

SW-12 SERIES

ULTRA-PERFORMANCE SWISS TURNING CENTERS



THE ULTIMATE MACHINING POWER
WOODWAY

ULTRA-PERFORMANCE SWISS TURNING CENTERS

On account of accuracy tiny parts processing request, GOODWAY SW-12 ultra-performance swiss turning center designed concept is based on compact machine size and combine with complete tooling system, hybrid guide bush and rapid feed rate, to provide high speed, high accuracy, complicated processing capability. Bring the best production solution for clock, medical industry.



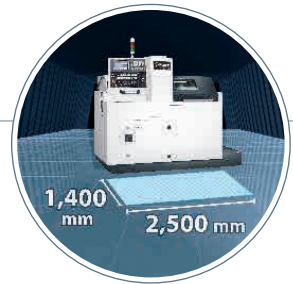
Micro diameter parts processing capability

According to micro diameter parts processing request to develop max. turning dia. Ø13 mm, max. turning length 140 mm (with guide bush).



High speed automatic production capacity

Complete loading/unloading interface with 32 m/min. raid feed rate to provide more quick tool changing and more efficiency automatic production.



Higher production per unit yield

By means of compact design to accomplish SW-12 with extremely small land area and raise large capacity per unit area.



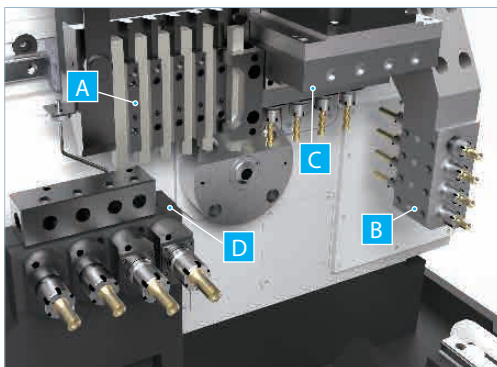
115 100 75 50 25 0 mm

-  Ø3 mm / SUS316
-  Ø2 mm / SUS304
-  Ø4 mm / Titanium alloy
-  Ø4 mm / Titanium alloy

FLEXIBLE TOOLING SYSTEM



Standard

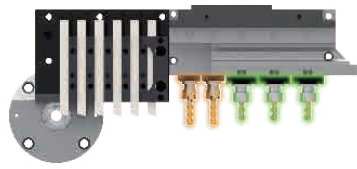


Tooling system		Number of tools
A	O.D. tool	6
B	I.D. tool	
	Front-end	4
	Rear-end	4
C	Cross live tool	4*1
D Backworking tooling system (Opt.)		
	I.D. tool	
	Live tool	
	Rear-end	4 (total)

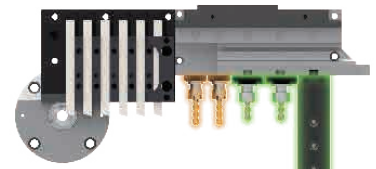
*1 Tool numbers depends on different tools operation, please refer to right drawing.

Expansion

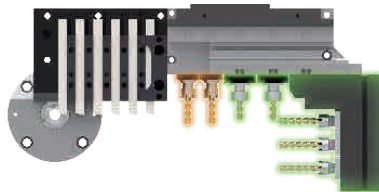
- Fixed tool position
- Changeable tool position



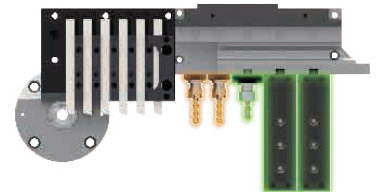
Cross live tool x 5 (ER11)



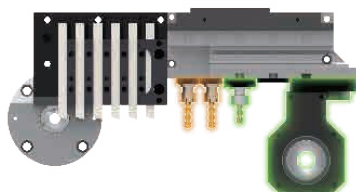
Cross live tool x 4 (ER11)
Removable live tool holder x 1



