

High-Reliability and High-Performance
Wire-cut Electric Discharge Machine

FANUC

ROBOCUT α -CiA series



High-Reliability and High-Performance Wire-Cut Electric Discharge Machine

FANUC ROBOCUT α -CiA series

High Performance of Cutting

High speed, High precision, High quality

Stable cutting

Wide range of application

Applying the latest
CNC & servo motor
technology

Good combination
with FANUC Robot



High Sustainability

High reliability of **AWF2**

High Maintainability

ROBOCUT-LINK*i*

Ease of Use

Superior Operability

Fulfilling EDM Technologies

Various automatic functions

High Performance of Cutting

Discharge control and cutting power supply providing high speed, high precision, and high quality

Thermal displacement compensation function and various shape compensation functions providing stable cutting

High precision rotary table **ROBOCUT CCR** to extend the range of application

High Sustainability

High reliability of auto wire feeding **AWF2** providing unmanned machining

Consumables management function and Maintenance guidance function supporting routine maintenance

ROBOCUT-LINK*i* for production and quality information management tool

Ease of Use

FANUC CNC and operation guidance function providing superior operations

Fulfilling cutting technologies supporting high speed, high precision, and high quality cutting

Automatic function supporting set-up operation



α-C400iA



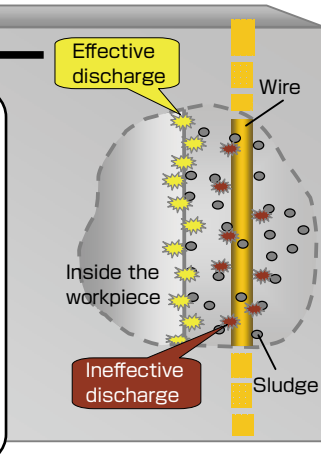
α-C600iA

High Performance of Cutting


Discharge control & power supply providing high speed, high precision, high quality

- AIP2 to control the appropriate discharge, grasping the cutting situation by counting the number of effective discharge pulses contributing to cutting

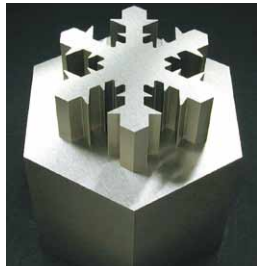
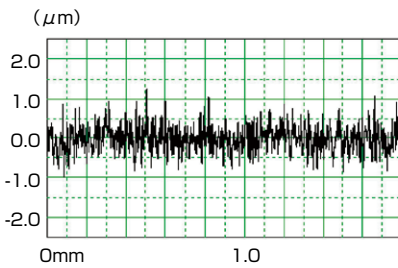
Realizing the high precision stepped shape cutting with AIP2 that detects the change of the thickness from the number of effective discharge pulses, and controlling discharge optimally.



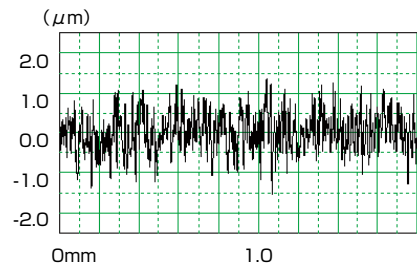
[Cutting example]
Die steel
Thickness 10~80mm
Wire $\phi 0.25$ BS
3 times cutting
Accuracy $\pm 5 \mu\text{m}$



- Surface roughness $0.30 \mu\text{mRa}$ provided for the die steel less than 60mm thickness by SF2 (Standard Power Supply for Skim cutting)

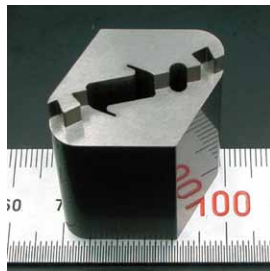
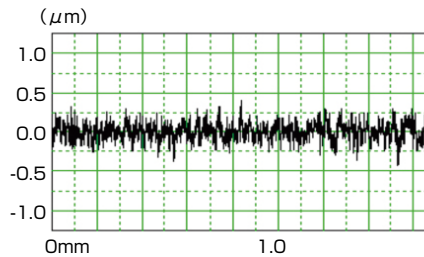


[Cutting example : SF2]
Die steel 40/60mm
Wire $\phi 0.25$ BS
Die and Punch
5 times cutting
Surface roughness $0.30 \mu\text{mRa}$

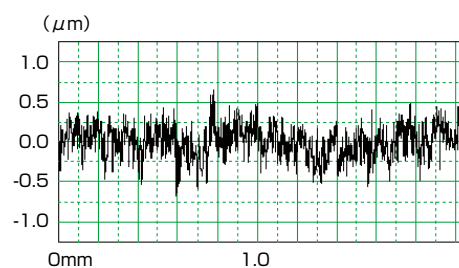


[Cutting example : SF2]
Die steel 20/40mm
Wire $\phi 0.25$ BS
Die and Punch
3 times cutting
Surface roughness $0.40 \mu\text{mRa}$

