

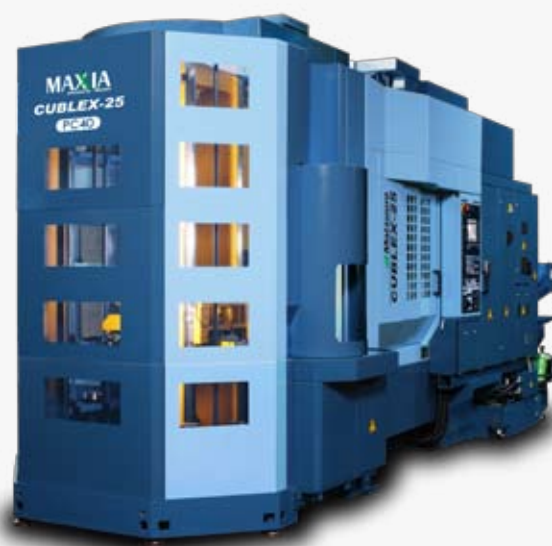
CUBLEX-25



PC2



PC10



PC40

Matsuura CUBLEX-25



**Process
Integration**

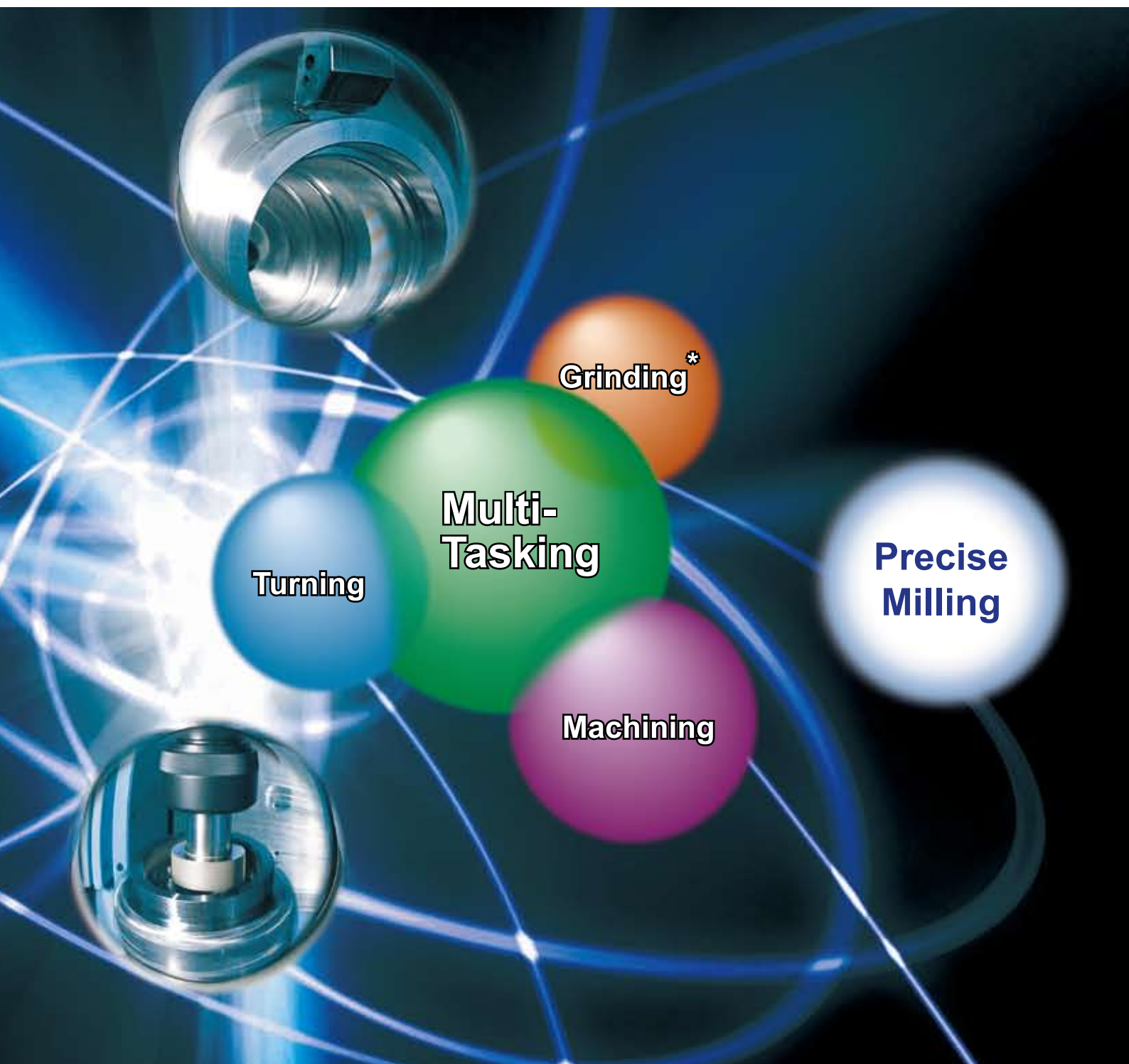
A New Era in Unmanned Multi-Tasking Machines has Arrived **Milling & Turning: “One Hit” Multi Pallet, 5-Axis CNC Processing**

The **CUBLEX-25** 5-Axis Multi-Tasking machine tool ushers in a new era of high performance CNC production processing, expanding the manufacturing horizons & possibilities of CNC users worldwide.

CUBLEX-25 Main Features

- Developed from the market proven design of the Matsuura **MAM72-25V**, the **CUBLEX-25** offers users outstanding 5-Axis Milling capabilities coupled with an integrated high end Turning Center.
- Highly rigid & stable Milling & Turning.
- Capacious machining area with minimal interference.
- Eliminates accumulated errors & vastly reduces set-up times by removing the need for separate Milling & Turning machines.
- Robust & proven 3,000 min⁻¹ chuck rotational speed in turning mode.
- One Hit processing, large multi pallet changers & Milling & Turning in the same machine tool assures extended periods of reliable unmanned operation.
- Small Machine Footprint.

