High Precision
Double Column Type Machining Center

BRIDGEcenter-8®

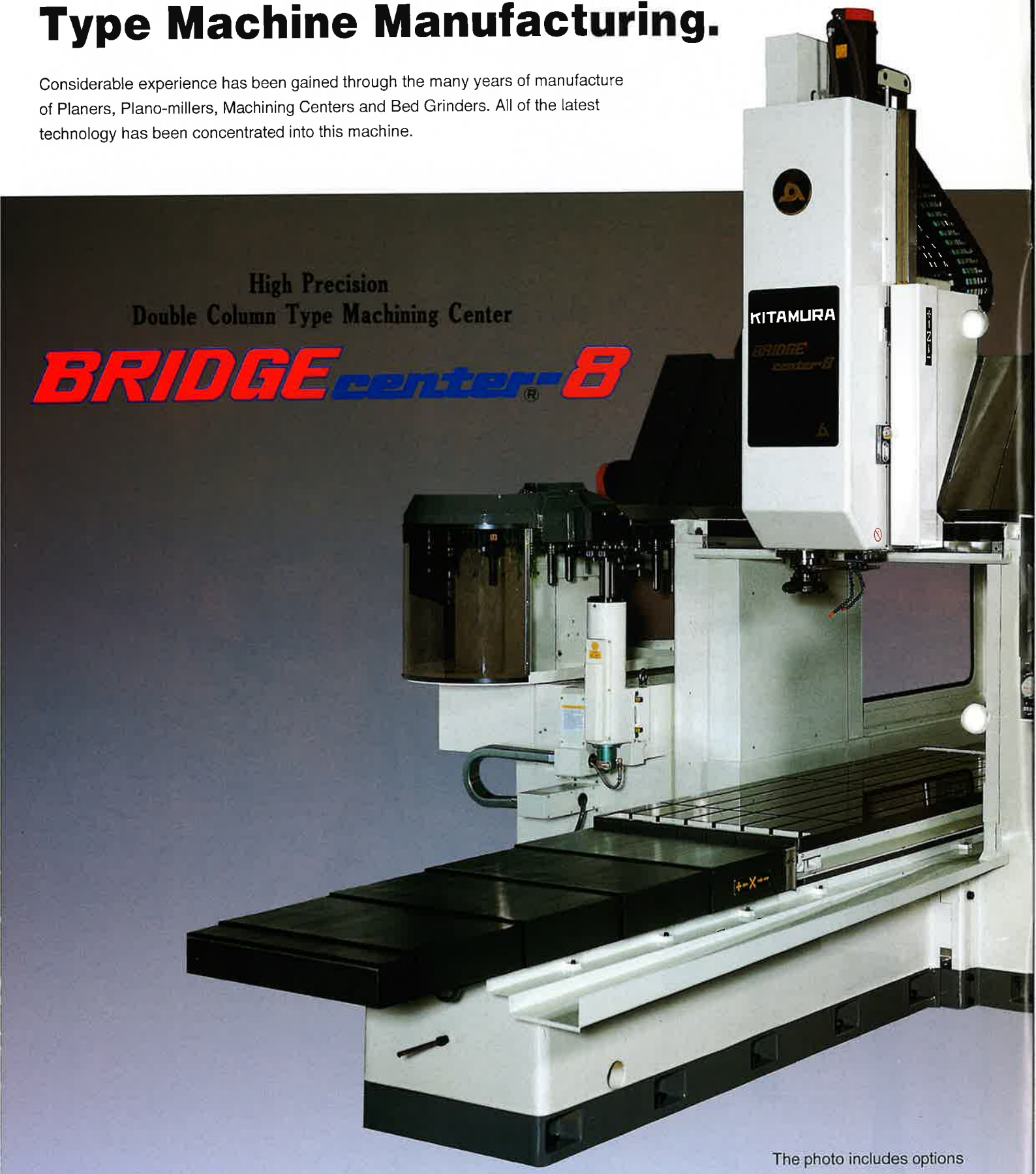
KITAMURA MACHINERY CO., LTD.

Here's The Proof. 30 Years of Bridge Type Machine Manufacturing.

Considerable experience has been gained through the many years of manufacture of Planers, Plano-millers, Machining Centers and Bed Grinders. All of the latest technology has been concentrated into this machine.

