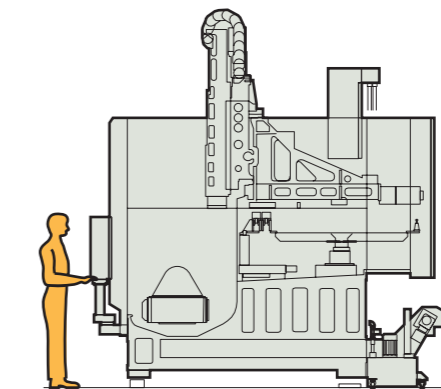
## Trunnion Type (Vertical Machining Center)

**Vertex550-5X**



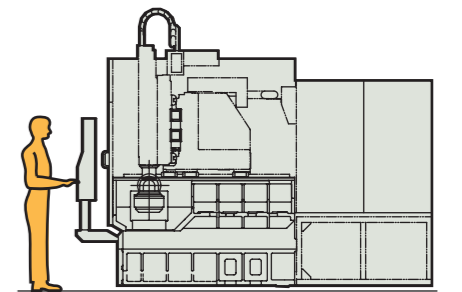
STROKE X: 550mm Y: 600mm Z: 500mm  
C: 360° A: +15~-105°  
TABLE SIZE ø400mm

**Vertex750-5X**



STROKE X: 750mm Y: 800mm Z: 700mm  
C: 360° A: +15~-105°  
TABLE SIZE ø500mm

**VL30-5X**



STROKE X: 200mm Y: 300mm Z: 200mm  
C: 360° A: +40~-110°  
TABLE SIZE ø180mm

# Fundamental Machine Structure Designed to Support High Accuracy and High Productivity.

Mitsui Seiki 5-axis machining centers have evolved from a long history of Jig Boring manufacturing methods, such as hand-scraping and hand-fitting machine tool components in a tightly temperature controlled assembly environment. This fortunate foundation and the company's myriad advanced technical developments have contributed to Mitsui Seiki's "best in class" 5-axis machines.



*Design based on FEA (Finite Element Analysis)*

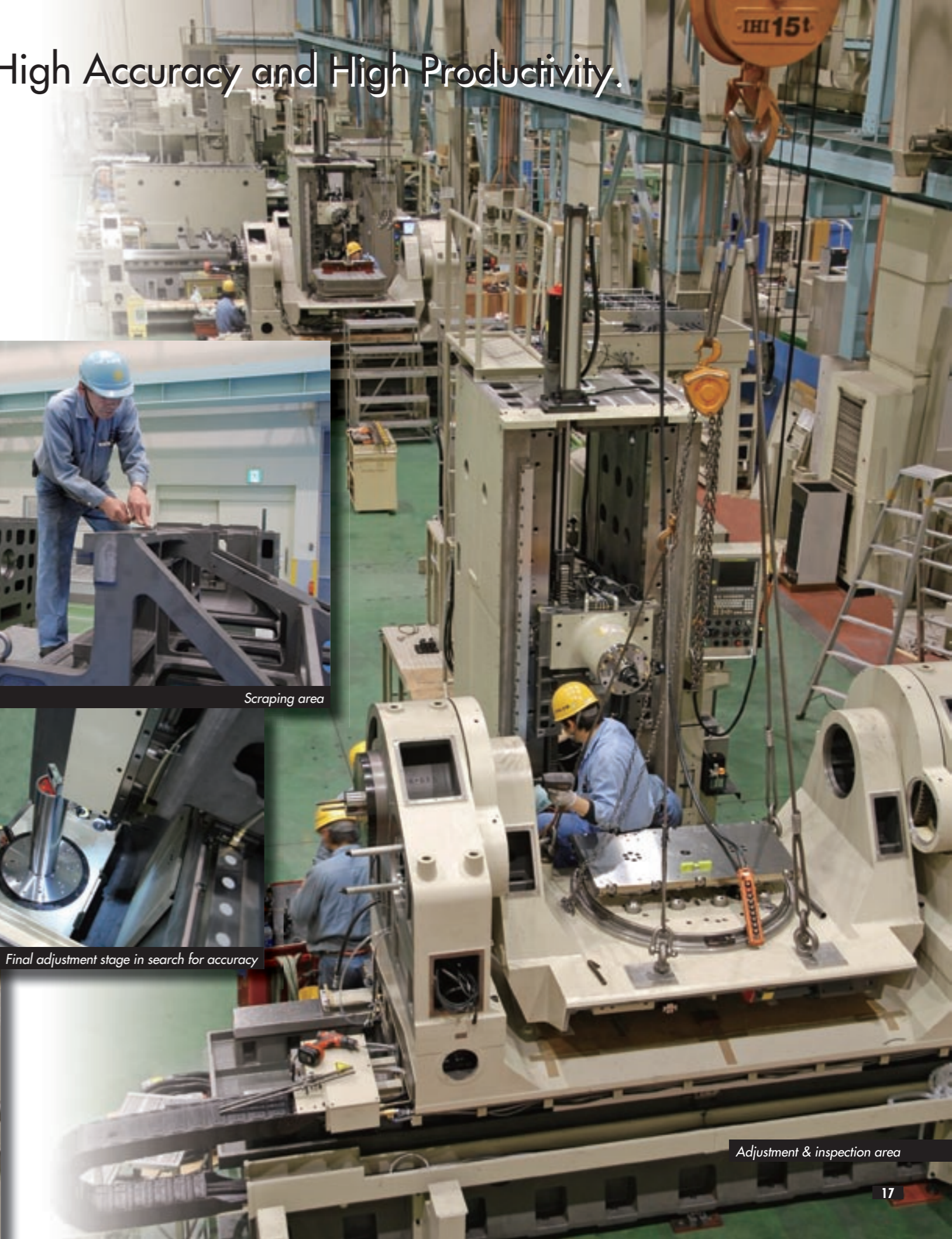
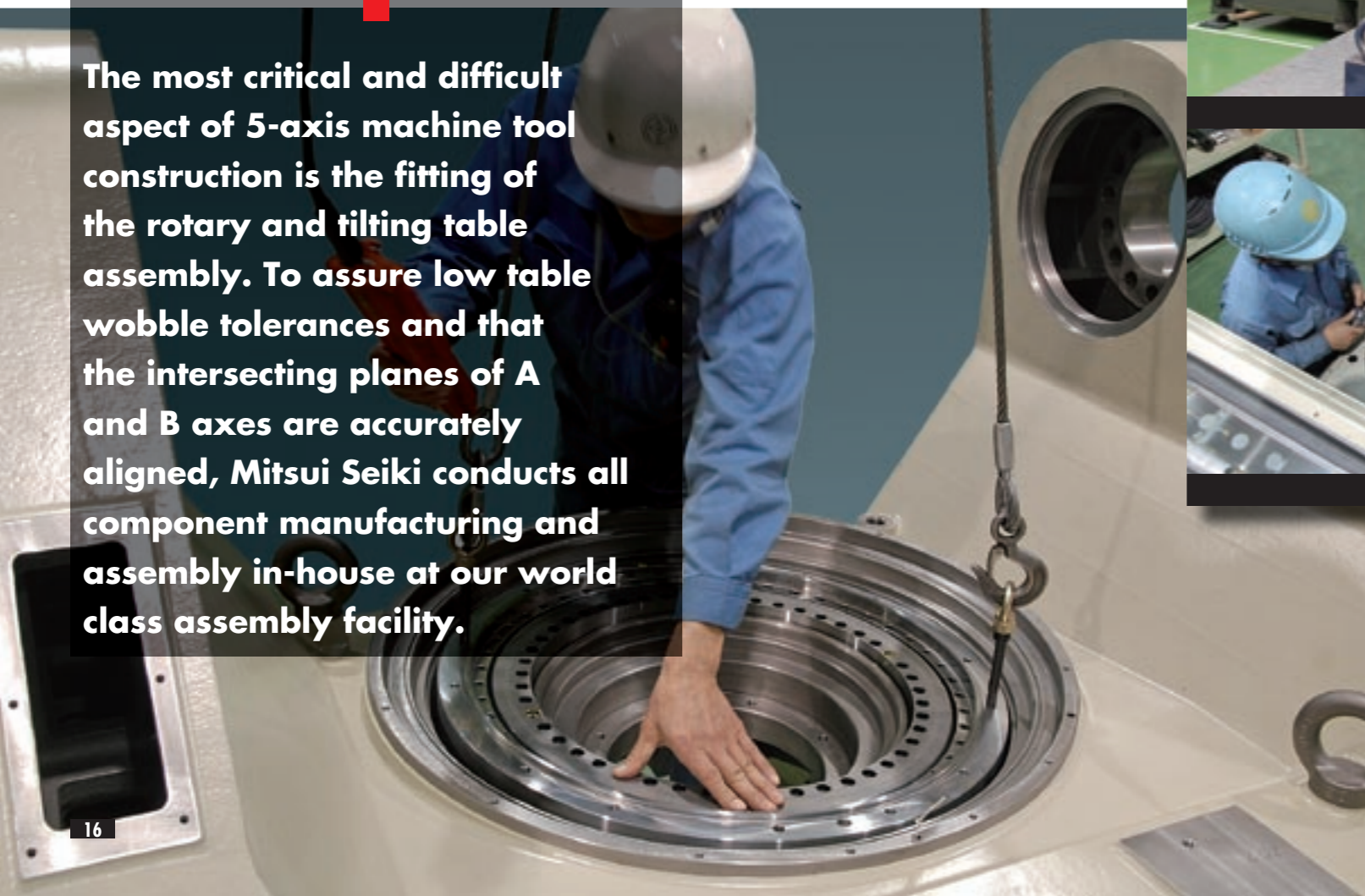


