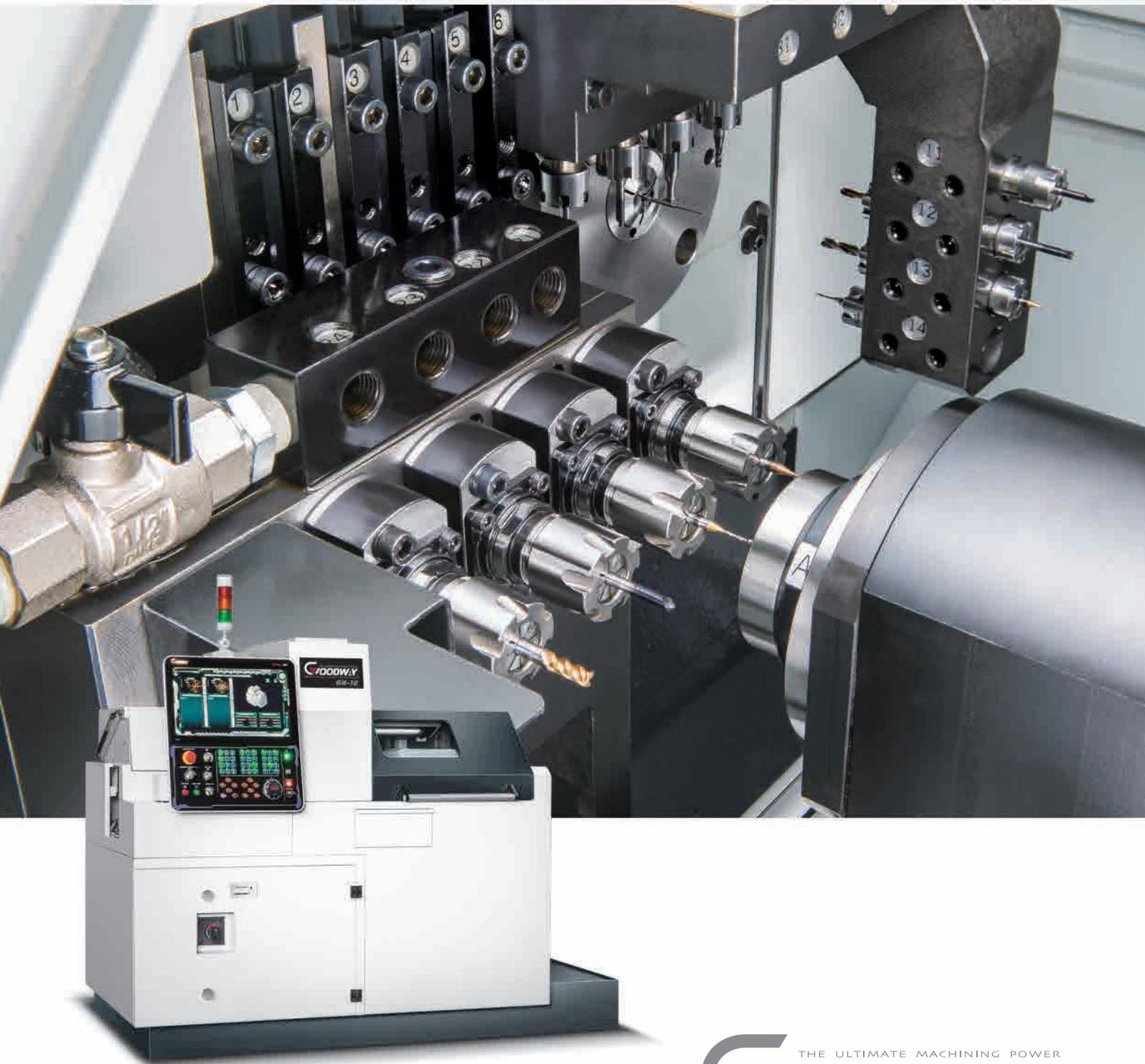


SW-12 SERIES

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.



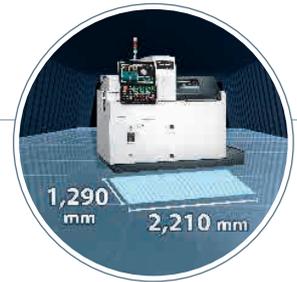
Micro diameter parts processing capability

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.



