Machine Specifications

	Model	YMZ-850
Table	Work Area	950×500mm
	T-Slot	P80×18×5Tmm
	Distance from the Ground to Table Top	935mm
	Max. Loading	500kg
Travel	X Axis Travel	800mm
	Y Axis Travel	500mm
	Z Axis Travel	500mm
	Distance from S. Nose to Table Surface	125~625mm
	Distance from S. Center to Column Slideway	510mm
Spindle	Spindle Taper	7/24 Taper No.40
	Spindle Diameter	ϕ70mm
	Spindle Speed	12000rpm
Feed	Guideway	Roller Guide
	Ball Screw Diameter	ϕ36mm
	Cutting Feedrate	10/10/10 m/min
	Rapid Feedrate X/Y/Z	36/36/24 m/min
ATC	Tool Change Time	1.7 seconds (T to T)
	Max Tool ϕ (W/Adjacent Tools)	ϕ76mm
	Max Tool ϕ (W/o Adjacent Tools)	ϕ125mm
	Max Tool Length	300mm
	Max Tool Weight	7kg
	Tool Shank	BT40
	Pull Stud	MAS-I 45°
	Tool Selection	Memory Random (Shortest Path)
	Tool Storage Capacity	24
Motor	Spindle Motor (Cont/15min/15%ED)	7.5/11/15kW
	XYZ Axes Servo Motor	1.8/3kW
	Coolant Pump	660w
Tank Capacity	Coolant Tank Capacity	260L
Power Source	Required Power	24kVA(Std), 27kVa(OP) ※1 (AC200V±10%, 50/60Hz±1Hz)
	Required Air Supply	0.6Mpa (6kgf/cm²)
Machine Size	Floor Space and Machine Height	2568.5×2150×2700mm
	Net Weight (approx.)	4500kg

※1 High Output motor +7kVA

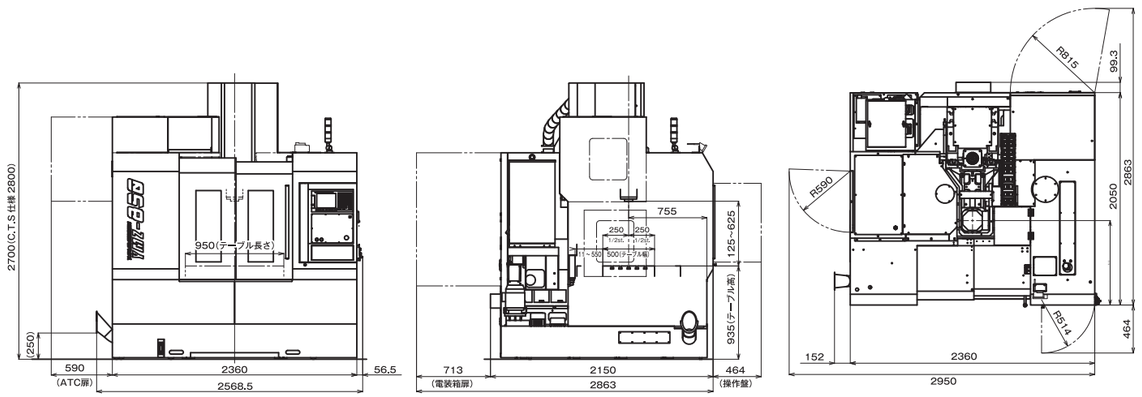
Standard Accessories

Full Splash Guard
Chip conveyor (Coil Screw)
Leveling Blocks
Coolant System
Air Blow
Auto Lubrication System
Spindle Oil Cooler
Work Light LED×2
Patorol Lamp
RS232 Interface
Heat Exchanger
Standard Installation Tool Kit

Optional Accessories

Spindle Speed 15000rpm (Direct Drive)
High Output Motor (11/15/18.5kw)
Center Through Spindle Unit
BBT Spindle (15000rpm)
Chip Conveyor (Coil Screw + Hinge Type)
Chip Flashing Device
Coolant Gun
Oil Skimmer
AI contour + Smooth Tolerance
Data Server 2GB
4 Axes Ineteface
Guidance Function
Thermal Displacement Correcting Device
Scale Feed Back
Door Interlock
Automatic Door
Touch Prove
Tool Setter