- Best surface roughness $0.10 \mu\text{mRa}$ provided for the tungsten carbide less than 30mm thickness by MF2 (Optional Power Supply for Skim cutting)



[Cutting example : MF2]
Tungsten carbide 30mm
Wire $\phi 0.20$ BS
Best surface roughness
9 times cutting
Surface roughness $0.10 \mu\text{mRa}$

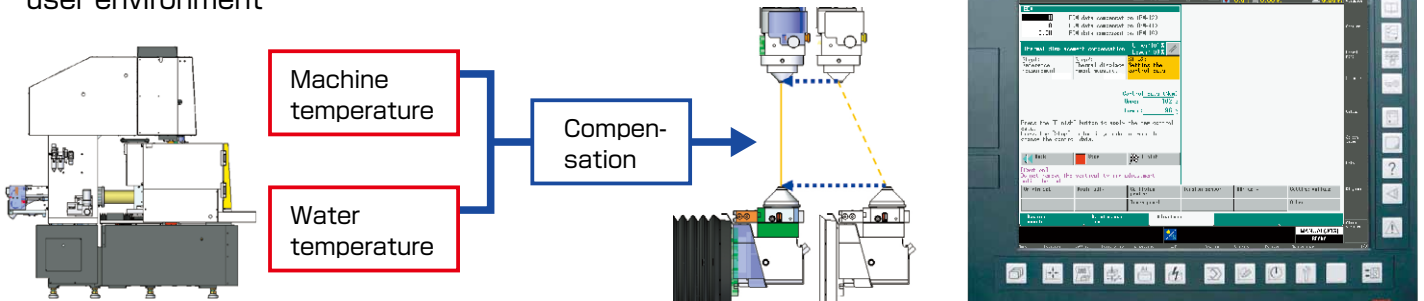


[Cutting example : MF2]
Tungsten carbide 100mm
Wire $\phi 0.25$ BS
Best surface roughness
6 times cutting
Surface roughness $0.20 \mu\text{mRa}$
Straightness $2.0 \mu\text{m}$

* All cutting results obtained under FANUC-designated conditions

Thermal displacement compensation function providing stable cutting (Option)

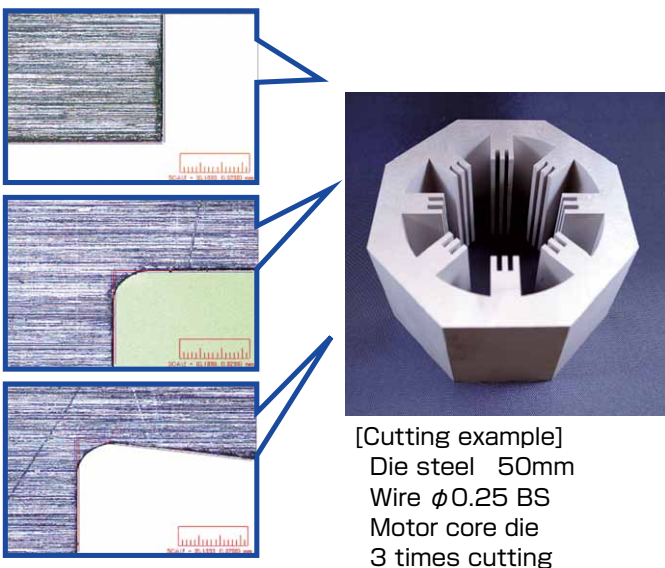
- Reducing the displacement of the upper and lower guide position caused by a large temperature change
- Optimizing the amount of compensation depending on the user environment