High Precision
Double Column Type Machining Center

BRIDGE center-8®



The photo includes options

HIGH PRODUCTIVITY AND HIGH ACCURACY WITH COMPACT FLOOR SPACE

EXCELLENT CUTTING CAPABILITY(S50C)

MILLING	● 913cc/min
DRILLING	● ⌀ 60mm
TAPPING	● M48
SPINDLE MOTOR	● AC22kW (30HP)
2-STEP GEAR DRIVE	

HIGH ACCURACY

POSITIONING	● ±0.005mm/full stroke (±0.0002")
[With linear scale	● ±0.003mm/full stroke (±0.00012")]
REPEATA BILITY	● ±0.003mm (±0.00012")
[With linear scale	● ±0.001mm (±0.00004")]

〔The above are statistical accuracies in a controlled environment [20±1℃, 60±5%], The foundation and inspection procedure specified by KITAMURA〕

HIGH SPEED

APC TIME	● 35sec.(The World's Fastest, Patent Pending)

The Technical Prize of the Japan Society of Precision Engineering

JSPE, The Japan Society of Precision Engineering, is organized by Professors of Japanese universities and national research institutes along with highly reputed specialists of the industry.
JSPE expanded the organization in 1981 and decided to give only one award a year to the most excellent company contributing to precision machine developments in the industry.
The fact that KITAMURA MACHINERY was the first company to obtain this award by recognition of JSPE is one proof of KITAMURA'S highest technology.

The prize from the Director of the Science and Technology Agency.

The annual prize of the Japan Society for the Promotion of Machine Industry.

The annual national prize of the Medium and Small Business Research Institute.

Double Housing Structure With High Rigidity is Designed for Extreme Cutting Capacity.

Highly rigid bridge type construction

Triangle section cross beam

■Kitamura's high technology preserves high accuracy and high rigidity within the double-column type construction

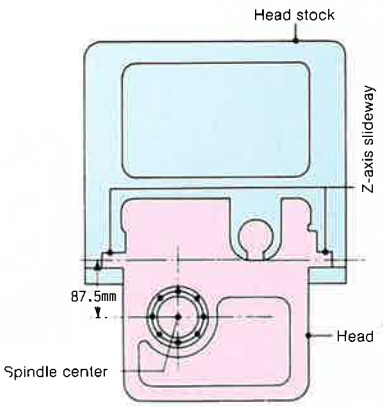
The design and construction of the BRIDGEcenter-8 incorporates outstanding features within this class of machine. This assures the user of optimum cutting capability and a high degree of accuracy.
The basic construction of the Double Column Bridge type machine consists of a bed type casting with square section support columns, also incorporating a triangular section cross beam. The application of high grade Meehanite casting provides maximum rigidity to enable high cutting load characteristics.
The machine's slideways are induction hardened and super-finish ground.
This configuration enables smooth operation and excellent vibration absorption.

■The Long Bed Guideway Eliminates Table Overhang

The Bridge type construction facilitates maximum cutting performance incorporating a spindle head design which is located on wide guideways.
This design eliminates overhang, which maintains maximum cutting rigidity for heavy duty machining operations.

■The location of the machine headstock on the main cross beam is of unique design

The distance between the spindle center and the Z axis slide way is 1/4 of the ordinary bed-type machining centers.
During machining, it maintains cutting stability, thus reducing any cutting movements to an absolute minimum.



High Accuracy

With Linear Feedback Scale
Positioning Accuracy ±0.003mm/ full stroke
Repeatability ±0.001mm
(This accuracy statistic is in a controlled environment)

Table

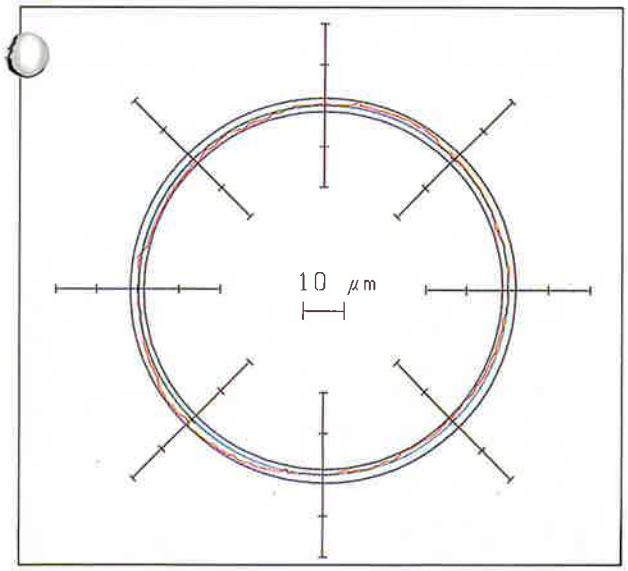
■Spacious Working Area

Table size is ample 2,500mm(98.4") by 900mm (35.4") and extra long Y travel distance of 1,085mm(42.7") has been provided.
This large working area in combination with heavy table load capacity 3,000kg(6,600 lbs) allows the BRIDGEcenter-8 to achieve an excellent performance on heavy duty cutting of molds to high accuracy cutting of precise parts.

■Precisely Finished Table Surface

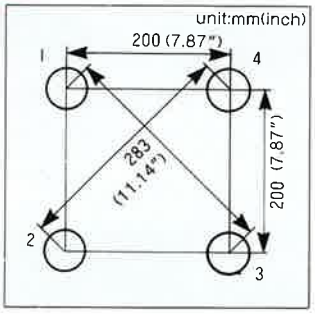
The center T–slot is made of H8 finish which means that this T–slot can be used as clamping reference.
Also precisely finished ground table surface allows easy set ups for workpieces.

