



Full view of NUMAZU HEAD OFFICE(Mt. Fuji in the back)

High Precision Vertical Machine

# UVM series

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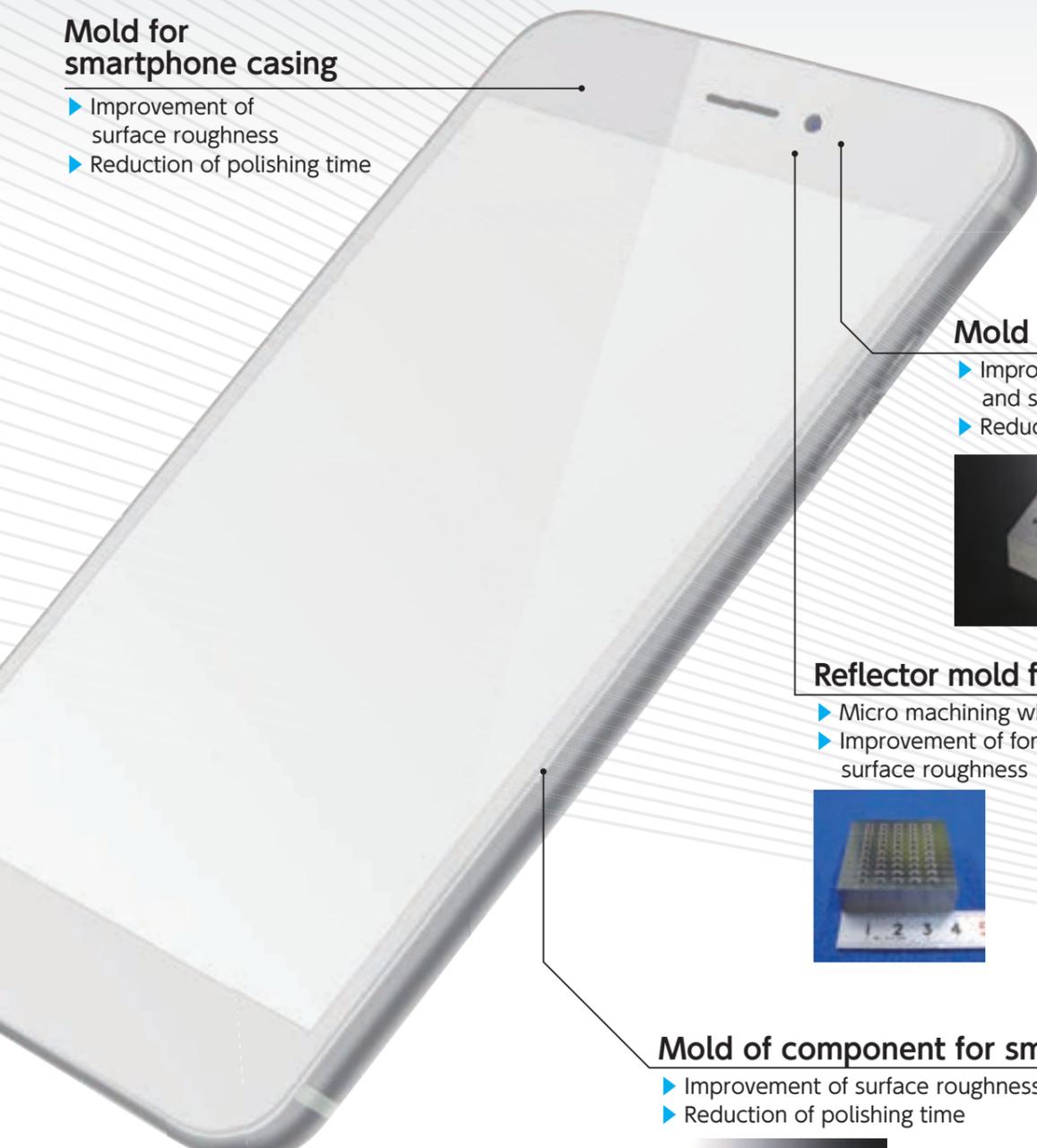
# Nanotechnology, always next to you

TOSHIBA MACHINE's nanotechnology contributes to what you are using in your daily life, such as smartphones, automobiles and etc..

