

Machine Specifications

Travels	X × Y × Z axis		370 × 270 × 750 mm
	A axis (rotary)		360 degrees
	B axis (tilt)		-140 deg. to +140 deg.
NC Rotary work table	W axis (shuttle upper /down only)		450 mm
	Chuck		EROWA ITS chuck
	Maximum workpiece size		300 diameter × 300 mm (including holder)
Work tank	Maximum workpiece weight		20 kg
	Opening		Sliding drop-tank
	Inner dimensions (W × D × H*)		800 × 740 × 361 mm
Rotary head (C axis)	Distance from work chuck center (B = 90 deg.) to maximum fluid level height		235 mm
	Chuck specifications		SCHUNK VERO-S
	Rotary speed range		10 - 1000 min ⁻¹
	Maximum electrode length		740 mm (including holder)
	Usable electrode size		0.2 - 3.0 mm diameter
	Flushing pressure		10 MPa
Feedrates	Rapid traverse	X, Y, Z axis	10 m/min
		A axis (rotary)	3600 deg./min
		B axis (tilt)	3600 deg./min
		W axis	10 m/min
Dielectric fluid supply unit	Volume		715 L
	Filtration	System	Internal pressure-type paper filter
		Number of filter elements	2
Machine size	Width × Depth × Height (excluding control panel)		1750 × 3440 × 3000 mm
	Floor space		2750 × 4600 mm
	Weight (including power supply unit and dielectric fluid supply unit)		5110 kg

* Height from the top of the table chuck at B axis (tilt) = 0 degree

Standard Specifications

- NC Rotary work table 20 kg specifications (without scale feedback)
- Sliding drop-tank
- Electrode storage capacity 24 tools
- Guide arm (W axis)
- Rotary head
- High pressure flushing unit
- Break through detect function
- Vibration control finger
- 1 small-diameter electrode holder
- 1 collet chuck
- 1 guide plate
- 1 taper guide
- 1 positioning guide
- Ion exchange deionizing resin
- Power supply off function
- Portable control panel
- NC program memory 10GB
- USB interface
- Ethernet (1000Base-T / 100Base-TX / 10Base-T Compliant)

Optional Specifications

Optional Equipment

- NC Rotary work table 20 kg specifications (with scale feedback)
- Additional small-diameter electrode holder
- Additional collet chuck
- Additional guide plate
- Additional taper guide
- Additional positioning guide
- Measuring holder
- Touch probe
- EDM 3D shape measuring function C for EDM
- Dielectric fluid cooling unit
- Signal tower (1, 2 or 3 layer)
- Air booster
- Export transformer
- Special customer-specified machine colors

Fine hole machining in tough-to-cut materials (heat resistant alloys)

Heat resistant alloys are used for turbine blades (movable blades) and vanes (fixed blades) behind the combustion chamber in the components of the jet engine.

There are many small diameter holes for cooling on its wing surface.

BX 3 is an electrical discharge machine that machining this hole in a single setup in an extremely short time.



EDM for Machining Cooling Air Discharge Hole of Turbine Blades

BX3



www.makino.co.jp



Atsugi and Fuji Katsuyama works are certified for ISO14001 and ISO9001.

*The specifications, figures, and overviews of products, peripheral devices and accessories in this catalogue may be changed without prior notice to incorporate improvements resulting from ongoing R&D programs.

*The all products in this catalogue include the optional specifications and equipment.

*The products, including technical data and software, may be subject to the Foreign Exchange and Foreign Trade Control Law in Japan. Prior to any re-sale, re-transfer or re-export, please contact Makino to obtain any required authorization and approval.

H300Ea 1904/1 (SJ-T-M)

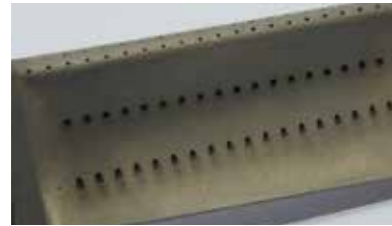


Submerged machining

It realizes high speed and stable machining. Discharge state is easy to stabilize even in through hole machining by submerged machining, greatly contributing to the accuracy of break through detect.

Generation machining by pipe electrode

Using the standard pipe electrode, programming the toolpass according to the diffuser shape enables efficient generation machining. It is not necessary to make new electrodes.