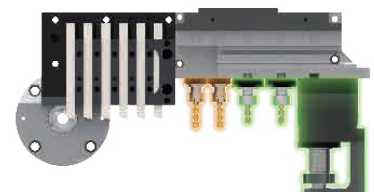
Cross live tool x 4 (ER11)
Removable live tool holder x 1



Cross live tool x 3 (ER11)
Removable live tool holder x 2



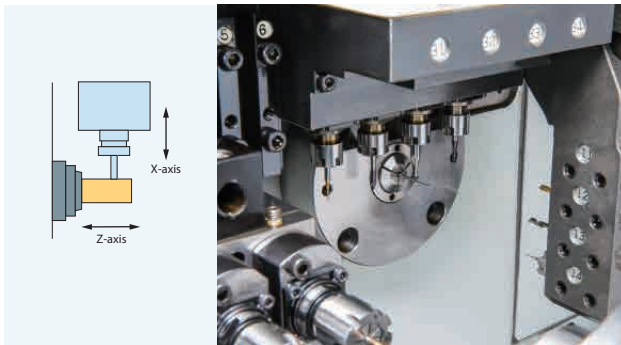
Cross live tool x 3 (ER11)
Thread whirling tool holder x 1



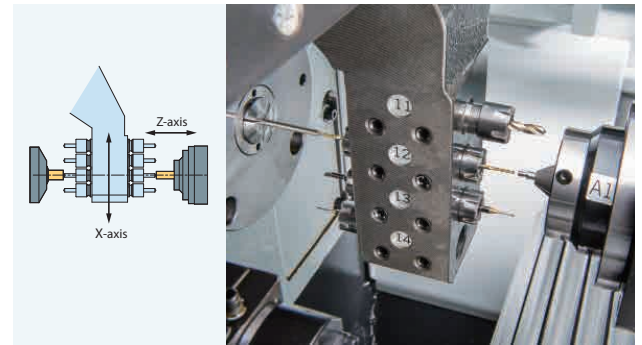
Cross live tool x 4 (ER11)
Slotting tool holder x 1

MACHINING VARIATIONS

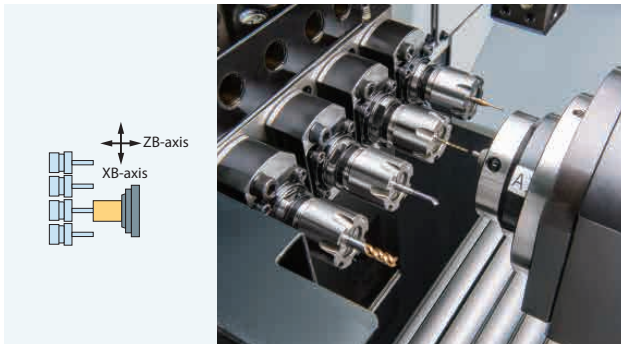
Cross machining



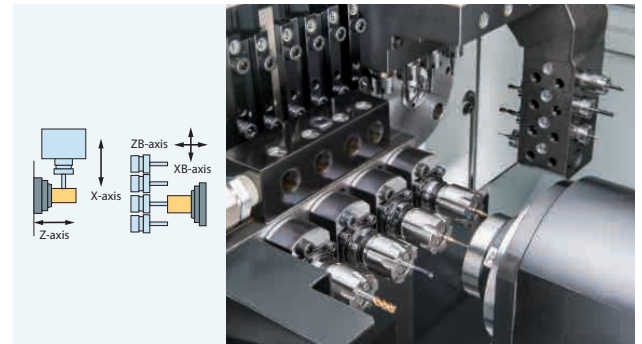
Front / Rear simultaneous drilling & tapping



Rear off-center drilling & tapping



Main & Sub-spindle simultaneous machining



C-axis control

Working with the live tooling and 0.001° high resolution C-axis enables the machine to perform multiple tasks, such as drilling, tapping, and milling operations, including cylindrical and polar coordinate interpolations.



Thread whirling

By using multiple cutters of thread whirling tools and technology of pneumatic coolant to remove the chips to achieve the demand of machining high speed and high accuracy of thread.