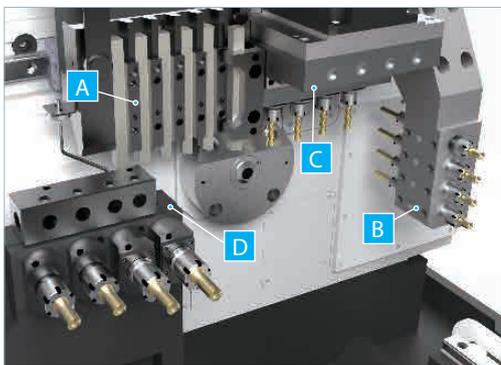
115 100 75 50 25 0 mm

-  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

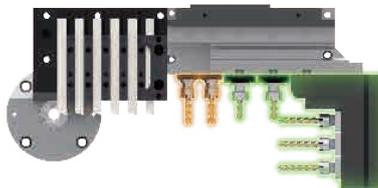
- Fixed tool position
- Changeable tool position



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



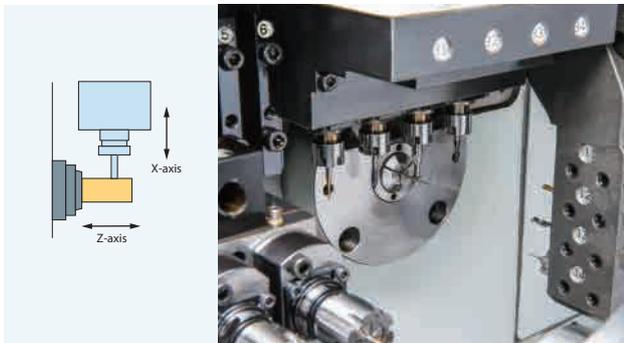
Cross live tool x 3 (ER11)
Thread whirling tool holder x 1



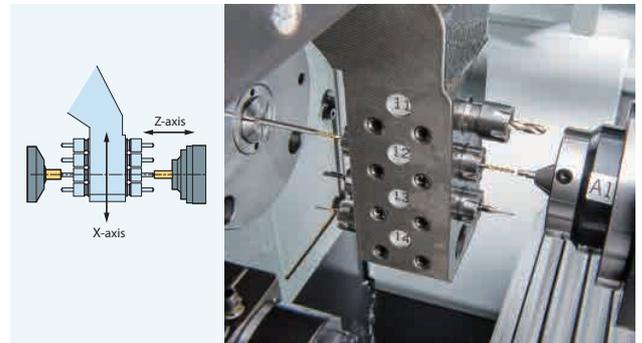
Cross live tool x 4 (ER11)
Slotting tool holder x 1

MACHINING VARIATIONS

Cross machining



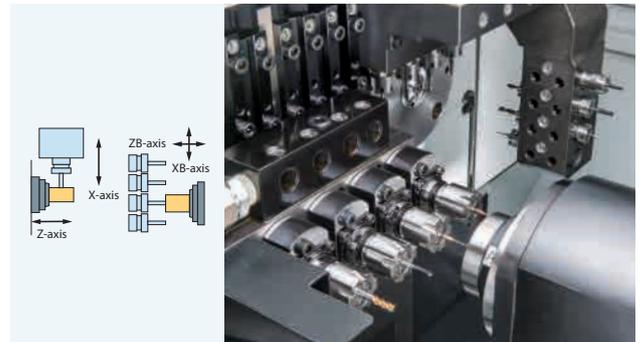
Front / Rear simultaneous drilling & tapping



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)

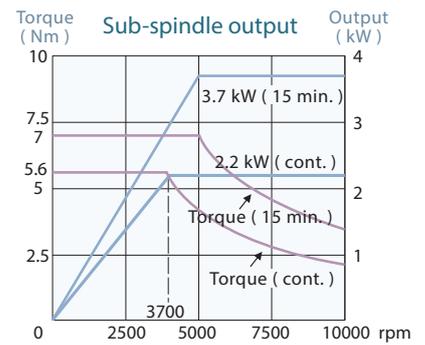
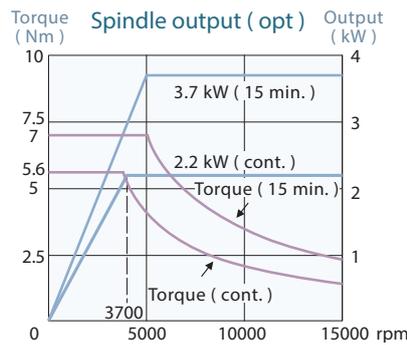
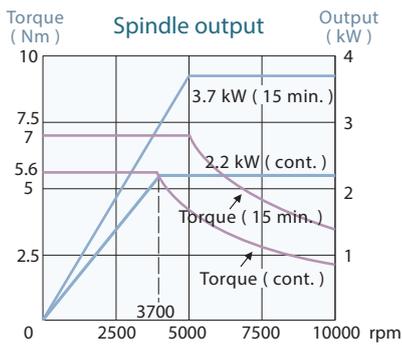
ADVANCED STRUCTURE DESIGN



