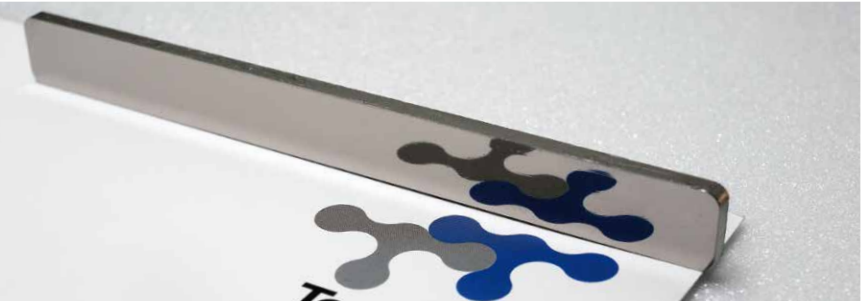
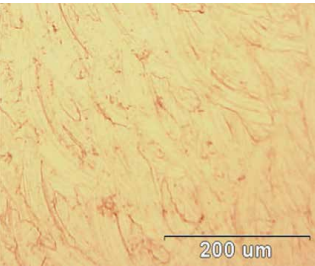


Machining examples of metal ▪ Machine dimensions

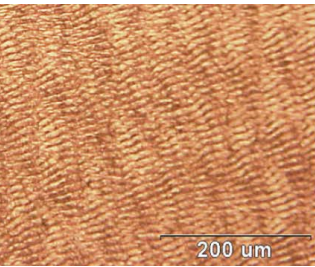
Liquid metal polishing



Roughness
Rmax 1.48 μm
Rz 1.28 μm
Ra 0.204 μm



AI-6061
Without ultrasonic
Rmax 3.28 μm
Rz 3.13 μm
Ra 0.44 μm



AI-6061
With ultrasonic
Rmax 1.28 μm
Rz 1.43 μm
Ra 0.204 μm

Machine dimensions



Specifications

Item	Specification	Unit	VU-5
Table	Table size (L×W)	mm	600x400
	Max. table load	kg	250
	Table height from floor	mm	850
	T-slot (size×No.)	mm	18 x 3
Spindle	Spindle taper		7/24 Taper No.30
	Spindle speed	rpm	20,000
Stroke	X/Y/Z axis stroke	mm	510/400/350
	Spindle nose to table	mm	178~528
Feed	X/Y/Z axis rapid traverse	m/min	48/48/48
	Cutting feedrate	mm/min	1~20,000
ATC	Tool shank		BBT30
	Tool capacity	pc	20
	Max. tool diameter	mm	Ø68
	Max. tool length	mm	200
	Max. tool weight	kg	3
Motor	Spindle motor	kW	2.2/3.7
	X/Y/Z servo motor	kW	1.8/1.8/1.8
	Coolant motor	kW	0.19
Machine size	Wide × Depth × Height	mm	1,984 x 2,300 x 2,755
	Weight	kg	2,900
Controller	FANUC 0i-MD, SIEMENS 828D		
	MITSUBISHI M70		



Tongtai Tongtai Machine & Tool Co., Ltd.

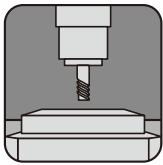
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Rotary type Ultrasonic assisted machining center

VU-5



www.tongtai.com.tw



1. The excellent ultrasonic control technology can ensure the stability of long-term machining. Frequency scanning and power setting can be completed automatically by controller to improve productivity.
2. Periodical tool axial vibration (15-45 kHz) decreases the cutting resistance and increases the surface quality.
3. Modular design, equipped with BBT-30 tool holder and high speed spindle, allows high efficiency machining.
4. Coolant through spindle is available for chip disposal and to reduce tool wear caused by temperature rise and cutting resistance.
5. The roughness of metal cutting surface is around $Ra\ 0.2\ \mu m$, it reduces the polishing procedure and achieves the quality of final finishing.
6. The ultrasonic machining technology not only reduces chipping but also has the ability to process microhole machining on hard and brittle materials.