Slotting

Using slotting driven tools to provide high efficiency and extend tool life compare to normal end milling tools.



Deep hole drilling

One deep hole drill tool position on sub-spindle body, it can do high rigid deep drilling and tapping by ZB axis. With high pressure coolant system, it can ensure the best deep hole drill performance. (Please see page 6)

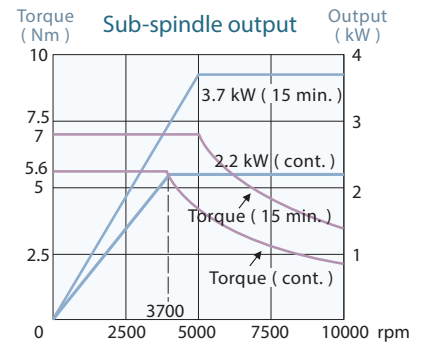
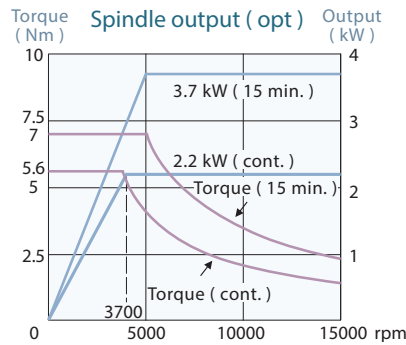
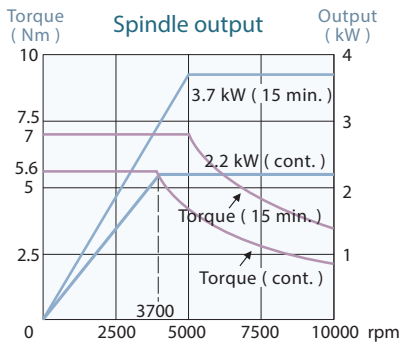
ADVANCED STRUCTURE DESIGN



High speed built-in spindle

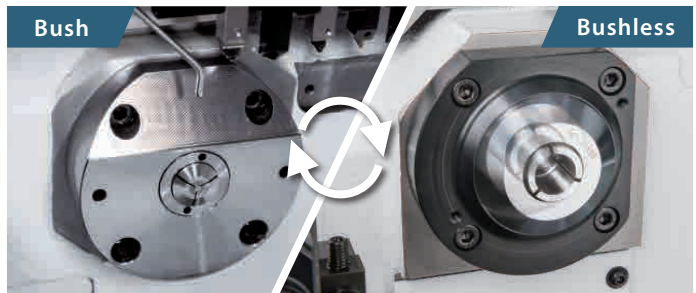
Main spindle and sub-spindle both use built-in motor design with 3.7 kW powerful motor output, max. spindle speed 15,000 rpm (opt.) that can satisfy high speed accuracy processing request.

- ▶ The built-in motor design reduces centrifugal force effects and minimizes spindle vibrations, which increases the spindles life span and improves long-term machining accuracy.
- ▶ Sub-spindle parts ejector can let finished part separate from clamping and fall into parts catcher in order to increase productivity.
- ▶ Parts clamping by pneumatic system, not only with abundant clamping force, quick movement but also equip with energy saving and many advantages.



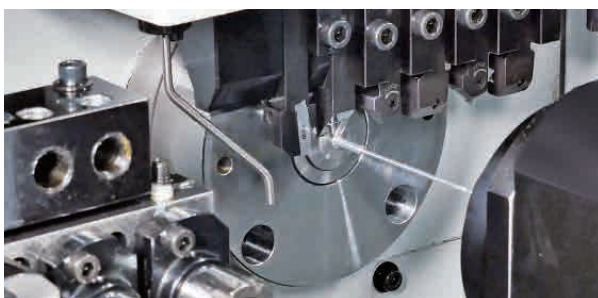
Hybrid guide bush

Guide bush can be installed or dismantle which depends on individual processing. Two processing ways on one machine make processing more flexible.