Various shape compensation functions providing stable cutting

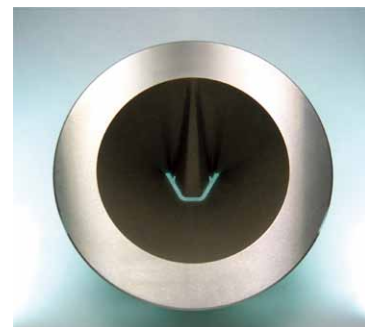
Corner Shape Compensation

- Cutting time shortened by 20% as previous



Taper Cutting Compensation

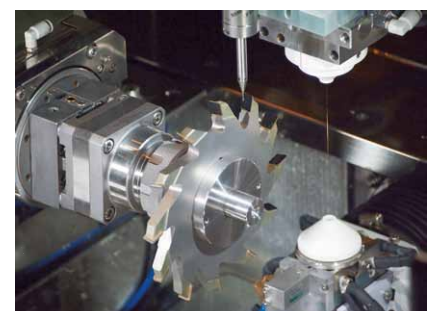
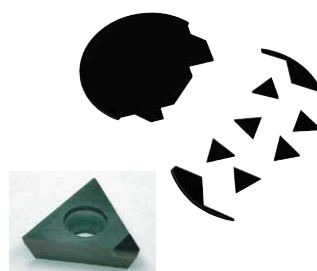
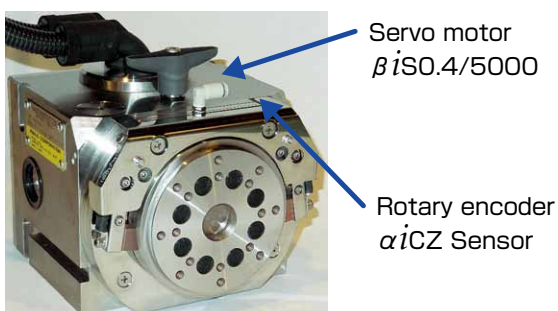
- Automatic compensation for different cutting amount between upper and lower surface of work piece
- With support point compensation of die guide providing high accuracy taper cutting



High precision rotary table ROBOCUT CCR extend range of application (Option)

- Full-Closed control by FANUC Servo motor and rotary encoder
- Light weight and compact

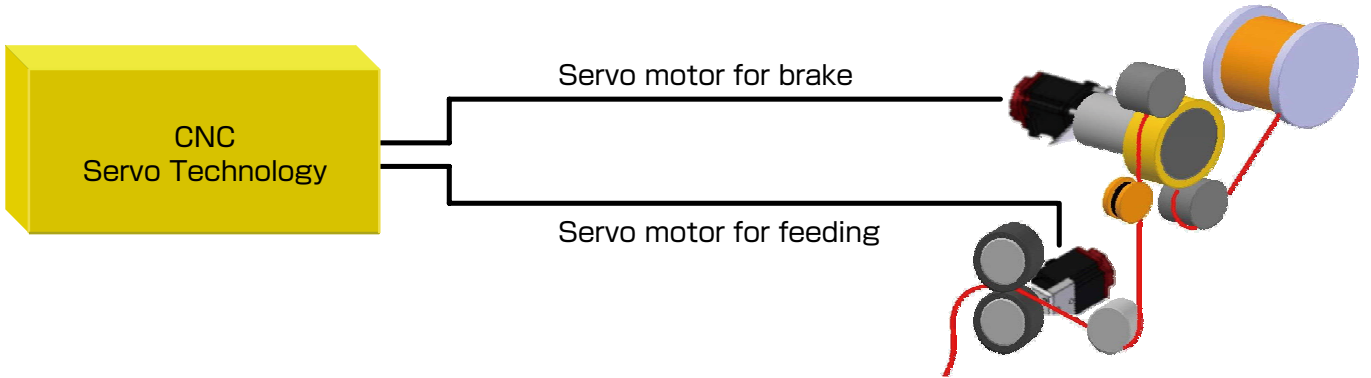
- Superior cutting edge with PCD Cutting Power Supply



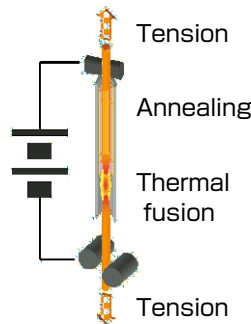
High Sustainability

Auto wire feeding AWF2 providing an unmanned machining

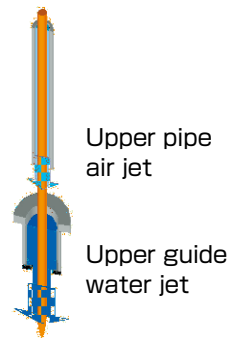
- Twin servo wire feeding system making the precise wire tension control by high reliability and high performance of FANUC servo motors
- Realizing the high success rate of wire threading according to the stable cutting and threading wire in AWF sequence