*Scraping area*

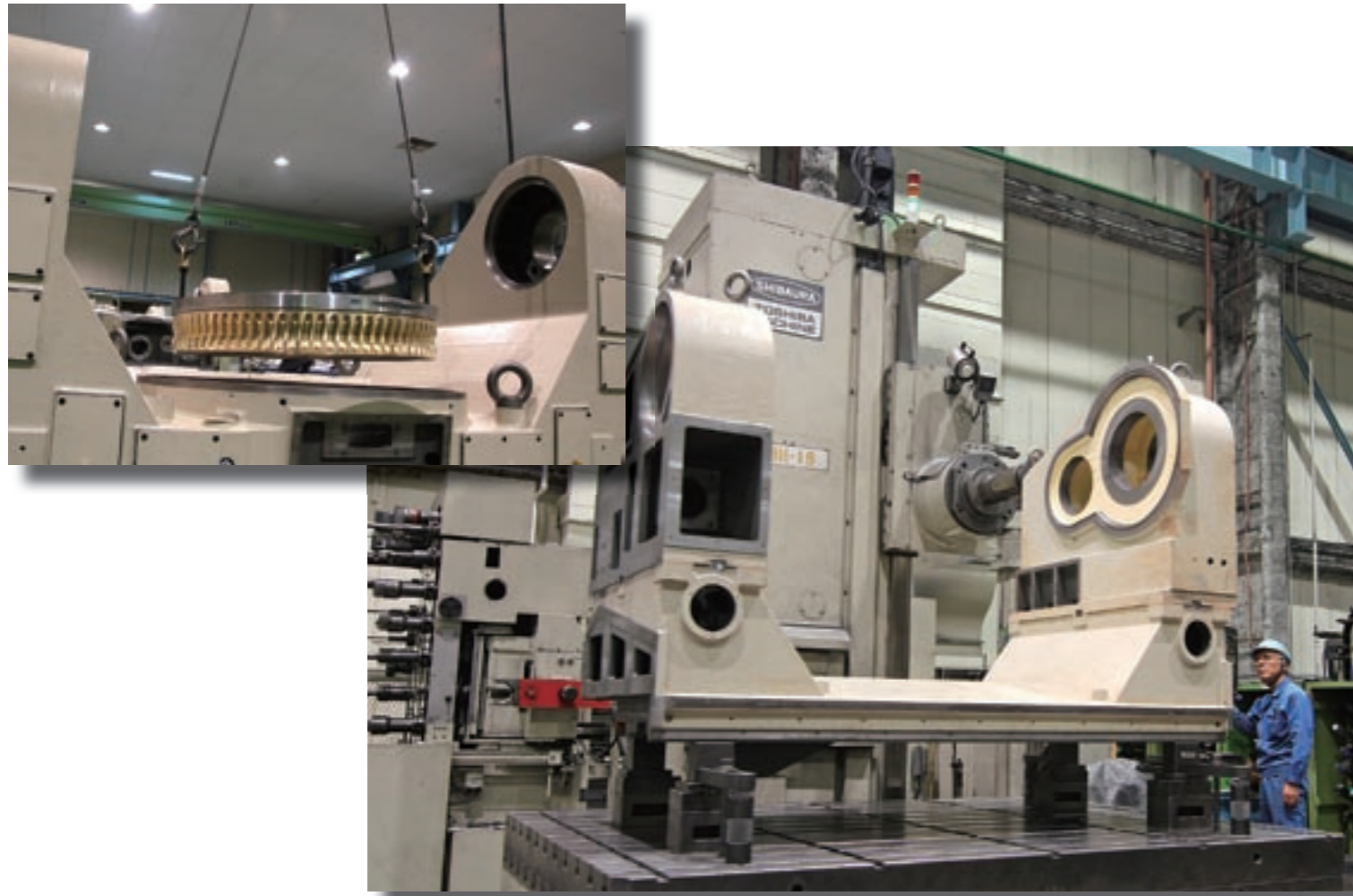
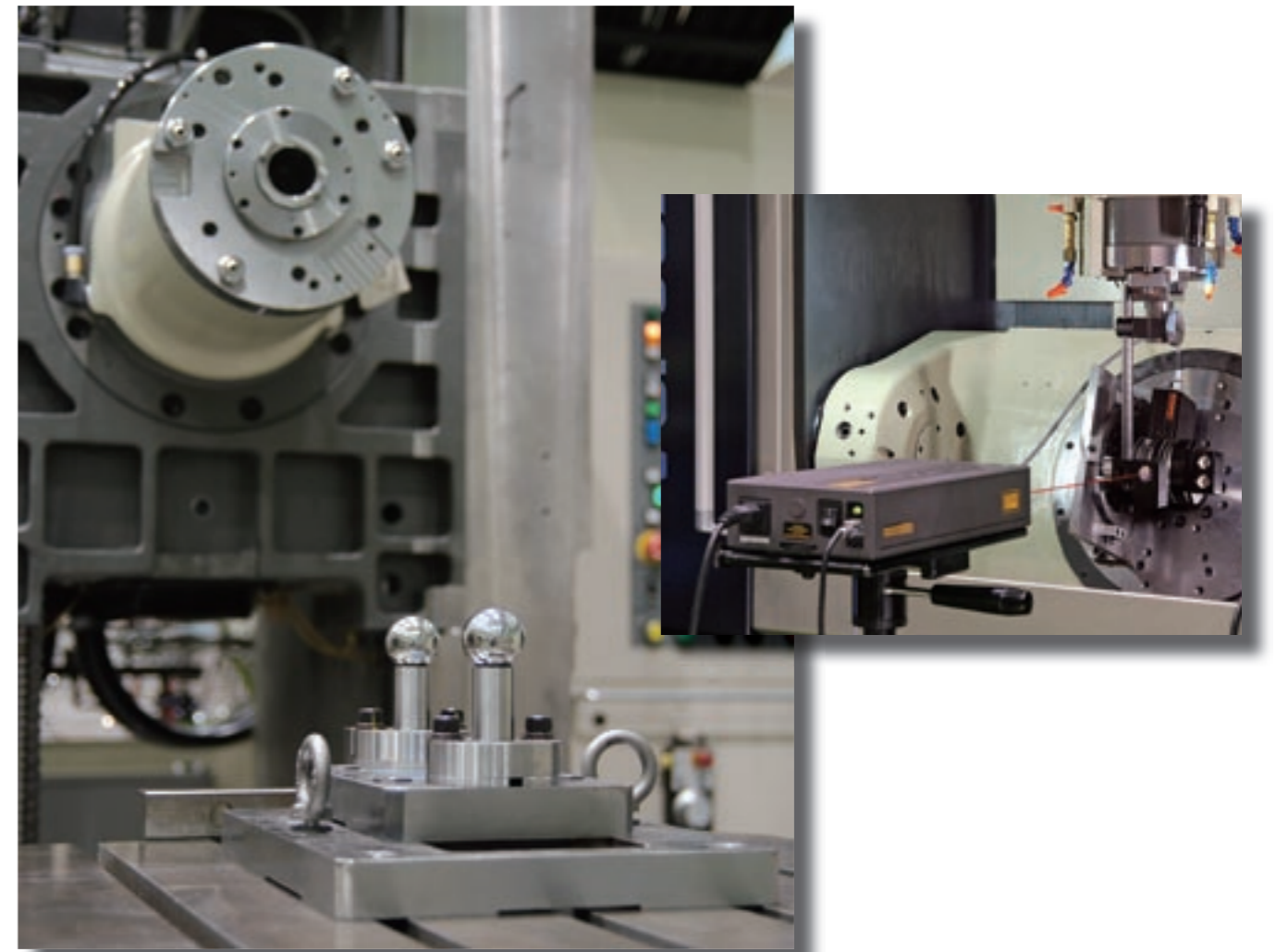
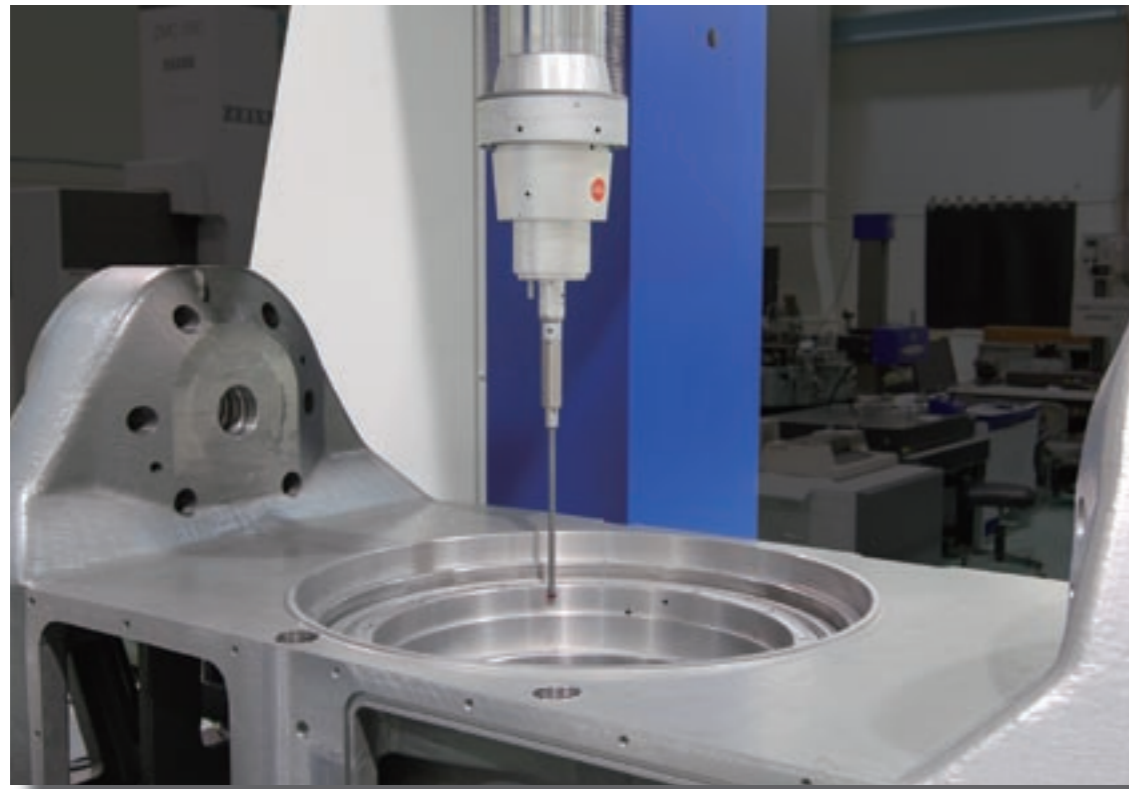


*Final adjustment stage in search for accuracy*

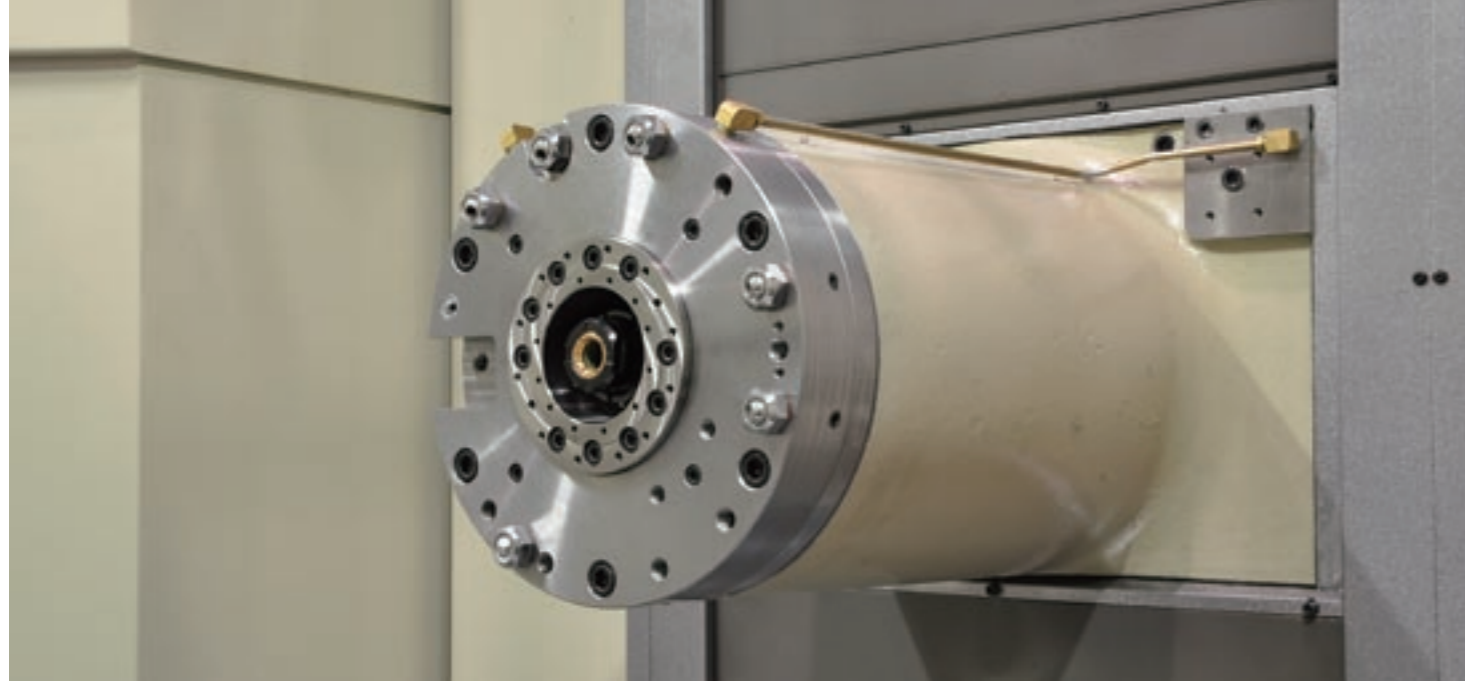
The most critical and difficult aspect of 5-axis machine tool construction is the fitting of the rotary and tilting table assembly. To assure low table wobble tolerances and that the intersecting planes of A and B axes are accurately aligned, Mitsui Seiki conducts all component manufacturing and assembly in-house at our world class assembly facility.



*Adjustment & inspection area*

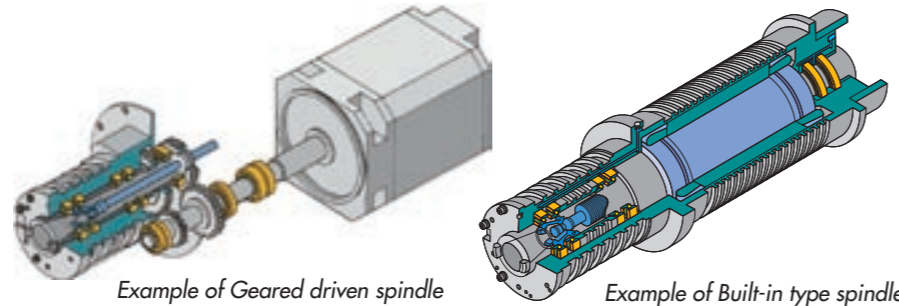


# Versatile Spindles: Speed, Stiffness, Reliability



Ultra High Torque and High Power , HSK-A100 Spindle

Mitsui Seiki designs and manufactures a wide range of spindles to machine all types of materials. We can accommodate high rotational speeds for aluminum and other non ferrous materials or high torque geared spindles for the world's toughest materials.

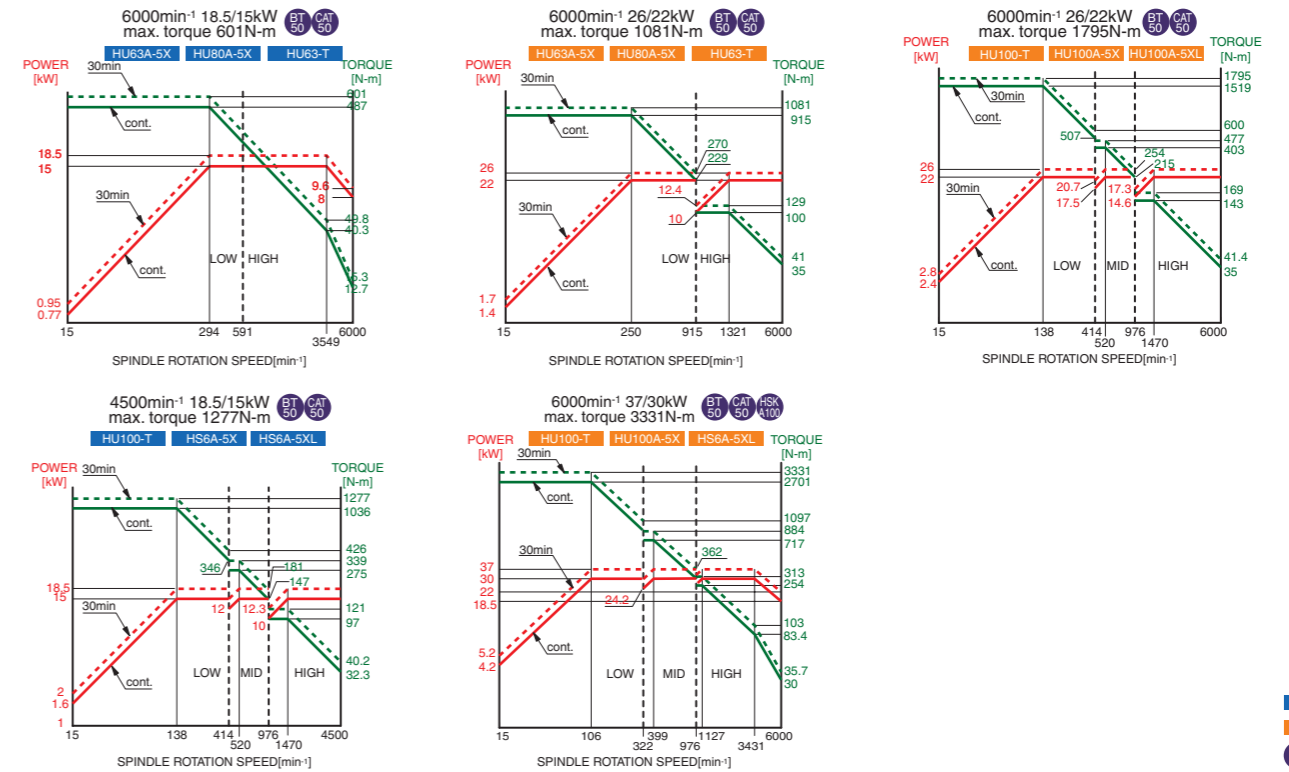


## Machining Center Spindle Specification Chart

Machine	Item	Integral motor								Gear drive				
		HSK			BT					BT				
		E40	E32	E25	#40					#50				
Spindle RPM	25000	30000	50000	8000	12000	15000	20000	25000	10000	12000	15000	4500	6000	
HU40-T		-	-	-	15/11 292/117	15/11 292/117	30/25 262/191	18.5/15 28.6/14	-	-	-	-	-	-
HU50A-5X HU50-T		-	-	-	-	-	-	-	**30/25 420/239	-	-	-	-	-
HU63A-5X HU63-T HU80A-5X		-	-	-	-	-	-	-	**30/25 420/239	-	-	2-shift 18.5/15 601/487	3-shift 26/22 1081/915	
HU100-T HU100A-5X HU100A-5XL		-	-	-	-	-	-	-	**30/25 420/239	3-shift 18.5/15 1277/1036	3-shift 26/22 1794/1519	3-shift 37/30 3332/2700		
HU100-TS		-	-	-	-	-	-	**18.5/15 28.6/14	22/18.5 167/95.4	-	-	-	-	
Vertex550-5X Vertex750-5X		-	-	-	-	7.5/5.5 98/44	-	**18.5/15 28.6/14	-	-	-	-	-	
VL30-5X		3.7/1.5 3.53/1.43	4.1/1.5 1.31/0.72	5.5/1.5 1.31/0.72	-	-	-	-	-	-	-	-	-	

