SW-12 SERIES

ULTRA-PERFORMANCE SWISS TURNING CENTERS

THE ULTIMATE MACHINING POWER

WOODWAY®

ULTRA-PERFORMANCE SWISS TURNING CENTERS

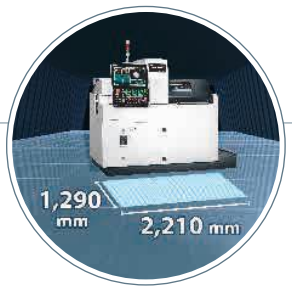
On account of accuracy tiny parts processing request, GOODWAY SW-12 ultra-performance swiss turning center designed concept is based on compact machine size and combine with complete tooling system, hybrid guide bush and rapid feed rate, to provide high speed, high accuracy, complicated processing capability.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

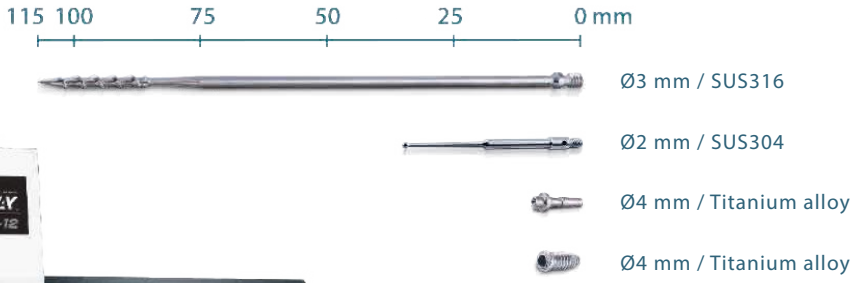
High speed automatic production capacity

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

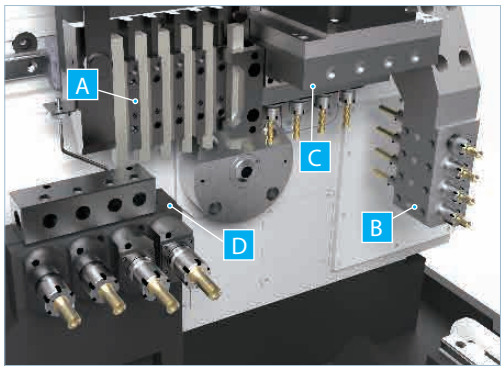
By means of compact design to accomplish SW-12 with extremely small land area and raise large capacity per unit area.



FLEXIBLE TOOLING SYSTEM

(Sub-spindle and rear-end tooling are optional)

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	Rear-end	4 (total)
Live tool		

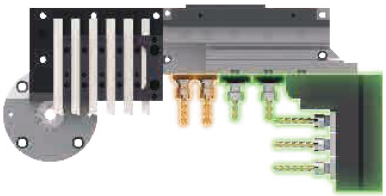
*1 Tool numbers depends on different tools operation, please refer to right drawing.

Expansion

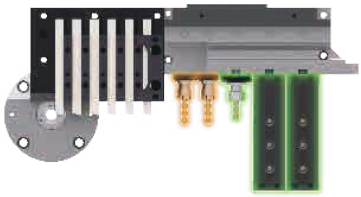
- Fixed tool position
- Changeable tool position

Cross live tool x 5 (ER11)

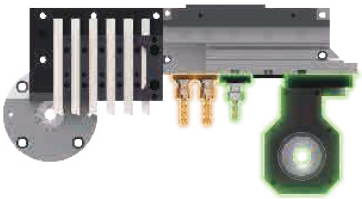
Cross live tool x 4 (ER11)
Removable live tool holder x 1



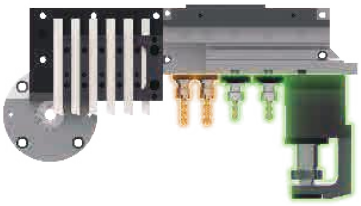
Cross live tool x 4 (ER11)
Removable live tool holder x 1