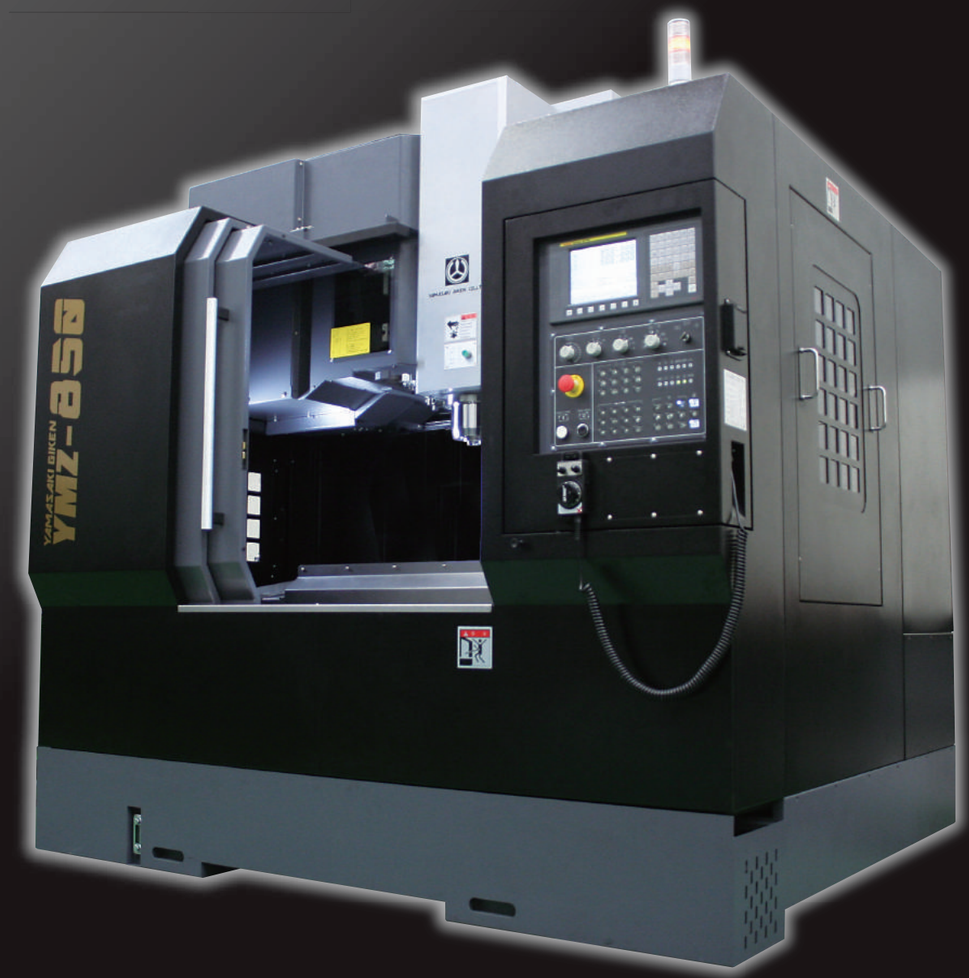
Machine Dimensional Drawing



株式会社 山崎技研
YAMASAKI GIKEN CO., LTD.
TEL. 81(887)57 6222 FAX. 81(887)57 6223
URL : http://www.yamasakigiken.co.jp/
E-Mail : n.yamasaki@yamasakgiken.co.jp
yzinfo@yamasakgiken.co.jp

Vertical Machining Center

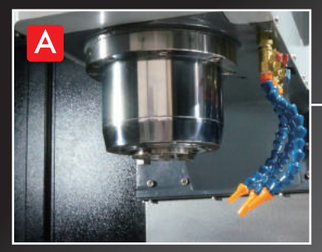
YAMASAKI GIKEN YMZ-850



YAMASAKI GIKEN CO., LTD.

Concept

High quality vertical machining center that can cope withvarious diversified requirements of customers, such as mass production,small-quantity machining of a single part and high-precision machining.