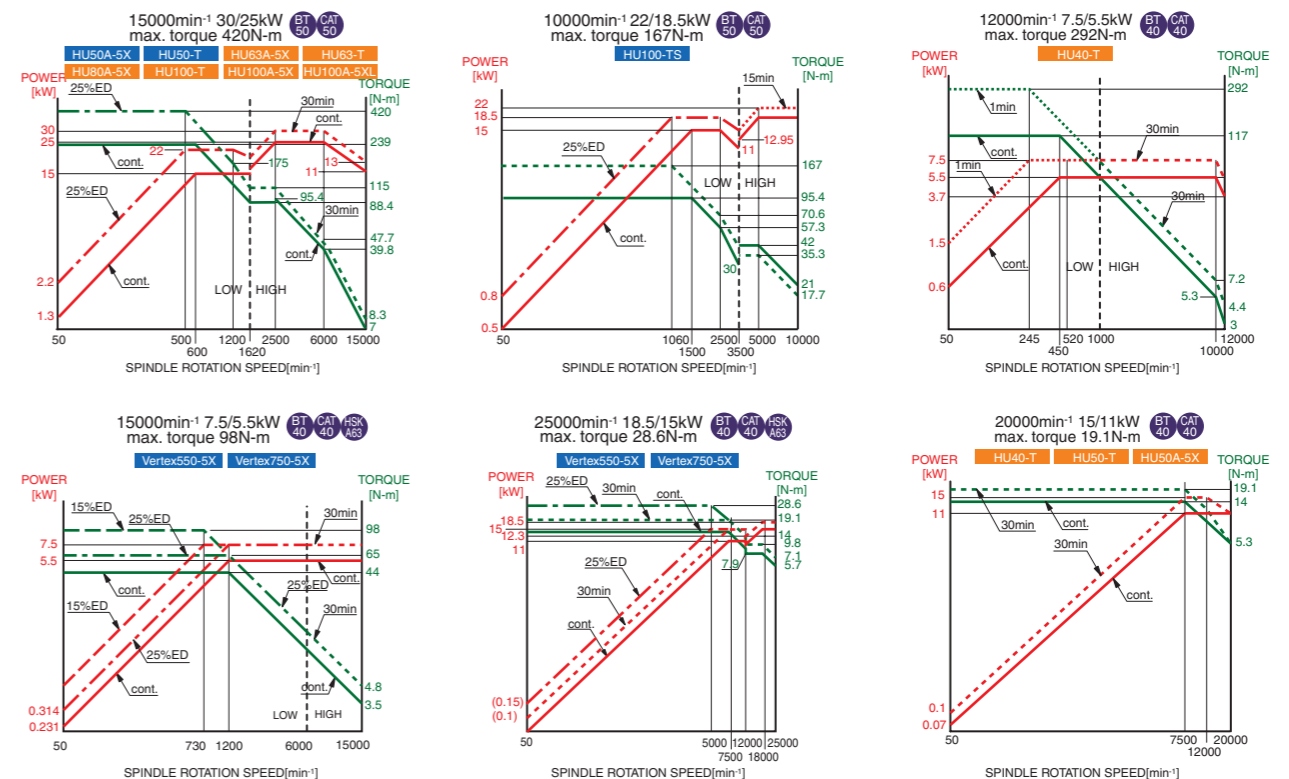
Upper: Power (kw 30min/continuous) Lower: Torque (Nm 30min/continuous \*1min/continuous \*\*25%ED/continuous) Blue=Standard Orange=Option "-"=Off the subject

## Gear Drive Type Spindle



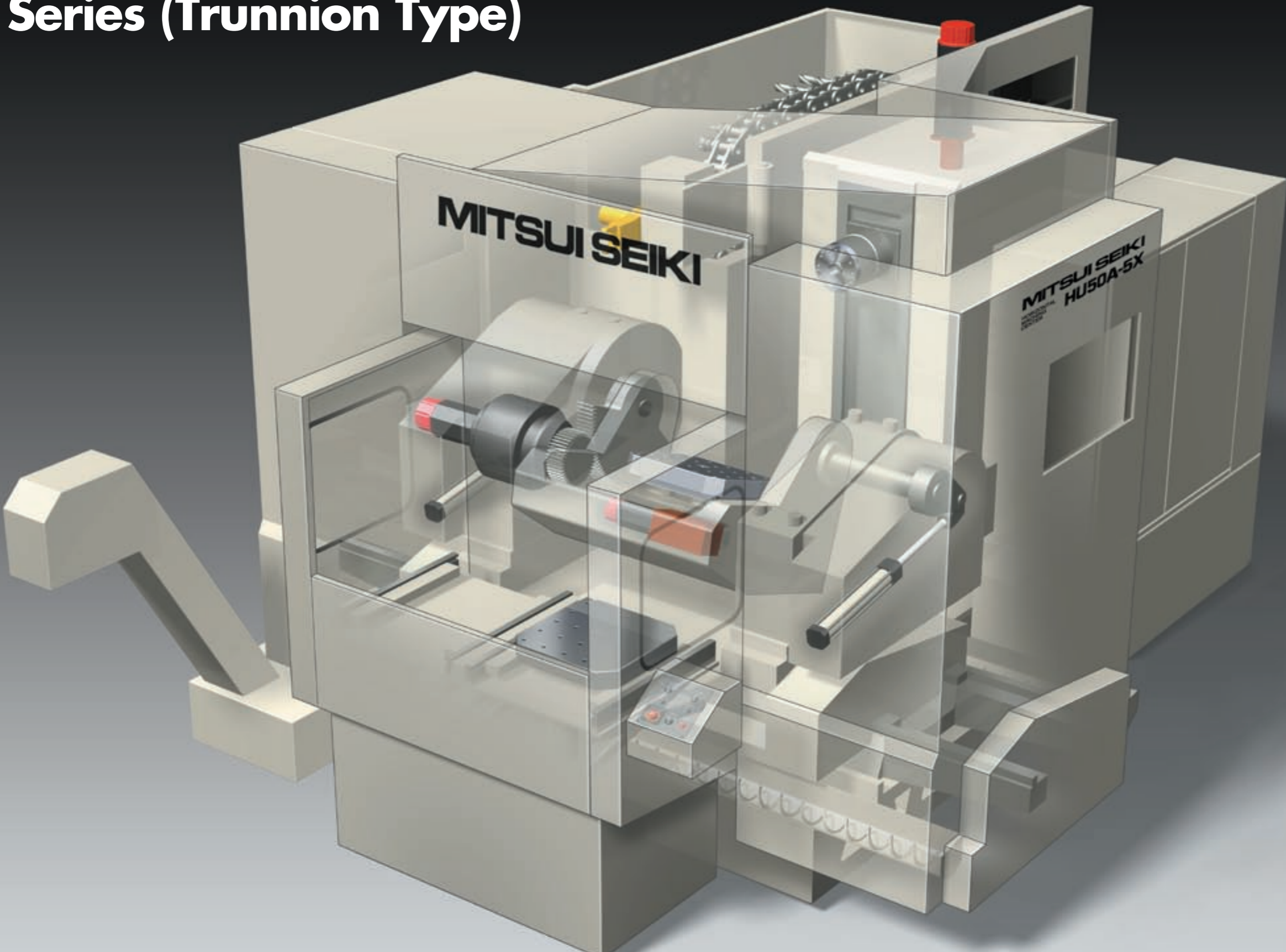
Blue=STANDARD  
Orange=OPTION  
Purple=SPINDLE TAPER

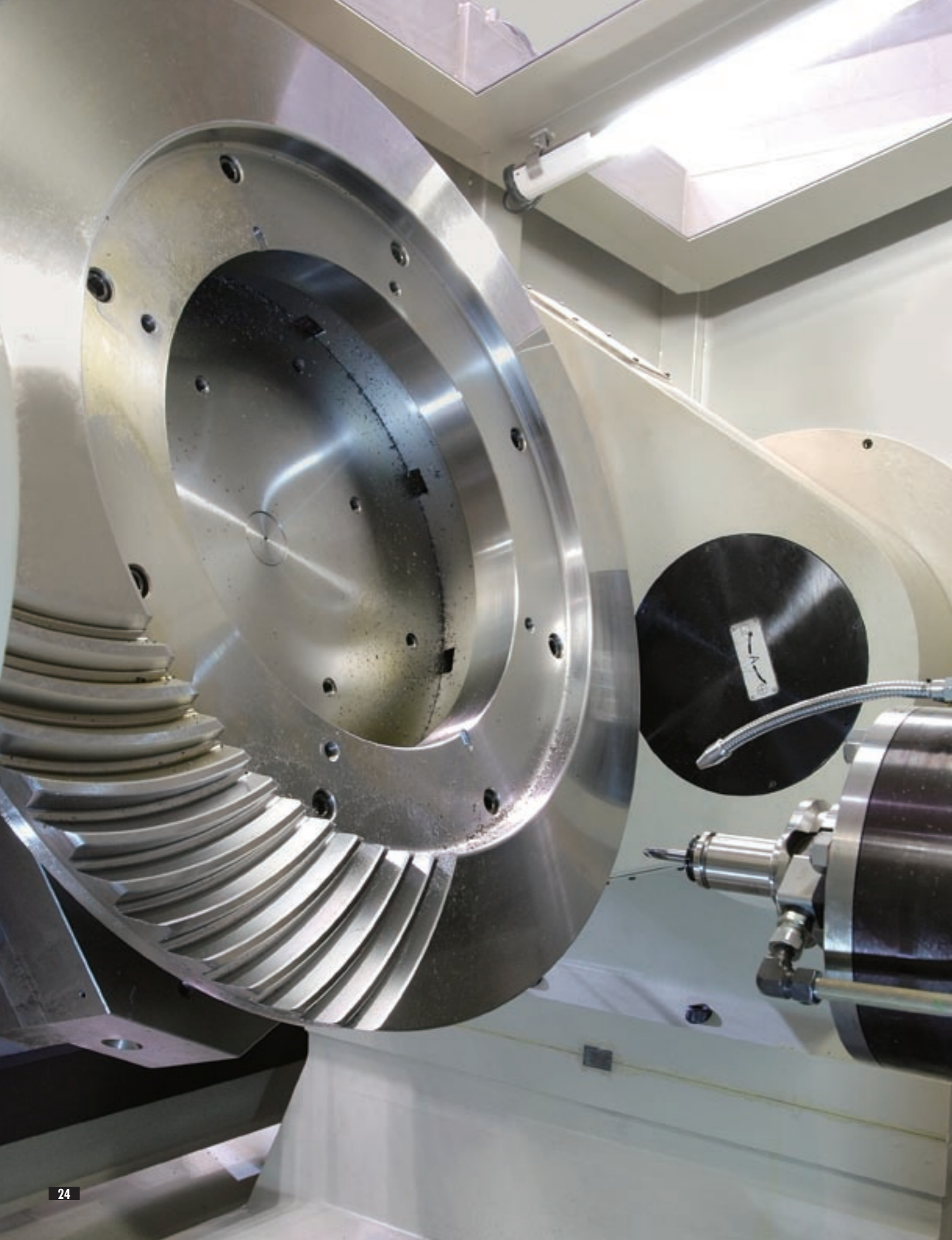
## Built-In Type Spindle



Blue=STANDARD  
Orange=OPTION  
Purple=SPINDLE TAPER

# "5X" Series (Trunnion Type)





# Specifications

**HU50A-5X**



**HU63A-5X**



**HU80A-5X**



**HU100A-5X**



**HU100A-5XL**



Item		HU50A-5X	HU63A-5X	HU80A-5X	HU100A-5X	HU100A-5XL	
Stroke	X-axis	mm	720	900	1200	1300	
	Y-axis	mm	850	900	1000	1200	
	Z-axis	mm	850	900	1050	1200	
	A-axis	°	+5~-95 (option:+20~-110)	+5~-95 (option:+20~-110)	+5~-95 (option:+20~-110)	+5~-95 (option:+20~-110)	+5~-95 (option:+20~-110)
	B-axis	°	360	360	360	360	360
Table	Pallet size	mm	500x500	630x630	800x800	1000x1000	
	Max. work dia. x height	mm	ø750x700	ø950x900	ø1200x1000	ø1500x1050	
	Max. permission of weight	kg	650	800	1200	2000	
Spindle	Taper		ISO 7/24 taper No.50	ISO 7/24 taper No.50	ISO 7/24 taper No.50	ISO 7/24 taper No.50	
	Spindle rotation speed	min <sup>-1</sup>	50~12000	50~6000	50~6000	15~4500	
	Spindle motor power (30min/cont.)	kW	30/25	18.5/15	18.5/15	18.5/15	
	X, Y, Z-axis	m/min	X:24 YZ:36	X:12 YZ:24	X:12 YZ:24	12	
Rapid feed rate	A-axis	min <sup>-1</sup>	6	6	6	4	
	B-axis	min <sup>-1</sup>	12	10	10	6	
ATC	Tool storage capacity		60	60	60	60	
	Max. tool length	mm	400	420	450	500	
	Max. tool dia. with contiguity	mm	ø125	ø125	ø125	ø125	
	Max. tool dia. without contiguity	mm	ø216	ø216	ø216	ø216	
	Max. tool weight	kg	20	25	25	25	
APC			2PAC	2PAC	2PAC	Option	
Positioning accuracy	X, Y, Z-axis	mm	±0.001	±0.001	±0.0015	±0.003	
	A-axis	sec.	±6	±8	±8	±8	
	B-axis	sec.	±3	±3	±3	±4	
Machine weight	kg	18000	26000	28000	35000	40000	

# Features

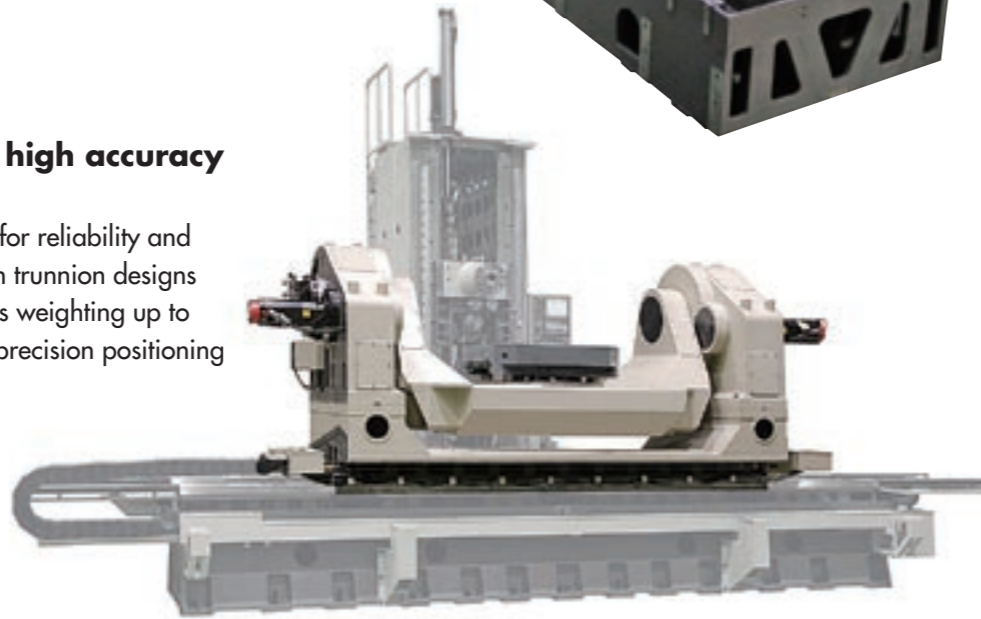
## Rigid three point bed design

The triangular rib construction and three-point leveling design provides machine stability, accuracy, and resiliency in both heavy cutting and precision finish machining. Hand-scraping under the tool steel box ways assures that the way-mounted column, saddle and trunnion assemblies are providing the best volumetric accuracies achievable.