To Make our future life Brighter, more Convenient, and Cleaner, TOSHIBA MACHINE always keeps challenging.

## Mold for smartphone casing

- ▶ Improvement of surface roughness
- ▶ Reduction of polishing time



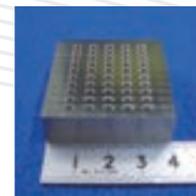
## Mold base for lenses

- ▶ Improvement of form accuracy and surface roughness
- ▶ Reduction of polishing time



## Reflector mold for LED package

- ▶ Micro machining with small diameter tool
- ▶ Improvement of form accuracy and surface roughness



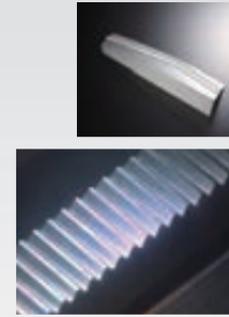
## Mold of component for smartphone

- ▶ Improvement of surface roughness
- ▶ Reduction of polishing time



## Light guide mold for automobile

- ▶ Micro machining with small diameter tool
- ▶ Improvement of surface roughness
- ▶ Possible to machine for a long hours



## Combiner lens mold

- ▶ Machining with bite
- ▶ Improvement of surface roughness
- ▶ Possible to machine for a long hours



## LED headlight mold for automobile

- ▶ Improvement of form accuracy and surface roughness
- ▶ Reduction of polishing time



## Reflector mold

- ▶ Micro machining with small diameter tool
- ▶ Improvement of surface roughness



## Precision Connector mold

- ▶ Micro machining with small diameter tool
- ▶ Improvement of form accuracy



## FC stack mold

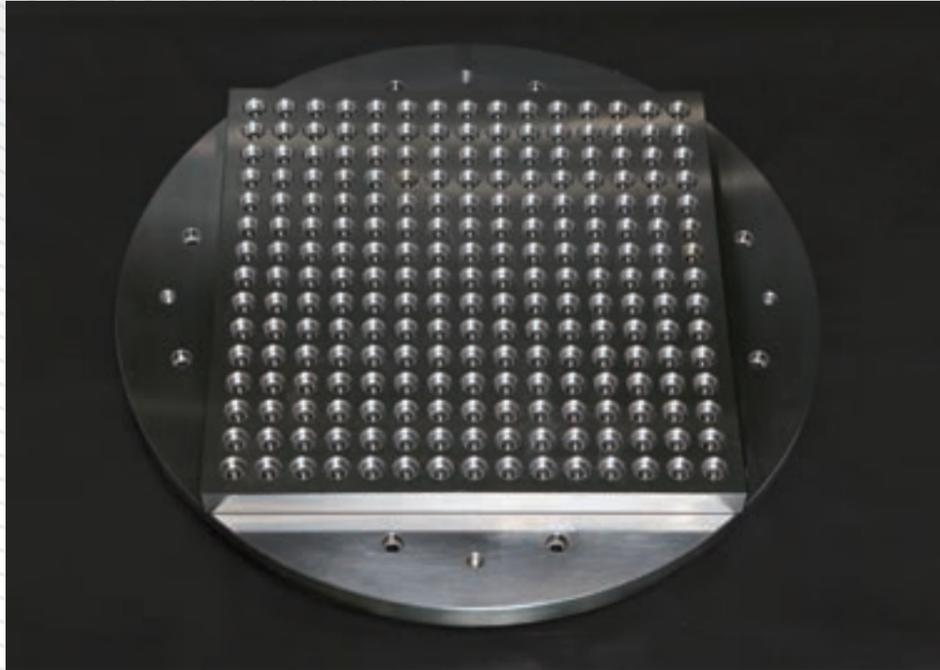
- ▶ Micro machining with small diameter tool
- ▶ Improvement of form accuracy and surface roughness



