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

FANUC

ROBOCUT α-*C*i*C* series

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

FANUC ROBOCUT α-C*i*C series

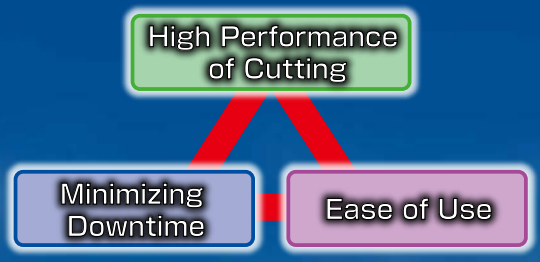
ROBOCUT α-C400*i*C

X×Y×Z axis travel : 400×300×255 mm

ROBOCUT α-C600*i*C

X×Y×Z axis travel : 600×400×310 mm

* The outer view will be different as machine specifications



High Performance of Cutting

New mechanical structure, new discharge devices, and new discharge control to provide high speed, high precision, and high quality cutting
AI thermal displacement compensation function to provide stable cutting, and various functions to adjust shapes easily
High precision rotary table ROBOCUT CCR to expand the applications

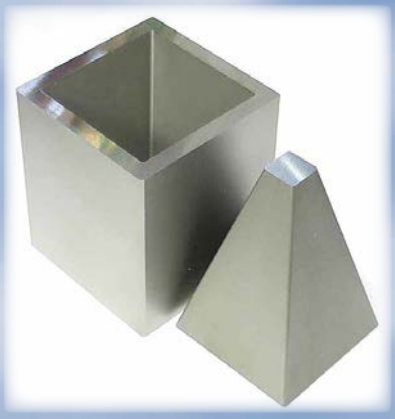
Minimizing Downtime

High reliable automatic wire feeding (AWF3) provides continuous unmanned machining
Consumables management function and Maintenance guidance function support routine maintenance
ROBOCUT-LINK*i* provides Production and Quality information management

Ease of Use

FANUC CNC and operation guidance function provide superior operations
Fulfilling EDM technologies support high speed, high precision, and high quality cutting
Automatic functions support set-up operations

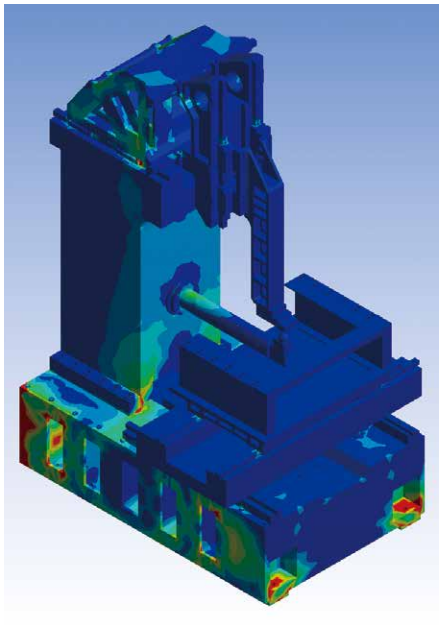





High Performance of Cutting

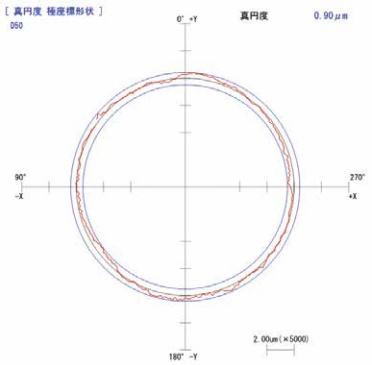
Mechanical structure to provide high precision cutting

・The strengthened machine rigidity suppresses the distortion of each part of the machine and will provide high precision cutting for circle shape, pitch accuracy, and so on.



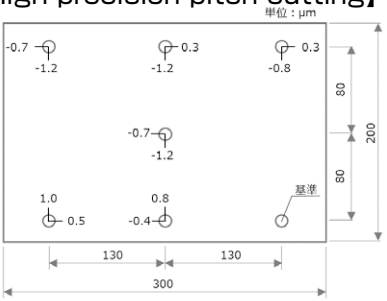
FEM analysis

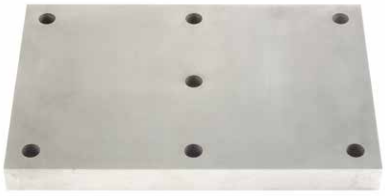
【High precision cutting of circle shape】