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



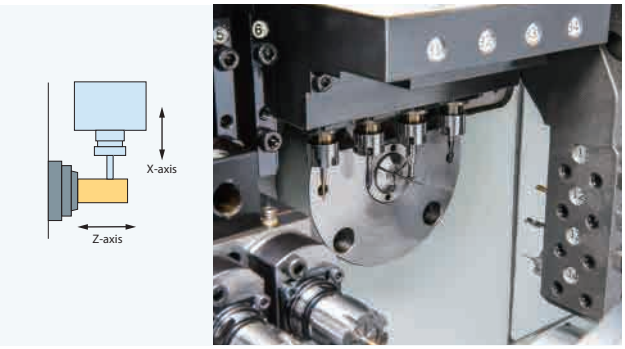
Cross live tool x 3 (ER11)
Thread whirling tool holder x 1



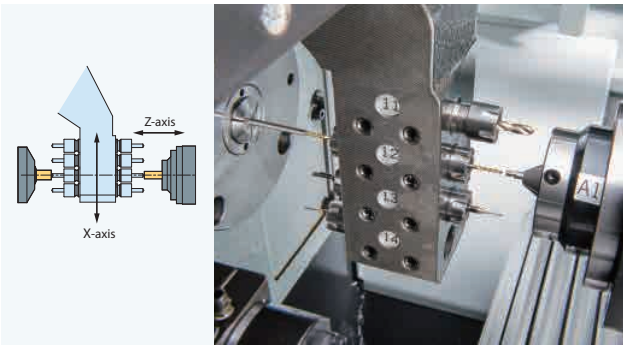
Cross live tool x 4 (ER11)
Slotting tool holder x 1

MACHINING VARIATIONS

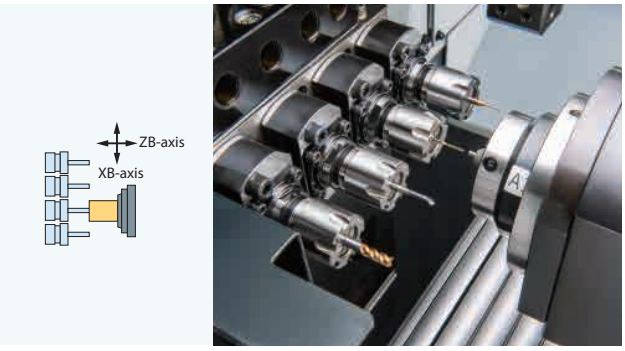
Cross machining



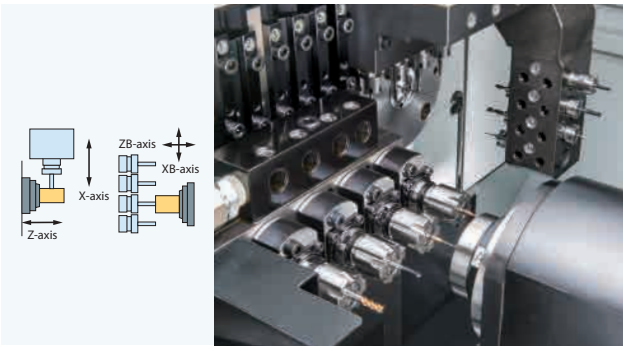
Front / Rear simultaneous drilling & tapping

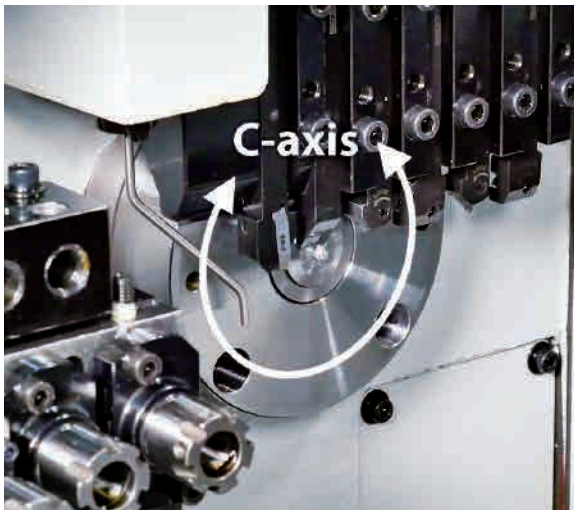


Rear off-center drilling & tapping



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 positon on sub-spindle body, it can do high rigid deep drilling and tapping by ZB axis.