■Roundness Data (measured sample value only)



Roundness 3.3μm

■Measured Value of Accuracy



Accuracy of pitch and hole diameter

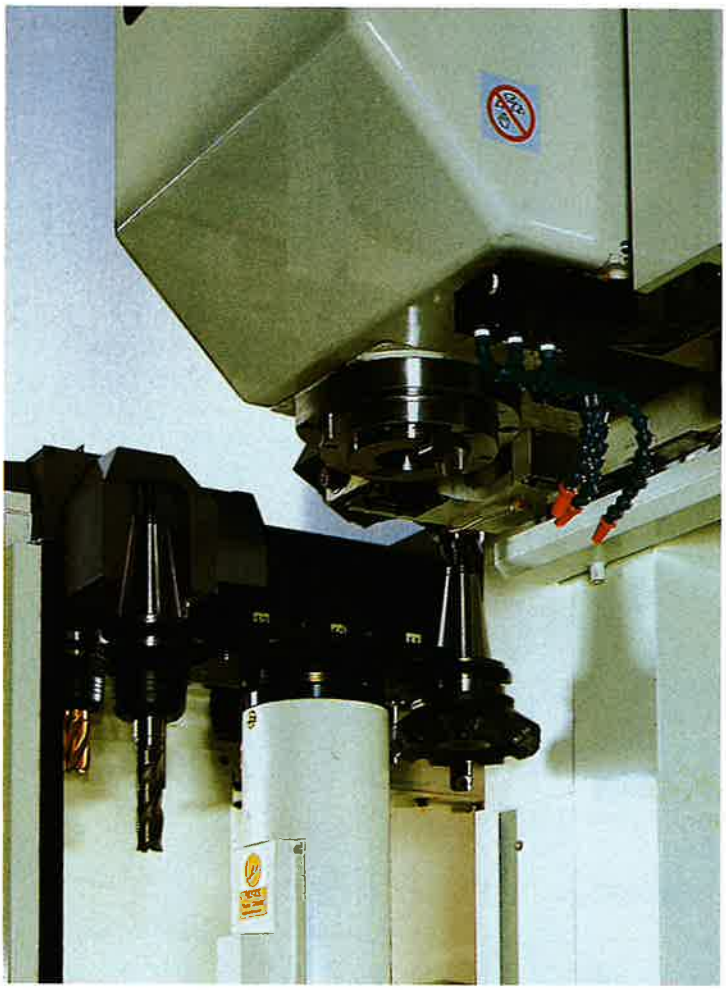
Pitch:200mm(7.9") Unit:mm

	Result
Pitch accuracy (For each direction of axis)	0.003~0.004
Pitch accuracy (For diagonal direction)	0.004~0.005
Hole size variation	0.003~0.004

■High Speed with High Accuracy Positioning

Rapid feed rate is very fast to shorten cycle time.
The AC servo motor, high precision ball screw and wide box type slideways achieve excellent positioning accuracy and repeatability.
High accuracy positioning
(This statistical accuracy is obtained an environment of a controlled atmosphere)
Positioning accuracy ——— ±0.005mm/full stroke
Repeatability ——— ±0.003mm

High Power and High Accuracy Spindle Head Construction



High rigid spindle head

■Unique Spindle Head for High-Precision Machining

The high precision spindle assembly incorporates large 100mm diameter super precision double row angular thrust roller bearings, with a grease lubrication system. The operating temperature of the spindle head is maintained by utilizing a spindle oil cooling system. This lubrication and cooling system circulates throughout the complete headstock assembly which maintains an ambient operating temperature even during machining operations of long duration.

■Coolant Through Spindle (option)

The coolant through spindle system with KITAMURA'S unique design is available as an option. Hi-pressure coolant is discharged directly through the spindle center and no special holders are required. This system is for high speed drilling which can realize the maximum output power of the BRIDGEcenter-8