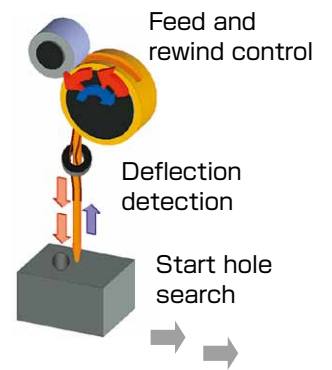
Annealing + Thermal fusion



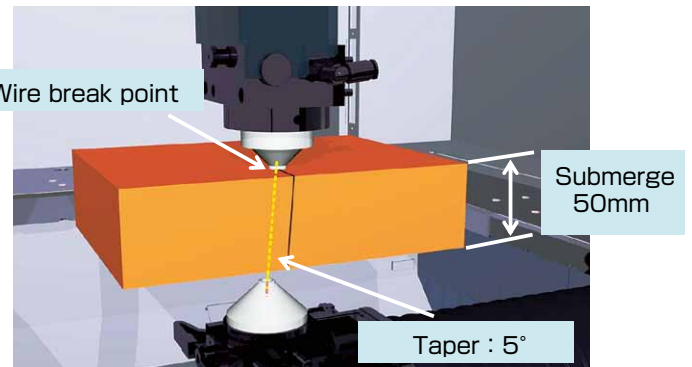
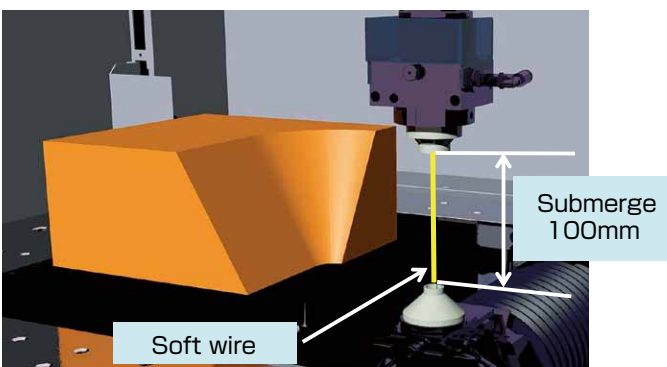
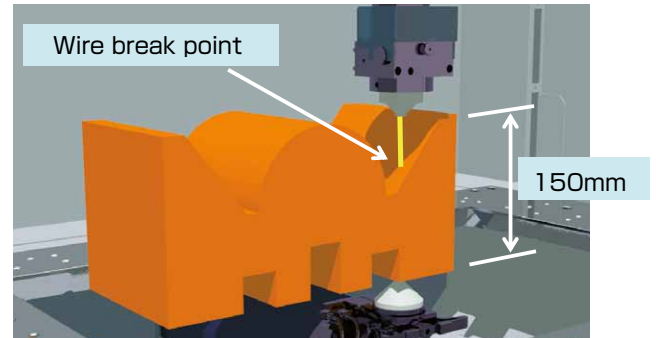
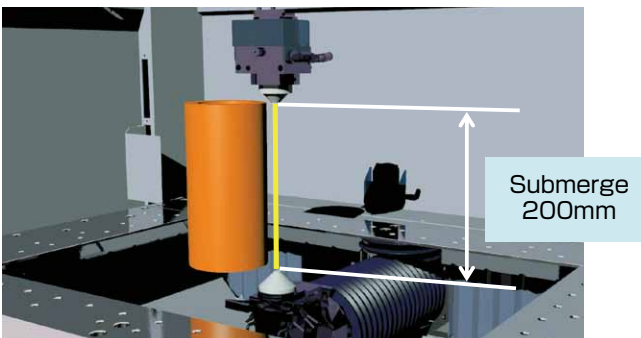
Air jet + Water jet



Intelligent Retry



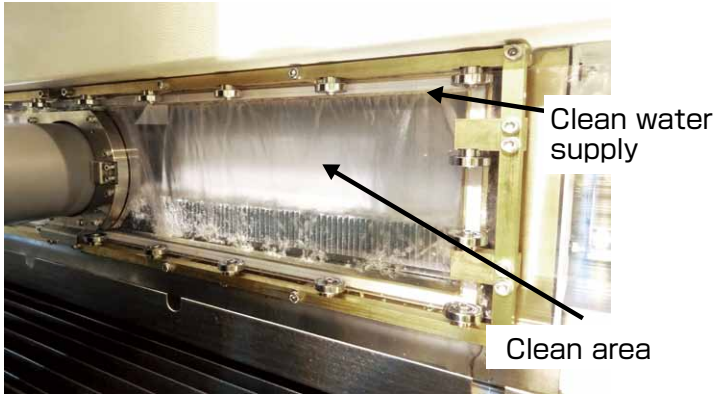
- Various AWF functions supporting an unmanned machining strongly