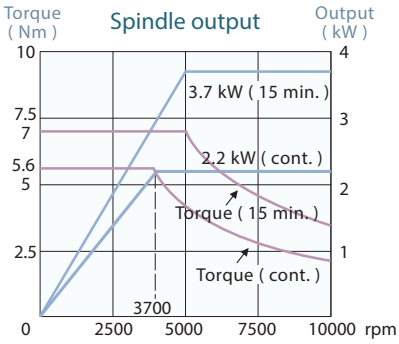
With high pressure coolant system, it can ensure the best deep hole drill performance. (Please see page 6)

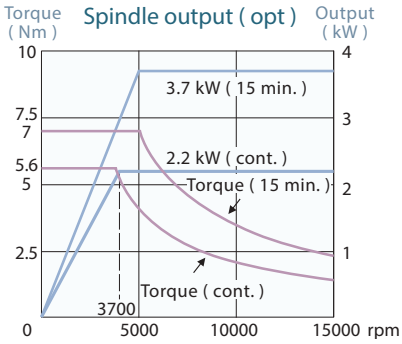
ADVANCED STRUCTURE DESIGN

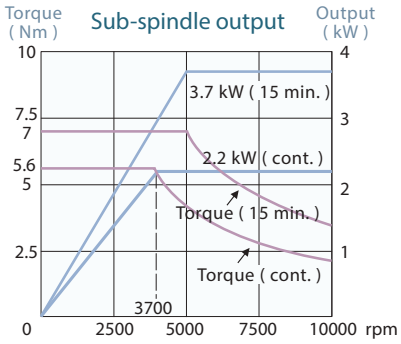
High speed built-in spindle

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.

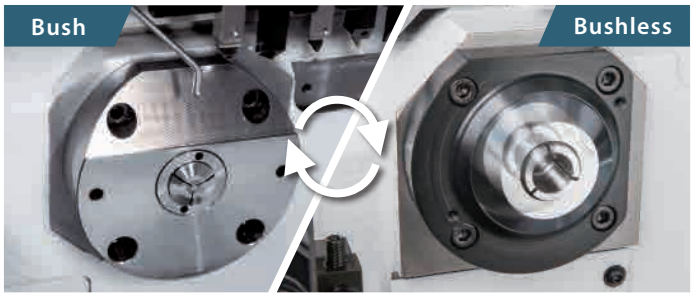






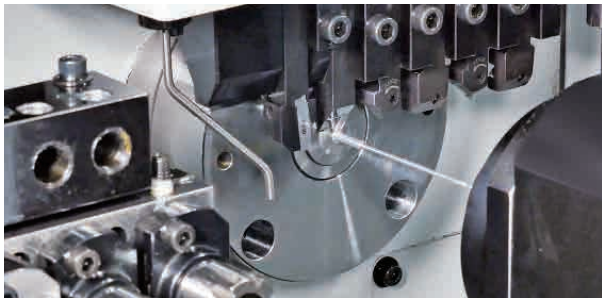
Hybrid guide bush

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



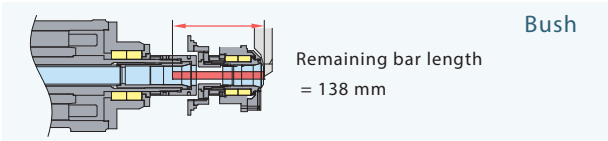
Suitable for long parts

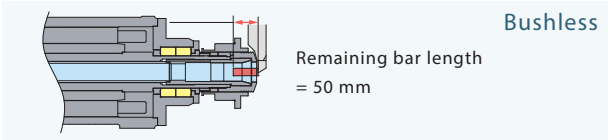
Bush ▶ Processing by using guide bush can control the flexibility of long parts to make sure the ultimate accuracy.