# UVM for further higher accuracy

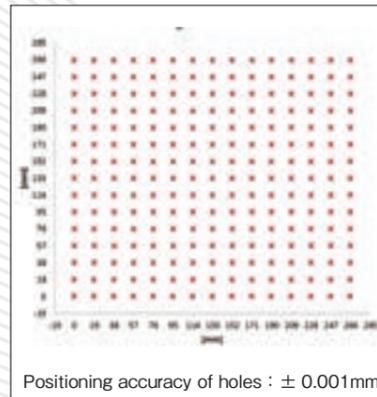
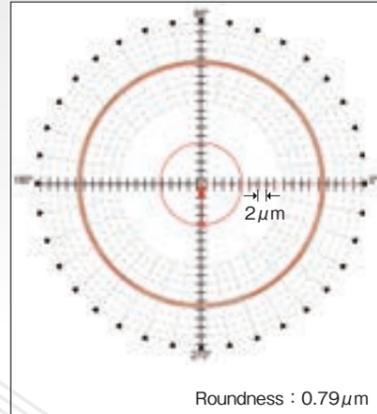
## High precision machining

Machining example: Continuous tiny hole drilling



Machine tool: UVM-700C (H)

Material	CENA1 HRC40
Cutter	φ 2, R0.1 bull nose end mill
Tool rotation speed	30,000 min <sup>-1</sup>
Machining time	10 minutes/cavity

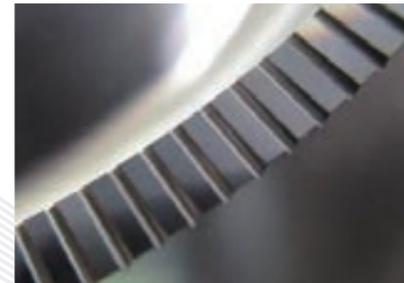


## High quality machining

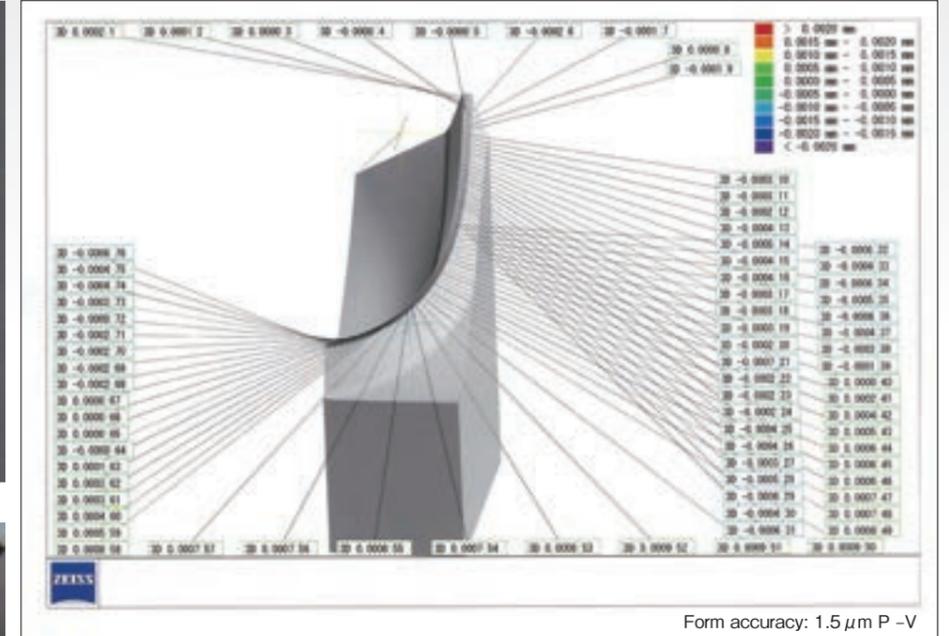
Machining example: Component mold for automobile light



Machine tool: UVM-700E (5AD)



Surface roughness: 0.025 μm Ra



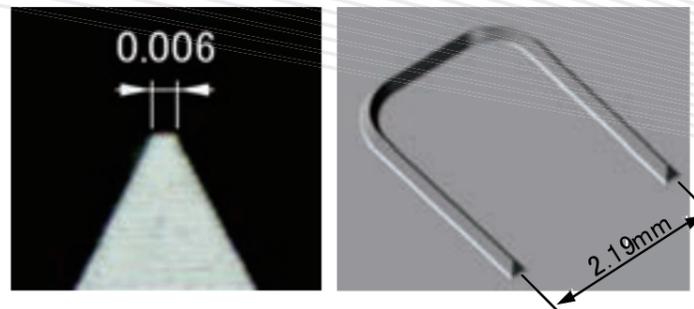
Material	STAVAX HRC52
Cutter for finishing	R0.05 cBN ball end mill
Tool rotation speed	60,000 min <sup>-1</sup>
Machining time	42 hours 30 minutes