**One-Hit
Multi-
Tasking**



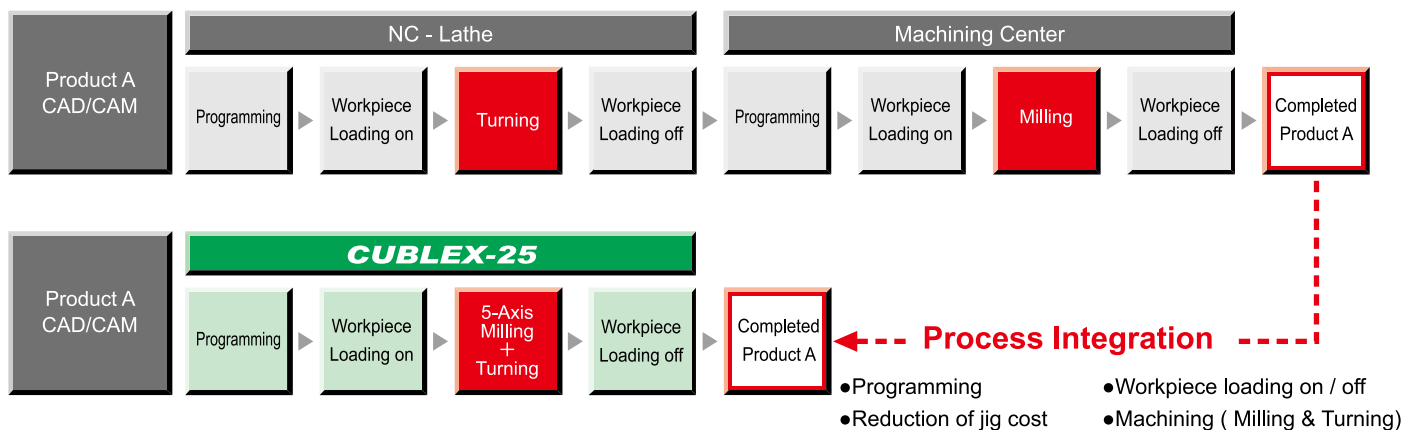
MAXIA
Innovation by  Matsuura



Process Integration & Optimization Creates A Cost Effective CNC Production Environment

The Matsuura **CUBLEX-25** - Two machines in One

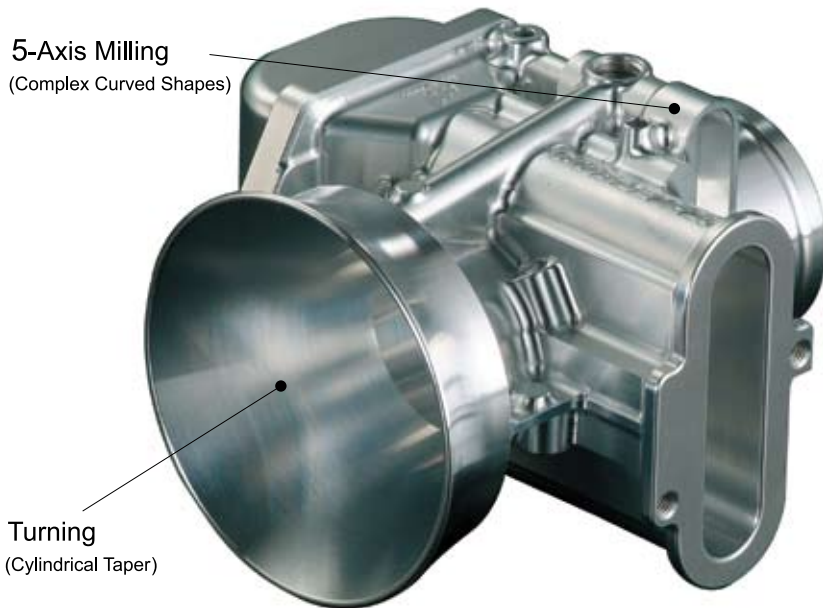
Integrated Milling & Turning functionality offers a vast reduction in set up & production times, & removes accumulated errors between operations.



Integration

One-Hit High Accuracy Machining

Carburetor



Integrated one hit processing of a Carburetor - complex 5-Axis milling combined with exceptional turning performance.

Previous (Lathe + 5-Axis Machining Center)

$2 + 2 = 4$ Process

▼ Process Reduction

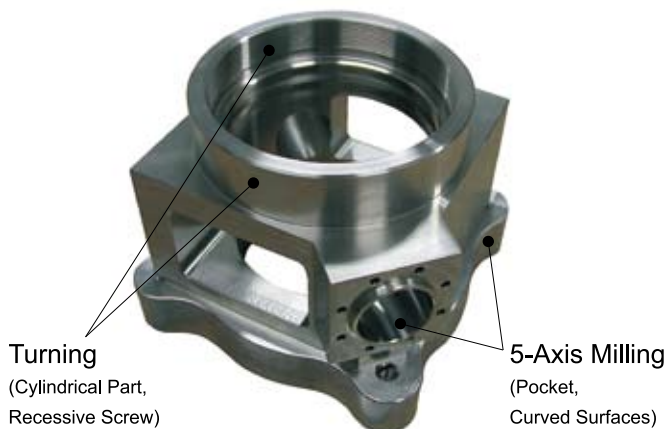
CUBLEX-25

3 Process

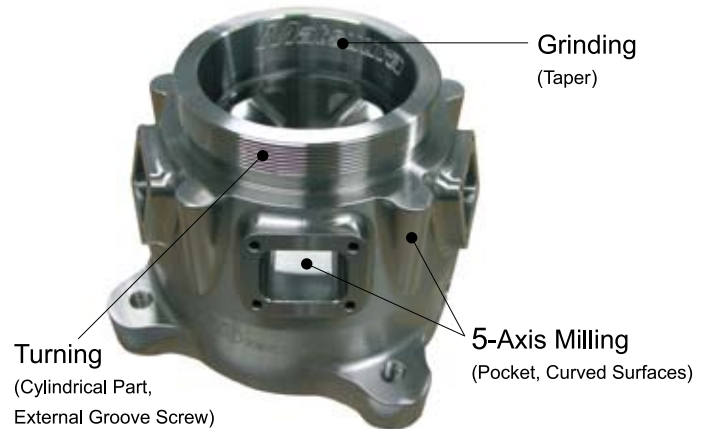
Tools : 5 (Turning) + 17 (Milling)

Material : A7075

Chamber



Crank Case



One-Hit multi-task machining achieved complex curved shape workpiece.