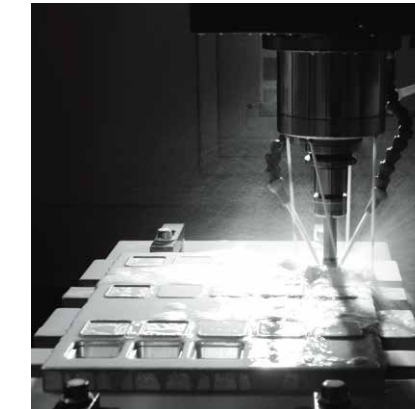
Medical industry
Artificial crown machining



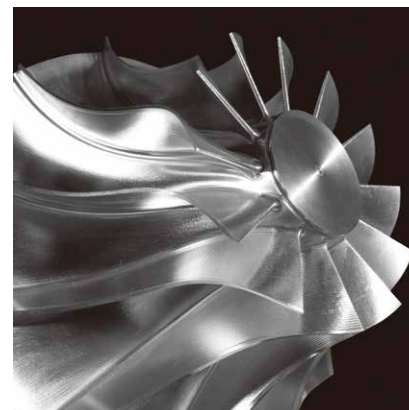
Automotive industry
Valve deburring



Die & mold industry
Surface finishing



Aerospace industry
Surface finishing



Precise ceramic industry
Roughing and finishing



Glass industry
Drilling, polishing, chamfering



Hard and brittle materials killer

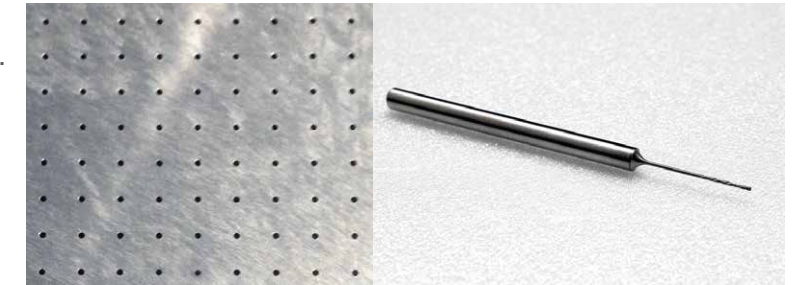
Sapphire, Zirconia, Ceramic, Glass, Hardened steel etc...

Silicon wafer drilling

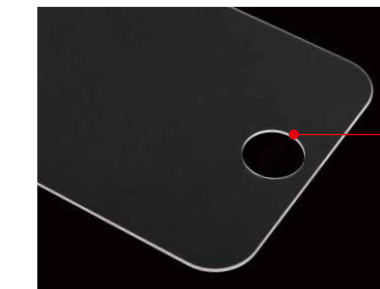
Tool diameter $\varnothing 0.5\ mm$, cutting depth 10 mm.

Tool life

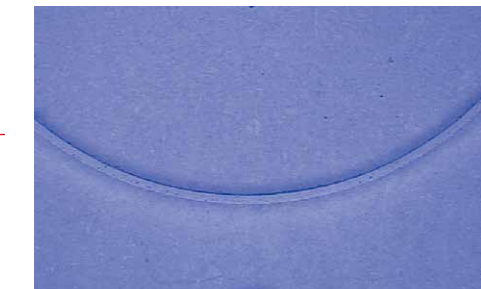
without ultrasonic : 3 holes
with ultrasonic : 236 holes



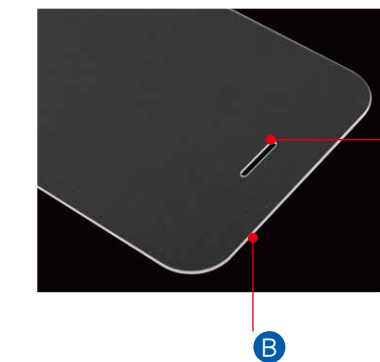
Sapphire glass machining



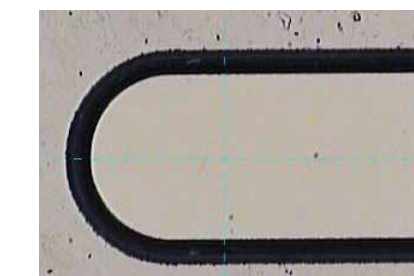
Circular hole



Machining method :
Drilling & Polishing
Workpiece spec. : $\varnothing 11\ hole$
Workpiece thickness : 0.4 mm
Cycle time : 17 sec



A Slot



Machining method :
Drilling & Polishing
Workpiece spec. : slot, $\varnothing 1 \times L10\ mm$
Workpiece thickness : 0.4 mm
Cycle time : 77 sec

B Profile



Machining method : Polishing & chamfering simultaneously
Workpiece spec. : 4"
Workpiece thickness : 0.4 mm
Cycle time : 44 sec

No crush

Aluminium oxide ceramic machining

$R_{max}\ 12\ \mu m$
 $Rz\ 8.52\ \mu m$
 $Ra\ 1.28\ \mu m$