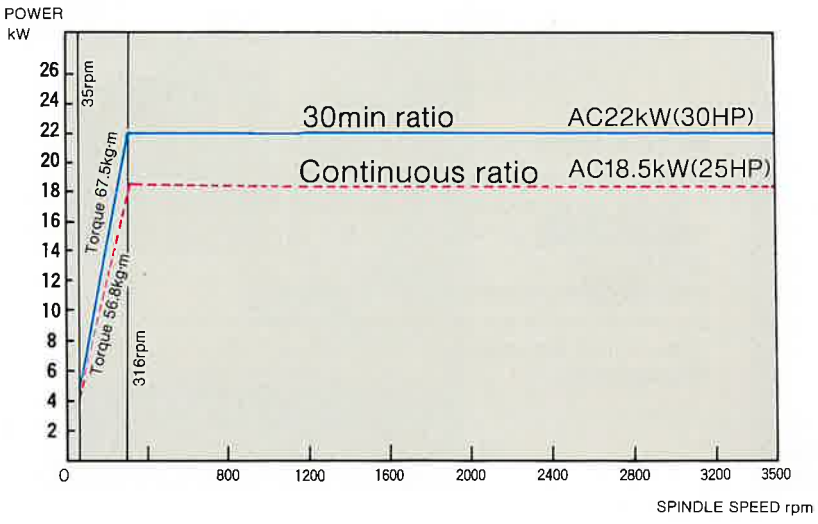
■High-speed Tapping Function

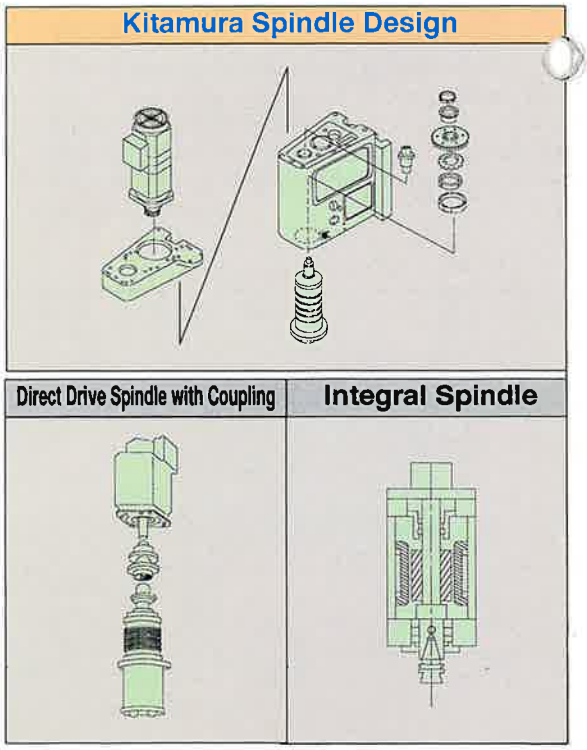
It is possible to tap holes at high speed (150~1,000r.p.m.) and with high accuracy using this function. When Z axis movement is synchronized with spindle revolution there is no need to use conventional floating tap holders.

■High Torque AC Spindle Motor

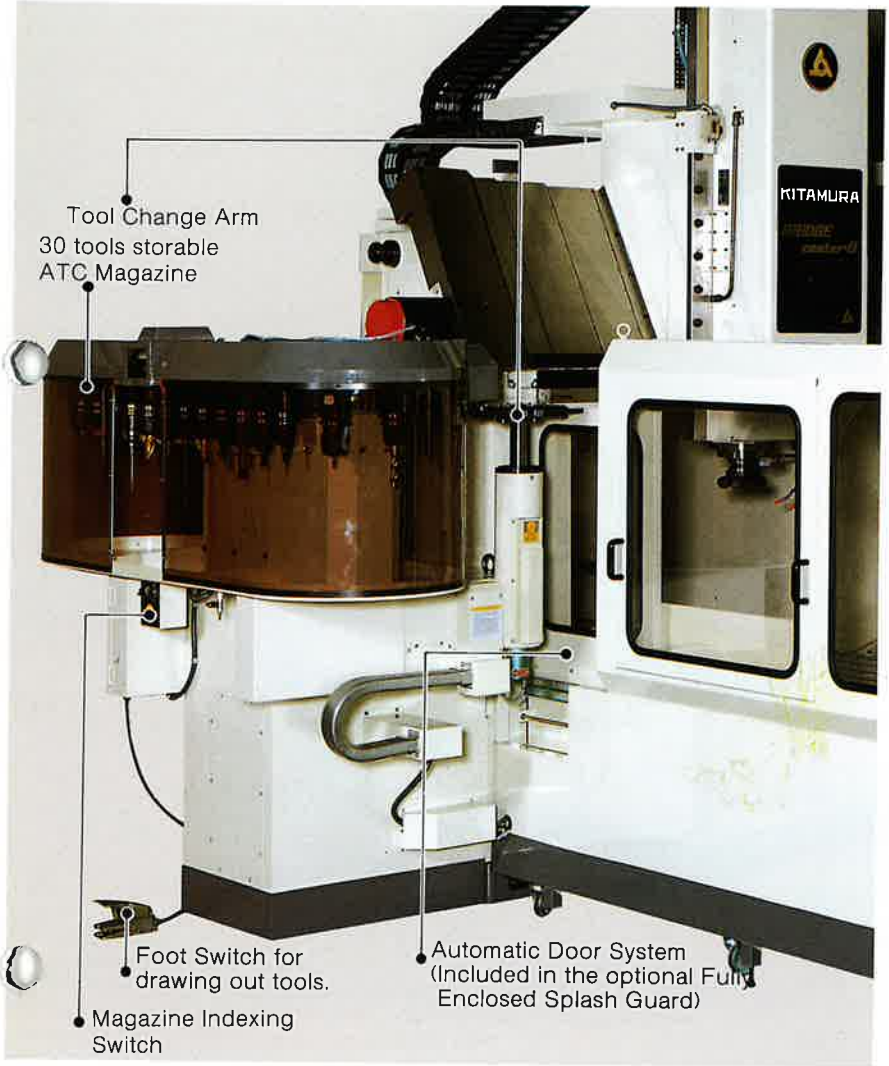
The main spindle is driven by the combination of an outstanding high power (22kw,30hp) AC spindle motor and a highly rigid 2 step geared box system. It outputs the highest torque in the class of any spindle speed range from low to high, at the same time achieving a strong cutting capability of 913cc/min with S50C steel material.