Suitable for short parts

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





NC INTELLIGENCE G.LINC 350 option

Advanced Hardware Combined with Intelligent Software, Makes Your Machine Smarter

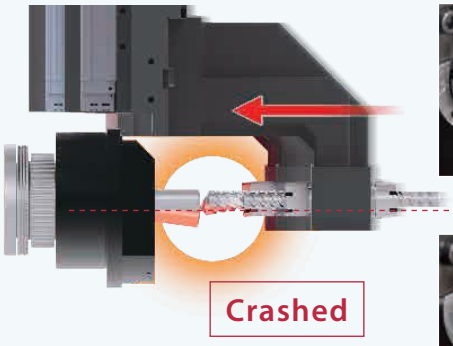
- Advanced hardware
- Outstanding operability
- Streamlined programming
- High security and shortened machining setting
- Reliable continuous operation
- Shortened troubleshooting time
- Improved utilization rate
- 3D cutting simulation preview

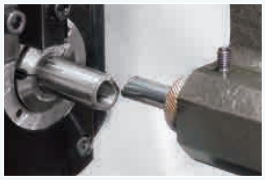
Comprehensive Functions

Programming	Setting	Test-Run	Actual Production	Daily Used
Dynamic graphic display	3D advance tool path and cutting simulation	Tool load monitor	Tool load monitor	Safety signal viewer
Program management		Program check	3D Real-time cutting simulation	Fast alarm check productivity
Friendly programing environment		Smart balance etection	Interference check (31*i* option needed)	Productivity management
Programming auxiliary		3D Real-time cutting simulation	Load monitoring	Twin operation system switch
Manual Guide *i*		Interference check (31*i* option needed)		Maintenance management
Embedded E-manual				NFC apply authority management and record

AIR BAG FUNCTION

Standard with air bag function for maximum protection and also minimum the damage when machine crash which can save the cost of repair machines and production lost because of machine broken.





Equipped with air bag

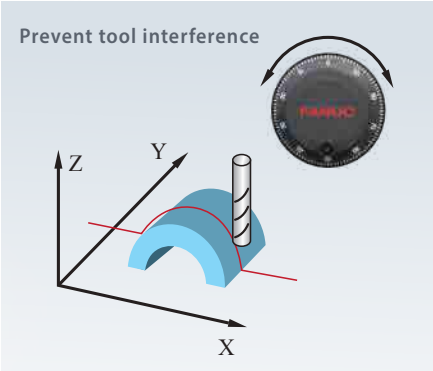
Retract tools within 0.009 second

Machine crash → EMG mode → Servo motor reverse rotary within 0.009 second → Machine stop

Not equipped with air bag

After machine crashed, axes continue feeding, machine structure might get damaged seriously.