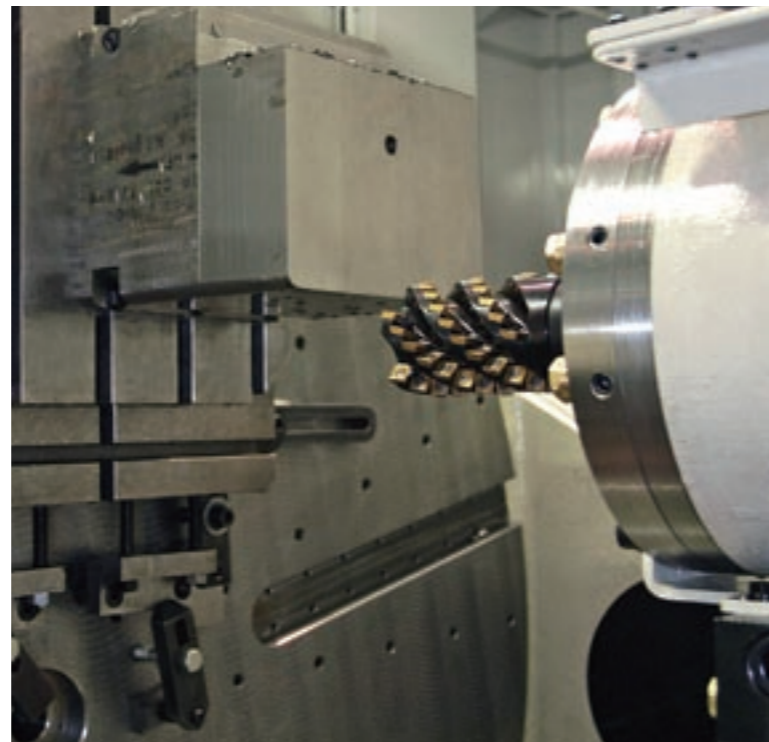
## The tilting assemblies provide high accuracy and reliability

The tilting and rotary structure is designed for reliability and maintainability. Mitsui Seiki's experience in trunnion designs has optimized performance for components weighting up to 10 metric tons while maintaining the high precision positioning expected from our products.

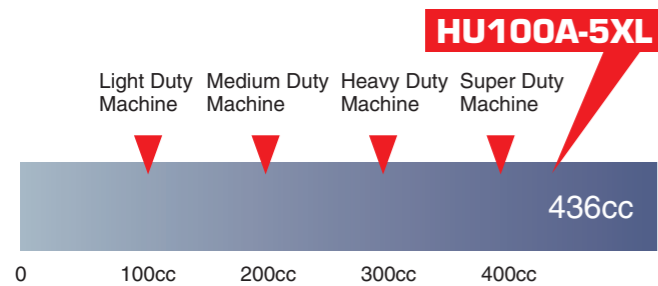


## Efficient machining of hard materials

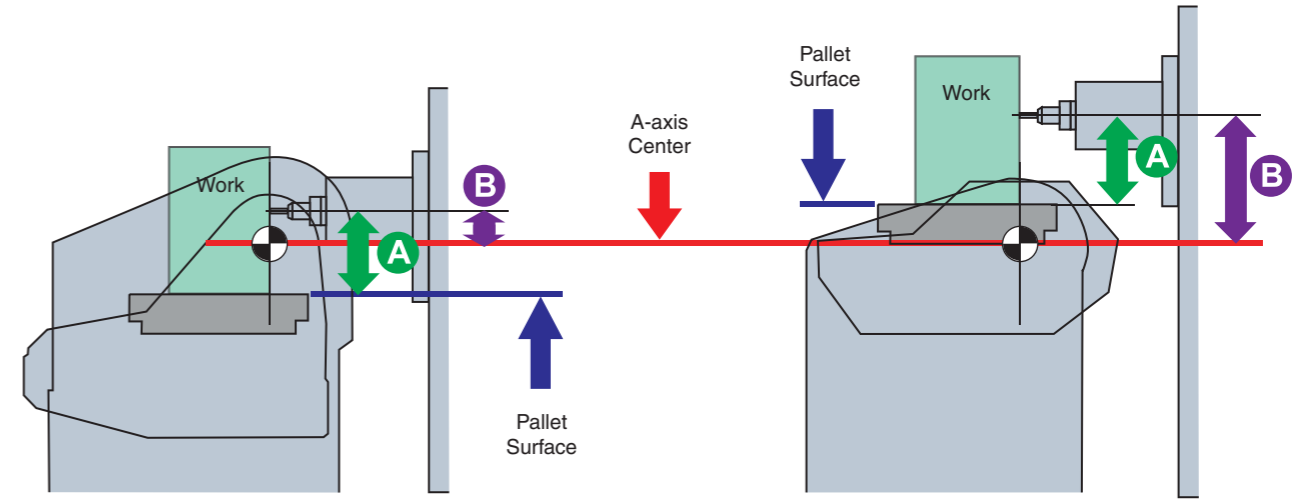
Mitsui Seiki 5-axis machining centers are ideal for hard metal machining. Titanium, inconel, waspaly, stainless steel and the new special alloy grades being developed are ideally suited for these machines. These 5-axis systems are capable of the highest cubic inch roughing removal rates available on a horizontal machining center.



## Example of Cutting Removal Amount



## Rigidity and accuracy are designed into the mechanics of the tilting table assemblies

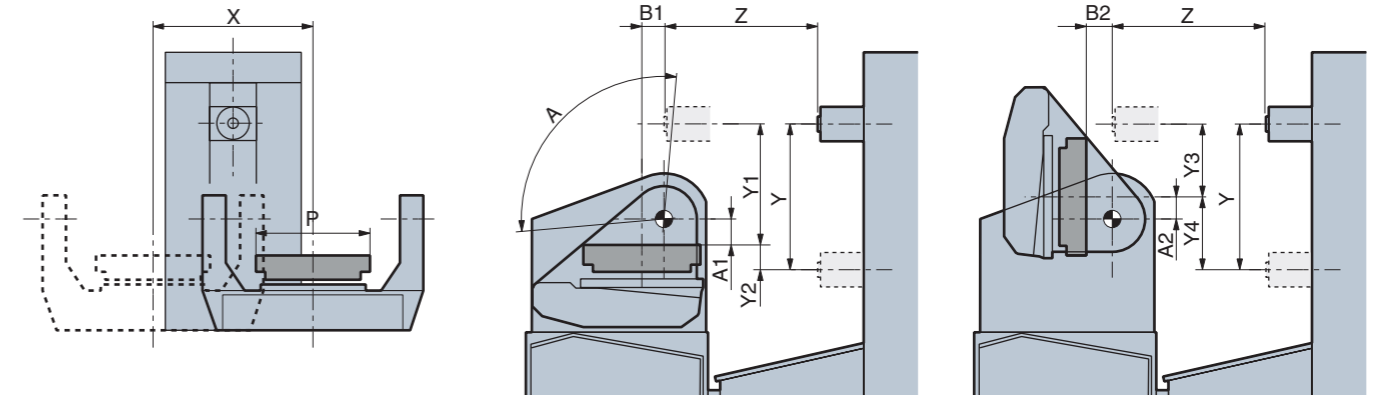


**Type-A**  
A axis center is above of pallet surface  
(Mitsui Seiki)

**Type-B**  
A axis center is below of pallet surface

Type A design concentrates the fixtured component around the A-axis center of rotation. This provides less distortion, better rigidity, and higher accuracy because the angular error from A-axis indexing is reduced.

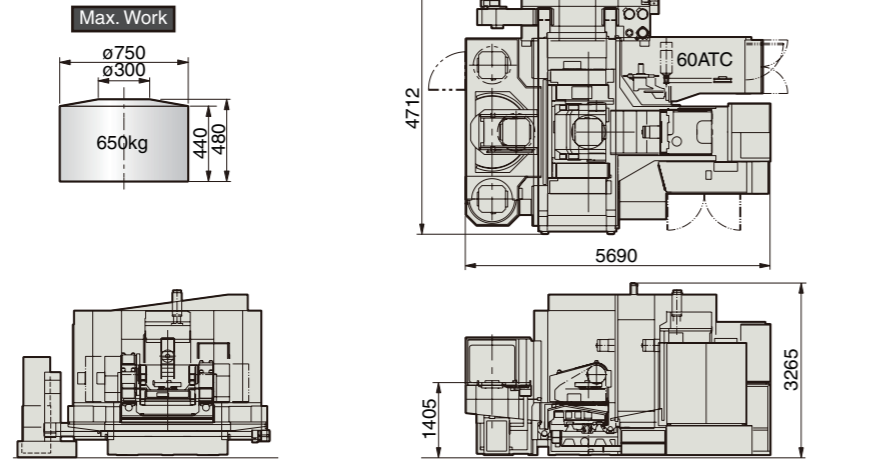
## Stroke dimension drawing



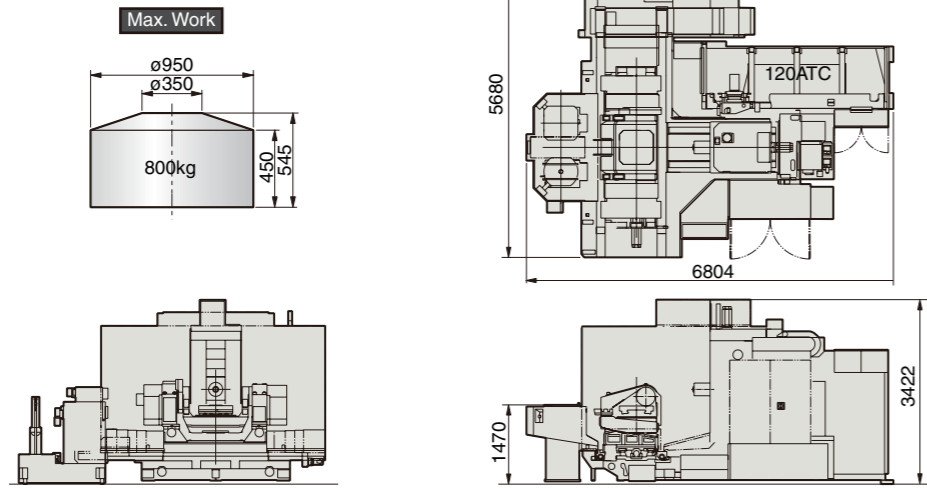
Symbol	Unit	HU50A-5X	HU63A-5X	HU80A-5X	HU100A-5X	HU100A-5XL
P	mm	500	630	800	1000	1000
X	mm	720	900	1200	1300	2000
Y	mm	850	900	1000	1200	1500
Y1	mm	695	800	850	950	1250
Y2	mm	155	100	150	250	250
Y3	mm	395	450	500	600	900
Y4	mm	455	450	500	600	600
Z	mm	850	900	1050	1200	1400
A	°	+5~-95 (option:+20~-110)	+5~-95 (option:+20~-110)	+5~-95 (option:+20~-110)	+5~-95 (option:+20~-110)	+5~-95 (option:+20~-110)
A1	mm	150	175	200	250	250
A2	mm	150	175	200	100	100
B1	mm	150	150	150	200	200
B2	mm	150	150	150	200	200