- Spindle Speed : 12,000rpm
- Travel (XYZ) : 800mm×500mm×500mm
- Rapid Feed Rate (XY,Z) : 36m/min, 24m/min

MADE IN JAPAN

OP

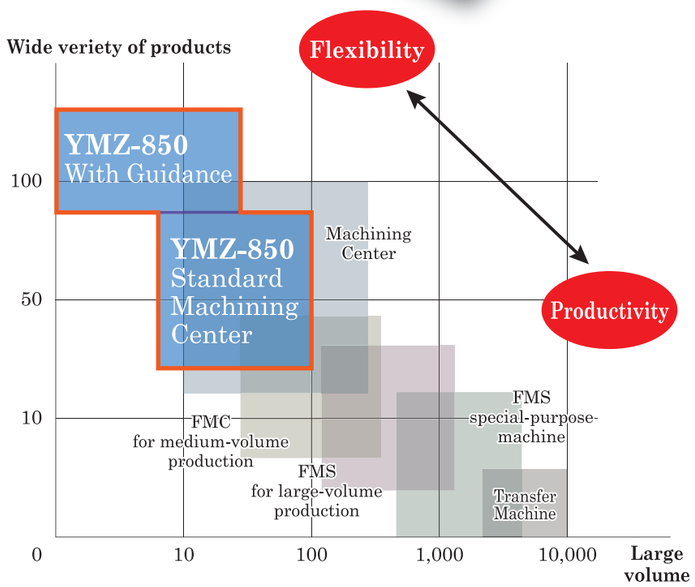
Guidance Function for Production of **"Many Kinds in Small Quantity"**

- **For single part~small lot machining**
- **For processing jigs and trial pieces**
- **Easy operation(no G codes)**
- **Easy guidance map display**
- **Helps to shorten Set up time**

※FMS (Frexlble Manufacturing System)
An automated manufacturing system with flexibility for various materials

※FMC (Frexlble Manufacturing Cell)
A compact manufacturing system with FMS functions

※Transfer Machine
A production line consisting of an automatic milling machine with a machining transfer system.



OP

High Precision Machining Package

15,000rpm, Scale Feed Back, Thermal Displacement Correcting Device, and Additional NC Function for High-precision Machining

Standard Specifications

A. SPINDLE

Standard Specifications

- Direct Drive : 12,000rpm
- Spindle Oil Cooler
- Output : 7.5/11/15kw



OP

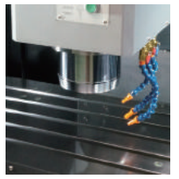
- 15,000rpm
- Center Through Spindle : 2.0Mpa(10,000rpm ONLY)
- High Output : 11/15/18.5kw (10,000 & 15,000rpm)

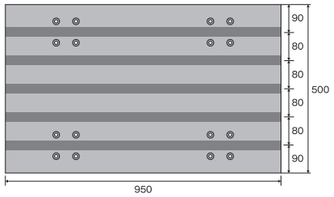
Concentration Time of Spindle Speed		
	Output	**Torque**
Standard	16.5kW	105N.m
High Output OP	22kW	140N.m

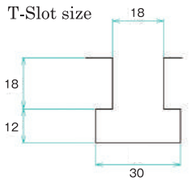
Spindle Speed Reached the MAX Speed in 2 Seconds

B. TABLE

- Table Work Area : 950×500mm
- Table T-Slot : 18^{H7}×5
- Max Loading Capacity : 500kg
- Distance from the Ground to Table Top : 935mm







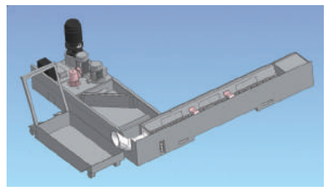
C. ATC

- Tool Storage Capacity : 24
- Max Tool ϕ(W/Adjacent Tools) : 76mm
  Max Tool ϕ(W/o Adjacent Tools) : 125mm
- Tool Change Time : 1.7 Seconds (T to T)
- Tool Selection Method : Memory Random
- Automatic Sliding Shutter for Preventing Chip



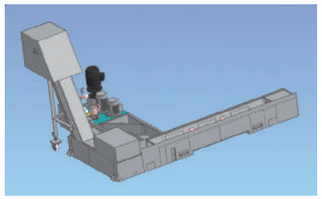


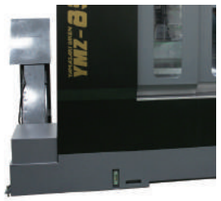
D. CHIP CONVEYOR (COIL SCREW TYPE)





OP CHIP CONVEYOR (COIL SCREW + HINGE TYPE)

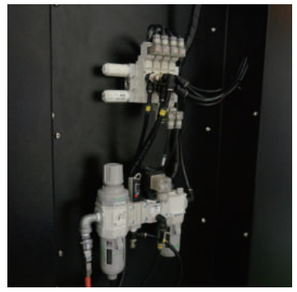




E. MAINTENACE & INSPECTION

- Most of the equipment that needs daily maintenance is placed behind the machine to reduce the maintenance time.
- Independent ATC magazine room & door for easy & safety maintenance.
- Cartridge spindle unit can help to reduce down-time when replacing spindle.