Previous
(Lathe + 5-Axis Machining Center) $2 + 2 = 4$ Process

▼ Half Reduction

CUBLEX-25

2 Process

Tools : 6(Tuning) + 11(Milling)

Material : Pre-Harden Steel (HRC40)

Previous
(Lathe + 5-Axis Machining Center) $2 + 2 = 4$ Process

▼ Half Reduction

CUBLEX-25

2 Process

Tools : 8(Tuning) + 12(Milling) + 1(Grinding)

Material : Pre-Harden Steel (HRC40)



Process Integration achieves Reduced Set Up & Cycle Times. Multi Pallet Unmanned Operation Achieves a Faster Return on Investment.

The **CUBLEX-25** Reduces Product Time to Market

Machining Achieved
in One Set-Up / One Machine

To reduce the cycle time of a complete component that requires both Milling & Turning, addressing the problem of multiple operations across different machine tools is key. Producing the component in one succinct Milling & Turning process on one machine is a crucial benefit of the **CUBLEX-25**

5-Axis Milling & Turning
on One Machine

Process Integration offers your process a market advantage over your competitors.

Outstanding
“Lights Out” Performance

The **CUBLEX-25** incorporating a multi pallet changer guarantees cost effective & formidable unmanned production.

Expansion

APC Options: From a Standard Twin Pallet to Full FMS

PC2

Standard

Compact Footprint: 7.4 m².
Fastest APC in its Class.



PC10

Floor Pallet System

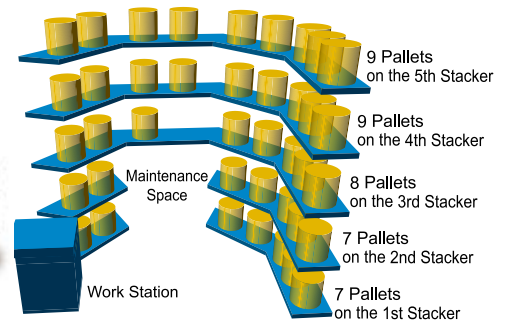
Integrated Multi Pallet Pool.
10 Pallets.



PC40

Tower Pallet System

Vertically aligned 40
pallet stocker, minimum
floor space.



ATC Options: Standard 40 Tool Places: HSK-A63W (ICTM)

Reliable & Proven Chain Pot Mechanism

HSK-A63W (ICTM) No. of Tools 80 : Chain Magazine
[Max. Tool Size]

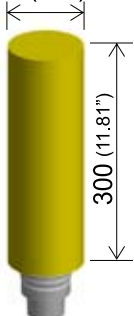
Max. Tool Diameter : $\varnothing 96$ mm ($\varnothing 3.77$ in.)

[When the both pockets are empty : $\varnothing 150$ mm ($\varnothing 5.90$ in.)]

Max. Tool Length : 300 mm (11.81 in.)

Max. Tool Weight : 10 kg (22 lb.)

96(150) [3.77"(5.90")]



Chain Magazine (80 base)

240 Tool Matrix Offers Maximum Flexibility

HSK-A63W (ICTM) 120/150/180/210/240 : Matrix Magazine
[Max. Tool Size]

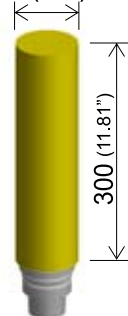
Max. Tool Diameter : $\varnothing 80$ mm ($\varnothing 3.14$ in.)

[When the both pockets are empty : $\varnothing 150$ mm ($\varnothing 5.90$ in.)]

Max. Tool Length : 300 mm (11.81 in.)

Max. Tool Weight : 10 kg (22 lb.)

80(150) [3.14"(5.90")]



Matrix Magazine (240 base)



High Speed Rotation & High Accuracy Positioning : Matsuura's Unique DD Technology

Ultra Robust DD Turning Spindle Motor

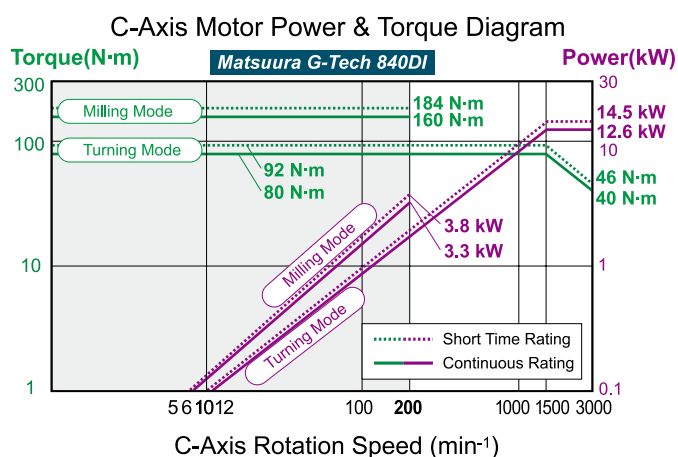
Designed in house by Matsuura, the DD C-Axis Motor achieves high positional accuracy during Milling & high speed rotation whilst Turning.

Horizontal & Vertical Turning

The **CUBLEX-25** turns equally well in either Horizontal or Vertical orientation. The wide X-Axis stroke offers users a significant advantage & opens up new machining possibilities over other multi-tasking machines currently on the market.

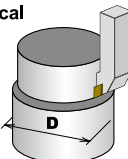
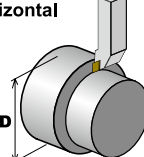
Max. Rotation Speed 3,000 min⁻¹

A table rotation speed of 3,000 min⁻¹ assures exceptional surface finish in cast iron or steel.