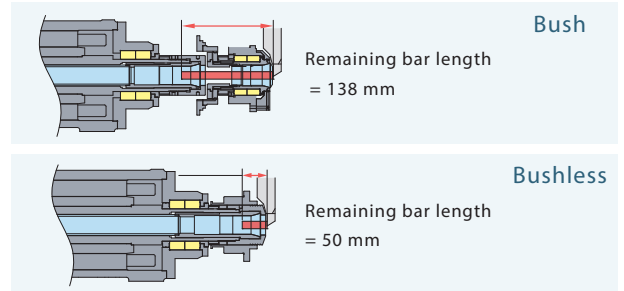
Suitable for long parts

Bush ▶ Processing by using guide bush can control the flexibility of long parts to make sure the ultimate accuracy.

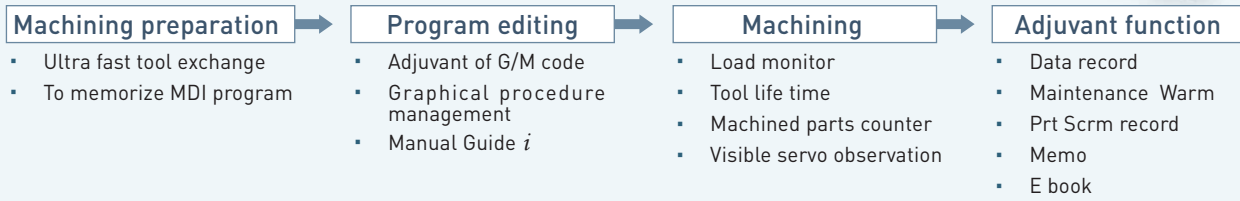
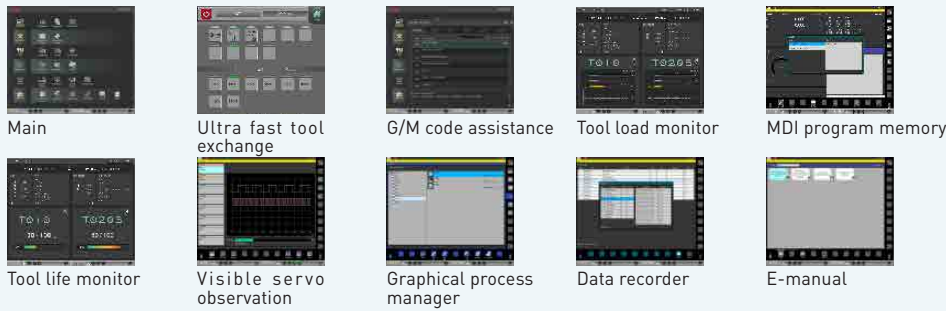


Suitable for short parts

Bushless ▶ Processing by using bushless mode can shorten the remaining bar length to save production cost

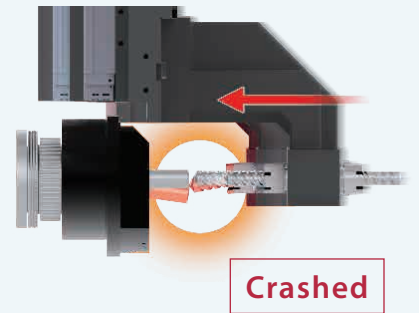


INTELLIGENT OPERATING SYSTEM **G.LINC 350** OPT.

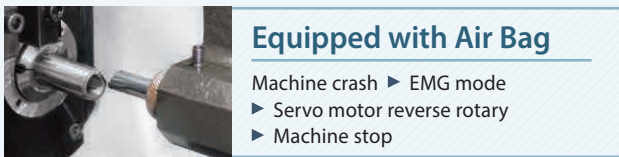


AIR BAG FUNCTION OPT.

The load of servo motor can be detected in real time. When the load is at an abnormally large value (such as in case of machine collision), the system immediately shifts to emergency stop mode and retract servo axes in the meantime. Such immediate risk control mechanism can save the cost of machine repair and diminish production loss due to machine down.