Recommended! OP Guidance Function

Special Function for Single Part~Small Lot Machining

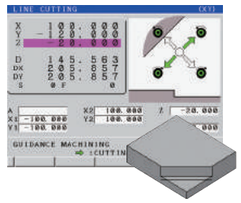
- Easy Operation (No G Codes)
- Easy-to-Follow Guidance Function.
- Choose a Function and Input Numerical Values.
- Easy Guidance Map Display

PLAY BACK | LINE | ARC | LIMIT | CORNER | INTERRUPT | TOOL

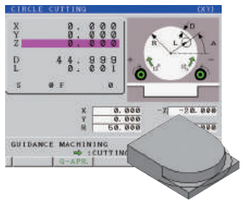
POSITIONING | POCKET | SIDE | FACING | DRILLING | CHAMFER | CONTOUR



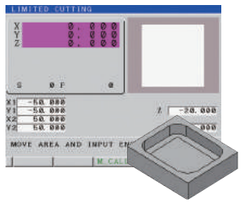
LINE



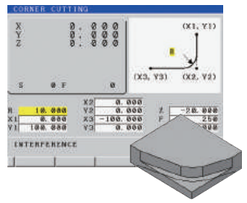
ARC



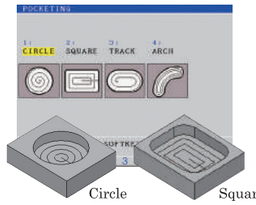
LIMIT



CORNER

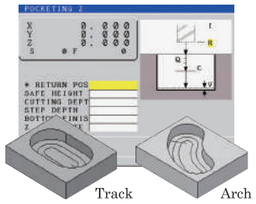


POCKET



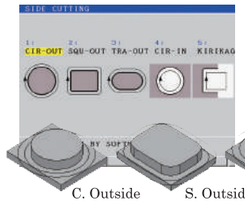
Circle Square

POCKET Z AUTO CUTTING



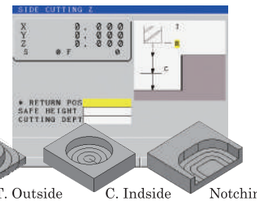
Track Arch

SIDE

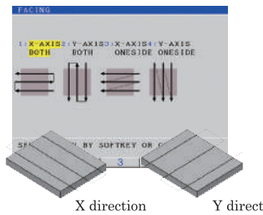


C. Outside S. Outside T. Outside C. Indside Notching

SIDE Z AUTO CUTTING

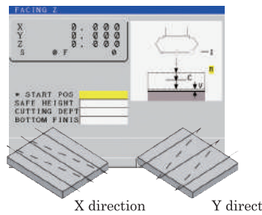


FLAT



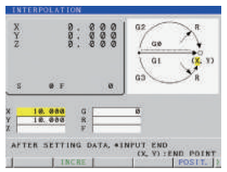
X direction Y direction

FLAT Z AUTO CUTTING

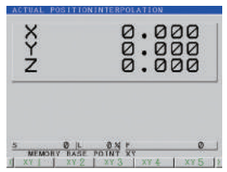


X direction Y direction

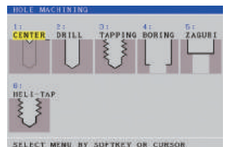
INTERPOLATION



DATUM POINT MEMORY (5 POINTS)



DRILLING

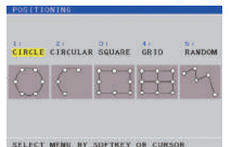


Center Drilling Drilling Tapping

Boring Cboring Helical Tapping

Combine freely!