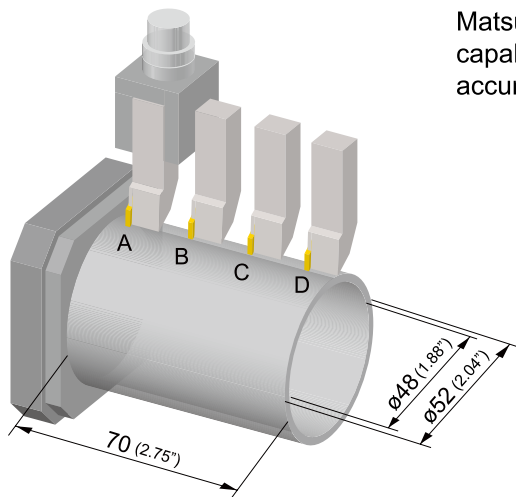


Turning

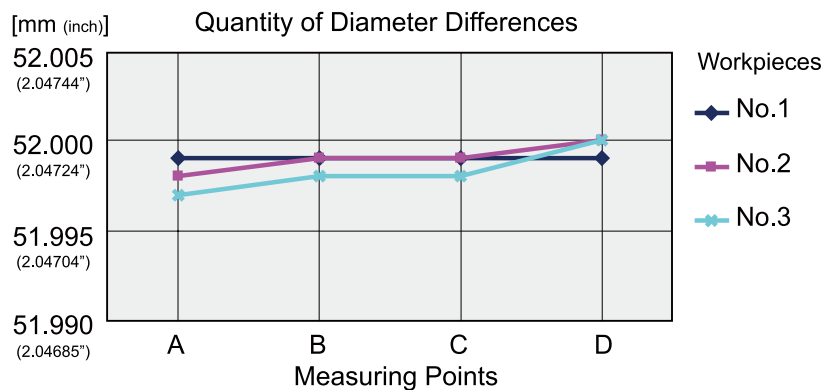
Turning Test Results

		Outer Diameter : D	Cutting Depth/Diameter	Rotation Speed	Feedrate (per rotation)	Quantity
Vertical 	A5057	ø240 mm (9.44 in.)	6 mm (0.23 in.)	800 min ⁻¹	0.4 mm (0.015 in.)	724 cc/min
		ø110 mm (4.33 in.)	6 mm (0.23 in.)	3,000 min ⁻¹	0.65 mm (0.025 in.)	2,020 cc/min
	S45C	ø247 mm (9.72 in.)	5 mm (0.19 in.)	200 min ⁻¹	0.16 mm (0.0062 in.)	62 cc/min
		ø107 mm (4.21 in.)	6 mm (0.23 in.)	800 min ⁻¹	0.36 mm (0.014 in.)	290 cc/min
Horizontal 	A5057	ø240 mm (9.44 in.)	6 mm (0.23 in.)	800 min ⁻¹	0.4 mm (0.015 in.)	724 cc/min
		ø110 mm (4.33 in.)	6 mm (0.23 in.)	3,000 min ⁻¹	0.65 mm (0.025 in.)	2,020 cc/min
	S45C	ø247 mm (9.72 in.)	5 mm (0.19 in.)	200 min ⁻¹	0.16 mm (0.0062 in.)	62 cc/min
		ø107 mm (4.21 in.)	6 mm (0.23 in.)	800 min ⁻¹	0.36 mm (0.014 in.)	290 cc/min

Continuous Turning Test Results



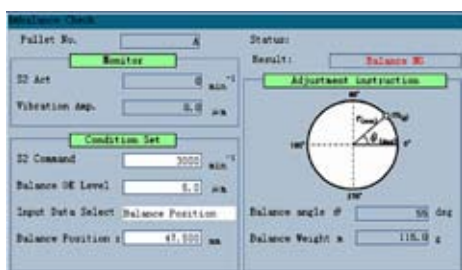
Matsuura have extensively tested every aspect of the **CUBLEX-25's** cutting capability. Over three identical & continuous tests, the results showed stable, accurate & repeatable turning performance.



Imbalance Check Function

Patent Pending

This function allows the balance of the workpiece to be set before turning. Imbalance in the workpiece during rotation & turning is accurately monitored to prevent problems with unwieldy or uneven components.



Optional Grinding Functions

Grinding is achieved by rotating the C-Axis of 3,000 min⁻¹ and the spindle with a grindstone of 15,000 min⁻¹ at the same time.

Providing 3 Type (A/B/C) Grinding Functions

Type A [Basic Option]

- Y-Axis dust control cover, External nozzle, Chopping function

Type B [Filtering Ability 5 μm (0.000196 in.)]

- Type A
- + 7 MPa coolant thru spindle + Oil temperature controller + 5 micron filter

Type C [Filtering Ability 3 μm (0.000118 in.)]

- Type A
- + 7 MPa coolant thru spindle + Oil temperature controller + 3 micron filter
- + Clean tank system with centrifugal machine (80L, 3μm)



The Matsuura Hi-Tech Spindle : Designed & Built In-House

Assembled in a Clean Room Environment

Matsuura's Spindle Engineers work in a dedicated Clean Room complex to assure the highest standards of build quality & reliability. Our ultra precision spindles are guaranteed to have a runout of less than 1 μm (0.000039 in.) as actual measured value at the spindle nose.

ICTM-HSK standard

Adopting ICTM-HSK standard for turning mills on the type of spindle taper hole. This is acceptable to both milling tools & turning tools.

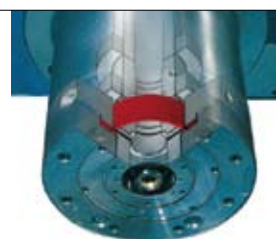


Maintenance Free & Eco Friendly

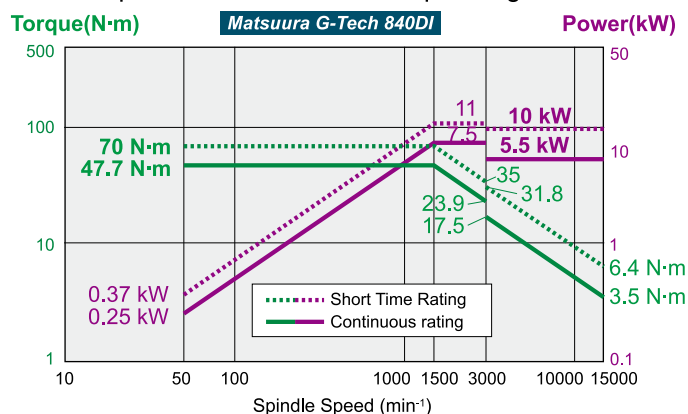
The Spindle bearing is lubricated by an automated grease supply system. Low noise operation, with minimum air requirement. Eco friendly & maintenance free.