Die steel, 20mm
1 rough, 5 skims
Roundness 0.90μm

【High precision pitch cutting】



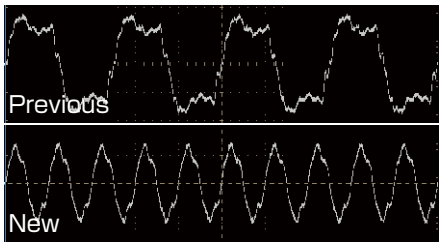


Die steel, 25mm
1 rough, 5 skims
Pitch accuracy -1.2μm to +1.0μm

Discharge device to provide high quality cutting

・SF3 power supply (standard installed) generates both miniaturization and high frequency of discharge pulse to improve surface roughness while the cutting speed is kept the same
・MF2 power supply generates the stable fine discharge to provide the best surface roughness

【Discharge pulse by SF3】



【The best surface roughness by MF2 (option)】

Carbide, 30mm
1 rough, 8 skims
Rz 0.7μm (Ra 0.10μm)

Discharge control to provide high speed and high precision cutting

・Discharge control *i*Pulse3 provides high performance of cutting by corner control and step shape control

【High speed cutting: Keyway】

Stainless, 40mm
1 rough, 1 skim
Accuracy ±5.0μm
Cutting speed 13% faster

【Fitting parts】

Die steel, 40mm
1 rough, 3 skims
Accuracy ±3.0μm
Rz 2.5μm (Ra 0.30μm)

【Step shape】

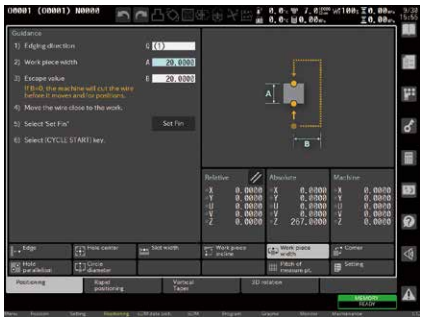
Die steel, 10-50-100mm
1 rough, 3 skims
Accuracy ±3.0μm
Rz 3.3μm (Ra 0.36μm)

* All cutting results obtained under FANUC-designated conditions

Various functions and mechanisms to support high precision cutting

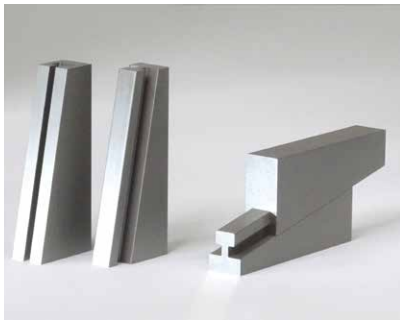
High precision positioning function

・Workpiece edge finding function with wire by applying the latest position detection method



New taper adjustment function

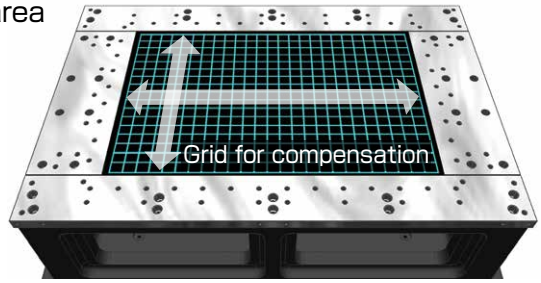
・New function with operation screen and jig providing high precision taper cutting



Die steel, 50mm
1 rough, 3 skims
Set angle 12 degrees
Measured angle
12.004 deg.
Accuracy -3μm to +1μm
Rz 2.6μm (Ra 0.34μm)

High precision pitch error compensation function

・Corrects the pitch error over the entire table area



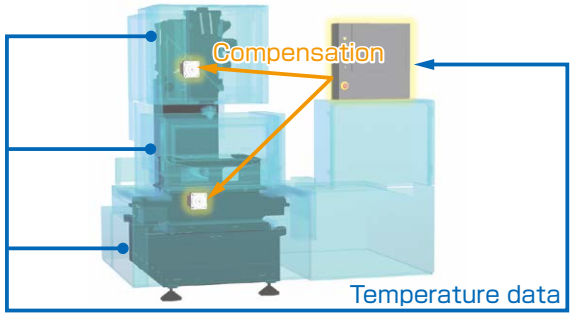
Hardened workpiece table (standard installed)