■Spindle Power Diagram(35~3,500rpm)





Superior ATC Design for Convenient Operation



ATC system

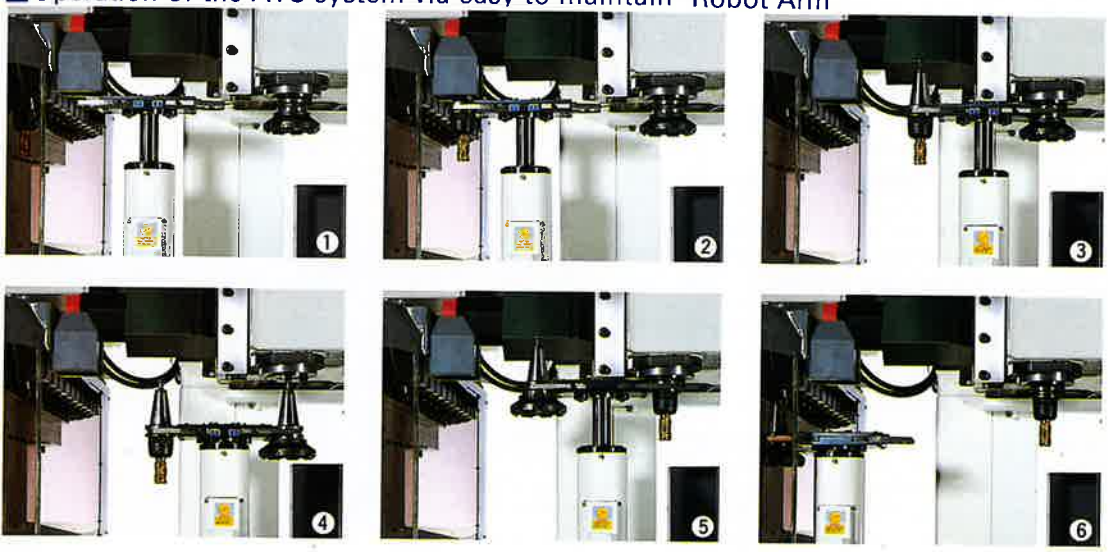
■Superior ATC Design for Convenient Operation

The automatic tool changing system employed on the BRIDGEcenter-8 is of simple and compact design. This ATC is located on the left hand side of the machine.
The ATC unit is free standing from the machine body with and integral robot transfer arm. This design ensures that there is no torsional stress to the main machine construction or tool magazine indexing during machining. This design also ensures that no effect will be had on machining accuracy.
The ATC unit is protected from chips and splashed coolant by the automatic door system. This system is equipped with the optional fully enclosed splash guard ensuring that the tool taper shank is kept clean, and that the tool setting accuracy is constantly maintained.
The ATC magazine stores 30 tools as standard and 40,60 or 80 tool ATC magazines are optionally available to meet the requirements of a wide variety of workpieces.

■Easy and Speedy Tool Handling

The hydraulic powered tool puller of the ATC magazine can be easily operated by a foot switch. The operator can smoothly and safely exchange the tools by using both hands.

■Operation of the ATC system via easy to maintain Robot Arm



Operation of the ATC system via easy to maintain Robot Arm

①② The robot arm selects the next tool from the ATC and moves to the park position
③ The robot arm extends and positions beneath the spindle nose, gripping the tool to be retracted from the spindle.
④ The tool is unclamped and retracted
⑤ The tool change arm rotates and inserts the next tool into the spindle.
⑥ The robot arm retracts and replaces the used tool into the ATC.

Features of KITAMURA Hi-speed Pallet Changing System (option)

The photo includes options.

■High Speed 2 Station Pallet Changer

In spite of a large sized pallet of 900 ×2,300mm(35.4" ×90.6") and a heavy pallet load capacity of 1,500kg(3,300 lbs), the Hi-speed APC changes pallets with a maximum speed of 20m/min,(patent pending).
It achieves the fastest pallet change time in side mounted pallet changers to minimize idle time and to prolong the machine operating time.

■High precision Pallet Positioning

The large sized special pallet positioning mechanism incorporating high power pallet clamping(9,400kg/20,680 lbs) achieves the highest pallet positioning accuracy(±0.003mm). It is ideal for the various aspects of a mold which requires heavy duty cutting for precision parts.