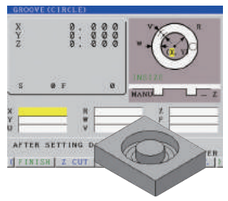
PATTERN



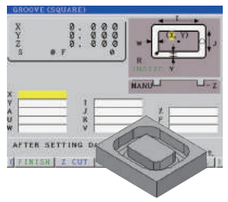
Circumference Arc Square

Lattice Arbitrary

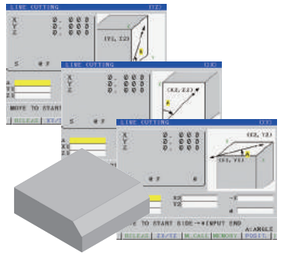
GROOVING (Circle)



GROOVING (Square)



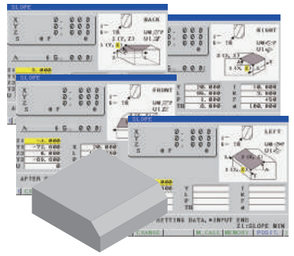
LINE (XZ/YZ)



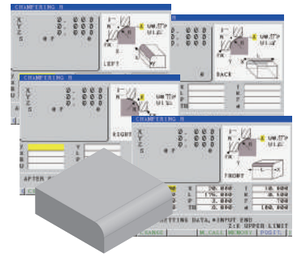
ARC (XZ/YZ)



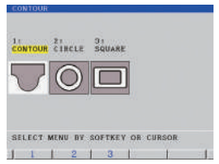
Chamfering(C)



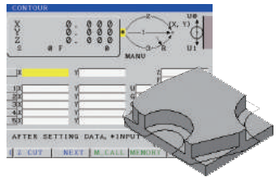
Chamfering(R)



CONTOUR

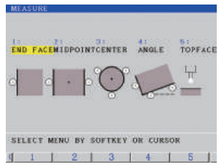


CONTOUR MACHNING



- A maximum of 41 intersections can be entered by specifying the linear and circular interpolations.
- The finished dimension is adjustable by offsetting an amount equal to the radius of tool.
- Choice of downcut or upcut is available.
- Function exists to change the coordinates of input data. (Coordinate reversal, moving coordinate or data bulk removal)

MEASUREMENT(CENTERING)



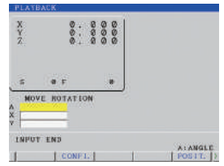
END FACE WAY POINT

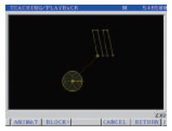


CENTRAL POINT ANGLE



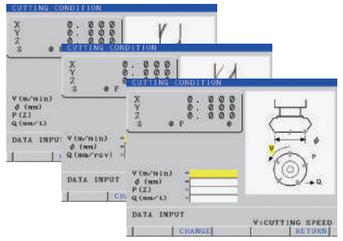
PLAYBACK





- Conducts machining in succession as programmed during the teaching function.
- Allows verification of the process with its graphic display.
- Corresponds to rotational transfer.(Input the angle and central position to machine at the specifild angle)

CUTTING CONDITIONAL CALCUIATION



- Displays the tool rpm and feed rate.

Independent Handles & Levers (Guidance function only)

X,Y & Z axes handles are independent and simple to use. One mono-lever allows operator to cut and feed as well as fast-feed from left to right and front to back as desired even by one hand. Not only does it move each axis smoothly, but also you just push down the mono-lever to the desired direction for easy simple manual machining.

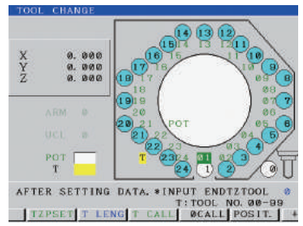


The yellow-green handle moves selected 2 axes of XYZ simultaneously. Program debug check can also be easily done with this handle. (3 axes) The feed speed is linked to the speed of the turning of the handle, so it is convenient when prudent machining is necessary such as checking interference of the tool.



"TOOL" Menu (Easy tool changes with guidance function)

By enabling tool changes using the guidance function as well as MDI operation, speedy and easy tool changes are possible. You can change the tools by selecting either tool number or pot number.