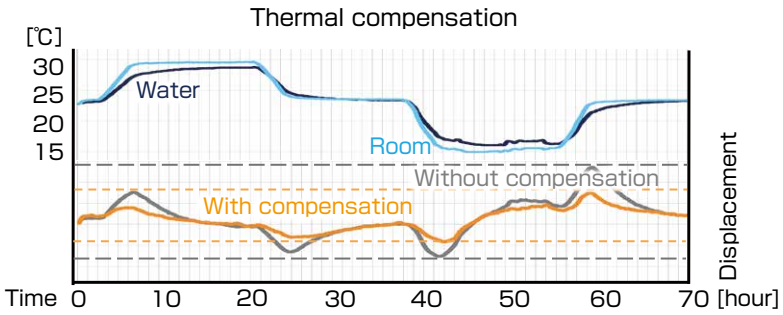
・Durable table to prevent scratch

AI thermal displacement compensation function to realize stable cutting

・Multiple temperature sensors and AI (Machine Learning) realize stable cutting even if in the room where the temperature changes on a large scale.

FANUC AI
Level 3 Machine Learning





High precision rotary table, ROBOCUT CCR, to expand applications (Option)

ROBOCUT CCR

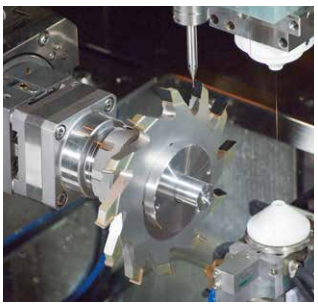
・FANUC Servo motor & rotary encoder are installed

High precision positioning, light weight, and compact

Helical cutting

PCD tool cutting

・PCD tool applications with ROBOCUT CCR



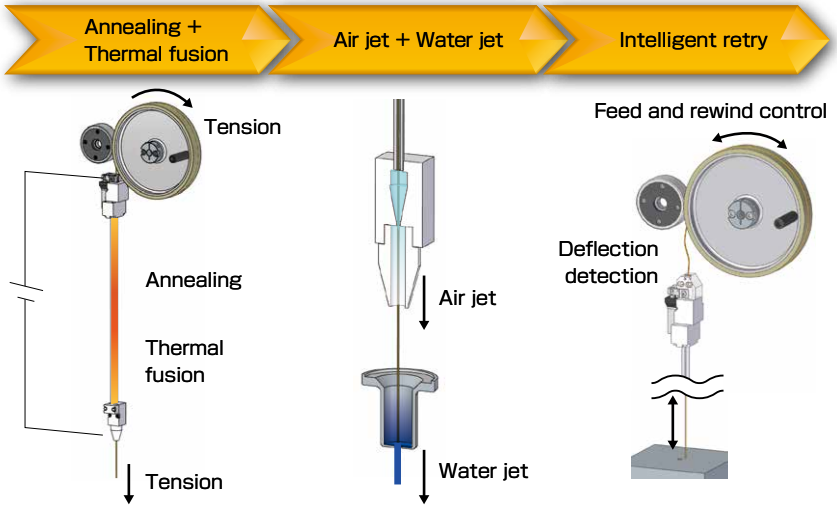
PCD power supply provides high quality cutting

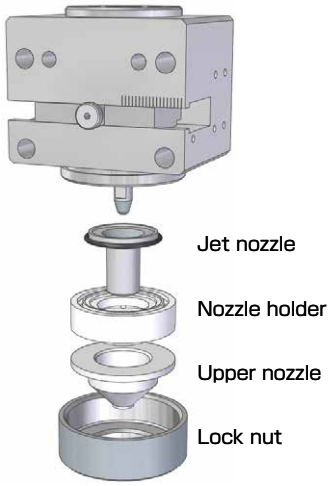
* All cutting results obtained under FANUC-designated conditions

Minimizing Downtime

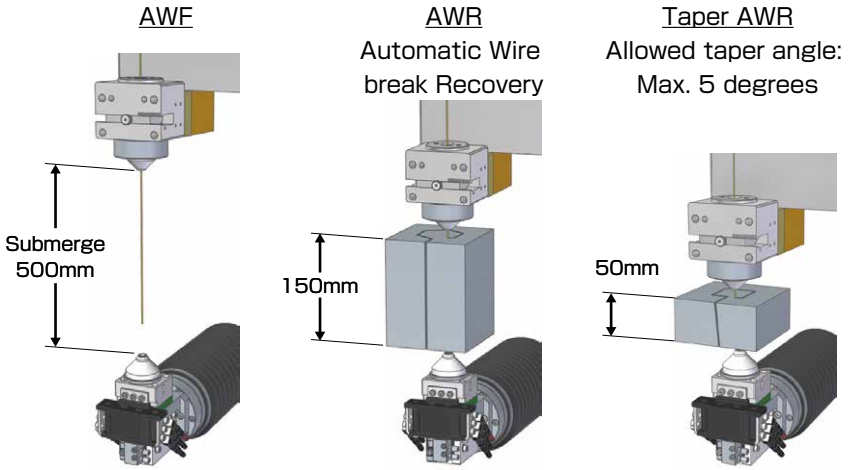
Automatic wire feeding system AWF3 to support unmanned operation