## High precision machining (Material hard to machine)

Machining example: Die cut for LED



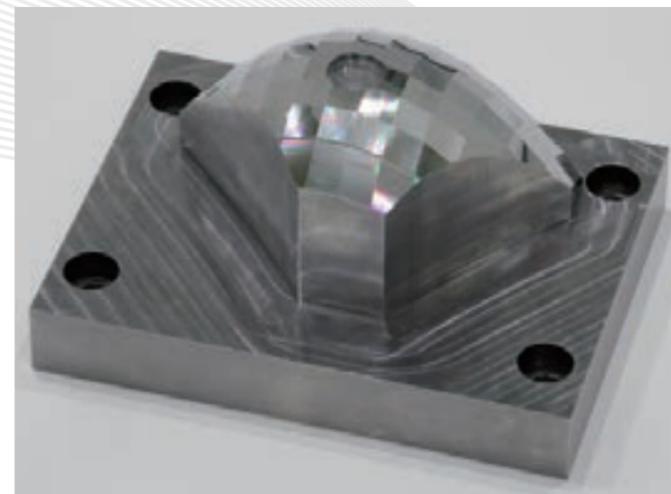
Machine tool : UVM-450C(H)



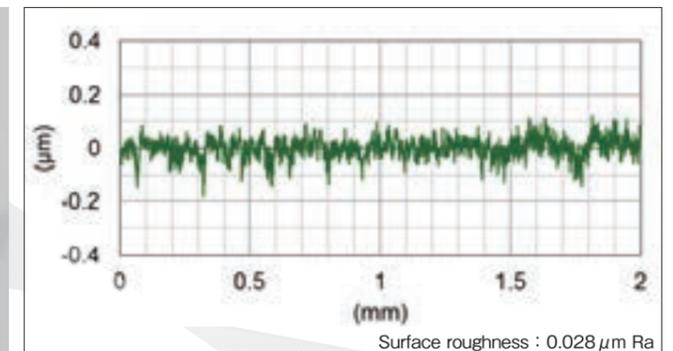
Material	Powdered High-Speed Steels HRC64
Cutter for finishing	φ 0.5, R0.05 bull nose end mill
Tool rotation speed	60,000 min <sup>-1</sup>
Machining time	100 minutes

## High quality machining

Machining example: Component mold for automobile light



Machine tool: UVM-700E (5AD)



Material	STAVAX HRC52
Cutter	R1 cBN ball end mill
Tool rotation speed	60,000 min <sup>-1</sup>
Machining time	85 hours

# “MONOZUKURI mind” without any compromise

## - Toshiba Machine's core technologies -

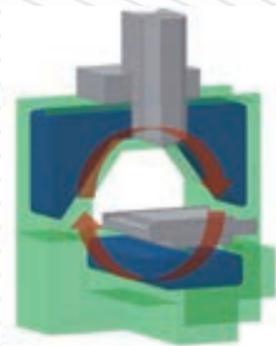
TOSHIBA MACHINE has been grappled with ultra- high precision machining since 1975.

We, TOSHIBA MACHINE have developed various core technologies as a result of our continuous relationship with customers and facing the customer's problem

“One step ahead” is our philosophy for contributing to Ultra-precision machining

TOSHIBA MACHINE continues to provide Ultra-High precision machine for contributing customer.

### Thermal stabilizing system allows high-precision machining for long hours

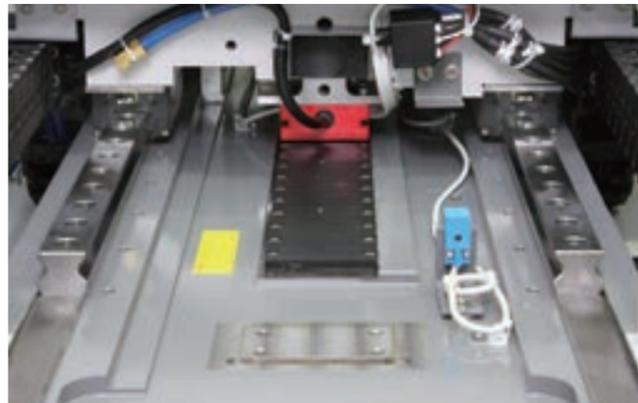


Circulating temperature controlled coolant by  $\pm 0.1^{\circ}\text{C}$  inside the machine component is effective for maintaining the machine attitude stably and improving form accuracy and surface roughness in long-hours machining

Standard accessories for UVM-450D(H) and UVM-700E (5AD)

### High-precision positioning by linear motor control technology

TOSHIBA MACHINE's high-precision linear motor control technology enables high-speed and high-precision positioning.