Pre-seal mechanism for high reliability

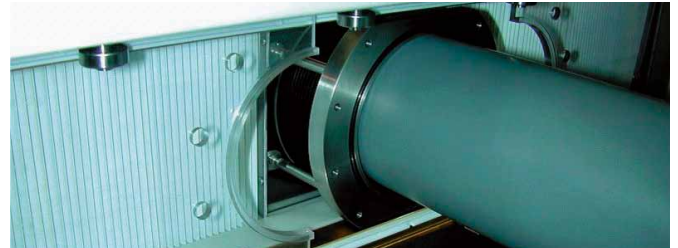
Pre-seal Mechanism

- Prevention of cutting chips adhesion on the seal plate



Tow-Split Transparent Seal Plates

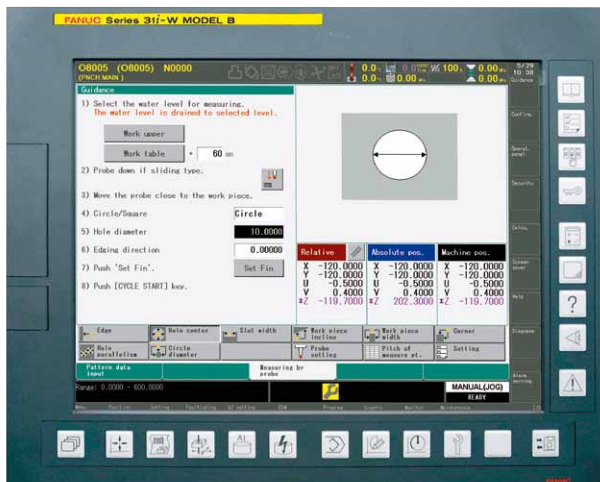
- Easy to disassemble and clean



Consumable management function and maintenance guidance function

Consumables Management Function

- Monitoring of consumables' life



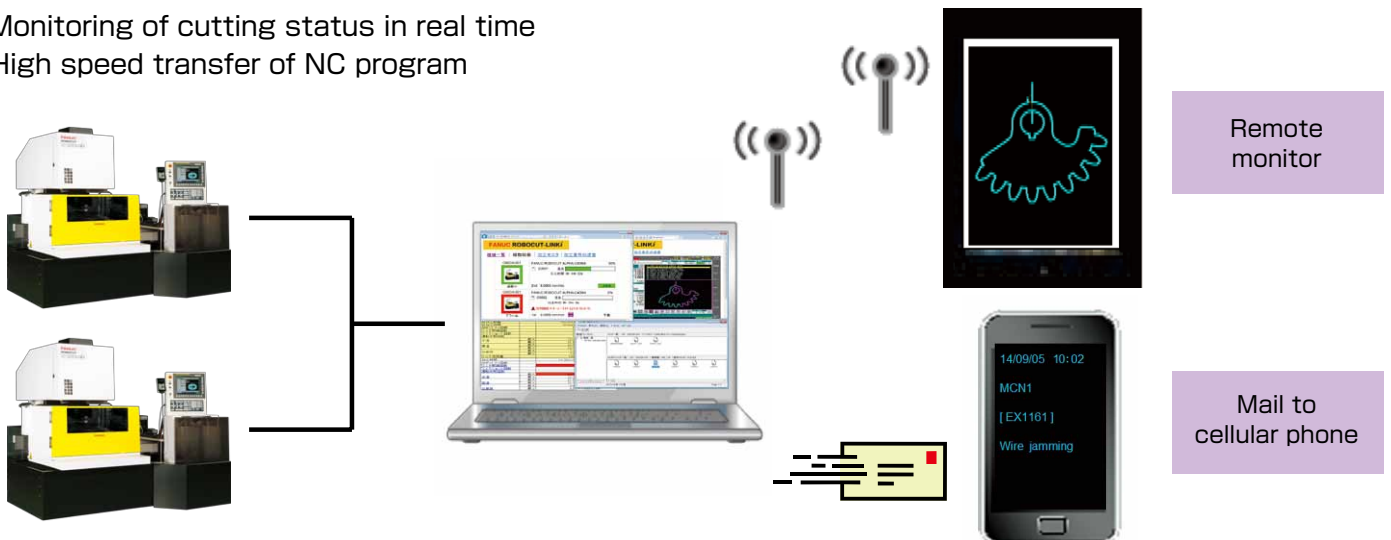
Maintenance Guidance Function

- Easy to understand the routine maintenance with pictures



ROBOCUT-LINKⁱ for production and quality information management tool (Option)

- Monitoring of cutting status in real time
- High speed transfer of NC program

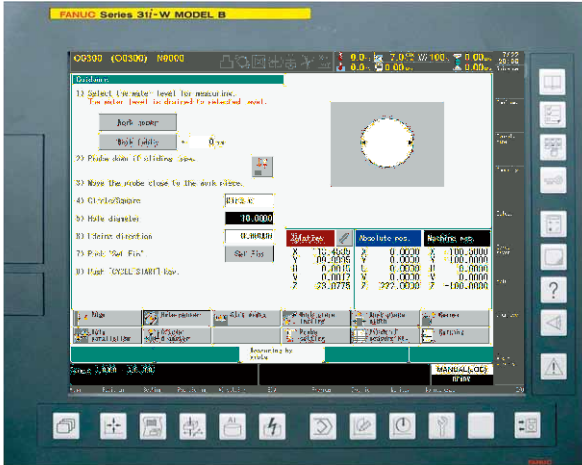


* OS : Microsoft® Windows® 7 / 8 / 8.1 * *It's necessary to contract with provider to use mail function.