Machine Accuracy / Spindle Motor Output / Machine Ability / Other Options

MACHINE ACCURACY

Positioning	±0.0027mm
Repeatability	±0.0023mm
Circularity	0.003mm (AVG)

※Results may vary in the case of continuous machining.
※Recorded data may not be obtainable because of variations in machining and environmental conditions.
※Values are based on in-house testing standards and were derived under in-house testing conditions

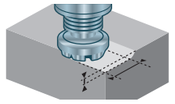
SPINDLE MOTOR OUTPUT & TORQUE

STANDARD	Cont.	15min	15%ED	Max. at acceleration
OUTPUT(kW)	7.5	11	15	16.5
TORQUE(N·m)	35.8	70	95.5	105

OP

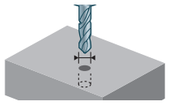
High Output	Cont.	15min	15%ED	Max. at acceleration
OUTPUT(kW)	11	15	18.5	20.4
TORQUE(N·m)	52.5	95.5	118	130

MACHINE CAPABILITY ※ Work Piece S50C



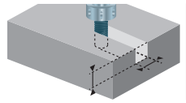
Face mill Φ100×5T

Depth of Cut(mm)	4	Spindle Speed(rpm)	880
Width of Cut(mm)	80	Feed Rate(mm/min)	440
Removal Rate(cc/min)	140.8	Spindle Load(%)	98



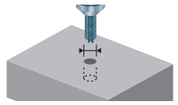
Drilling Φ37

Spindle Speed(rpm)	215	Spindle Load(%)	105
Feed Rate(mm/min)	400		



End mill w/ throw-away tip Φ100×5x

Depth of Cut(mm)	7	Spindle Speed(rpm)	3200
Width of Cut(mm)	20	Feed Rate(mm/min)	1056
Removal Rate(cc/min)	147	Spindle Load(%)	44



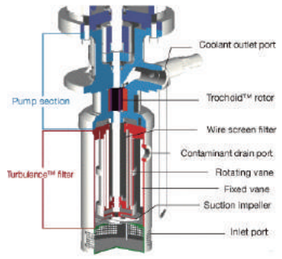
Tapping M24×P3

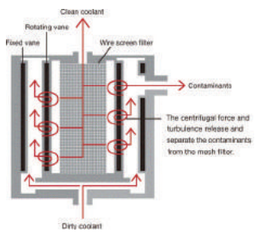
Spindle Speed(rpm)	160	Spindle Load(%)	65
Feed Rate(mm/min)	400		

OP CENTER THROUGH UNIT

An All-in-One, High-to-Medium Pressure Coolant Pump

- Maintenance-free unit with a stable high pressure and large flow rate.
- The required space is about 1/50th by volume of old type.
- Maximum operating pressure: 2.0MPa





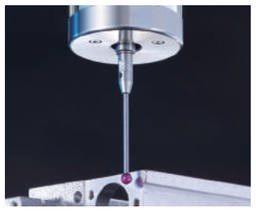
※Oil-based coolant can not be used.
※Combined use of mist collector is recommended.

OP MEASUREMENT SYSTEM

- **Tool Setters**
  Prevent defective products.
  Hold up high machining accuracy.



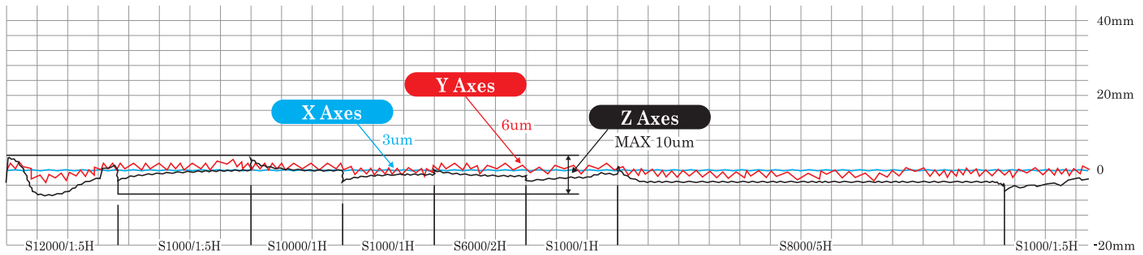
- **Touch Proves**
  Reduced set-up time
  Reduced scrap rate
  Increased productivity
  High production quality



Please contact us for more details.

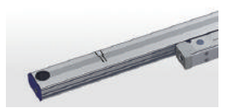
OP THERMAL DISPLACEMENT CORRECTING DEVICE

System monitors machine temperature and correct displacement in every 5 seconds!