STANDARD & OPTIONAL FEATURES

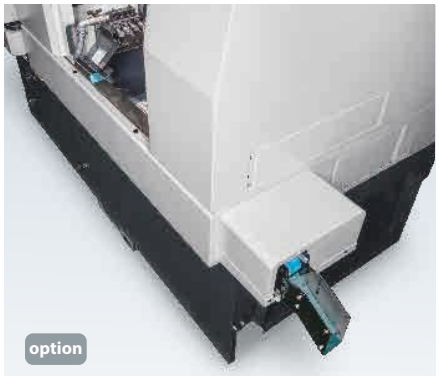


Manual handle retrace

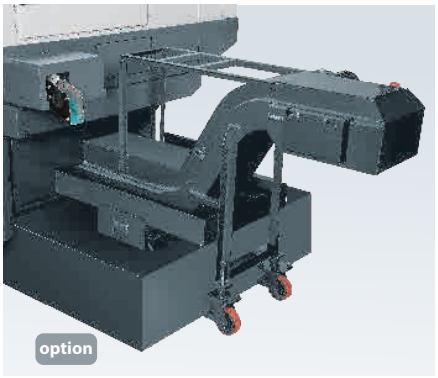
Parts catcher

Parts catcher box

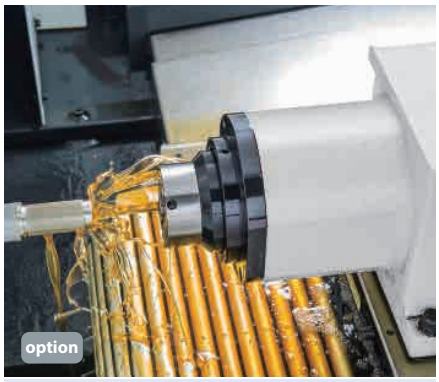
Elevating roof type protection door



Parts conveyor



Chip conveyor



Coolant through sub-spindle

A/C cooling system

Long parts ejector

ALLCOOL SYSTEMS

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

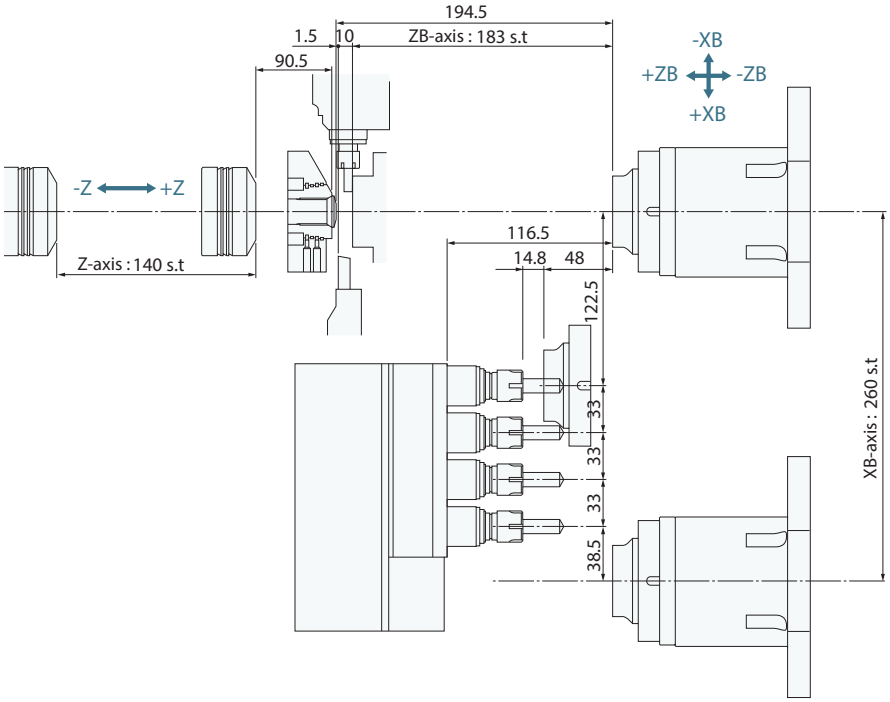
Models	SP 1000	SP 2000	SE 500	SE 1000	SE 1500
Max. pressure	70 bar (kg/cm^2) 1,000 PSI*1	140 bar (kg/cm^2) 2,000 PSI*1	35 bar (kg/cm^2) 500 PSI	70 bar (kg/cm^2) 1,000 PSI	100 bar (kg/cm^2) 1,500 PSI
Max. flow rate	12 LPM (3 GPM)*1	19 LPM (5 GPM)*1	25 LPM (6.6 GPM)	25 LPM (6.6 GPM)	24 LPM (6.3 GPM)
Max. load	2.2 kW (3 HP)	5.5 kW (7.5 HP)	2.2 kW (3 HP)	5.5 kW (7.5 HP)	7.5 kW (10 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.