For all models

### The accessibility and operability for work piece have been improved by new design and covers

The covers are designed based on operator's point of view. Especially after opening it accessibility to work pieces are improved by up to 27% in comparison to the previous model.

Standard accessories for UVM-450D(H) and UVM-700E (5AD)

### Operator support with large touch panel

Adopting a large-size touch panel, the visibility and workability are dramatically improved.

In addition, arranging the operation support software, UVM-TSA on the operation screen, the workability is improved by reducing the operator's unnecessary action is minimized.

Standard accessories for UVM-450D(H) and UVM-700E (5AD)



### Aerostatic bearing spindle realizing high speed and high rotation accuracy

TOSHIBA MACHINE's originally developed high-precision aerostatic spindle enables high-speed tool rotation (60,000 rpm at a maximum), contributing to high-quality machining work pieces.

In addition, Adapting the direct chucking system, the highly repeatability for chucking and high-speed tool change are available without using expensive tool holders.

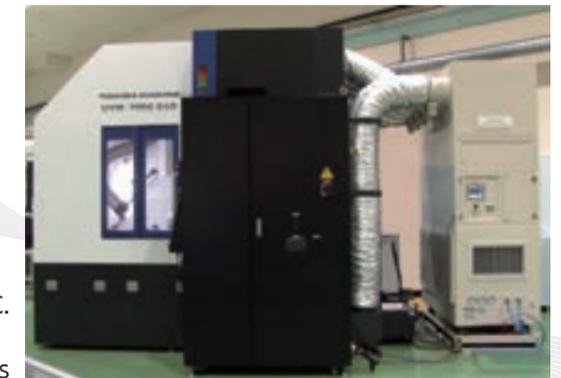


For all models

UVM-700E(5AD)

### Fine temperature controlled booth cover for long-hours machining of high-precision parts

For maintaining the inside of the machine stably, Temperature controlled booth cover constantly feeds air controlled by  $\pm 0.01^{\circ}\text{C}$ . Keeping processing environment constant, it is effective to minimize the form accuracy and surface roughness for a long hours machining with fine-pitch step feeding.



Optional accessories for UVM-700E (5AD)



## Go forward to next generation of machining Open the door for next stage

TOSHIBA MACHINE leads the customer to the new field by fusion of original software technology, and long-cultivated core technologies



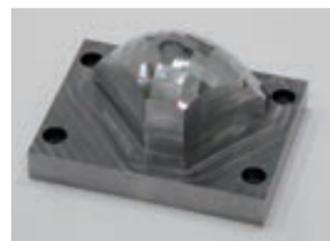
### 5-axis machine UVM-700E (5AD)

5-axis machine UVM-700E (5AD) equipped with spindle indexing axis (A-axis) and indexing table for work piece (C-axis)

UVM-700E(5AD) ; For 5 axis configuration A-axis for indexing spindle and C-axis for indexing work piece with aerostatic bearing are all our home made and driven by DD motor.

In this way big loading capacity, maximum 200kg is possible, which is different from other type of 5 axis machines by 2 axis rotary table. The aerostatic bearing spindle is common among all the models of UVM.