Automatic function supporting setup operation (Option)

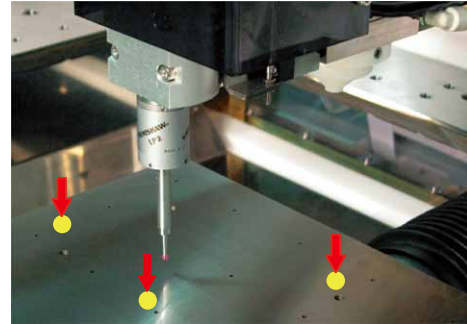
Probe Measurement Function

- Measuring the shape of work piece on the machine with a touch probe



3D Coordinate System Rotation Function

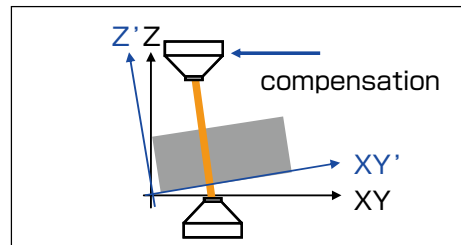
- Automatic compensation in 3D coordinate depending on the slope of the work piece



Use of touch probe example

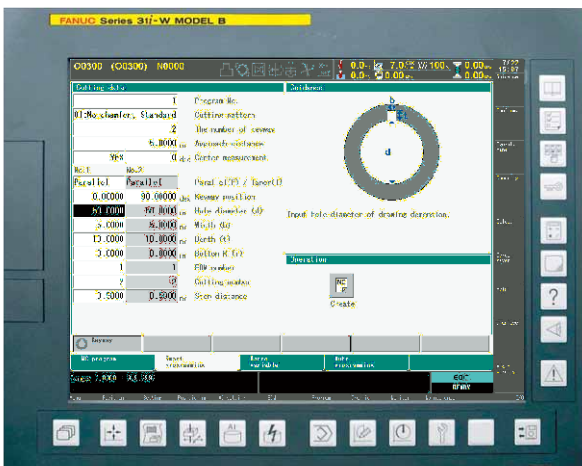


Use of indicator example



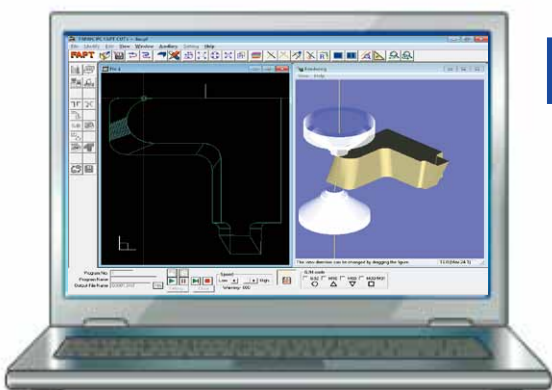
Smart Programming Function

- Easy programming for the keyway cutting



CAM software PC FAPT CUT*i* for ROBOCUT (Option)

- Easy operation to make NC programs not only for the standard cutting but also for the taper cutting, different profiles in the top and the bottom cutting, gear shape cutting, and so on for ROBOCUT
- Easy to make the cutting path from 3D CAD data or NC program
- Mount the standard EDM technology for ROBOCUT



Input / Output NC program

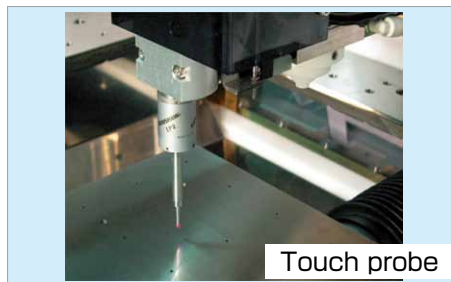
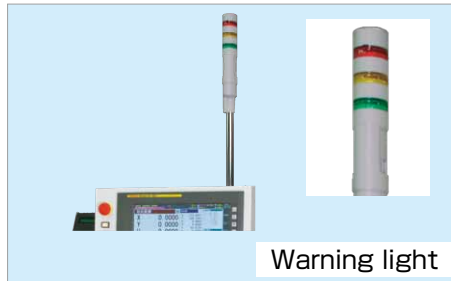
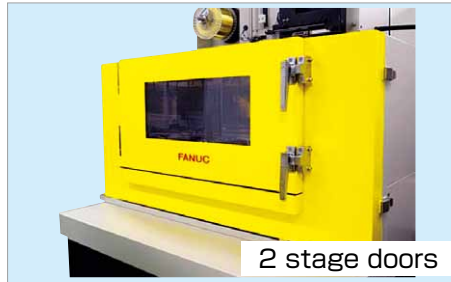
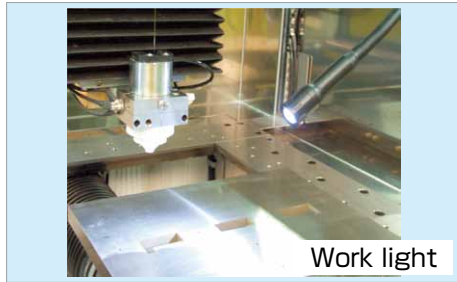
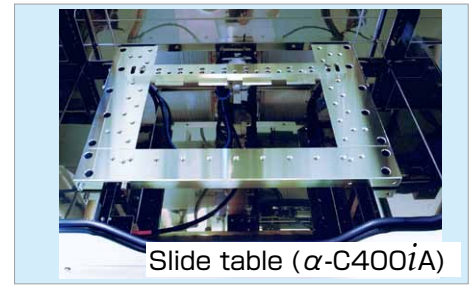
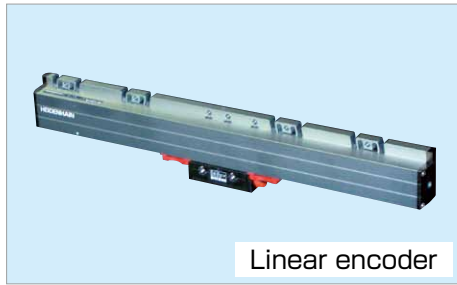
Fit the various items