■Specifications on Palletized Model

Item		Unit	Descriptions
Pallet	Pallet size	mm	900×2,300(35.4"×90.5")
	Table load capacity	kg	2,500 (5,500 lbs)
	Pallet change time	sec.	35
Travel	Distance from table surface to spindled nose	mm	122–832(4.8"–32.8")
Dimensions	Floor space(W×L)	mm	3,780×8,600(148.8"×338.6")
	Machine weight	kg	24,000(52,800 lbs)

Capabilities That Flexibly Meet Diversified Machining.

■Machine Standard Specifications

	Item	Unit	Description
Table	Table size	mm	900×2,500(35.4"×98.4")
	T-slots (Width × Quantity)	mm	18×7
	Table load capacity	kg	3,000(6,600 lbs)
Travel	Longitudinal travel (X-axis)	mm	2,032(80")
	Cross travel (Y-axis)	mm	1,085(42.7")
	Vertical travel (Z-axis)	mm	710(27.9")
	Distance from table surface to spindle nose	mm	252-962(9.9"-37.8")
Spindle	Spindle taper		NT. No.50
	Spindle speed	rpm	35-3,500 / 60-6,000(option)
	Spindle motor	kw	AC22(30HP)
	Max Spindle torque for real cutting	ft·lbs (N·m)	490 (665)
	Variable steps speed		2 step gear drive
Feed	Rapid feed (X,Y axis)	m/min	12 (472.4 IPM)
	Rapid feed (Z axis)	m/min	10(393.7 IPM)
	Cutting feed	mm/min	0-10,000 (0-393.7 IPM)
ATC	Tool storage capacity	pcs.	30(40,60,80, option)
	Tool selection method		Random Bi-Directional
	Tool shank		MAS BT.No.50 / CAT.No.50
	Max. tool diameter	mm	∅127(5")
	(In case adjacent tool pots are empty)	mm	∅152(6")
	Max. tool length	mm	350(13.7")
	Max. tool weight	kg	15(33 lbs)
Dimensions	Floor space (W × L)	mm	3,950×6,073 (155.5"×239.1")
	Machine height	mm	4,046 (159.3")
	Machine weight (With NC & Guarding)	kg	17,000 (37,400 lbs)
Power Requirement (60Hz, 200V, 3Phase)		KVA	40

■Machine Standard Accessories

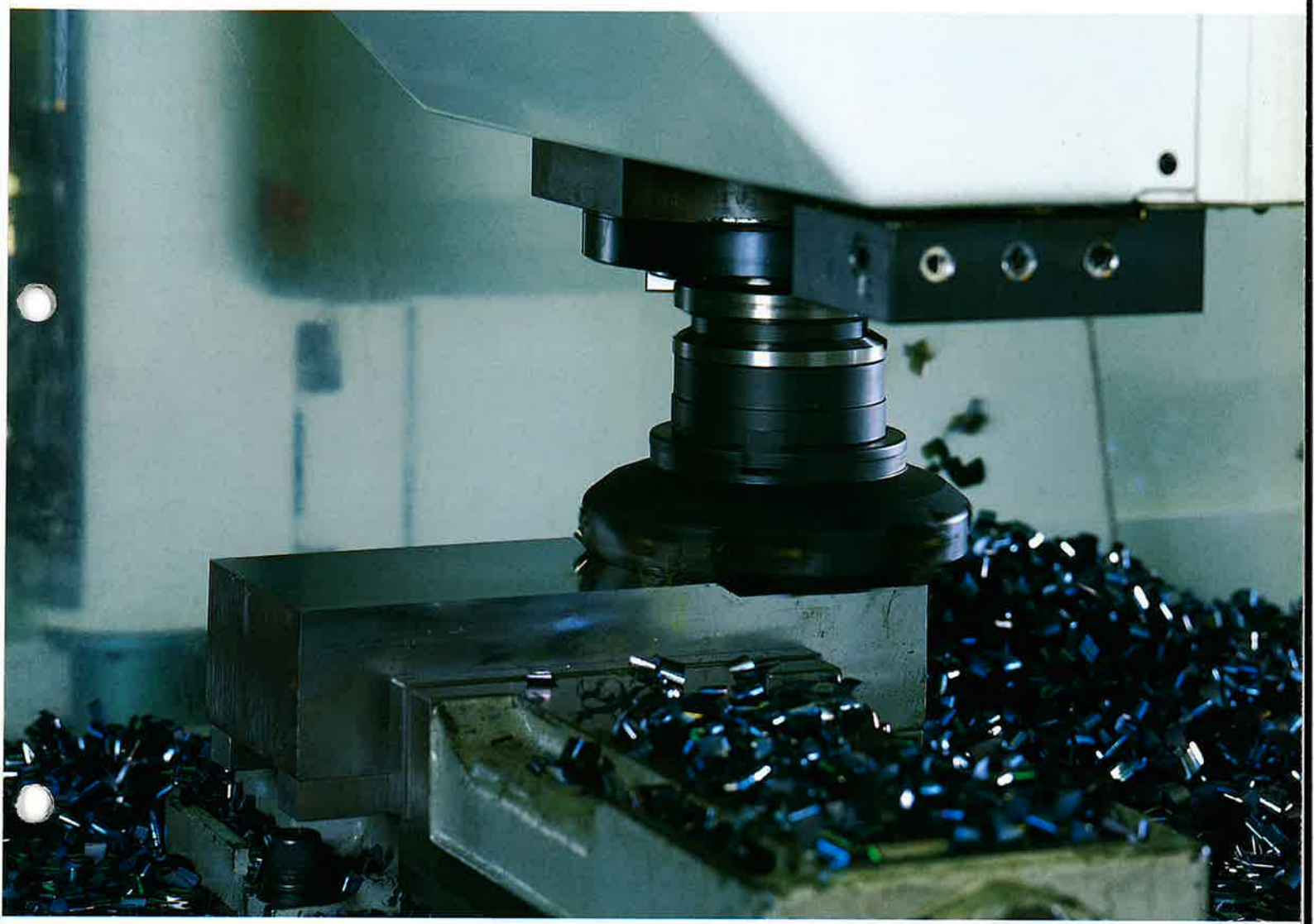
1. Installation kit	17. Work light (Halogen)
2. Standard spare parts	18. Cycle finish lamp
3. NC standard spare parts	19. High speed tapping function
4. Leveling bolts and plates	20. 4 Additional M-function
5. Table mounted splash guards	
6. Automatic spindle orientation	
7. Spindle nose air blow	
8. Coolant device	
9. Coolant tank (180L)	
10. Coolant pump (1210W / 60Hz)	
11. Automatic way lubrication	
12. Self diagnosis function	
13. Spindle speed meter	
14. Spindle load meter	
15. Spindle oil cooler	
16. 30 station automatic tool changer	