Thus, UVM series realizes a high positioning accuracy and high-quality machining



### Total support software UVM-TSA

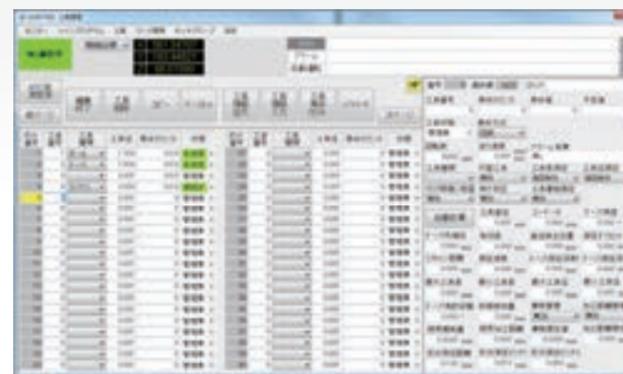
“UVM-TSA” is the multifunctional software to contributes an improvement of customer’ s productivity

#### ● Tool management / Tool measurement.

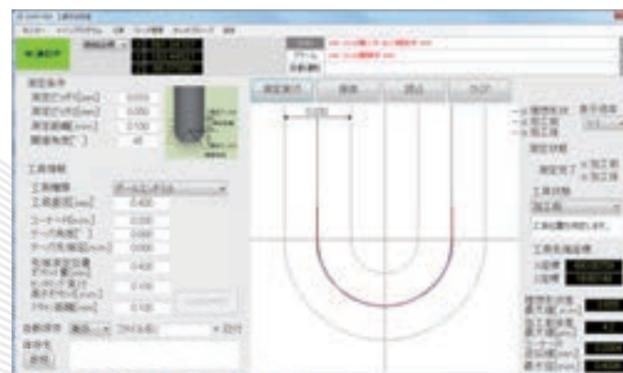
Tool management functions and originally designed screen enable customer’ s tool management easy and flexible.

And adapting a device named DYNALINE an optional accessories, Customer can manage the tool length, diameter, contour shape of a cutter easily.

In addition, the tool elongation measurement function enables tool condition stability and contributing high-quality machining.



Tool management



Tool measurement

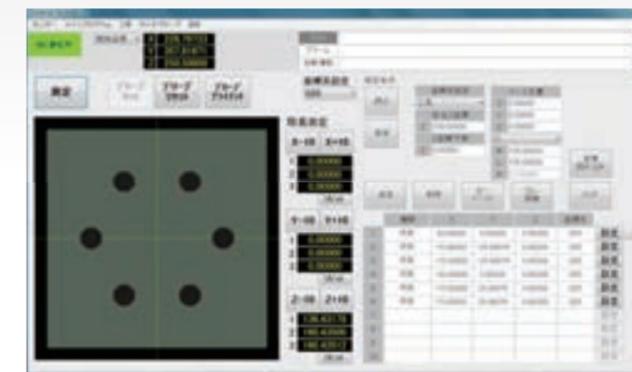
#### ● Measuring work piece

Function of touch probe (Optional accessories) are

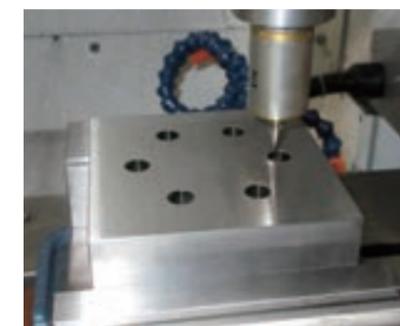
1. Detection of a work piece surface and a work piece center
2. Measuring a hole diameter and a hole center
3. Measuring groove width, a rib width, etc.

These data can be registered automatically and utilized by CNC programs such as for updating of the coordinate.

And multipoint measurement of an arbitrary shape is available.



Measuring work piece



Touch probe

- Other functions  
NC monitor  
Work piece management

#### ● CNC Monitor

“CNC Monitor” is a part of function by UVM-TSA, which enables customer to monitor the machine status in the room far from machine.



Monitoring several sets of UVMs in the room far from machines is available



CNC Monitor

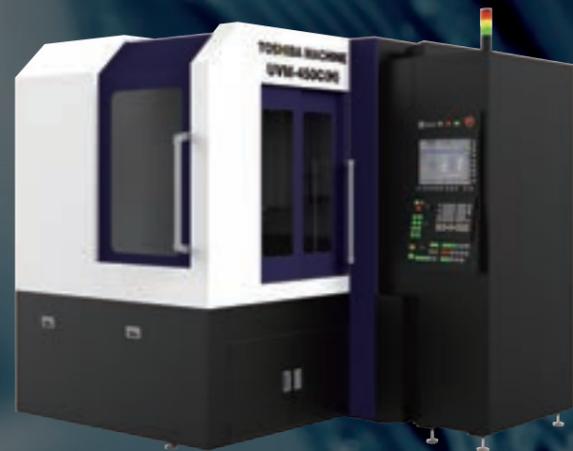
# TOSHIBA MACHINE satisfies customers' requirement by 4 types of UVM lineup

High-precision vertical machine, "UVM series" .