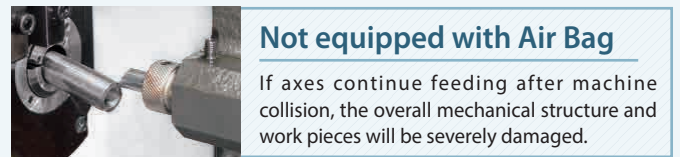
Retract tools within **0.009 sec.**



Equipped with Air Bag

- Machine crash ▶ EMG mode
- ▶ Servo motor reverse rotary
- ▶ Machine stop

- Short maintenance time
- Less mechanical damage
- Overload predictable



Not equipped with Air Bag

- If axes continue feeding after machine collision, the overall mechanical structure and work pieces will be severely damaged.

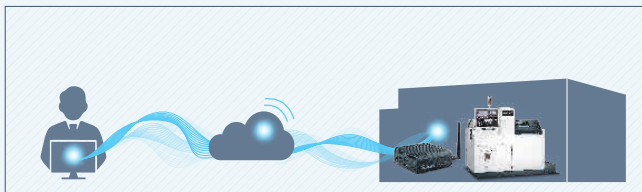
- Long maintenance time
- Severe mechanical damage
- Overload unpredictable

SERVICE CUBE OPT.

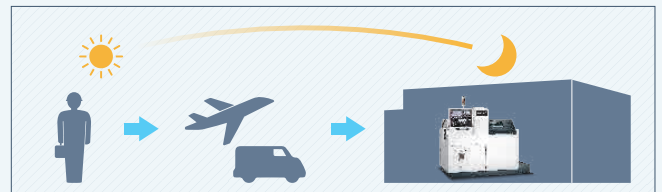
Via service cube, no matter where you are in the world (as long as internet available), you can do machine setting, monitoring, maintenance, upload / download program, etc.. Machine maintenance efficiency can be increased, manpower and traffic cost can be decreased.



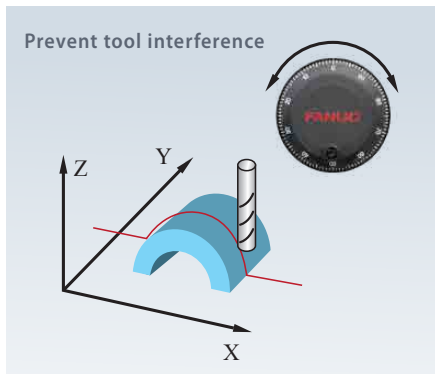
Machine with Service Cube



Machine without Service Cube



STANDARD & OPTIONAL FEATURES



Manual handle retrace



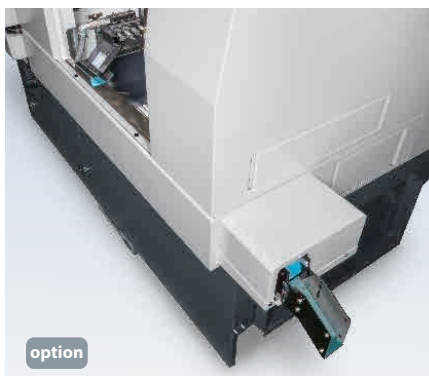
Parts catcher



Parts catcher box

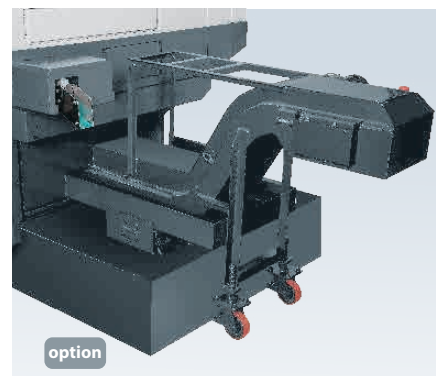


Elevating roof type protection door



option

Parts conveyor



option

Chip conveyor



option

Coolant through sub-spindle



option

A/C cooling system



option

Long parts ejector



- ▶ Compact machine size.
- ▶ Filter for open loop.
- ▶ Use disposable filter bag.
- ▶ Built-in the pressure is too low or too high alarm.