Spindle Lock System

Matsuura's unique Drum Break locking system is integrated into the spindle to clamp the tool during turning operations. This strong & robust system assures high accuracy turning.

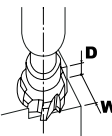
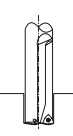
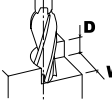



Spindle Motor Power & Torque Diagram

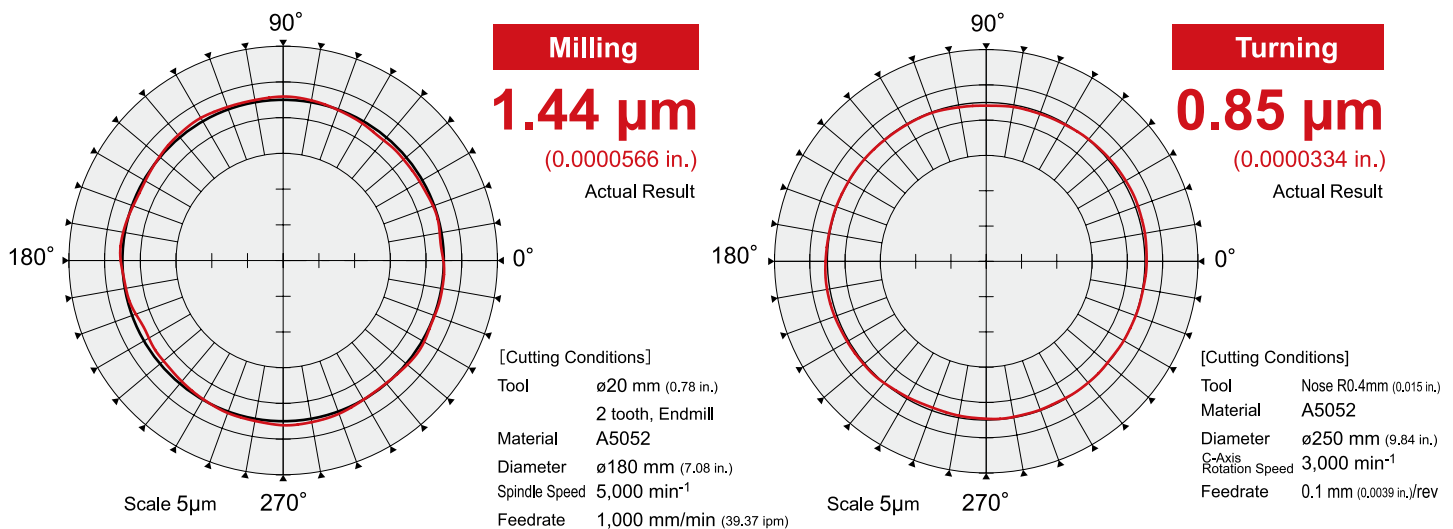


Spindle

Cutting Test Results

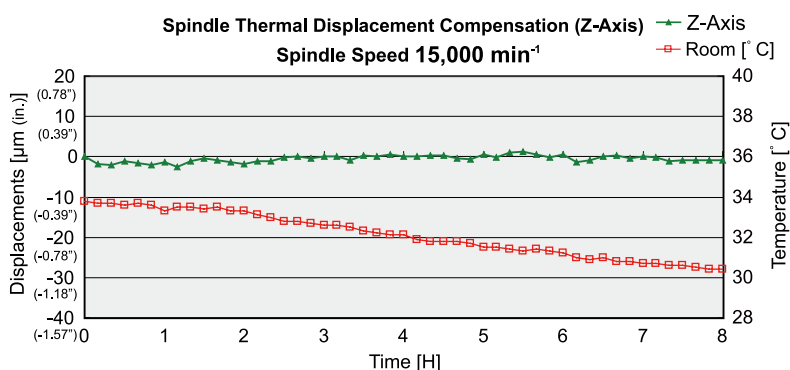
				Spindle Speed	Feedrate	Quantity					Spindle Speed	Feedrate	Quantity
 Facemill	A5052	ø80(3.14") 3 tooth	W=70 mm (2.75") D=3 mm (0.11")	5,500 min ⁻¹	5,500 mm/min (216.53 ipm)	1,155 cc/min	 Drill	A5052	ø27(1.06")	1,500 min ⁻¹	500 mm/min (19.68 ipm)	286 cc/min	
	S45C	ø80(3.14") 5 tooth	W=70 mm (2.75") D=2 mm (0.078")	1,400 min ⁻¹	1,600 mm/min (62.99 ipm)	224 cc/min		S45C	ø27(1.06")	1,500 min ⁻¹	240 mm/min (9.44 ipm)	137 cc/min	
 Endmill	A5052	ø25(0.98") 2 tooth	W=22 mm (0.86") D=6 mm (0.23")	15,000 min ⁻¹	6,500 mm/min (255.90 ipm)	858 cc/min	 Tap	A5052	M30 XP3.5	6,000 min ⁻¹	3,500 mm/min (137.79 ipm)		
	S45C	ø20(0.78") 4 tooth	W=2 mm (0.078") D=30 mm (1.18")	5,500 min ⁻¹	4,000 mm/min (157.48 ipm)	240 cc/min		S45C	M20 XP2.5	1,100 min ⁻¹	1,400 mm/min (55.11 ipm)		

Circularity



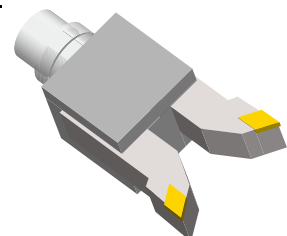
Spindle Thermal Displacement Compensation

Matsura's own Thermal Displacement Compensation function assures long periods of accurate machining performance.