# Layout

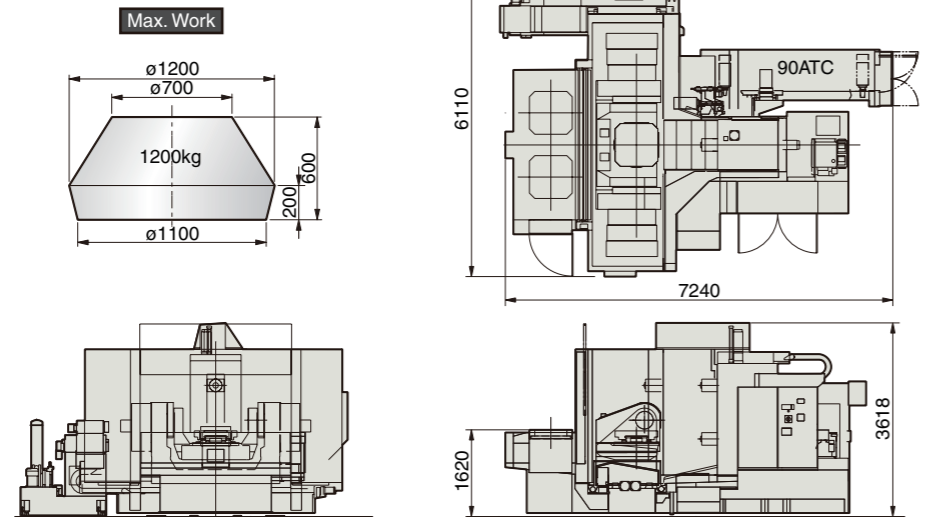
**HU50A-5X**



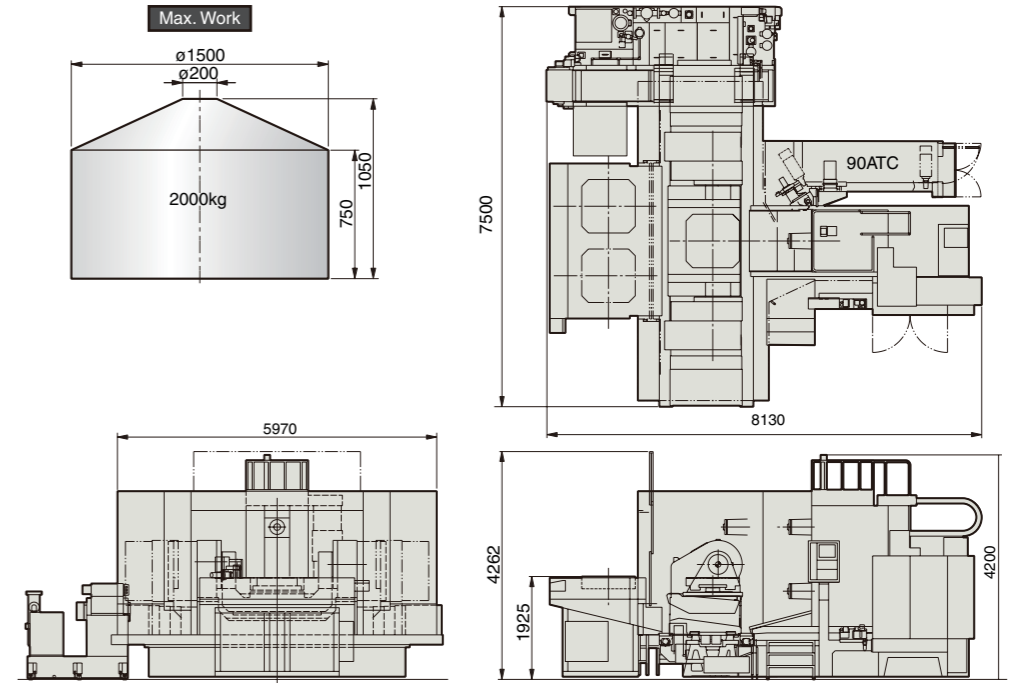
**HU63A-5X**



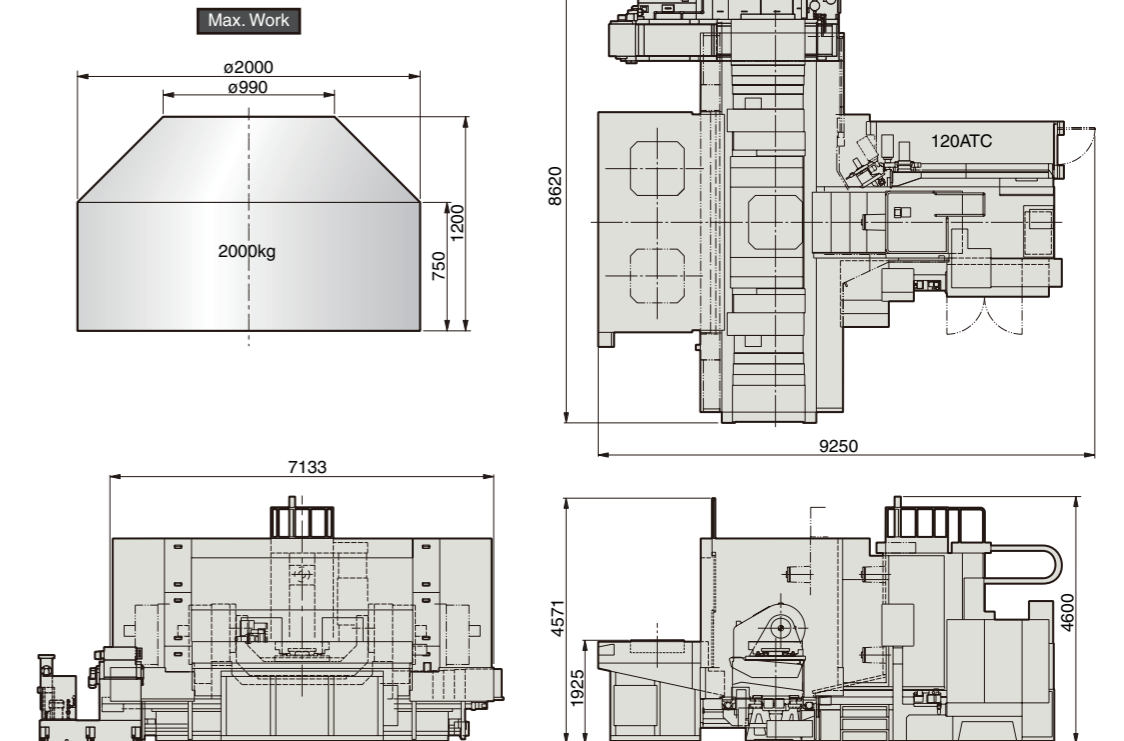
**HU80A-5X**



**HU100A-5X**

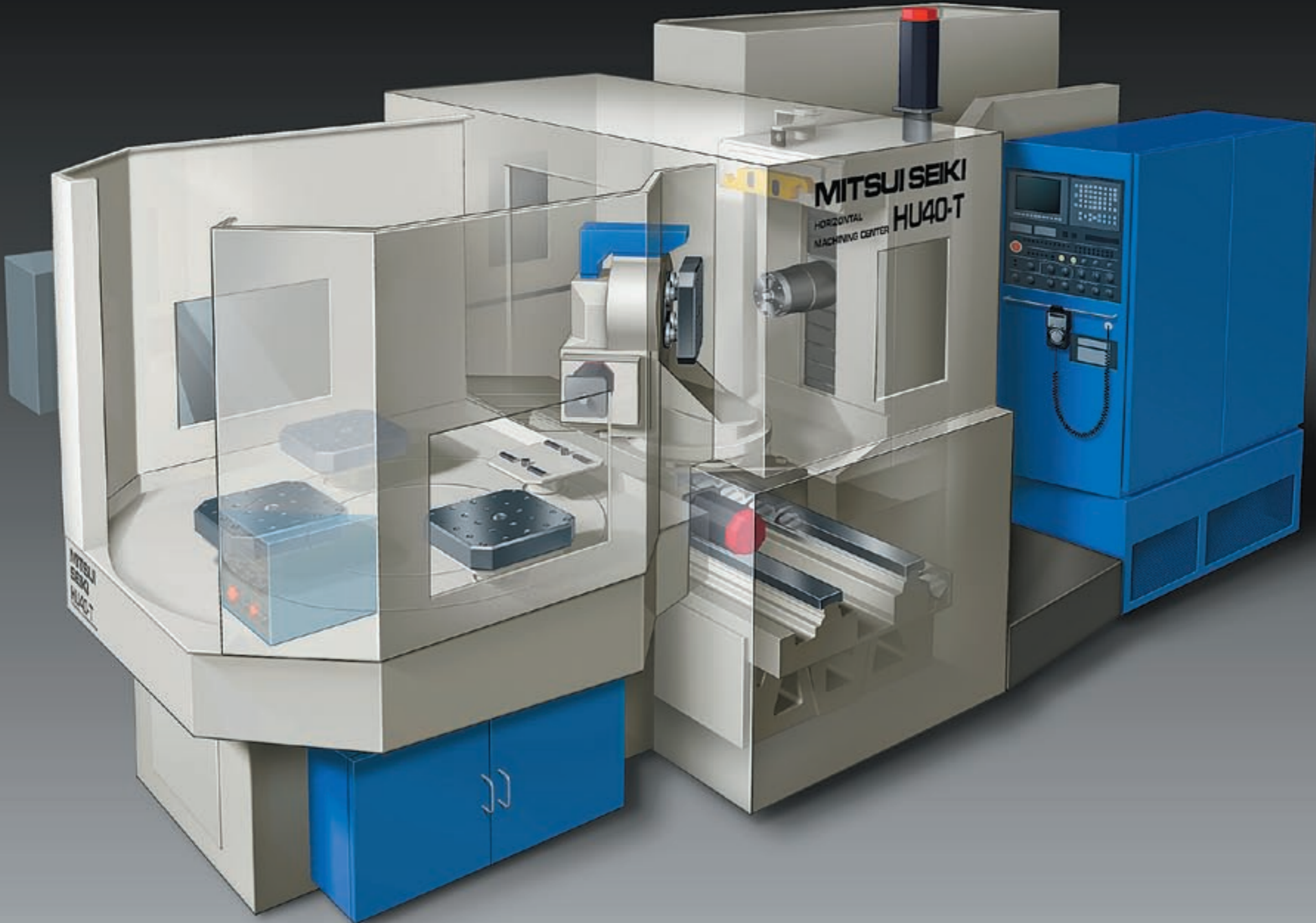


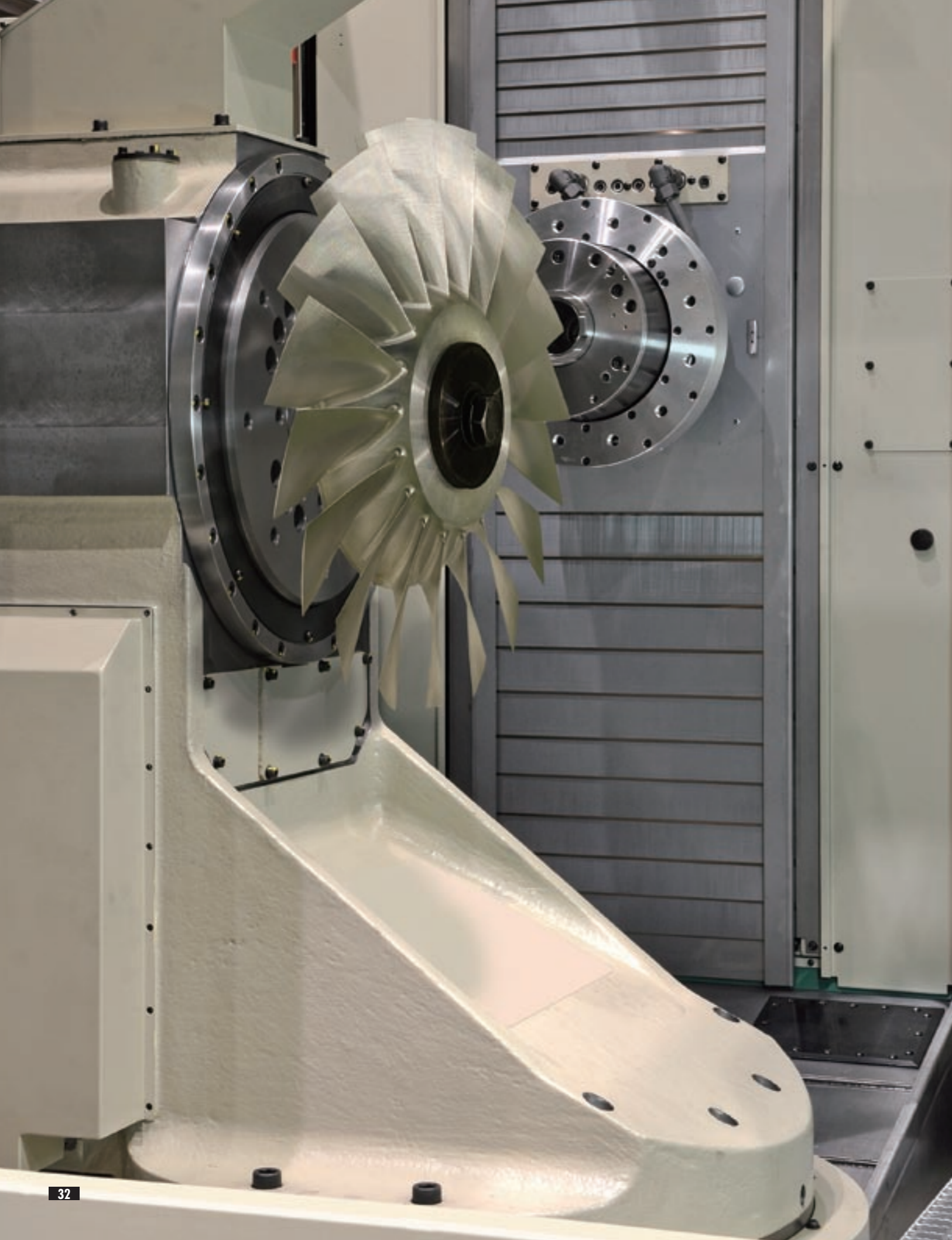
**HU100A-5XL**





# "T" Series (C-Axis Type)





# Specifications

**HU40-T**



**HU50-T**



**HU63-T**



**HU100-T**

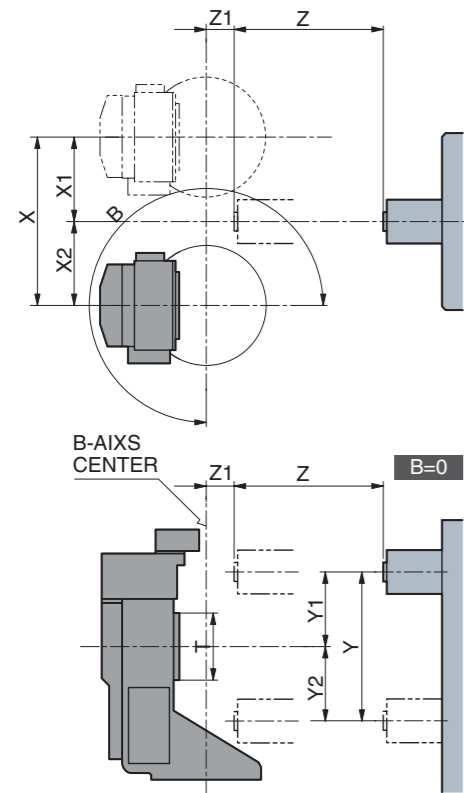
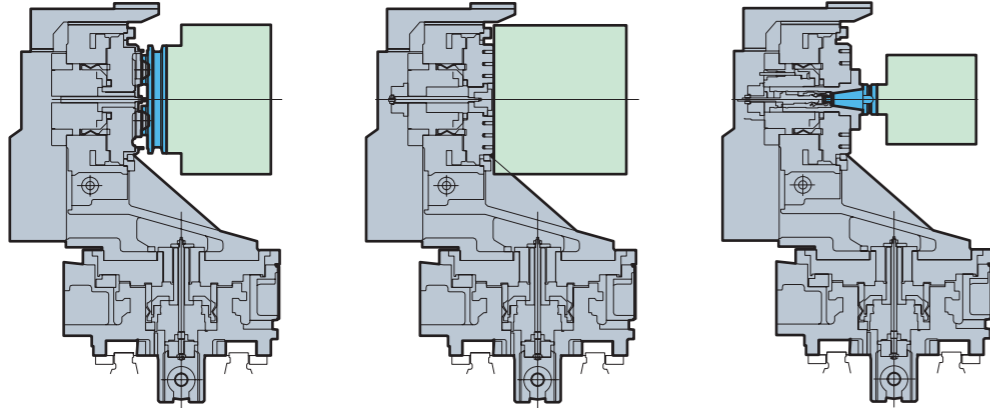