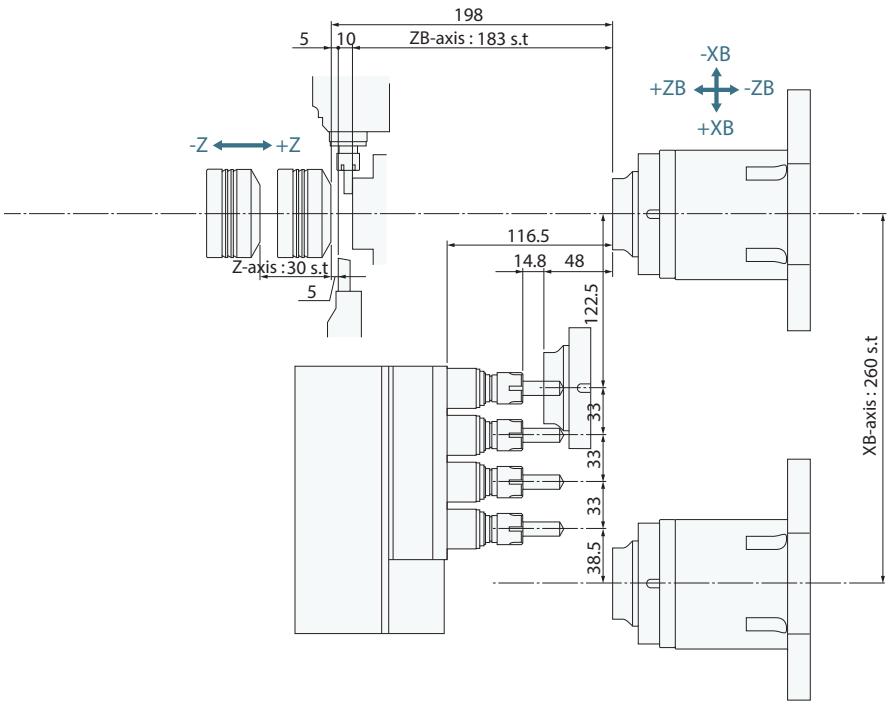
High-pressure coolant system

DIMENSIONS

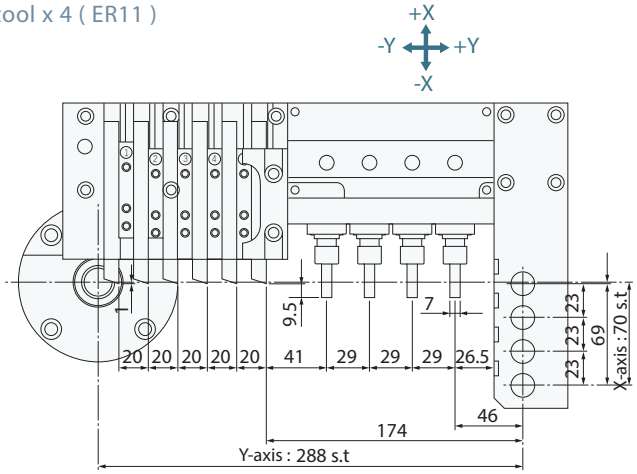
Bush



Bushless

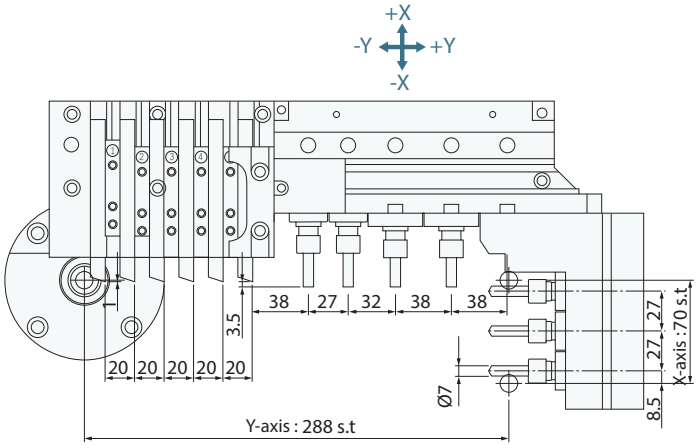


O.D. tool x 6 (□10) + Live tool x 4 (ER11)