- USB stick
- CF card
- Ethernet
- RS-232C



* OS : Microsoft® Windows® XP / Vista / 7 / 8 / 8.1
(except Windows® XP / Vista 64bit)

Various Option



* The availability of options is different, depending on the country, region, model. Please contact FANUC.

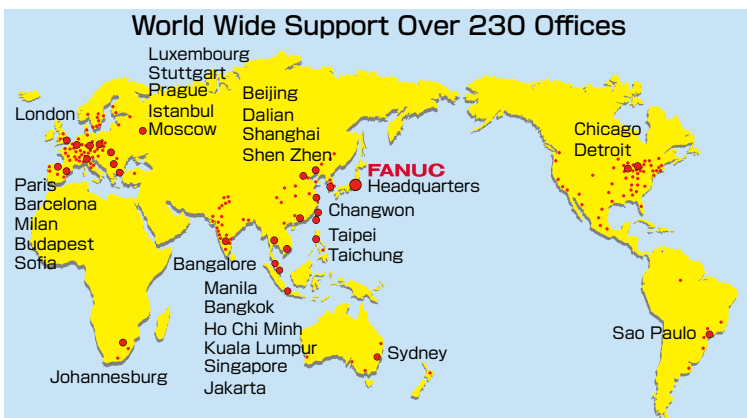
Maintenance and Customer Support

Worldwide Customer Support and Service

FANUC operates customer service and support system anywhere in the world through subsidiaries, affiliates and distributor partners. FANUC provides the highest quality service with the quickest response at the location nearest you.

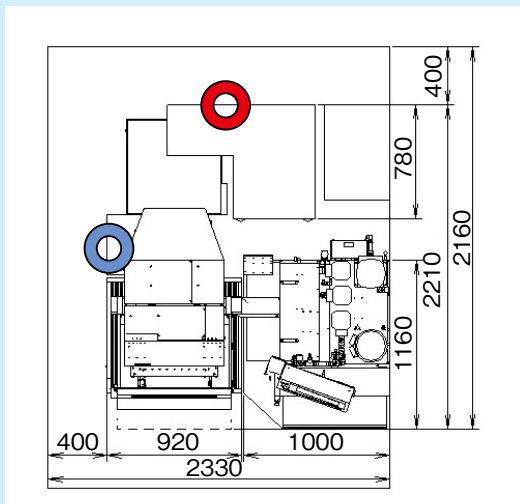
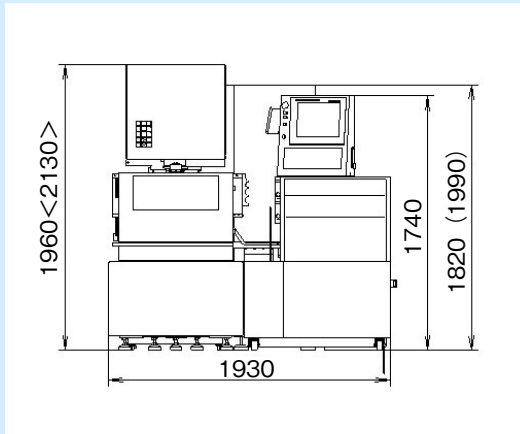
FANUC Training Center



FANUC training center operates Training programs on FANUC ROBOCUT which focus on practical operations and programming with cutting know how and maintenance.