Multi Faceted Tooling

The spindle acts as another axis and can be programmed and locked in any position within 360 degrees. This enables the use of multi-faceted tooling to reduce tool change times and the need for extra tool holders/ pockets. For example, when you use a triple insert cutter the spindle can be locked at 120-degree increments.





State of the Art NC for Complex Data Processing



The Matsuura Siemens **G-Tech 840DI** NC

Offering the latest high performance CPU supporting Windows XP Professional, this NC leads the field in functionality for Multi-Tasking machine tools. Integrated USB Port, 10.4 inch color monitor easy to use Hot Keys are just some of the features of this ergonomic, easy to use state of the art NC.

Unique High Speed & High Accuracy Machining Controls

For General Parts or Molds	Advanced Zee LagY	Standard
Complex Shaped Parts or Precise Molds (Max. 5,000 block look ahead + Spline Interpolation)	IZ-1/COMP	Option

After compressing a maximum of 50 blocks and engaging the 100 Block Look Ahead function, IZ-1/COMP interpolates & applies to the B-Spline to the nearest point selected.

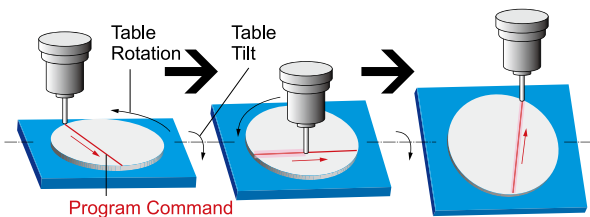
Software

Automatically Controlled Toolpath / Tool Speed

Option

TRAORI

5-Axis Transformation (TRAORI) is the kinematics transformation function of *G-Tech840DI* which realizes easy tool center point programming for 5-Axis machining. The path and path velocity of the tool center point, can be programmed based on the workpiece coordinate system, in the same way as that for 3-Axis machine tools.

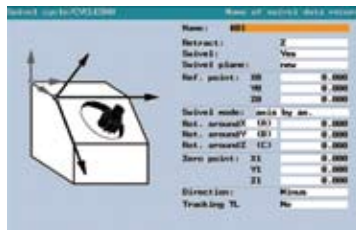


Easy Programming (3+2-Axis)

Option

CYCLE800

G-Tech 840DI offers, as standard feature, CYCLE800 which takes over necessary calculations of coordinate values including necessary axes motions. When rotary axes are moved, rather complex calculations, in line with machine axes configuration, should be made for re-calculating and establishing suitable work coordinate system for the new surface & its orientation.

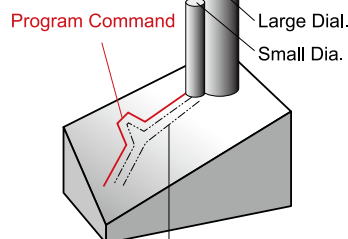


Tool Diameter Interpolations on 5-Axis

Option

CUT3DC

CUT3DC sets the value of tool-off-sets automatically for simultaneous 5-Axis machining according to the pre-set value. It enables the safe & automatic use of different diameter tools during 5-Axis machining with the table tilted.



When it uses the large diameter tool, it evades the interference points.

Easy CUBLEX Programming with GibbsCAM

GibbsCAM is a world leader for leading CAD/CAM software technology. GibbsCAM & Matsuura work very closely to bring you instant CAD/CAM functionality, & a factory approved post processor & machine simulation model specific for the Matsuura machine you have purchased, allowing you to rapidly maximize your investment with us.

NC Packages

Option

Matsuura provides a wide selection of cost effective NC Software collections for high speed & 5-Axis machining. These packages are tailored to your production requirements & can be upgraded at a later date as your workload changes.

5-Axis Package

RTCP (TRAORI, CTU3DC, etc.)

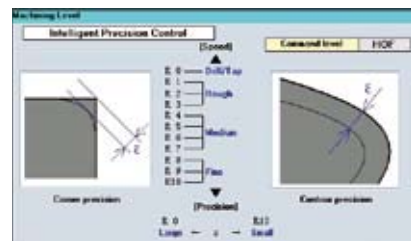
High Speed High Accuracy Package

Intelligent Precision Control

Standard

IPC

When utilizing this software, setting the required part accuracy level is quick, simple and user friendly, allowing you to prioritize precision against speed.



Proven Software Performance

Standard

Handy Man II Y

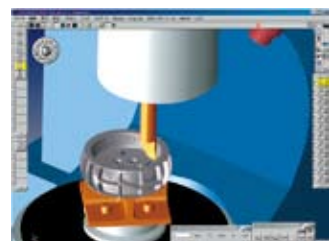
Handy Man II Y provides major savings by reducing set-up, programming, operating & maintenance times.

Effortless G-Code Functionality

Changing G-Codes is quick & simple.

Mode	G-Code
Milling	G300
Turning (Vertical)	G301
Turning (Horizontal)	G302
Grinding (Option)	G303