Models	SP 1000	SP 2000
Max. pressure	70 bar (kg/cm ²) 1,000 PSI ^{*1}	140 bar (kg/cm ²) 2,000 PSI ^{*1}
Max. flow rate	12 LPM (3 GPM) ^{*1}	19 LPM (5 GPM) ^{*1}
Max. load	2.2 kW (3 HP)	5.5 kW (7.5 HP)

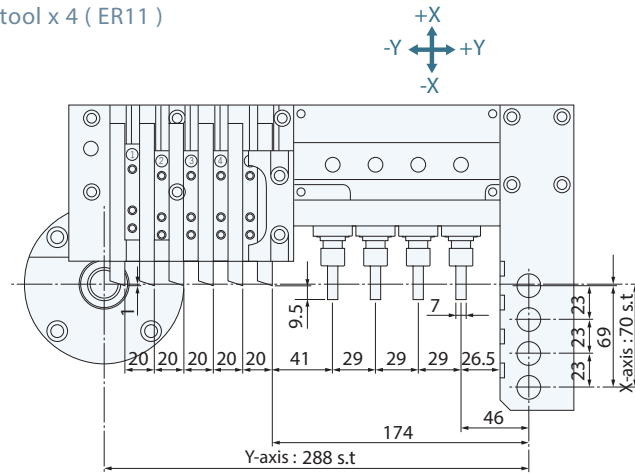
*1 Was tested with temperature : 40°C / viscosity : 46 CST oil in 220V, 60Hz.
Pressure output would change according to the oil temperature, voltage and frequency.



option

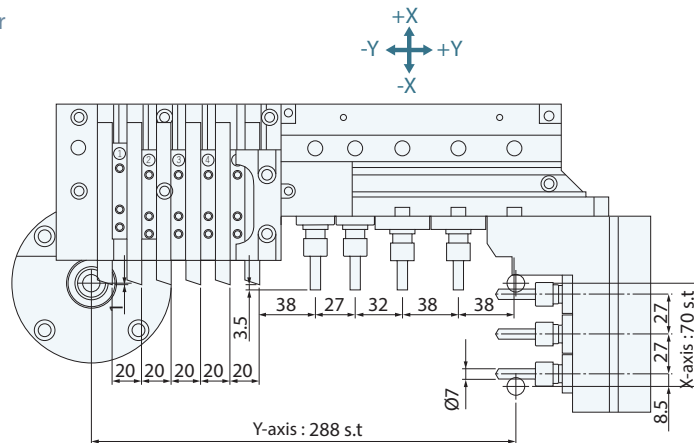
High-pressure coolant system

O.D. tool x 6 (□10) + Live tool x 4 (ER11)



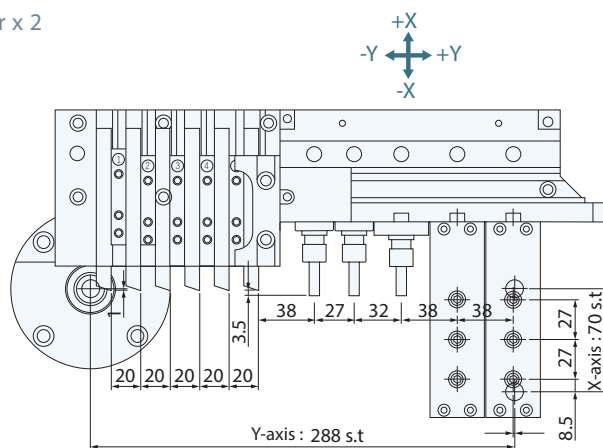
O.D. tool x 6 (□10) + Live tool x 4 (ER11)

+ Removable live tool holder



O.D. tool x 6 (□10) + Live tool x 3 (ER11)