・Simple structure provides a great maintainability, higher rate of wire threading, and high reliability
・Provides AWF for Max.500mm height in submerge condition, AWR with 150mm work thickness





Simplified upper guide unit

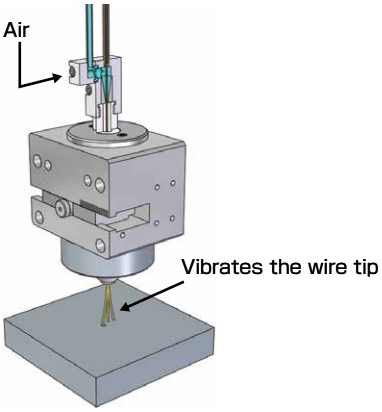


Various AWF functions support strongly unmanned operations

*All cutting results obtained under FANUC-designated conditions

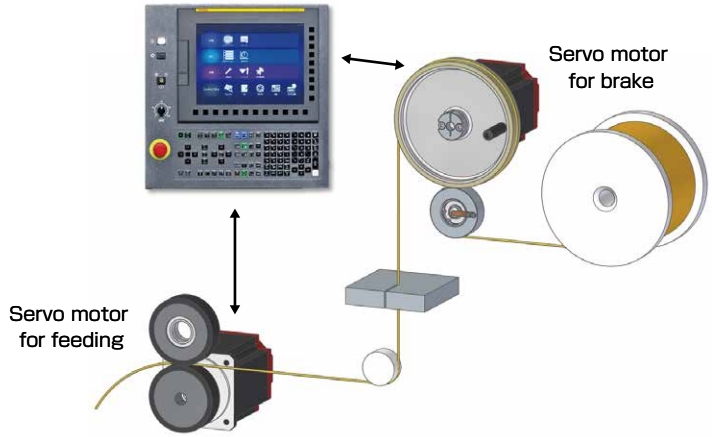
Air retry

・Higher success rate of threading wire by vibrating the wire intentionally even in difficult places to thread wire such as at the wire break point or at the small start hole
・Great combination with CORE STITCH function



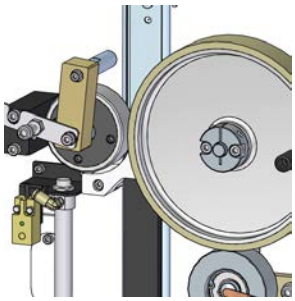
Twin servo wire feeding system

・Wire feeding system with FANUC servo motors accurately controls the wire tension and suppresses the wire vibration to provide high precision cutting

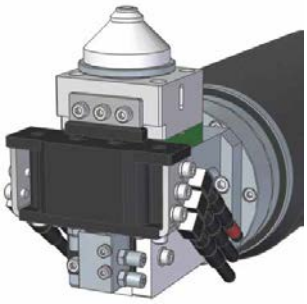


Wire running system to contribute for higher rate of operation

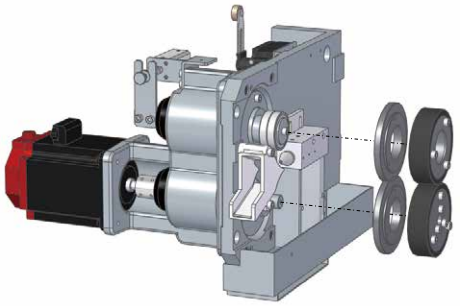
- Simple structure to provide easier wire installation



- Maintenance-free structure on the lower guide

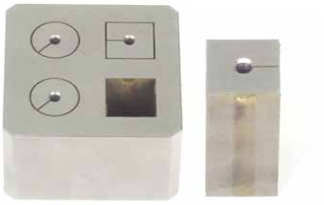


- 50% time reduction for maintaining the wire feed part

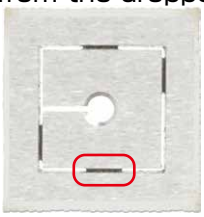


CORE STITCH* function to adhere the cores

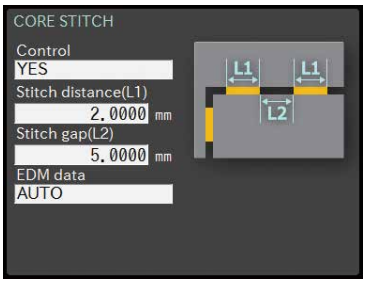
- The function to adhere the core by brass welding provides continuous unmanned operation.
- Prevents the machine damage from the dropped cores
- Easy operation to activate on the CNC screen
- Easy setting of adhesion distance and gap