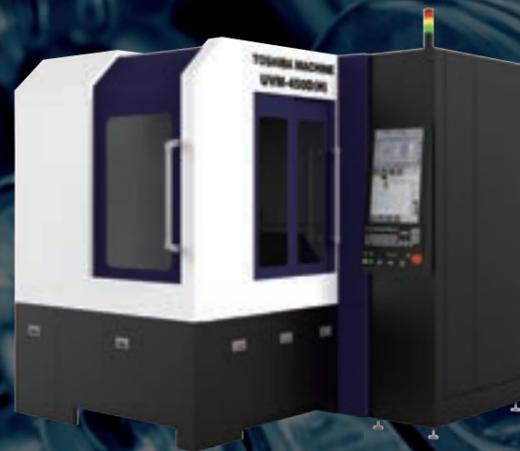
TOSHIBA MACHINE provides suitable machine to customers with Best solution.

## UVM series

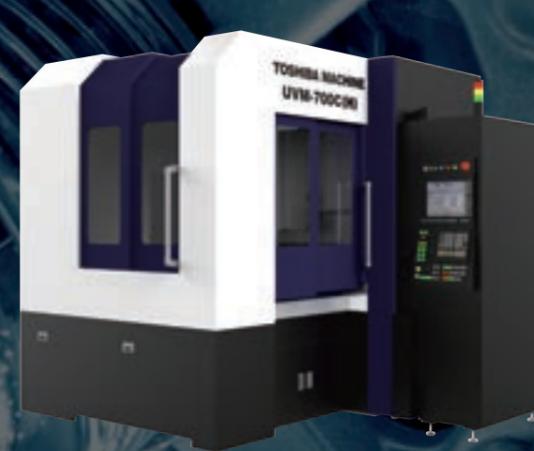
Main specifications	UVM-450C(H)	UVM-450D(H)	UVM-700C(H)	UVM-700E(5AD)
Stroke	X-axis (Horizontal movement of table)	500mm	570mm	810mm
	Y-axis (Cross movement of spindle)	450mm	525mm	800mm
	Z-axis (Vertical movement of spindle)	200mm	250mm	350mm
Table	Machining area	450mm × 450mm	500mm × 500mm	700mm × 700mm
	Table loading capacity	100kg	100kg	400kg
Machine size	Depth(X-axis direction)	2100mm	2260mm	2550mm
	Width(Y-axis direction)	2240mm	2120mm	2580mm
	Height(Z-axis direction)	2240mm	2400mm	2420mm
Machine mass	4800kg	4800kg	5600kg	9700kg



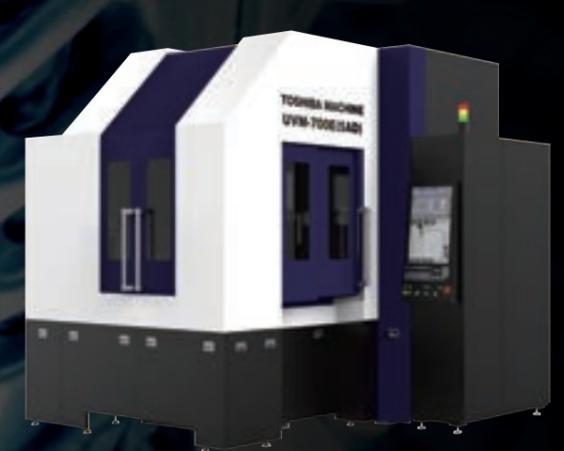
**UVM-450C(H)**  
Standard model of UVM series



**UVM-450D(H)**  
Superior machine brushed up on high speed and high precision



**UVM-700C(H)**  
Long axis stroke suitable to machine a large-sized work pieces



**UVM-700E(5AD)**  
Flagship model of UVM series  
Simultaneous 5-axis precision machining for large-sized work pieces