GibbsCAM
Powerfully Simple. Simply Powerful.®

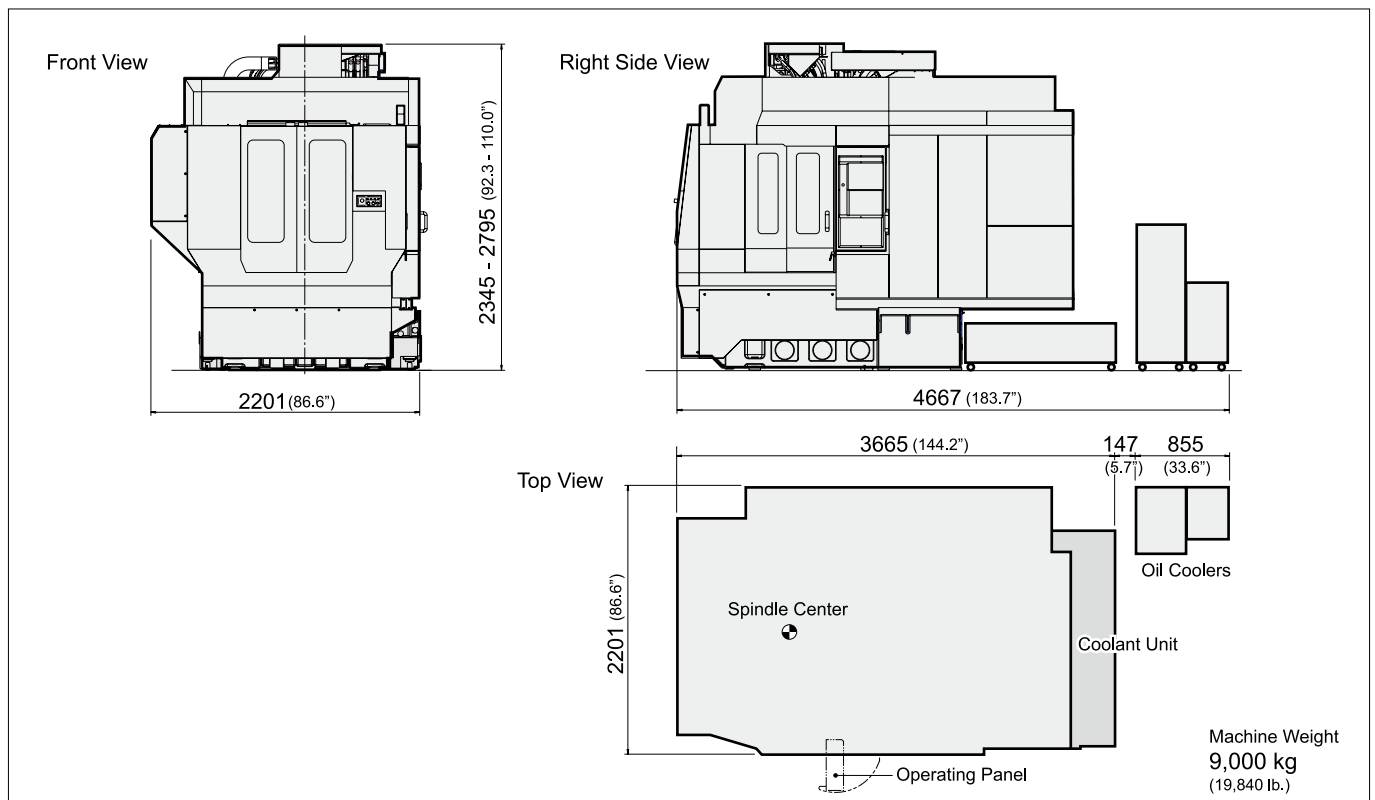


Specifications

■ Movement and Ranges	
X-Axis Travel	550 mm (21.65 in.)
Y-Axis Travel	410 mm (16.14 in.)
Z-Axis Travel	450 mm (17.71 in.)
B-Axis Travel	—110 ~ +110 deg
C-Axis Travel	360 deg
■ Pallet	
Pallet Working Surface	Ø130 mm (Ø5.11 in.)
Pallet Loading Capacity	40 kg (88 lb.)
Pallet Max. Work Size	Ø250×H250 mm (Ø9.84×H9.84 in.)
■ Spindle	
Spindle Speed Range	50~15,000 min ⁻¹ (Auto Grease Lubrication)
Type of Spindle Taper Hole	HSK-A63W(ICTM)
Spindle Bearing Inner Diameter	Ø70 mm (Ø2.75 in.)
Max. Spindle Torque	70 N·m/1,500 min ⁻¹
Spindle Drive Motor (Low : cont./short)	AC 7.5/11 kW (15 HP)
Spindle Drive Motor (Hi : cont./short)	AC 5.5/10 kW (14 HP)
■ Feedrate	
Rapid Traverse Rate (X/Y/Z)	50,000 mm/min (1,968.5 ipm)
Rapid Traverse Rate (B)	30 min ⁻¹
Rapid Traverse Rate (C : Milling/Turning)	200/3,000 min ⁻¹
Max. Acc & Dec (X/Y/Z)	0.69/0.6/0.92 G
Max. Acc & Dec (B)	2,590 deg/sec. ²
Max. Acc & Dec (C : Milling/Turning)	19,800/13,320 deg/sec.
Min. Movement Increment (X/Y/Z)	0.001 mm (0.000039 in.)
Min. Movement Increment (B/C)	0.001 deg
■ Automatic Tool Changer	
Type of Tool Shank	HSK-A63W(ICTM)
Tool Storage Capacity	40 Chain Magazine
Max. Tool Diameter	Ø96 mm (When the pockets on both sides are empty)
Max. Tool Diameter	Ø150 mm (Designated Pockets Only)
Max. Tool Length	300 mm (11.81 in.)
Max. Tool Mass	10 kg (22 lb.)
Method of Tool Selection	Memory Random
Tool Change Arm	Double Grip Type

■ Automatic Pallet Changer	
Number of Pallets	2 pcs
Methods of Pallet Change	Rotary Type
Pallet Changing Time(pallet to pallet)	4.2 sec. (Excl.Door Open/Close Time)
Pallet Clamping Force	22.5 kN
Power Sources	
Power Capacity	58 kVA
Input Power	AC 200/220 ±10% V
Frequency Required	50/60 ±1 Hz
Air Source	0.54~0.93 MPa
Volume of Compressed Air	Min. 20 Max. 400 NL/min
■ Tank Capacity	
Hydraulic Oil Tank Capacity	25 L
Coolant Tank Capacity	400 L
■ Standard Accessories	
01. Total Splash Guard	02. ATC Auto Door
03. Synchronized Tapping	04. AD-TAP Function
05. IPC Function	06. Imbalanced Check Function
07. Spindle Oil Cooler	08. Auto Grease Supply Unit
09. C-Axis Oil Cooler	10. Work Oil Cooler
11. Coolant Unit	12. Chip Flush
13. Spiral Chip Conveyor	14. Spindle Overload Protect
15. Work Light (Fluorescent)	16. Machine Color Paint
17. Handy Man II Y	
18. Air Mover (Chip Swarf Air Blow System)	
19. Workpiece Counter (9 shorts of M Function)	
20. Standard Mechanical Tools & Tool Box	
21. Spindle Thermal Displacement Compensation System	
22. Levelling Pads & Bolts (Not utilized for the foundation)	
23. Anchor Bolts for the Clamping of the Work Station	
24. Scale Feedback for the B/C-Axis	
25. C-Axis Spindle Cleaner for Coromount Capto	