+ Removable live tool holder x 2



Unit : mm

STANDARD & OPTIONAL FEATURES

S : Standard O : Option
 - : Not Available C : Contact Goodway

		SW-12
SPINDEL		
Main spindle motor configuration		S
Rigid tapping		S
C-axis		S
Spindle brake		S
WORK HOLDING		
Spindle hardness collect		O
Spindle tungsten collect		O
Sub-spindle hardness collect		O
Sub-spindle tungsten collect		O
Special work holding chuck		O
GUIDE BUSH		
Stationary guide bush		O
Revolving guide bush		O
Rotary magic guide bush		O
Tungsten guide bush		O
COOLANT		
Coolant pump		S
High-pressure coolant system	5.0 MPA	O
	7.0 MPA	O
	10 MPA	O
	14 MPA	O
Roll-out coolant tank		S
Coolant flow switch		S
Coolant level switch		S
CHIP DISPOSAL		
Chip conveyor		O
Chip cart with coolant drain		O
Oil mist collector		O
LIVE TOOLING		
ER11 cross live tool		O
ER11 3-spindle front-end live tool		O
ER11 2-spindle front-end live tool		O
ER11 rear-end live tool		O
ER16 cross live tool		O
ER16 3-spindle front-end live tool		O
ER11 2-spindle drill/milling unit		O
Slotting holder		O
Thread whirling holder		O
AUTOMATIC OPERATION SUPPORT		
Bar feeder		O
Bar feeder interface		S
Parts catcher		S
Parts conveyor		O
Long parts ejector		O
SAFETY		
Fully enclosed guarding		S
Door interlock (incl. Mechanical lock)		S
Impact resistant viewing window		S
Over travel (soft limit)		S
Load monitoring function		S
Cut-off detector		S
OTHERS		
Electrical cabinet	A/C cooling system	O
	Heat exchanger	S
Pneumatic system		S
Advanced auto lubrication system		S
Oil cooler		O

Specifications are subject to change without notice.

FANUC CONTROL FUNCTIONS		O _i -TF Plus	31i
Display	10.4" color LCD	S	S
Graphic function	Standard	S	S
	Dynamic	O	O
Part program storage size	1 M bytes	-	S
	2 M bytes	S	O
	4 M bytes	-	O
	8 M bytes	-	O
Registerable programs	1,000	S	S
O _i -TF Plus : each path	4,000	-	O
	31i : total		
Tool offset pairs	99	-	S
	128	S	-
	200	O	O
	400	-	O
O _i -TF Plus : each path	499	-	O
	999	-	O
	2000	-	O
31i : total			
Servo HRV control	HRV 3	S	S
Automatic data backup		S	S
Synchronous / Composite control		S	S
Superimposed Control		S	S
Inch / metric conversion		S	S
Polar coordinate interpolation		S	S
Cylindrical interpolation		S	S
Multiple repetitive cycle		S	S
Rigid tapping		S	S
Unexpected disturbance torque detection function		S	S
Spindle orientation		S	S
Constant surface speed control		S	S
Spindle speed fluctuation detection		S	S
Embedded macro		S	S
Spindle synchronous control		S	S
Background editing		S	S
Tool radius / Tool nose radius compensation		S	S
Multi-language display		S	S
Cs contour control		S	S
Polygon turning		S	S
Helical interpolation		S	S
Direct drawing dimension programming		S	S
Thread cutting retract		S	S
Variable lead threading		S	S
Multiple repetitive cycle II		S	S
Canned cycles for drilling		S	S
Synchronous / Composite / Superimposed control by program command		S	S
Tool nose radius compensation		S	S
Chamfering / Corner R		S	S
AI contour control I		O	S
Multi part program editing		S	S
Manual handle retrace		S	S
Manual intervention and return		S	O
External data input		S	S
Addition of custom macro		S	S
Increment system C		S	S
Run hour & parts counter		S	S
Auto power-off function		S	S
RS-232 port		S	S
Memory card input / output (CF + USB)		S	S
Ethernet		S	S