High speed built-in spindle

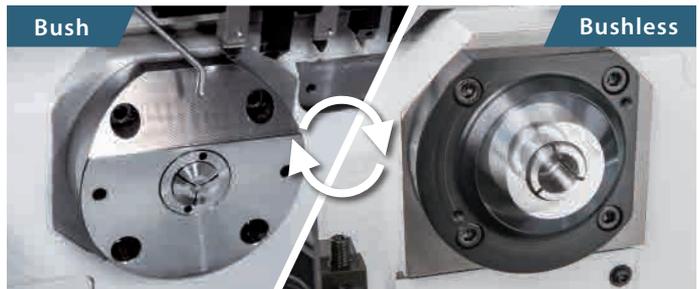
Main spindle and sub-spindle both use built-in motor design with 3.7 kW powerful motor output, max. spindle speed 15,000 rpm (opt.) that can satisfy high speed accuracy processing request.

- ▶ 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.



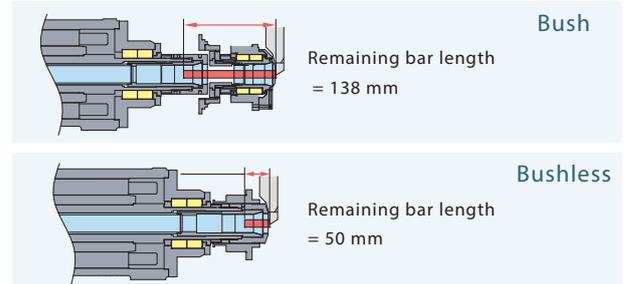
Suitable for long parts

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



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



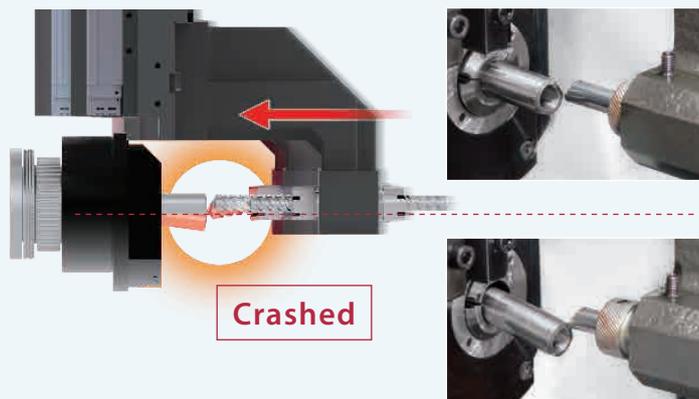
Comprehensive Functions

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

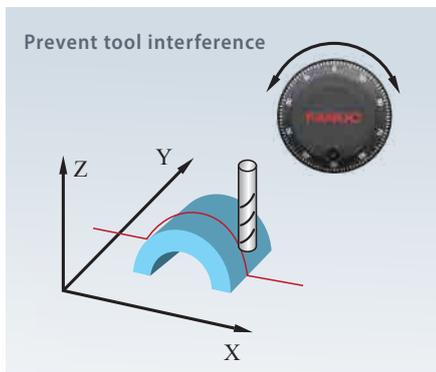
Retract tools within 0.009 second

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



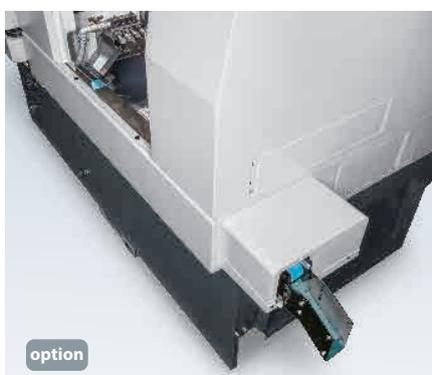
Parts catcher



Parts catcher box

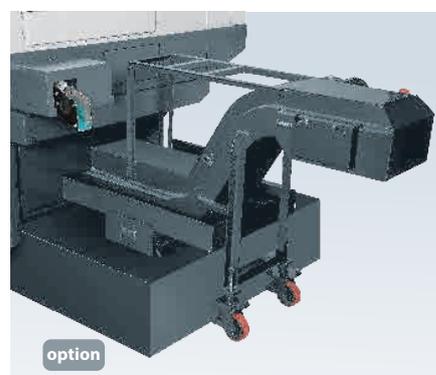


Elevating roof type protection door



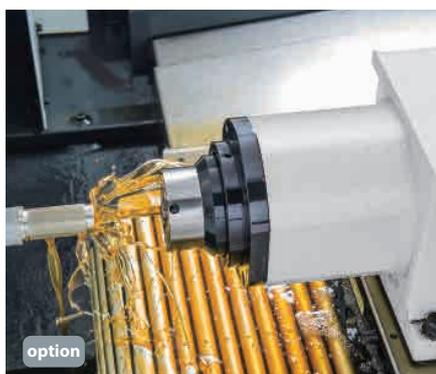
option

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 | 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) |