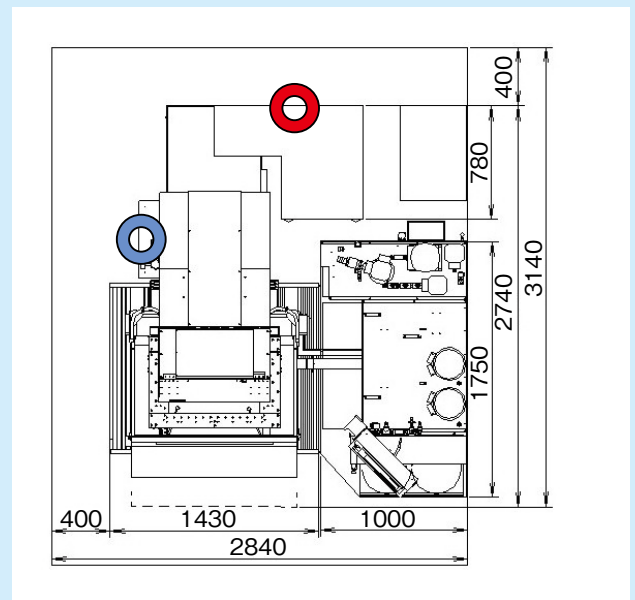
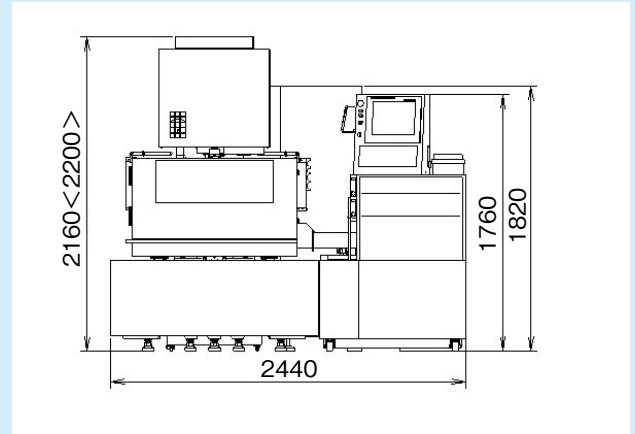
Outer Dimensions and Floor Plan



α -C400iA



-  Power input position (200V AC,3-phase)
-  Compressed air input position
- * The values in parentheses () are for thin wire option.
- * The values in parentheses < > are when the safety cover is open.

α -C600iA



-  Power input position (200V AC,3-phase)
-  Compressed air input position
- * The values in parentheses < > are when the safety cover is open.

*) The above floor plan is that of a standard type machine. Contact FANUC if you wish to order the options such as a Z axis travel 410mm and 30kg wire feed unit.

Installing Conditions

Power supply	AC200V \pm 10% 3-phase 50/60Hz \pm 1Hz AC220V \pm 10% 3-phase 60Hz \pm 1Hz Connection cable terminal size : 8-5 Power consumption : 13kVA	Environment	Ambient temperature : 15-30° C *Recommend 20 \pm 1° C for high precision machining. Install under the oil mist free and dust free environment. Humidity : 75%RH or less
Air supply	Air pressure : 0.5 - 1.0 MPa Flow rate : 100L / min or more : 120L / min or more (with a thin wire option) *Regulator-side coupler mounting screw : Rc1/4		Grounding
Shield room	If discharge noise can interfere with surrounding radio, television and other sets, a shield room needs to be created		

Specifications

Model			α -C400iA	α -C600iA
Maximum workpiece dimensions	without Automatic door	Z axis travel standard	700×600×250 mm	1050×820×300 mm
		Z axis travel option	—	1050×820×400 mm
	with Automatic door	Z axis travel standard	700×555×250 mm	1050×775×300 mm
		Z axis travel option	—	1050×775×400 mm
Maximum workpiece mass			500 kg	1000 kg
XY axis table travel			370×270 mm	600×400 mm
Z axis travel		standard	255 mm	310 mm
		option	—	410 mm
UV axis travel			±60 mm×±60 mm	±100 mm×±100 mm
Maximum taper angle		standard	±30° /80 mm	±30° /150 mm
		option	±45° /40 mm	±45° /70 mm
Wire diameter		standard	φ0.10 to φ0.30 mm	
		option	φ0.05 to φ0.30 mm	—
Maximum wire mass			16 kg	
Machine mass (approx.)			1800 kg	3000 kg
Controller			FANUC Series 31i-WB	
Part program storage size			4MB	
Acoustic noise level			LPA= 64dB LPCpeak= 81dB	

FANUC CORPORATION

Oshino-mura, Yamanashi 401-0597, Japan
 Phone: 81-555-84-5555 Fax: 81-555-84-5512
<http://www.fanuc.co.jp/>

- All specifications are subject to change without notice.
- No part of this catalog may be reproduced in any form.
- The photo includes options.
- The products in this catalog are controlled based on Japan's "Foreign Exchange and Foreign Trade Law". The export from Japan may be subject to an export license by the government of Japan. Further, re-export to another country may be subject to the license of the government of the country from where the product is re-exported. Furthermore, the product may also be controlled by re-export regulations of the United States government. Should you wish to export or re-export these products, please contact FANUC for advice.