Core adhesion and a removed core



Adhesion by brass ingredient

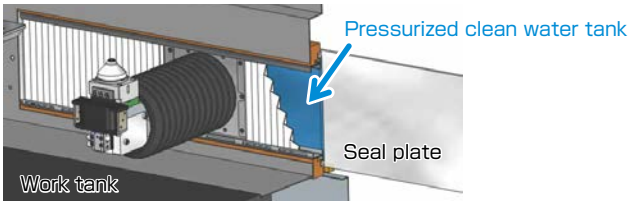


*CORE STITCH is a registered trademark of Seibu Electric & Machinery Co., Ltd.

Pre-seal mechanism for work tank to provide high reliability

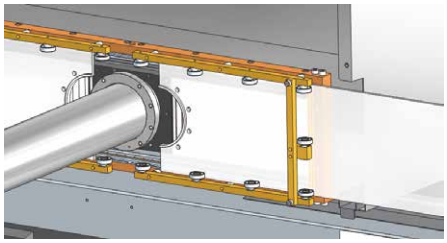
Pre-seal mechanism

- Pressurized clean water tank prevents the seal plates from sludge adhering to it
- Prevents deterioration of cutting accuracy caused by the frictional resistance from seal plates



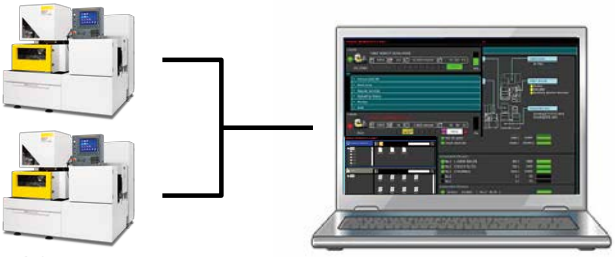
Two-split Transparent seal plates

- Easy to disassemble and keep clean
- Easy to check how dirty



ROBOCUT-LINK*i* to manage production and quality information

- Monitors the cutting status of ROBOCUT in real time
- High speed transfer of NC programs



Max.32 units connectable

Send emails

Operation monitor

FANUC IoT

Consumables' lives

Regular Maintenance

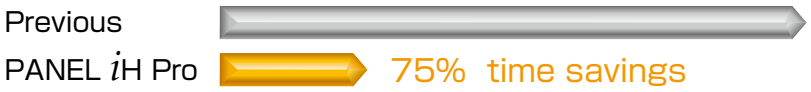
* OS : Microsoft® Windows® 7 / 8 / 8.1 / 10 ** It's necessary to contract with provider to use emai function.

Ease of Use

FANUC's latest CNC to improve operability

PANEL *i*H Pro, the high performance display unit of FANUC

・Provides 75% faster drawing speed than previous model

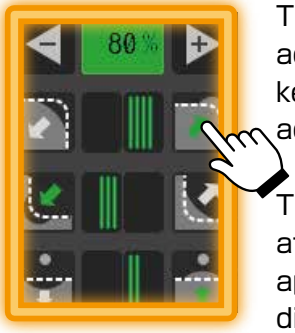


・Multi-touch screen wil support operation
・Undo/Redo function will save the operation mistakes
・ROBOCUT-CAM*i* installed in the PC can be remote-operated from ROBOCUT screen

Simple adjustment function

・Cutting speed and the shape can be adjusted by simple and intuitive operation

Touching the buttons to adjust the EDM parameters



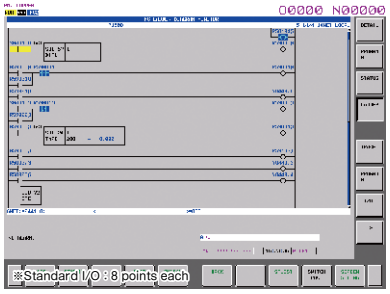
The cutting speed can be adjusted from 50% to 120% keeping the discharge gap to achieve stable cutting

The buttons to adjust visually at the corner shape and approaching shape without directly changing parameters