Item		HU40-T	HU50-T	HU63-T	HU100-T
Stroke	X-axis	mm	610	770	900
	Y-axis	mm	560	700	800
	Z-axis	mm	560	650	800
	B-axis	°	-90~+180	-90~+180	-90~+180
	C-axis	°	360	360	360
	Table (Pallet) size	mm	ø360	ø360	ø360
Table	Max. work dia. x height	mm	ø500x350	ø500x350	ø800x618
	Max. permission of weight	kg	100	100	300
	Taper		ISO 7/24 taper No.40	ISO 7/24 taper No.50	ISO 7/24 taper No.50
Spindle	Spindle rotation speed	min <sup>-1</sup>	50~8000	50~12000	50~6000
	Spindle motor power (30min/cont.)	kW	15/11	30/25	18.5/15
	X, Y, Z-axis	m/min	36	36	24
Rapid feed rate	B-axis	min <sup>-1</sup>	30	30	20
	C-axis	min <sup>-1</sup>	30	30	20
	Tool storage capacity		60	60	60
ATC	Max. tool length	mm	320	400	450
	Max. tool dia. with contiguity	mm	ø80	ø125	ø125
	Max. tool dia. without contiguity	mm	ø150	ø216	ø216
	Max. tool weight	kg	8	20	25
	APC		4APC	4APC	Option
Positioning accuracy	X, Y, Z-axis	mm	±0.001	±0.001	±0.001
	B-axis	sec.	±3	±3	±3
	C-axis	sec.	±3	±3	±3
Machine weight	kg	13000	15000	18000	32000

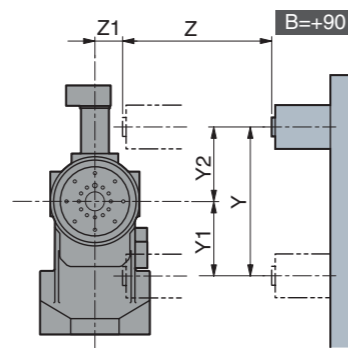
# Features

## T Series options for special applications

- Automatic pallet changer with a 360mm round pallet
- Automatic work changer with BT50 center mounted holder
- Improved rigidity incorporating B/C axes with three roller bearing assemblies
- Geared drive systems for increased rigidity or direct drive motors for high speed acceleration/deceleration.

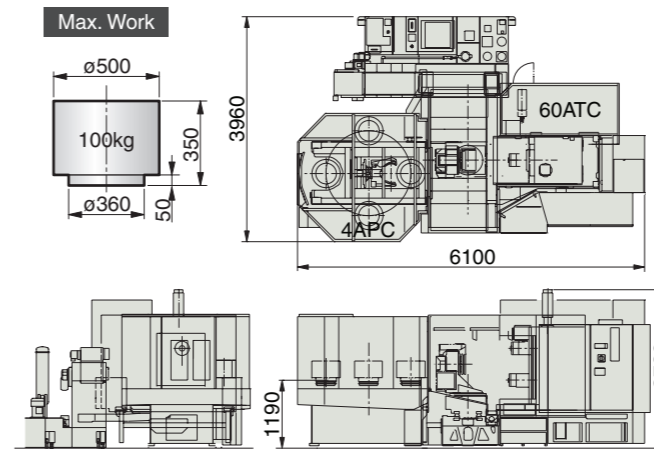


Symbol	Unit	HU40-T	HU50-T	HU63-T	HU100-T
T	mm	ø360	ø360	ø360	ø600
X	mm	610	770	900	1300
X1	mm	330	410	450	650
X2	mm	280	360	450	650
Y	mm	560	700	800	1000
Y1	mm	280	420	400	530
Y2	mm	280	280	400	470
Z	mm	560	650	800	1000
Z1	mm	150	150	150	200
B	°	-90~+180	-90~+180	-90~+180	-90~+180

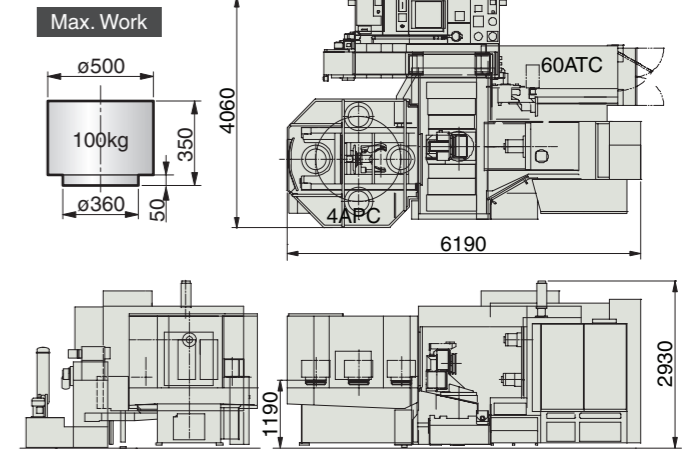


# Layout

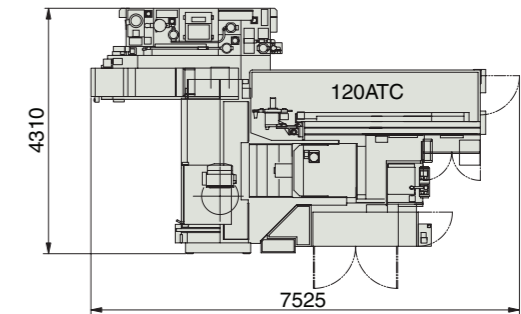
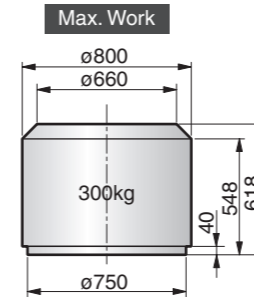
## HU40-T



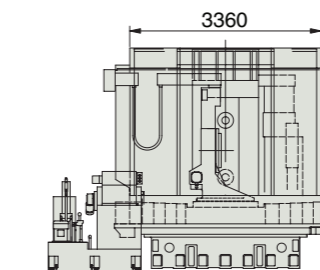
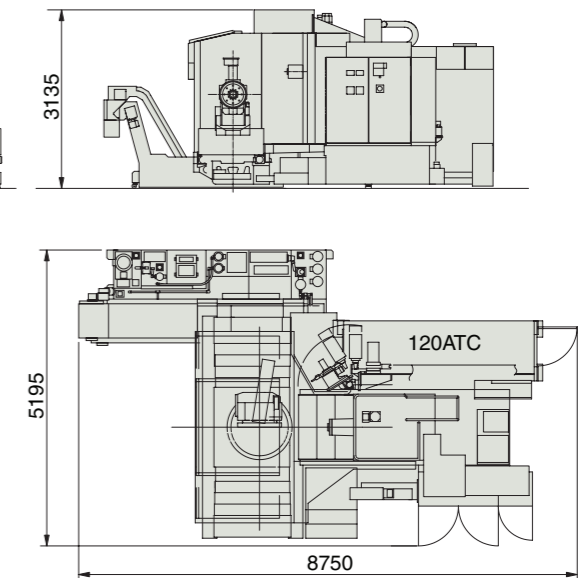
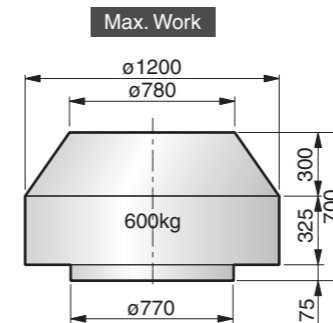
## HU50-T



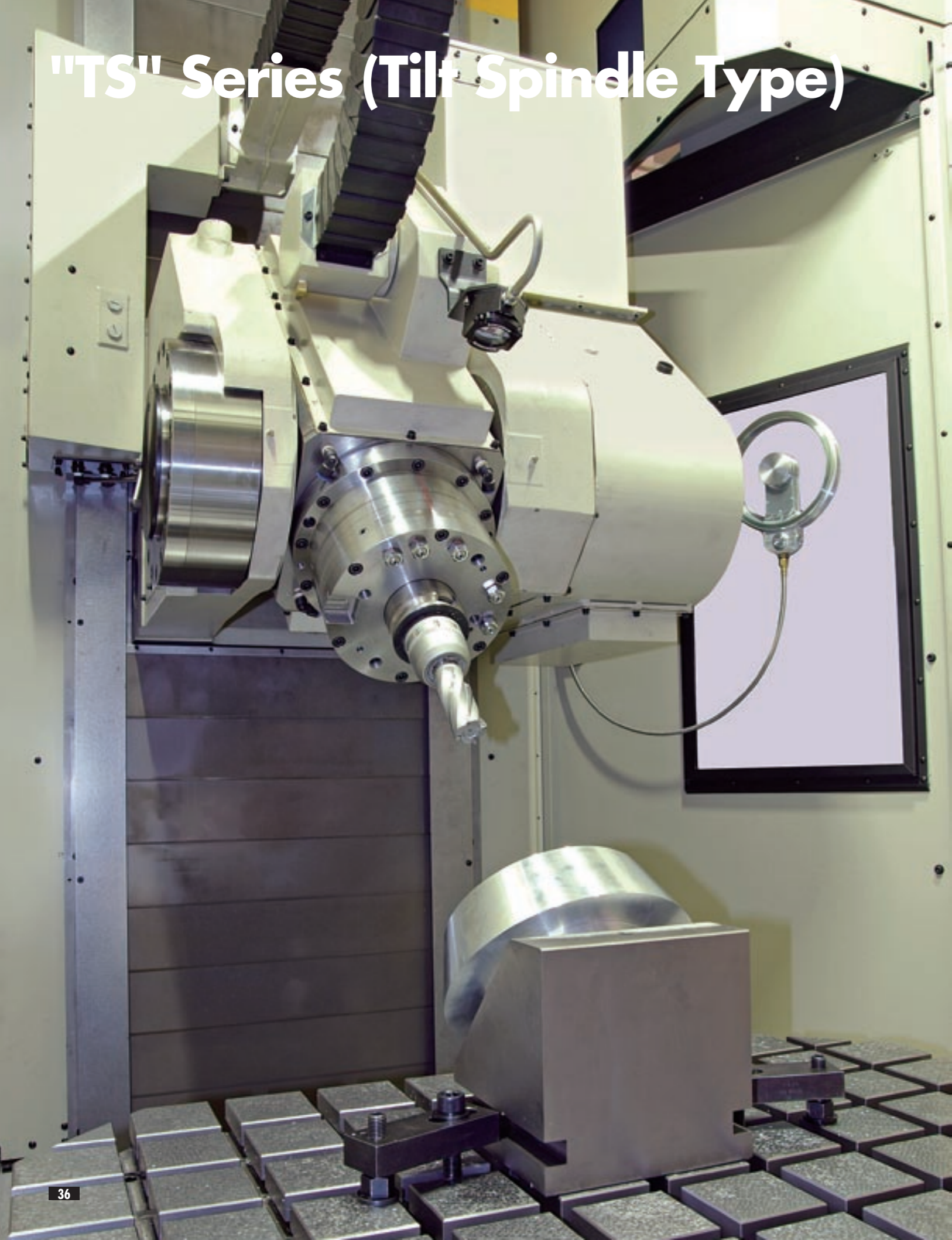
## HU63-T



## HU100-T



# "TS" Series (Tilt Spindle Type)



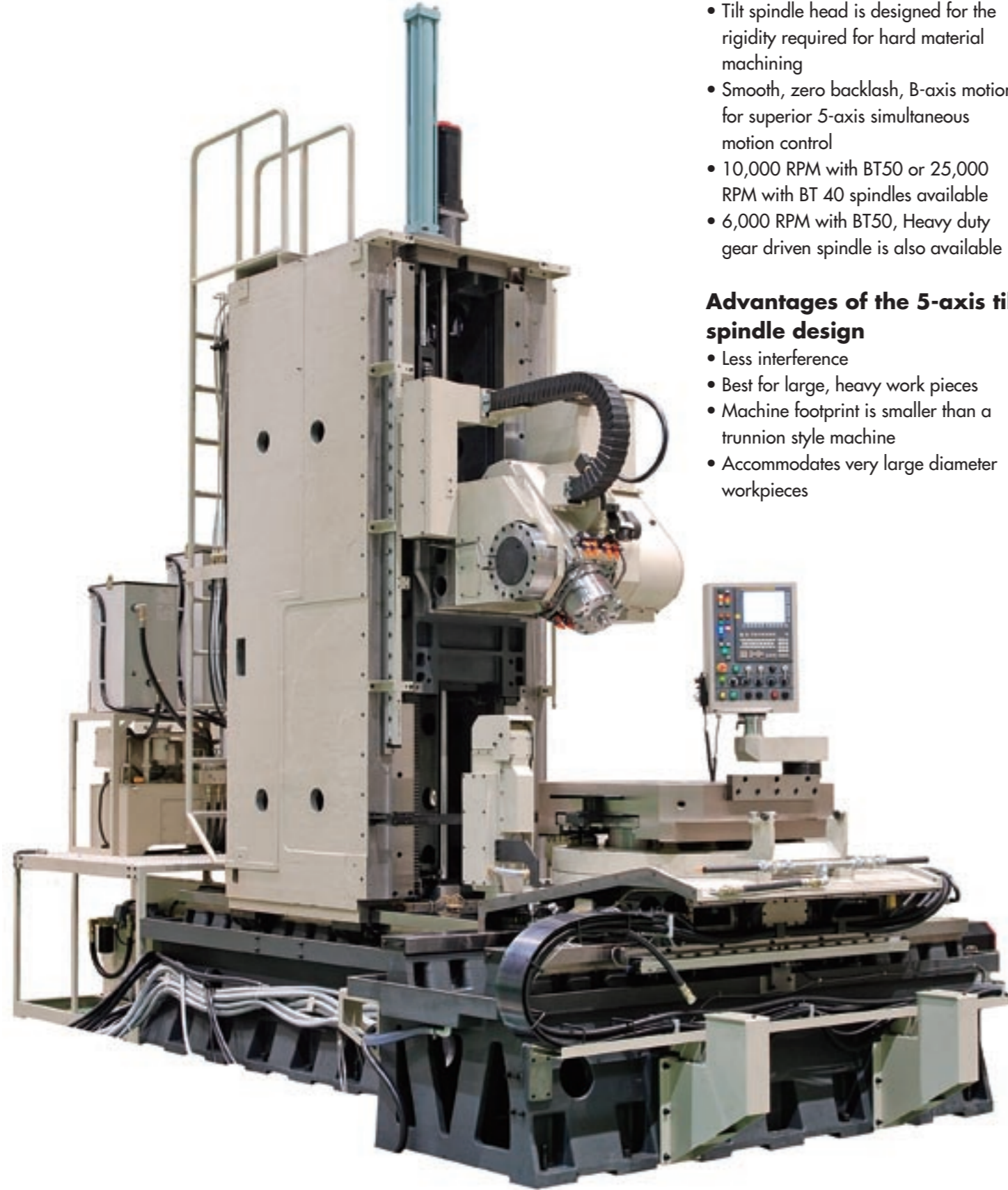
## Specifications

HU100-TS



Item		HU100-TS	
Stroke	X-axis	mm	1300
	Y-axis	mm	1500
	Z-axis	mm	1400
	A-axis	°	-30~+120
	B-axis	°	360
Table	Table size	mm	1000×1000
	Max. work dia. height	mm	ø1250×1900
	Max. permission of weight	kg	3000
Spindle	Taper	ISO 7/24 taper No.50	
	Spindle rotation speed	min <sup>-1</sup>	50~10000
	Spindle motor power (30min/cont.)	kW	22/18.5
Rapid feed rate	X, Y, Z-axis	m/min	15
	A-axis	min <sup>-1</sup>	6
	B-axis	min <sup>-1</sup>	10
ATC	Tool storage capacity	60	
	Max. tool length	mm	500
	Max. tool dia. with contiguity	mm	ø125
	Max. tool dia. without contiguity	mm	ø216
APC	Max. tool weight	kg	25
	APC	Option	
Positioning accuracy	X, Y, Z-axis	mm	±0.003
	A-axis	sec.	±3
	B-axis	sec.	±3
Machine weight	kg	31000	