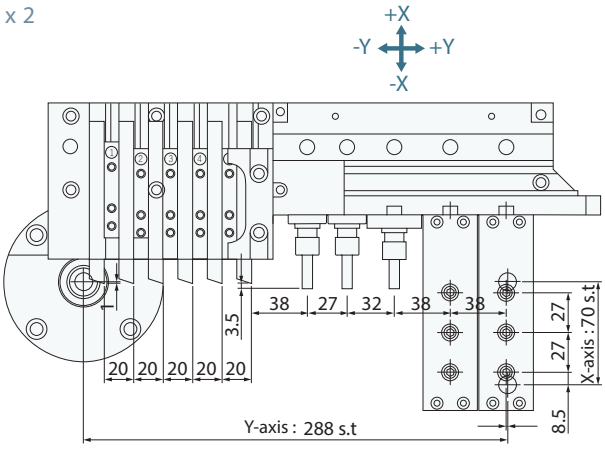
O.D. tool x 6 (□10) + Live tool x 4 (ER11)

+ 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
Low hydraulic pressure detection switch		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
Hydraulic system		S
Pneumatic system		S
Advanced auto lubrication system		S
Oil cooler		O

Specifications are subject to change without notice.

FANUC CONTROL FUNCTIONS		Oi-TF	31i
Display	10.4" color LCD	S	S
Graphic function	Standard	S	S
	Dynamic	O	O
Part program storage size Oi-TF : each path 31i : total	512 K bytes	S	–
	1 M bytes	O	S
	2 M bytes	–	O
	4 M bytes	–	O
	8 M bytes	–	O
Registerable programs Oi-TF : each path 31i : total	400	S	–
	500	O	–
	1,000	–	S
	4,000	–	O
Tool offset pairs Oi-TF : each path 31i : total	99	–	S
	128	S	–
	200	O	O
	400	–	O
	499	–	O
	999	–	O
	2000	–	O
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

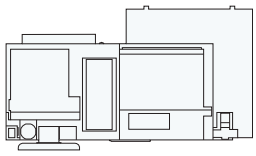
MACHINE SPECIFICATIONS

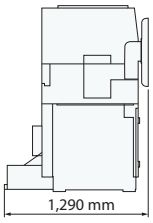
■ : Metric ■ : Inch

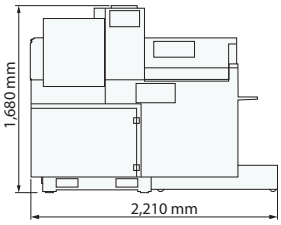
			SW-12
Working range	Max. machining diameter		Ø 13 mm 0.51"
	Max. turning length per chuck	Hybrid guide bush	140 / 30 mm 5.5" / 1.18" (Bush / Bushless)
O.D. tools	Number of tools		6
	Shank size		□ 10 mm 2/5"
I.D. tools	Number of tools		4
	Sleeve size		ER11
	Max. drilling capacity		Ø 8 mm 0.31"
	Max. tapping 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
	Max. end mill capacity		Ø 7 mm 0.27"
Main spindle	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 31*i*-B
Spindle center height			1,060 mm 41.7"
Coolant tank capacity			200 L 52.8 gal
Machine dimensions			2,210 x 1,290 x 1,680 mm 88" x 51" x 67"
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
	Max. tapping capacity (live tools)		M5 × P0.8
Sub-spindle	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

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