Customize functions to support user needs

Custom PMC function

・Ladder programs for peripheral devices can be created on the screen



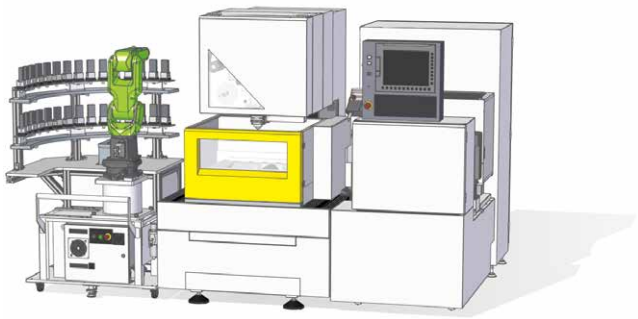
Custom screen function

・Original applications created by yourselves can be installed and operated on ROBOCUT

QSSR : Simple Startup of Robot system (Option)

QSSR (Quick and Simple Startup of Robotization)

・Packaging FANUC Robot, Robot interface, Robot stand, safety fence, Robot sample program, and so on
・QSSR provides the work exchange system by FANUC Robot

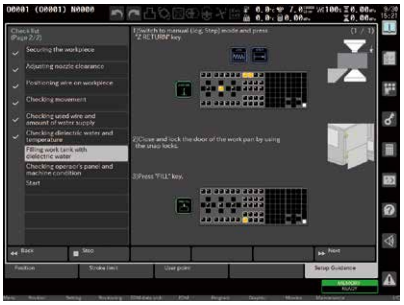


Work piece exchange system by FANUC Robot (sample)

Various functions to support setting up

Setup Guidance function

・Explains the set up procedure



Searching EDM screen

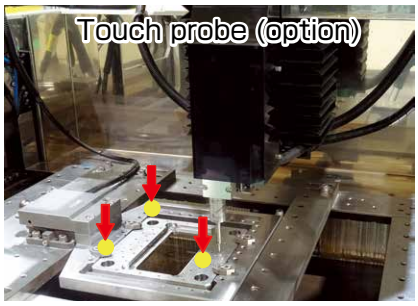
・Provides the proper EDM technologies to each application

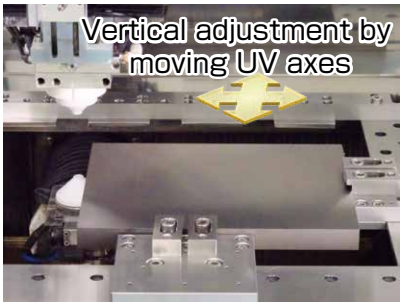
Smart Programming function

・Provides an easy programming process for keyway cutting

3D Coordinate Rotation Function

・Compensates the wire vertical position by moving U / V axes according to the workpiece tilt.





Various functions to support daily maintenance

Consumables management

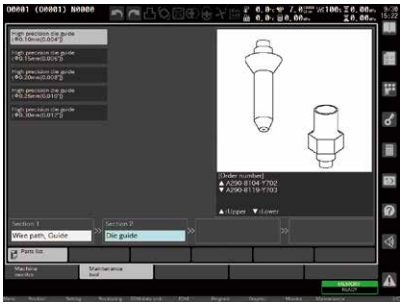
・For monitoring the lives of consumable parts

Maintenance guidance

・Provides the routine maintenance with pictures etc.

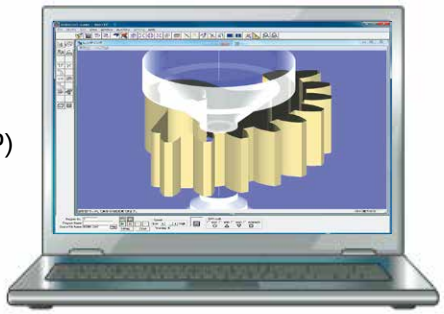
Parts list

・For searching maintenance parts and ordering information



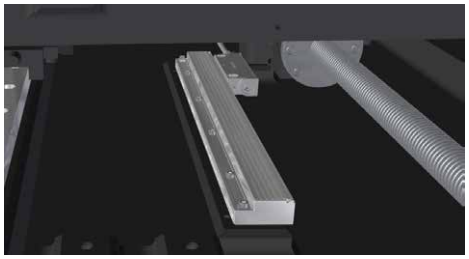
ROBOCUT-CAM*i* (Option)