■Machine Optional Accessories

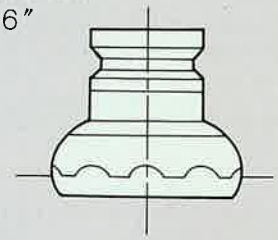
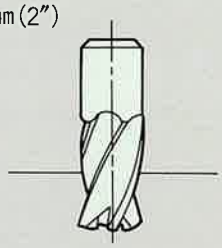
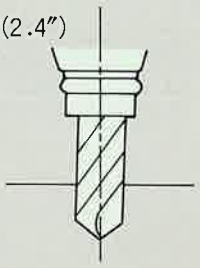
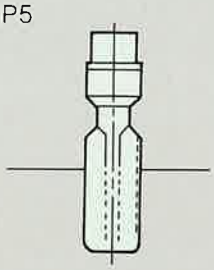
1. Tool holder & pull stud	15. Automatic tool breakage detector
2. Fully enclosed splash guard	16. Automatic spare tool selection
3. Warm up timer	17. Automatic tool offset compensation
4. Automatic power off device	18. Automatic work coordinate system
5. Foundation bolts	19. KITAMURA monitoring system
6. 3 step programmable coolant device	20. Special color
7. Oil mist coolant device	21. Coolant thorugh spindle
8. One shot tap lubricant	22. Increased capacity coolant tank
9. Chip conveyor (Screw type) ×2	23. Oil cut (Coolant filtration device)
10. Chip conveyor (Caterpillar type)	24. Ceramic spindle
11. Chip bucket	25. Ω 80, Ω 320 IC card data file system
12. Hi-speed automatic pallet changer (2 APC)	26. α 320 Data file on-line system
13. High speed spindle (6,000 r.p.m.)	27. Σ 7500 Programming back-up system
14. Additional tool storage (Total 40,60,80)	28.

※Design and specifications are subject to change without prior notice.

Outstanding Cutting Capacity, 913cc/min.(S50C)