# Features

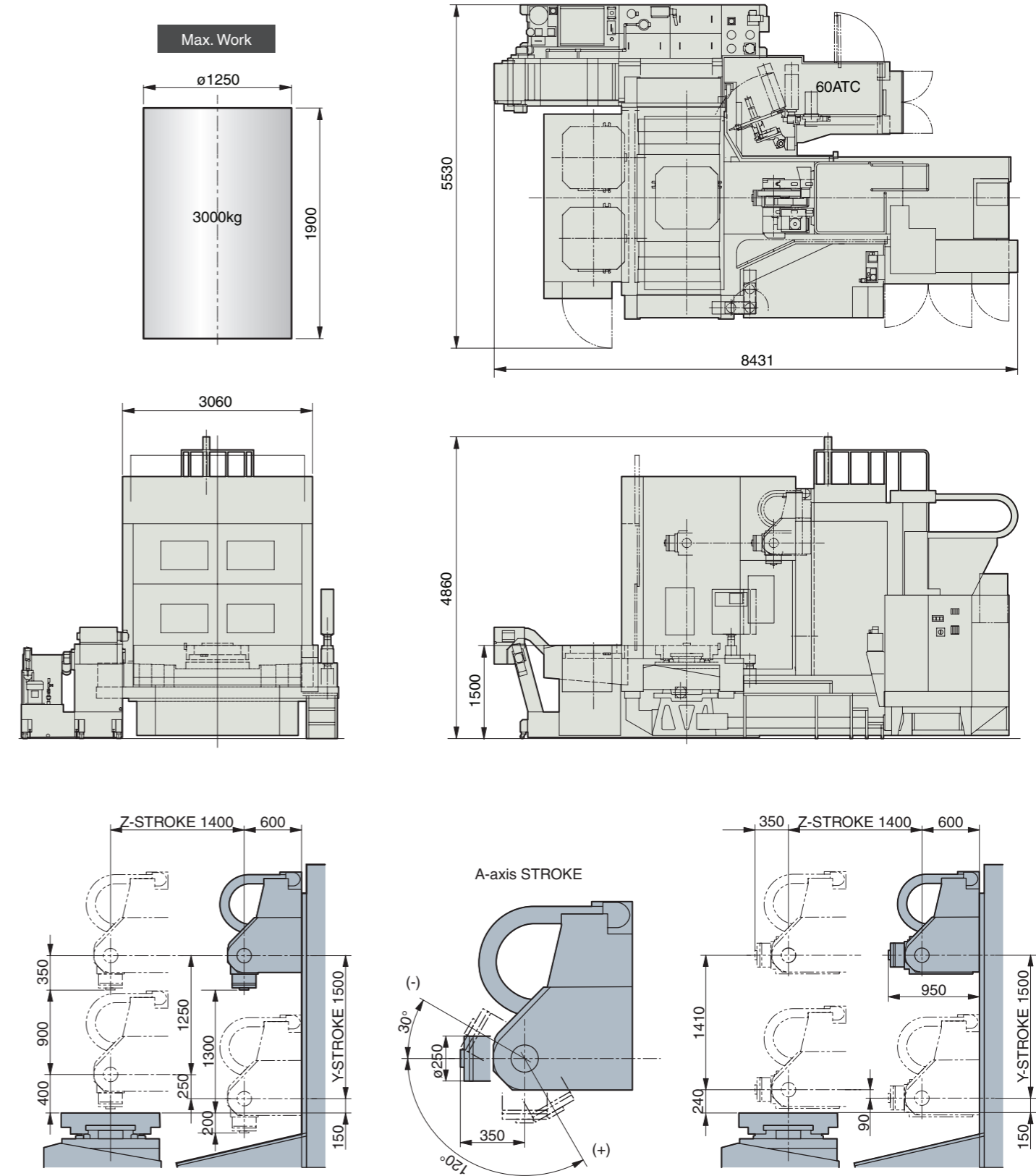


- Tilt spindle head is designed for the rigidity required for hard material machining
- Smooth, zero backlash, B-axis motion for superior 5-axis simultaneous motion control
- 10,000 RPM with BT50 or 25,000 RPM with BT 40 spindles available
- 6,000 RPM with BT50, Heavy duty gear driven spindle is also available

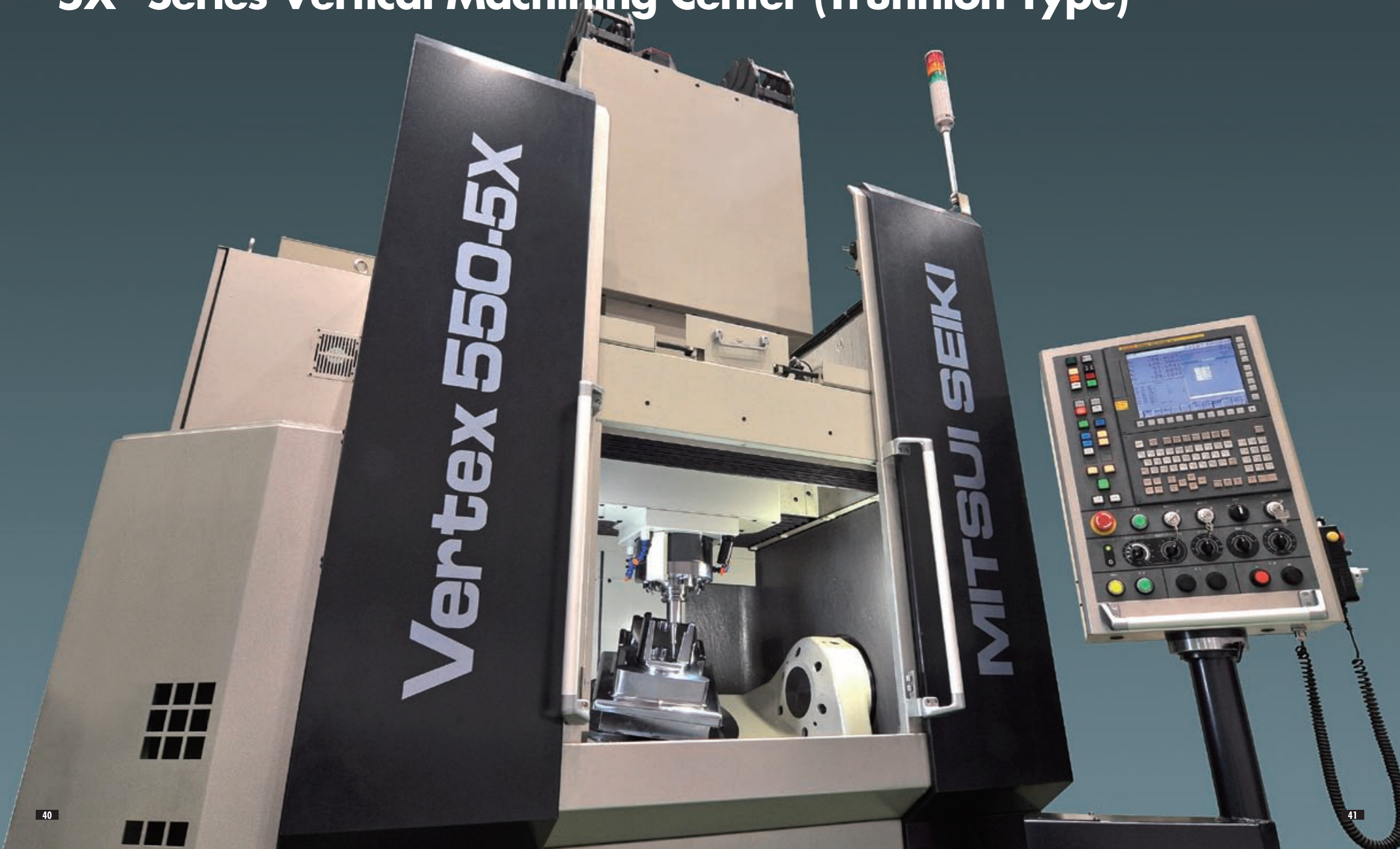
### Advantages of the 5-axis tilt spindle design

- Less interference
- Best for large, heavy work pieces
- Machine footprint is smaller than a trunnion style machine
- Accommodates very large diameter workpieces

# Layout



# "5X" Series Vertical Machining Center (Trunnion Type)





# Specifications

**Vertex550-5X**

**Vertex750-5X**

**VL30-5X**



Item		Vertex550-5X	Vertex750-5X	VL30-5X
Stroke	X-axis	mm	550	750
	Y-axis	mm	600	800
	Z-axis	mm	500	700
	A-axis	°	+15~-105	+15~-105
	C-axis	°	360	360
Table	Table size	mm	φ400	φ500
	Max. work dia. height	mm	φ750x525	φ950x650
	Max. permission of weight	kg	350	500
Spindle	Taper		ISO 7/24 taper No.40	ISO 7/24 taper
	Spindle rotation speed	min <sup>-1</sup>	50~25000 or 50~15000	50~25000 or 50~15000
	Spindle motor power (30min/cont.)	kW	18.5/15 or 7.5/5.5	18.5/15 or 7.5/5.5
Rapid feed rate	X, Y, Z-axis	m/min	48	48
	A-axis	min <sup>-1</sup>	30	20
	C-axis	min <sup>-1</sup>	50	40
ATC	Tool storage capacity		40	40
	Max. tool length	mm	300	350
	Max. tool dia. with contiguity	mm	φ90	φ90
	Max. tool weight	kg	10	10
Positioning accuracy	X, Y, Z-axis	mm	±0.001	±0.001
	A-axis	sec.	± 6	± 6
	C-axis	sec.	± 4	± 4
Machine weight	kg	9500	12500	6500

Item		Type-I	Type-II	Type-III
Spindle	Taper	HSK-E25	HSK-E32	HSK-E40
	Spindle rotation speed	min <sup>-1</sup>	500~50000	300~30000
	Spindle motor power (30min/cont.)	kW	5.5/1.5	4.0/1.5

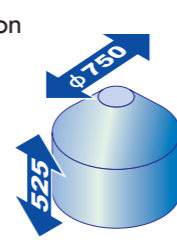
# Features

## Vertex550-5X/Vertex750-5X

- A small footprint with large workpiece capacity
- Ergonomically designed for easy accessibility
- High speed spindle with spindle thermal growth compensation function
- Machine designed for efficient chip evacuation

### Floor space and Max. work size to be on

	Floor space		Max. Work size		
	Width	Depth	Diameter	Height	Weight
<b>Vertex550-5X</b>	2m	3m	ø750mm	525mm	350kg
<b>Vertex750-5X</b>	2.2m	3.5m	ø950mm	650mm	500kg



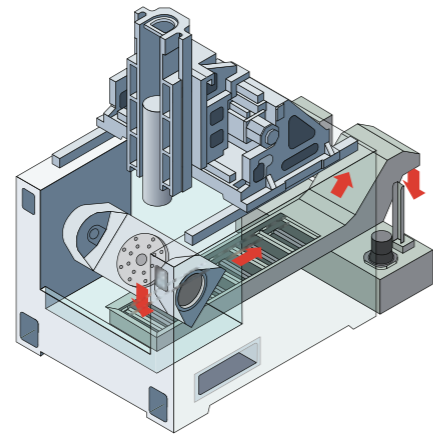
**Vertex550-5X**



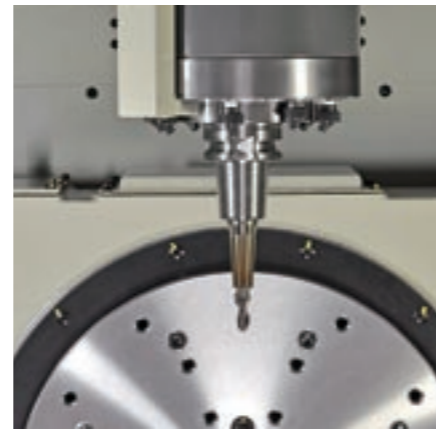
**Vertex750-5X**



Accessing the table surface is very easy and comfortable for the operator because of the stationary table design.



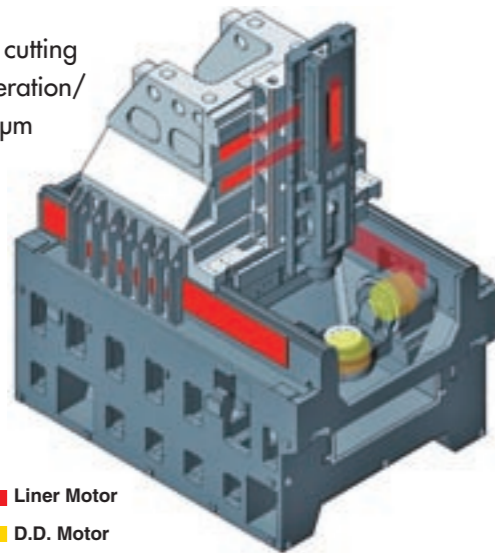
The cutting chips fall directly into the chip conveyor underneath the table and are quickly discharged.