・The PC software to create NC programs for ROBOCUT
・Easy operation to make NC programs interactively for standard cutting, taper cutting, different profiles in the top and the bottom cutting, gear shape cutting, CORE STITCH, and so on
・Easy operation to create cutting path from CAD data (DXF,IGES,STEP) and NC programs
・Standard EDM technologies for ROBOCUT are installed
・USB memory and Ethernet are allowed to use when transferring the data between ROBOCUT and the PC



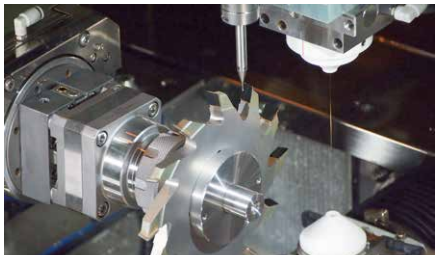
*OS : Microsoft® Windows® 8 / 8.1 / 10

Options

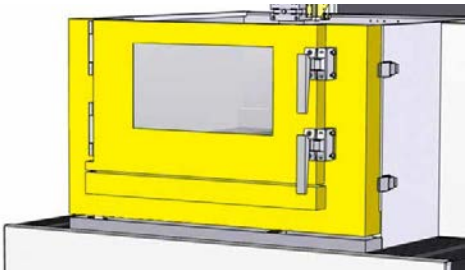


Linear encoder

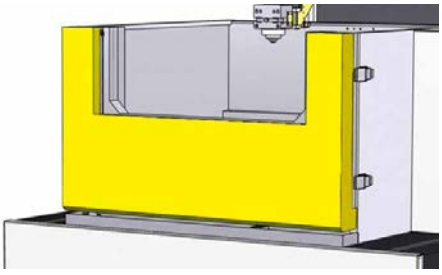
MF2 power supply for skim cutting



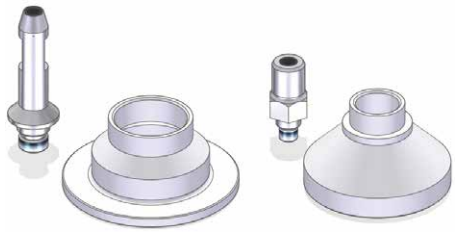
PCD tool cutting system



Double doors



Automatic door



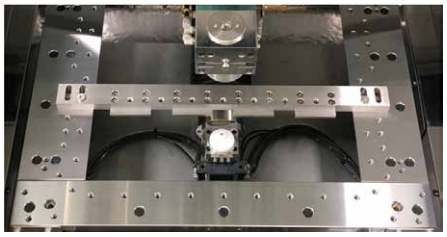
45 degrees taper kit

Work light (LED)

Warning light (Three-stage LED with buzzer)

Wire loader for 20 – 30kg wire

Automatic grease lubrication



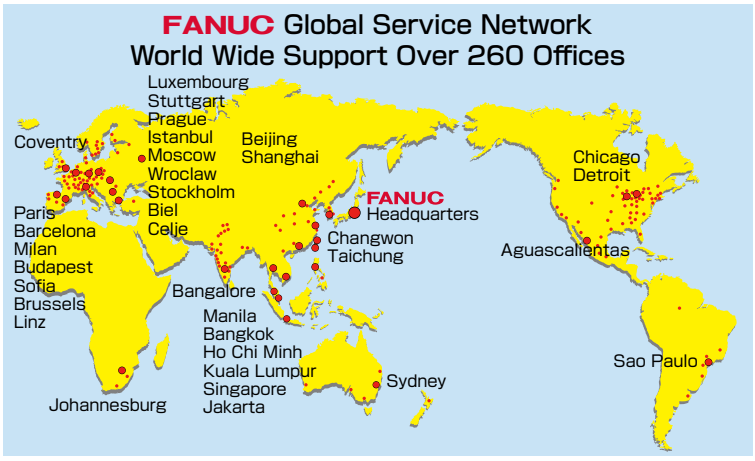
Removable table (α-C400iC)

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

Maintenance and Customer Support

Worldwide Customer Support and Service, Lifetime support

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.