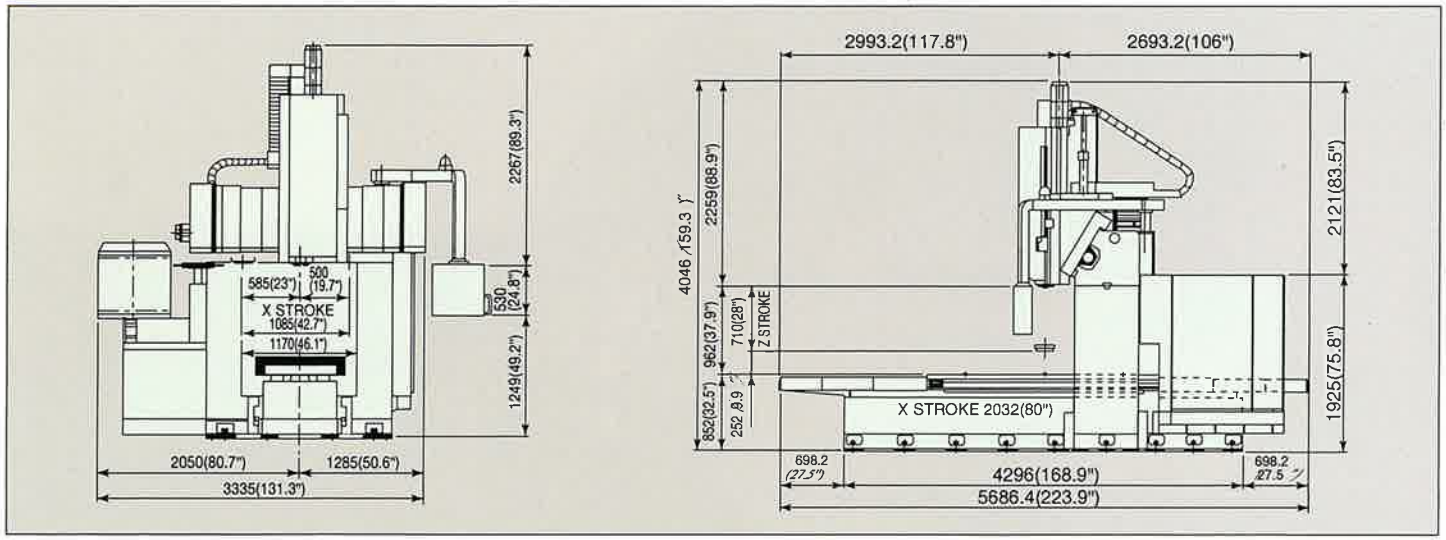


■Cutting Capacity (Material:S50C / 3,500r.p.m.)

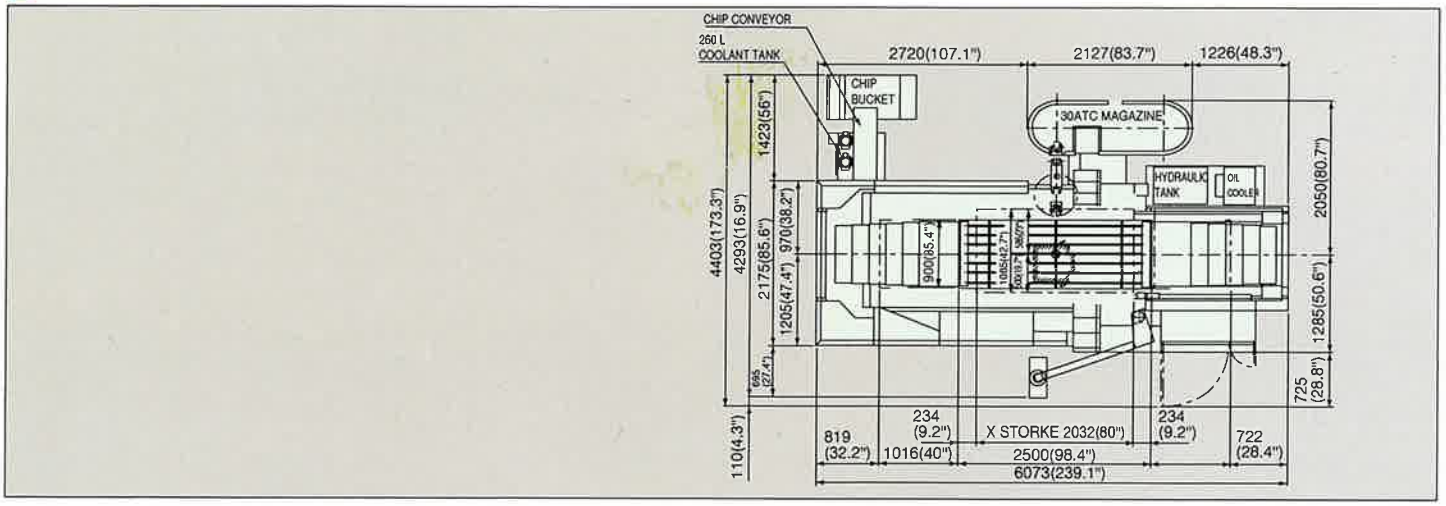
Face mill Ø6″	End mill Ø50mm(2″)	Drill Ø60mm(2.4″)	Tap M48,P5
			
Spindle speed 400rpm Cutting width 130mm.(5.1″) Cutting depth 6.5mm.(0.26″) Cutting feed 1080mm/min.(42.5 IPM) Metal removal 913cc/min.(56cu.in/min)	Spindle speed 600rpm Cutting width 50mm.(2″) Cutting depth 40mm.(1.6″) Cutting feed 350mm/min.(13.8 IPM) Metal removal 700cc/min.(44cu.in/min)	Spindle speed 160rpm Feed rate 135mm/min.(5.3 IPM) Metal removal 382cc/min.(24cu.in/min)	Spindle speed 100rpm Feed rate 500mm/min.(19.7 IPM)

Machine Dimension

Unit:mm(inch)



Machine Installation



Machine Installation on Palletized Model