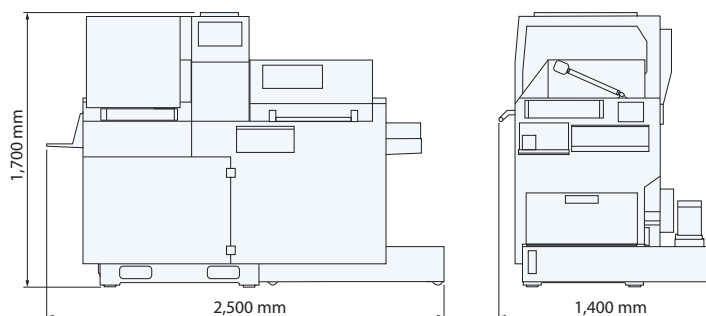
MACHINE SPECIFICATIONS

■ : Metric ■ : Inch

			SW-12
Working range	Max. machining diameter		Ø 13 mm 0.51"
	Max. turning length per chuck	Hybrid guide bush	140 / 30 mm 5.5" / 1.18" (Bush / Bushless)
O.D. tools	Number of tools		6
	Shank size		□ 10 mm 2/5"
I.D. tools	Number of tools		4
	Sleeve size		ER11
	Max. drilling capacity		Ø 8 mm 0.31"
	Max. tapping capacity		M6 x P1.0
Cross live tools	Number of tools		4
	Max. live tooling speed		10,000 rpm
	Servo motor output		0.75 kW 1 HP
	Sleeve size		ER11
	Max. drilling capacity		Ø 6 mm 0.23"
	Max. tapping capacity		M5 x P0.8
Main spindle	Max. end mill capacity		Ø 7 mm 0.27"
	Max. speed		10,000 rpm (Opt. 12,000 / 15,000 rpm)
	Spindle motor output (cont. / 15 min.)		2.2 / 3.7 kW 3 / 5 HP
	Min. indexing increment		0.001°
X / Y / Z / XB / ZB axes rapids			32 m/min. 1,259 IPM
NC controller			FANUC 31i-B
Spindle center height			1,060 mm 41.7"
Coolant tank capacity			200 L 52.8 gal
Machine dimensions			2,500 × 1,400 × 1,700 mm 98.4" × 55.1" × 66.9"
Machine weight			1,750 Kg 3,900 lb
Backworking Tooling System			
Rear-end machining capability	Max. chucking diameter		Ø 13 mm 0.51"
	Max. length for front ejection		80 mm 3.14"
	Max. parts projection length		30 mm 1.18"
Rear-end tools	Number of tools		4
	Max. live tooling speed		8,000 rpm
	Servo motor output		0.75 kW 1 HP
	Max. drilling capacity (I.D. tools)		Ø 8 mm 0.31"
	Max. drilling capacity (live tools)		Ø 6 mm 0.23"
	Max. tapping capacity (I.D. tools)		M6 × P1.0
Sub-spindle	Max. tapping capacity (live tools)		M5 × P0.8
	Max. sub-spindle speed		10,000 rpm
	Sub-spindle motor output (cont. / 15 min.)		2.2 / 3.7 kW 3 / 5 HP
	Min. indexing increment		0.001°

Specifications are subject to change without notice.

MACHINE DIMENSIONS



Unit : mm



GOODWAYCNC.com

GOODWAY MACHINE CORP.

HEADQUARTERS

No.13, 5th Road,
Taichung Industrial Park,
Taichung City, 407, Taiwan
E-mail : goodway@goodwaycnc.com

CENTRAL TAIWAN SCIENCE PARK BRANCH

No. 38, Keyuan Road,
Central Taiwan Science Park.Taichung,
Taichung City, 407, Taiwan
TEL : + 886-4-2463-6000
FAX : + 886-4-2463-9600

GOODWAY MACHINE (WUJIANG) CO.,LTD

No. 4888, East Lake Taihu Avenue, Wujiang
Economic and Technological Development Zone,
Jiangsu, China
Sales Hotline : + 86-512-8286-8068
Service Hotline : + 86-512-8286-8066
FAX : + 86-512-8286-8620
E-mail : goodway@goodwaycnc.cn