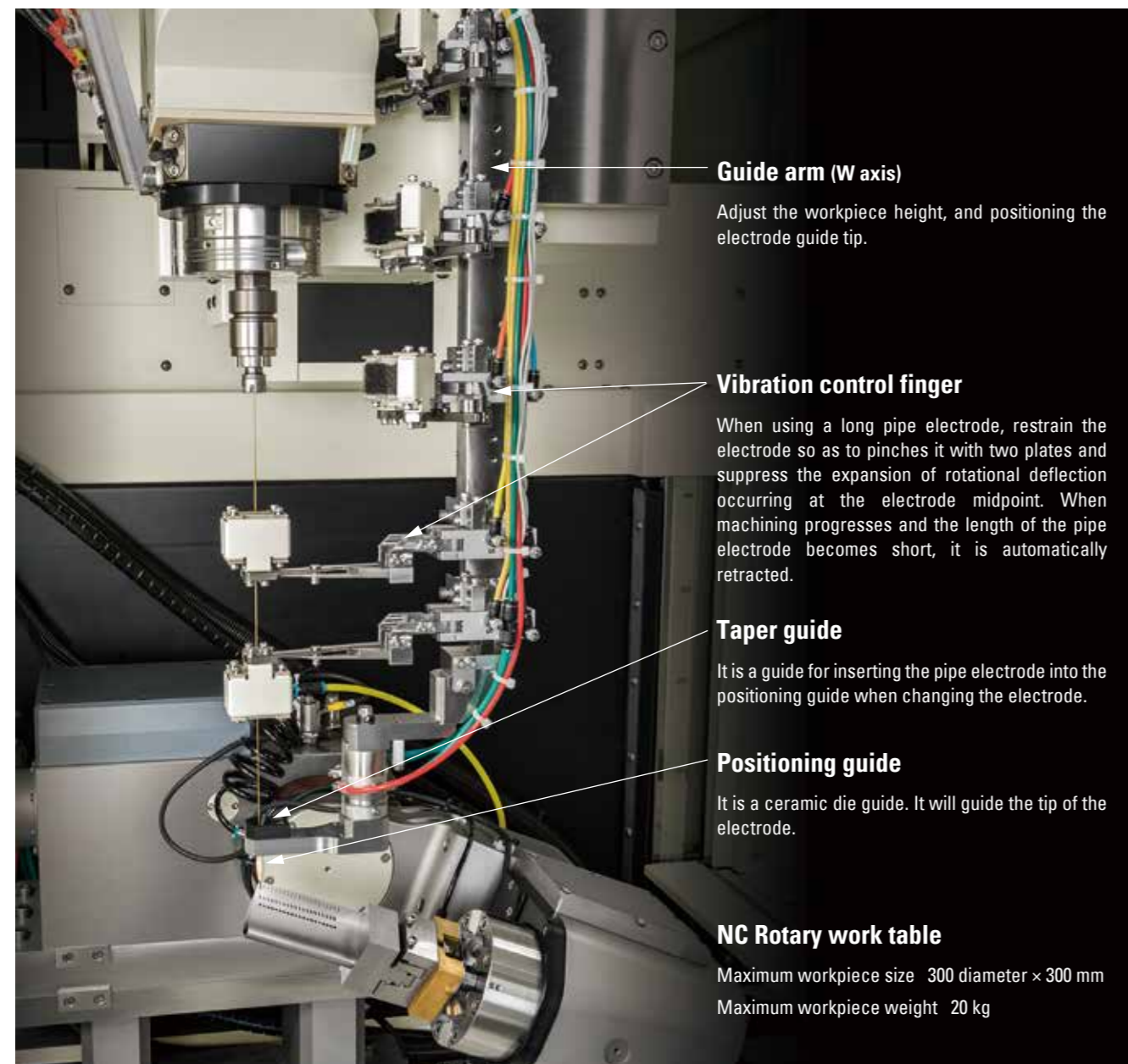


High-pressure flushing

Dielectric fluid is discharged through the holes in a pipe electrode at a high pressure of 10 MPa to quickly flush out chips and realize high-speed machining.

Break through detect function

The sensor detects when the electrode pierces the workpiece. This function prevents defects when machining the turbine blade surface by avoiding contact between the electrode and the wing wall on the back side (back strike) of the workpiece.



Guide arm (W axis)

Adjust the workpiece height, and positioning the electrode guide tip.

Vibration control finger

When using a long pipe electrode, restrain the electrode so as to pinches it with two plates and suppress the expansion of rotational deflection occurring at the electrode midpoint. When machining progresses and the length of the pipe electrode becomes short, it is automatically retracted.

Taper guide

It is a guide for inserting the pipe electrode into the positioning guide when changing the electrode.

Positioning guide

It is a ceramic die guide. It will guide the tip of the electrode.

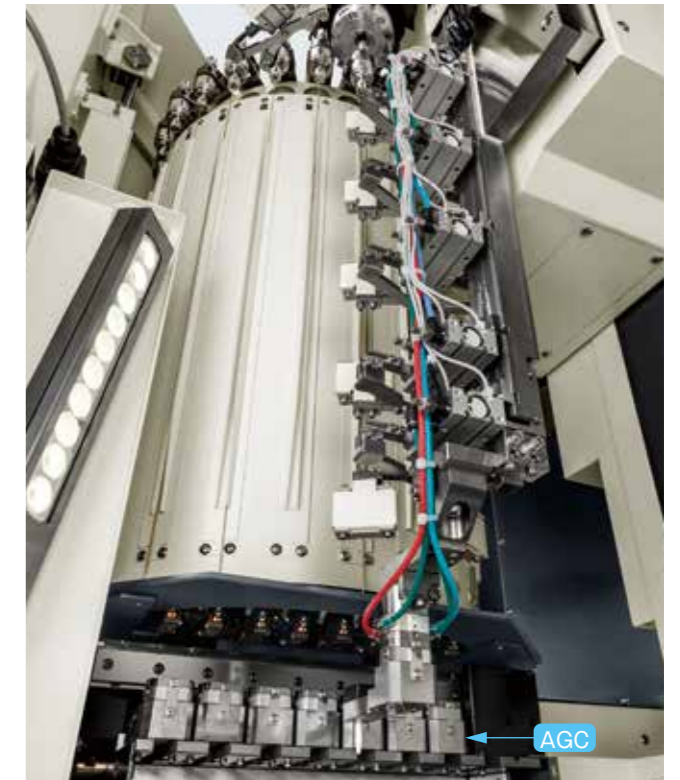
NC Rotary work table

Maximum workpiece size 300 diameter × 300 mm
Maximum workpiece weight 20 kg



700 mm pipe electrode can be stored

The number of pipe electrodes to be stored is 24, the maximum tool length is 740 mm. Long electrodes become available and the frequency of ATC can be reduced.



ATC & Automatic Guide Changer (AGC)

The magazine was installed in a high place. This shortens the water supply/drain time at ATC and shortens the cycle time. Up to 8 guide plates holding the taper guide and positioning guide can be loaded in the automatic guide changer.