Two spindles are available. A high speed 25,000min<sup>-1</sup> spindle or high torque 15,000min<sup>-1</sup> spindle

## VL30-5X

- Integration of linear motor technology for all axes provides the ultimate high speed and high accuracy machining without backlash or lost motion.
- 40m/min rapid feed rates / cutting feed rates (X,Y,Z) with acceleration/ deceleration at 1 G with 0.1µm numeral control input is achievable.
- High rotational speed and high acceleration is accomplished by incorporating DD (Direct Drive) motor technology on the rotary axis (C-axis) and tilting axis (A-axis)

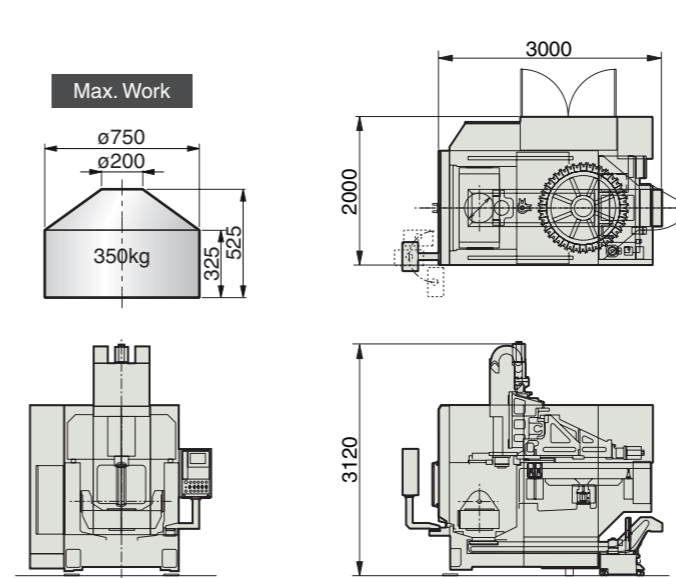


■ Liner Motor  
■ D.D. Motor

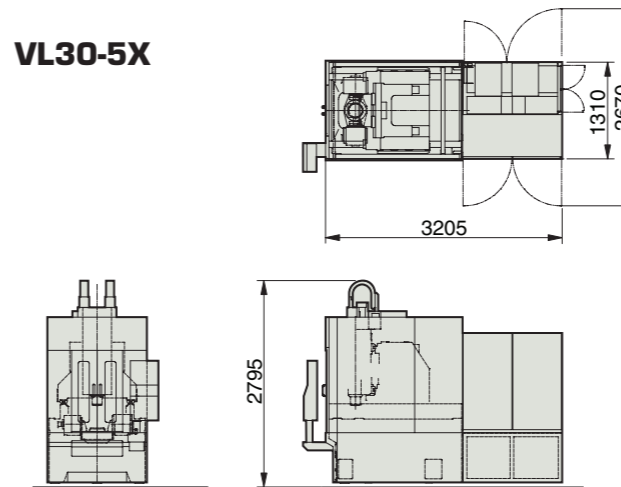


# Layout

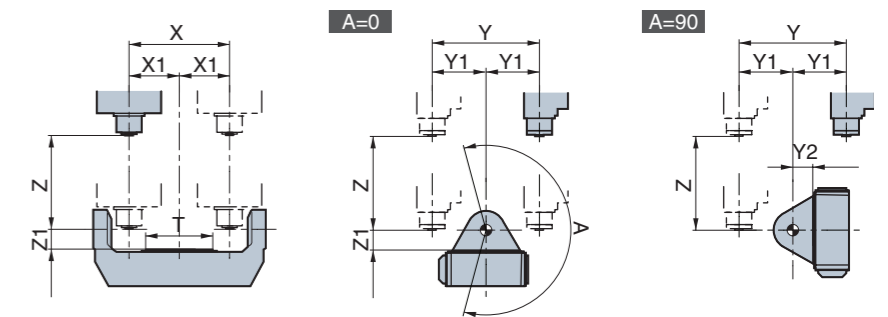
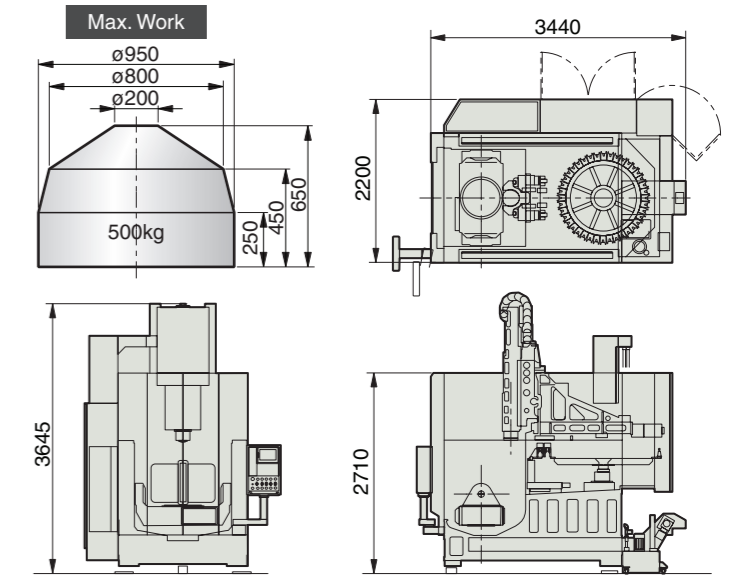
## Vertex550-5X



## VL30-5X



## Vertex750-5X



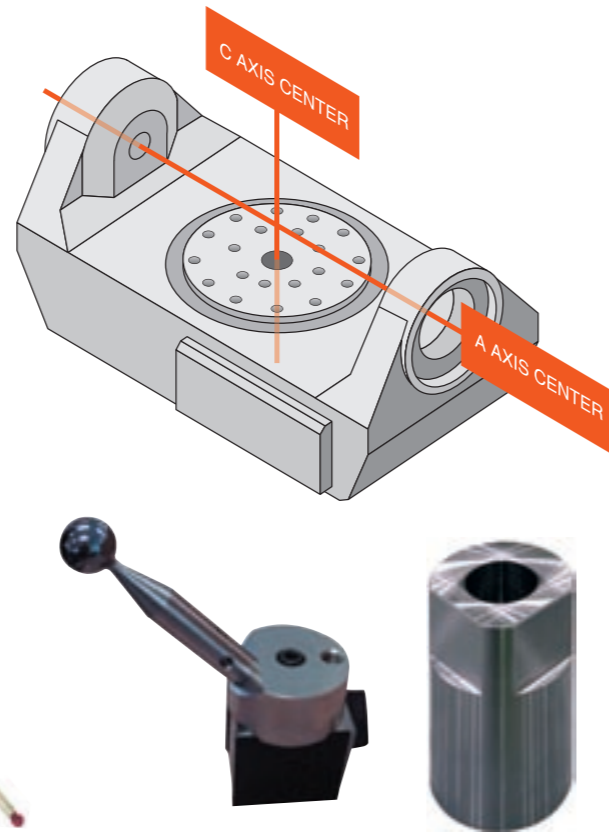
Symbol	Unit	Vertex550-5X	Vertex750-5X	VL30-5X
T	mm	ø400	ø500	ø180
X	mm	550	750	200
X1	mm	275	375	100
Y	mm	600	800	300
Y1	mm	300	400	150
Y2	mm	100	150	50
Z	mm	500	700	200
Z1	mm	100	150	100
A	°	+15--105	+15--105	+40--110



# Tools for supporting 5-axis part processing

## Measuring kits for ease of machine tool setup and operations

For high accuracy 5-axis part processing, at times it is necessary to precisely determine a center of the rotating/tilting axes. It is especially important to check before critical finishing features need to be processed on a batch of parts. A dedicated centering gauge, AMCS (Automatic Measurement Correction System), and setup guidance screen are optionally available with the Vertex. By operating the machine in accordance with the instructions on the screen, the center of A-axis or C-axis can be precisely and easily located.



Support Kits



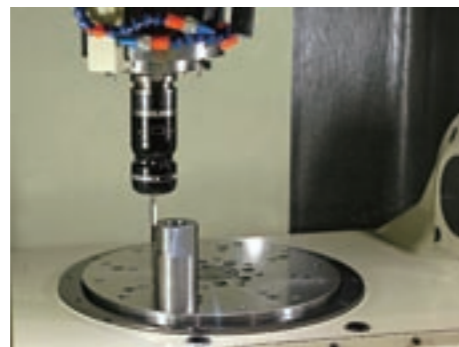
AMCS Touch Probe



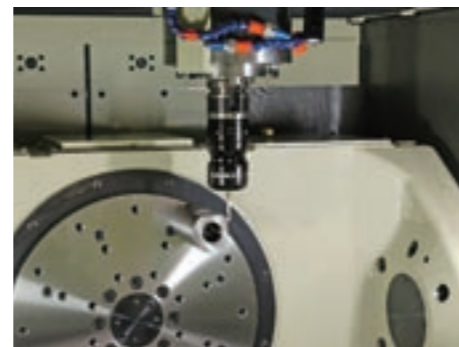
Special centering gauge  
(2 different types)



Guidance screen



Measurement of C axis rotation center



Measurement of A axis rotation center

## Mitsui Seiki 5-axis Dynamic Fixture Offset

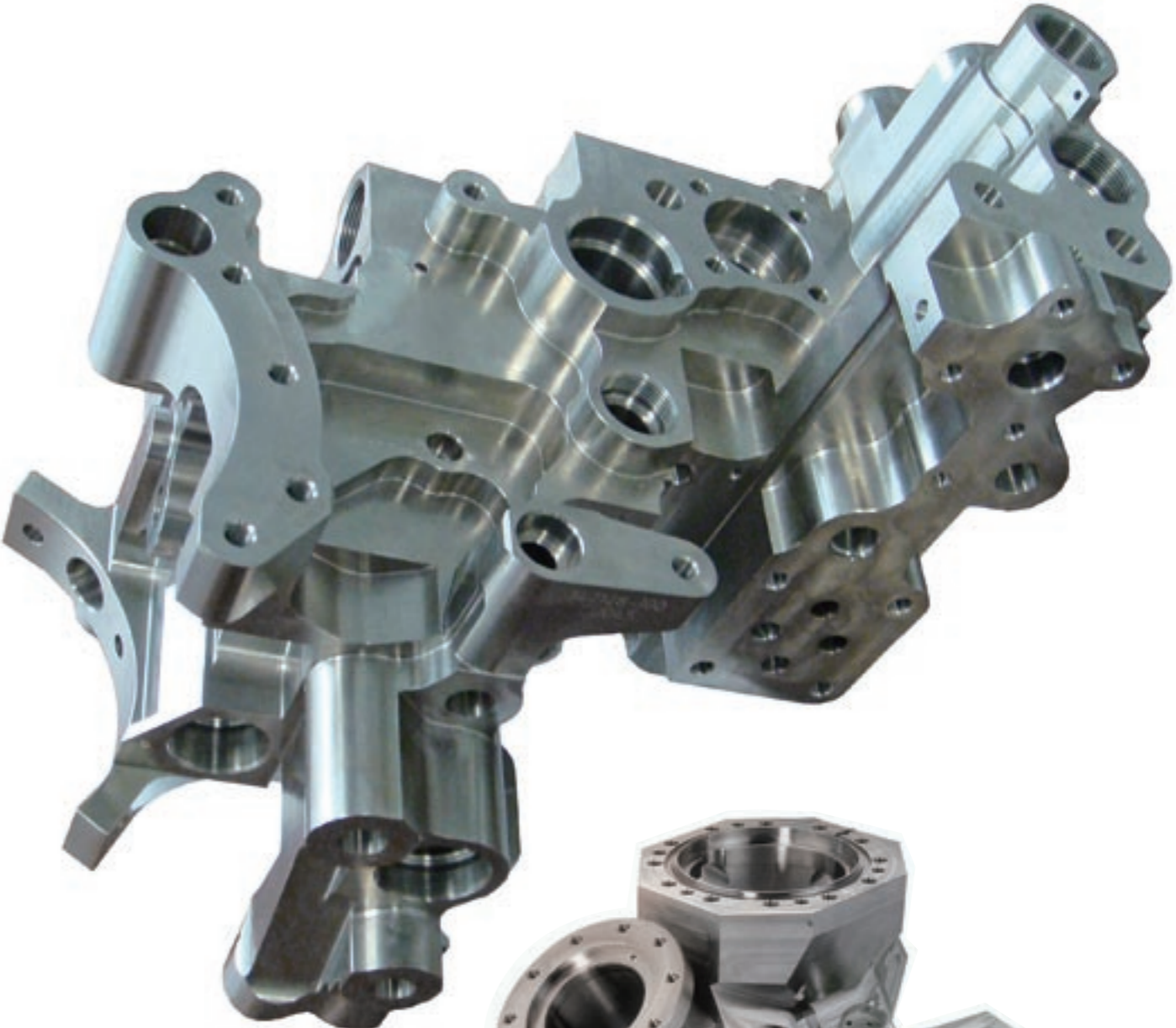
In the event the machining part program point of origin (part program zero location) and a datum point of the workpiece are not aligned, this function allows the machine to continuously correct the machining point of origin as the rotating axis moves, by presetting the misalignment scale in the fixture offset. It allows the user to have consistent simultaneous five axis processing with the same part program without reposting, even when a workpiece is misaligned when it is loaded. This function is a Mitsui Seiki exclusive feature.

## Calculation macro for A and C axes rotating coordinates

To correct a positional point to the part program zero location as it indexes through a five axes coordinate system, the combined indexing angle changes must be determined. This is very difficult to find. This software is designed to make automatic calculations for this correction by determining the center of the rotating/tilted axes in advance. This feature is ideal when used in conjunction with the measuring assist tools for location of the A and/or C centers of rotation. It helps the user make precise coordinate setup and point-of-origin corrections for the precision workpiece to be processed.



# Application Examples







## **MITSUI SEIKI KOGYO CO., LTD.**

URL: <http://www.mitsuseiki.co.jp>

### **HEAD OFFICE AND KAWAJIMA MAIN FACTORY**

6-13, Hachiman, Kawajima-machi, Hiki-gun, Saitama, 350-0193 Japan  
TEL: +81-49-297-5555 FAX: +81-49-297-4750

### **MITSUI SEIKI (U.S.A.) INC.**

563 Commerce Street, Franklin Lakes, NJ 07417, U.S.A.  
TEL: +1-201-337-1300 FAX: +1-201-337-3680  
URL: <http://www.mitsuseiki.com>

### **TOYODA MITSUI EUROPE GmbH**

Bishopstr, 118 47809 Krefeld Germany  
TEL: +49-2151-5188-300 FAX: +49-2151-5188-333

### **TOYODA MITSUI EUROPE FRANCE BRANCH OFFICE**

94380 2 Grande-All, P.A. Des Petits Carreaux Bonneuil Sur Marne France  
TEL: +33-1-4956-8582 FAX: +33-1-4377-4759