OP SCALE FEEDBACK

It directly captures the actual position of the feed axis and can eliminates the positioning error due to thermal behavior.



OP HIGH ACCURACY MACHINING NC PACKAGE

AI Contour Ⅱ and Smooth Tolerance

They help to achieve high speed, high precision, & high quality while reducing machine shock. Its easily addjust surface quality, precision and machining time.

NC Unit Specifications (F0iMF)

NC FUNCTIONS

1. Controlled axes : 3 (X, Y, Z) + additional 2axes (Optional)
2. Simultaneously controllable axes : 4
3. Least input increment : 0.001mm
4. Least command increment : 0.001mm
5. Rapid traverse
6. Cutting feed rate :
   Automatic 0～10000mm/min (F command)
   Manual 0～4000mm/min (Dial)
7. Feed rate override : 0～200% (10% step)
8. Rapid traverse rate override : F0, 25, 50, 100%
9. Part program storage length : 1280m
10. Manual reference position return
11. Backlash compensation, pitch error compensation
12. Self-diagnosis function
13. Stored stroke check

PROGRAMMING SUPPORT FUNCTIONS

1. Workpiece coordinate systems : G54～G59(6+48)
2. Setting for workpiece coordinate system : G92
3. Absolute programming/Incremental programming : G90/G91
4. Positioning (Rapid traverse) : G00
5. Linear interpolation (Cutting feed) : G01
6. Circular interpolation CW/CCW : G02/G03
7. Plane selection Xp Yp/Zp Xp/Yp Zp : G17/G18/G19
8. Decimal point input / Electrical calculator type decimal point input
9. Sub-program (10 nestings)
10. Mirror image
11. Dwell : G04
12. Exact stop : G09
13. Coordinate system rotation start/cancel : G68/G69
14. Programmable data input : G10
15. Helical Interpolation
16. Synchronous tapping
17. Automatic corner override : G62
18. Single direction positioning : G60
19. User-defined angle, chamfer, corner R designation
20. AI look-ahead control
21. Scaling : G51
22. Custom macro : G65～G67
23. Cylindrical interpolation : G7.1
24. Canned cycle : G73, G74, G76, G81～G89
25. Spindle S function : Override50～120% (10% increments)
26. Auxiliary functions (M-codes) Spindle functions :
    M03(CW) / M04(CCW) / M05(Stop) / M19 (Spindle orientation)
    Coolant ON/OFF : M08(ON) / M09(OFF)

TOOL FUNCTIONS

1. Tool length offset : G43, G44, G49
2. Number of Tool offset : 400
3. Tool radius compensation : G41, G42, G40
4. Tool offset memory C

DISPLAY FUNCTIONS

1. 8.4 inch Color LCD
2. Japanese, English & Chinese
3. Actual feed rate display
4. Servo motor monitor
5. Graphic display
6. Running time, Number of parts display

EDIT, OPERATION SUPPORT FUNCTIONS

1. Program number : display/search
2. Sequence number : display/search
3. Number of storage program : 400
4. Background editing
5. Program restart
6. MDI operation
7. DNC operation with RS-232C or memory card
8. Auxiliary function lock (M signal)
9. Machine lock
10. Z-axis command cancel
11. Single block
12. Optional stop M01
13. Optional block skip (×9)
14. Expanded tape editing
15. External reset

DATA I/O FUNCTIONS

1. Label Skip
2. Control in/Control out
3. I/O interface
   : RS-232C, Memory card, USB, Ethernet

MANUAL OPERATION FUNCTION

1. Spindle control : CW, CCW, Stop, Orientation
2. Coolant pump : ON/OFF
3. Air blow : ON/OFF
4. Chip conveyor : ON/OFF

ELECTORIC COMPONENTS STANDARD ACCESARRIES

1. Automatic power off device (with M30)
2. Automatic lubricator for sliding surface
3. Spare battery/fuse

NC SOFTWEAR OPTIONS

1. AI contour control Ⅱ/Smooth tolerance
2. Data server : 2GB

SPECIFICATIONS FOR GUIDANCE FUNCTION

1. Feed rate : Manual 0～8000mm/min by dial
2. Debug handle operation
3. Handle interrupt
4. X,Y,Z,G lever switch continuous feed function
5. Z axis lever switch step feed function
6. Handle feed (Each axis independent XYZG)
   ×1, ×10, ×100/1μm