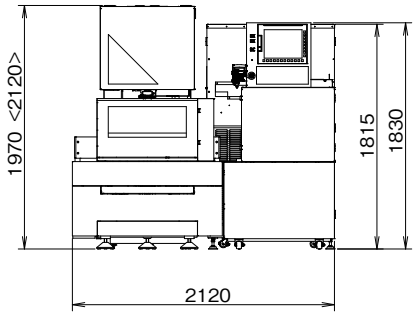
FANUC ACADEMY

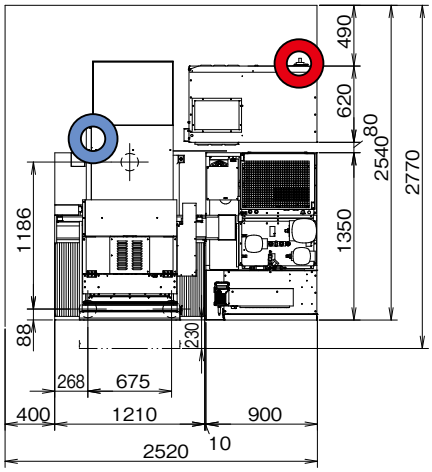
FANUC ACADEMY operates training programs on FANUC ROBOCUT which focus on practical operations and programming with cutting know how and maintenance.

Inquiries : Oshino-mura,
Yamanashi, Japan 401-0597
Phone : 81-555-84-6030 Fax : 81-555-84-5540

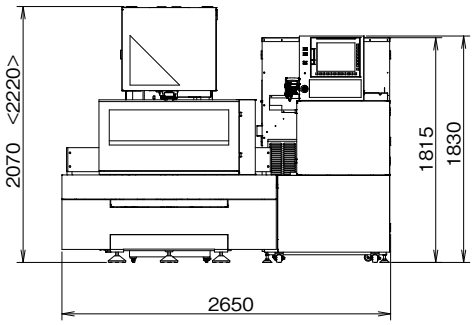
Floor Plan

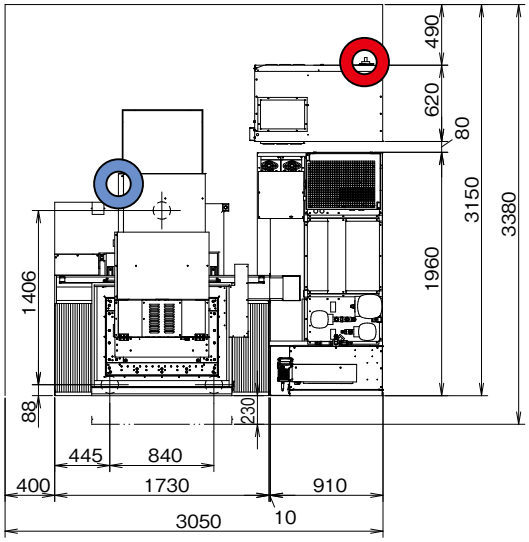
α-C400iC





α-C600iC





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, 510mm and 30kg wire loader options.

Installation Requirement

Power supply	200VAC±10% 3-phase 50/60Hz ±1Hz 220VAC±10% 3-phase 60Hz ±1Hz Connection cable terminal size : 8-5 Power consumption : 13kVA	Environment	Ambient temperature : 15 to 30℃ *Recommend 20±1℃ for high precision machining. Install under the oil mist free and dust free environment. Humidity : 75%RH or less
Air supply	Pressure : 0.5 to 0.7 MPa Flow rate : 160L/min or more *Regulator-side coupler mounting screw : Rc1/4	Grounding	400mm or more are recommended as concrete foundation ground where machine is located to endure its weight. Ground should be selected where no vibration or no impact effect. As vibration level, the maximum amplitude should be 2μm or less under frequency band from 10 to 20 Hz. The unit must be grounded to prevent damage resulting from electro-magnetic interference or electrical leakage. The unit is recommended to be installed so that the ground resistance is less than 10Ω. Also, the grounding should be isolated from other machines.
Shield room	If discharge noise can interfere with surrounding radio, television and other sets, a shield room needs to be created		

Specifications

Model			α-C400*i*C	α-C600*i*C
Maximum workpiece dimensions	without Automatic door	Z axis travel standard	730 x 630 x 250 mm	1050 x 820 x 300 mm
		Z axis travel option	—	1050 x 820 x 400 mm
	with Automatic door	Z axis travel standard	730 x 585 x 250 mm	1050 x 775 x 300 mm
		Z axis travel option	–	1050 x 775 x 400 mm
Maximum workpiece mass			500 kg	1000 kg
XY axis table travel			400 x 300 mm	600 x 400 mm
Z axis travel		standard	255 mm	310 mm
		option	—	410 mm
UV axis travel			±60 mm x ±60 mm	±100 mm x ±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 (including the dried work tank)			About 2200 kg	About 3600 kg
Controller			**FANUC Series 31*i*-WB**	

FANUC CORPORATION

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