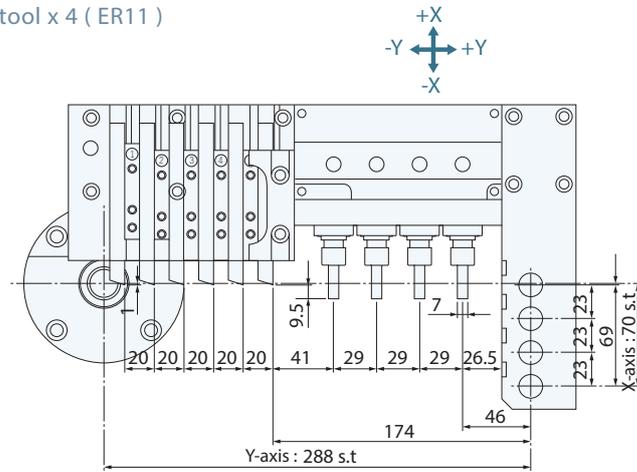
*1 Was tested with temperature : 40°C / viscosity : 46 CST oil in 220V, 60Hz.
Pressure output would change according to the oil temperature, voltage and frequency.



option

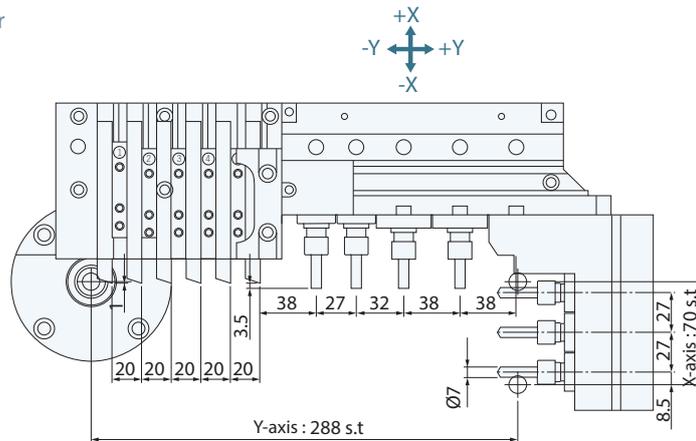
High-pressure coolant system

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



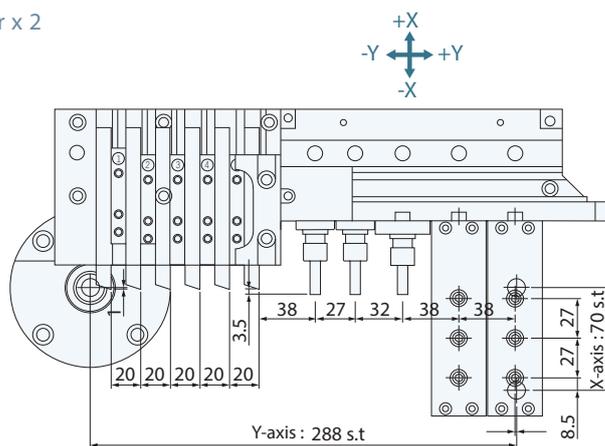
O.D. tool x 6 (□10) + Live tool x 4 (ER11)

+ 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 |
| 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 |

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

Specifications are subject to change without notice.

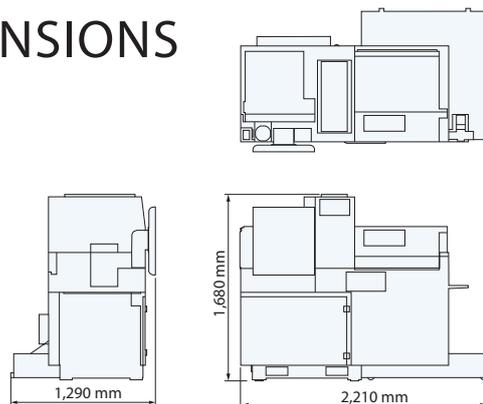
MACHINE SPECIFICATIONS

■ : 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" |
| Main spindle | Max. tapping capacity | | M5 x P0.8 |
| | 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 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 |
| 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



GOODWAY MACHINE CORP.



GOODWAYCNC.com

Official distributor for Benelux



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