Outline

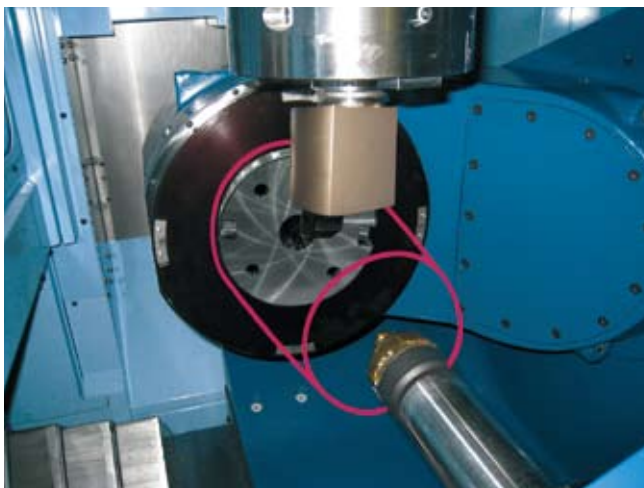


Equipment

○ : Standard ▲ : Option

■ Spindle		
15,000 min ⁻¹ (L 7.5/11 kW, H5.5/10 kW, Auto Grease Lubrication)		○
20,000 min ⁻¹		▲
■ ATC		
40 (HSK-A63W (ICTM) Chain Magazine)		○
80 (HSK-A63W (ICTM) Chain Magazine)		▲
120 (HSK-A63W (ICTM) Matrix Magazine)		▲
150 (HSK-A63W (ICTM) Matrix Magazine)		▲
180 (HSK-A63W (ICTM) Matrix Magazine)		▲
210 (HSK-A63W (ICTM) Matrix Magazine)		▲
240 ((HSK-A63W (ICTM) Matrix Magazine)		▲
■ High Accuracy Control		
Scale Feedback	X/Y-Axis	▲
	Z-Axis	▲
	X/Y/Z-Axis	▲
	B-Axis	○
	C-Axis	○
	Spindle Thermal Displacement Compensation	○
	Axes Thermal Displacement Compensation	▲
■ APC		
PC2		○
PC10 (Floor Pallet System)		▲
PC40 (Tower Pallet System)		▲
■ Coolant		
Coolant Unit		○
Coolant Thru Spindle	Vacuum Type Coolant Thru A	▲
	Vacuum Type Coolant Thru B	▲
	Vacuum Type Coolant Thru C (2 MPa)	▲
	Vacuum Type Coolant Thru C (5 MPa)	▲
	Vacuum Type Coolant Thru C (7 MPa)	▲
Coolant Flow Checker		▲
Mist Separator Unit	Without Fire Protect Damper	▲
	With Fire Protect Damper	▲
Coolant Temperature Controller	Separate Type, 100L Tank	▲
	Separate Type, 200L Tank	▲

■ Swarf Management	
Total Enclosure Guard	○
ATC Auto Door	○
Spiral Chip Conveyor	○
Air Mover	○
Chip Flush System	○
External Nozzle 2 MPa with Spindle Thru	▲
External Nozzle 7 MPa with Spindle Thru	▲
Lift-Up Chip Conveyor (Hinge, Drum)	▲
Chip Bucket	▲
Workpiece Cleaning Gun (Machine Side)	▲
■ Operation & Maintenance Support	
AD—TAP Function	○
IPC Function	○
Handy Man II Y	○
Grease Supply Unit for the Guideway	○
Work Light	○
8 Sets of Extra M Function	▲
Spindle Load Monitoring Function	▲
Weekly Timer	▲
Spindle Run Hour meter	▲
Rotary Wiper (Air Supply System)	▲
Rotary Wiper (Electrical System)	▲
Automatic Operation Run Hour Display Unit	▲
Workpiece Counter	▲
Optional Block Skip 1~7	▲
Movable Manual Pulse Generator	▲
Program End Announcement Light (Red, Yellow, Green)	▲
■ Safety Regulation	
Matsuura Safety Specification	○
CE / CSA / GB Mark	▲
■ In-Process measurement + Tool Breakage	
In-Process Measurement/Auto Centering (Optical Touch Probe)	▲
Broken Tool Detection/Auto Tool Length Measurement (Touch Sensor)	▲
Broken Tool Detection/Auto Tool Length Measurement (Laser Sensor)	▲
In-Process Measurement (Optical Touch Probe)&Broken Tool Detection (Touch Sensor)	▲
In-Process Measurement (Optical Touch Probe)&Broken Tool Detection(Laser Sensor)	▲
■ Grinding Function Refer to details on the page 9	
Grinding Function A	▲
Grinding Function B	▲
Grinding Function C	▲



Tailstock Unit



Broken Tool Detection (Laser Sensor)



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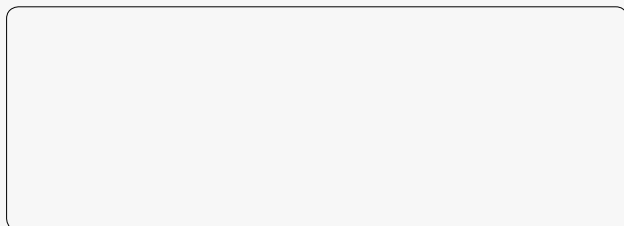
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- Product specifications and dimensions are subject to change without prior notice.
 - The photos may show optional accessories.



Products are subject to all applicable export control laws and regulations.