

Accessories	S-Plus 8	S-Plus 10
Item		
1. Full-Enclosed Splash Guard	●	●
2. Full-Enclosed Splash Guard & Top Cover	○	○
3. Automatic Door System - Operating Door	○	○
4. Chip Collecting Tank Type	●	●
5. Front-Mounted Screw-Type Chip Conveyor	○	○
6. Link-Type Chip Conveyor & Portable Chip Bucket	○	○
7. Chip Conveyor with Portable Chip Bucket & Dual Side Screws	○	○
8. Coolant Flushing Device	○	○
9. Chassis on Both Sides with Stainless Steel Plates	○	○
10. Coolant System - Coolant Pump Motor, Standard	●	●
11. Coolant System - Coolant Pump Motor, Upgrade	○	○
12. Spray Around Spindle	●	●
13. Spindle Air Curtain	●	●
14. Air Blast Through Spindle	●	●
15. Air Blast Through Spindle	○	○
16. Lubrication System	●	●
17. Spindle Oil Cooler - Pulley Spindle	○	○
18. Spindle Oil Cooler - Direct Drive Spindle	●	●
19. Pulley Spindle 8000 RPM	●	●
20. Pulley Spindle 10000 / 12000 RPM	○	○
21. Direct Drive Spindle 10000 / 12000 / 15000 RPM	○	○
22. Disk-Type Tool Magazine 24T	●	●
23. Disk-Type Tool Magazine 30T	○	○
24. Intelligent Tool Change System (T to T) - 1.38 Sec.	○	○
25. Oil Skimmer	○	○
26. Oil Mist Collector System	○	○
27. X-, Y-, Z-Axis Ball Screw Enforced Pressure	●	●
28. Foundation Bolt, General	●	●
29. Foundation Bolt, Concrete	○	○
30. Table-Side Air Blast	●	●
31. Tool Package	●	●
32. Coiling Tube Coolant Gun	○	○
33. Hydraulic Hose Coolant Gun	○	○
34. Air Gun	○	○
35. X-, Y-, Z-Axis Linear Scale System	○	○
36. Machine Head Guard + Fan (For DDT Spindle)	○	○
37. Coolant Through Spindle, Prepared, Without Water Cart	○	○
38. Coolant Through Spindle - 20 Bar Without Water Cart	○	○
39. Coolant Through Spindle - 20 Bar With Water Cart	○	○
40. Coolant Through Spindle - 25 / 40 / 70 Bar With Water Cart	○	○
41. Fluorescent Lamp ×1	●	●
42. Fluorescent Lamp ×2	○	○
43. Hartford Manual ×1	●	●
44. Operation Finish Lamp	○	○
45. Convection Heat Exchanger in Control Cabinet	●	●
46. RS-232 Interface	●	●
47. Auto Tool Length Measurement	○	○
48. Auto Workpiece Measurement	○	○

Hartrol

Item	
Workpiece Calibration by MPG Directly	●
Parameter Package	●
Thread Cutting (0i & 31i Only)	●
Tool Magazine Display (0i & 31i Only)	●
Tool Status Display (0i & 31i Only)	●
Character Carving Macro	●

Hartnet

Item	
Management System of Utilization	○
Machining Time Countdown	○
Convenient File Transfer	○

Electrical Function

Item	
Lifting Function Against Gravity	○
Retraction for Rigid Tapping	○
Intelligent MPG	○

Standard ● Optional ○



Vertical Machining Center

S-Plus Series

S-Plus 8

S-Plus 10



01 Workpiece Machining Applications

High-Efficiency Machining Shorter Cycle Time, Higher Productivity

The S-Plus Series combines high efficiency, high rigidity, and reliable performance for modern manufacturing. Its high-speed machining capability and stable accuracy help reduce cycle times, increase productivity, and lower production costs, making it an ideal choice for mass production and versatile machining applications.



1	2
3	4

Bicycle

1 Front fork crown

Plastics

2 PET blow molding molds

Machinery

3 Vibration damper

Mold

4 Precision mold cores

02 Machine Structure Features

Outstanding Tool-to-Tool Change Speed Opt.

Tool Change Time as Fast as **1.38 sec.**

High-Precision Linear Guideway Design

High-rigidity, high-precision linear guideways on all three axes provide excellent stability for high-speed and heavy-duty machining, with rapid traverse rates up to **32,000 mm/min.**

Eco-Friendly, Energy-Saving, Low-Carbon Grease Lubrication Design Opt.

The feed axis uses low-amount grease lubrication to meet environmental rules, extend grease and cutting fluid life, reduce maintenance costs, avoid waste oil problems, and ensure stable operation and good product quality.

One-Piece Base Design

Built with Meehanite cast iron, the one-piece base and column structure provide exceptional rigidity, stability, and deformation resistance in demanding machining environments.



High-Protection Dust Collection System Opt.

Integrated high-dust-protection design and dust collection system effectively protect critical components, ensuring machining accuracy, reliable performance, and extended machine life.

Programmable Coolant Nozzle Opt.

With 30 programmable spray positions (1°–45°), the nozzle automatically aligns with the selected tool, delivering coolant directly to the cutting point for improved cooling, chip removal, longer tool life, and higher machining efficiency.

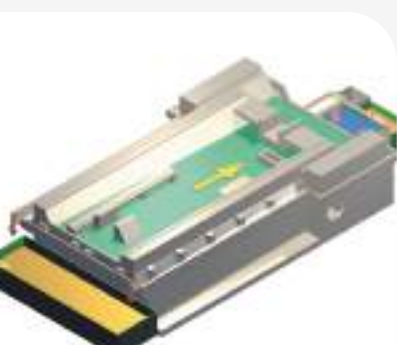
Direct-Coupled Three-Axis Drive

Direct-coupled ball screws and servo motors on all three axes eliminate backlash and servo lag, while high-precision support bearings improve machining efficiency and stability.

5 YEAR Warranty on Guideways for All Models

Warranty coverage will not apply under following conditions :

- 1.Improper operation(collison)
- 2.Lack of regular cleaningof accumulated debris causing damage to the linear rails &carriages.



One unit capable of connecting up to 10 or 20 machines

Smart i-Factory System with Superbox (Opt.)

Through i-Factory, all machinery and equipment in the factory can be connected, and the machine connections are no longer limited to Hartford. Machines from other manufacturers can also be connected for real-time visualization and management. The system is composed of five key components: real-time monitoring, production planning, alert notifications, data analysis, and remote connectivity, allowing you to move away from traditional management models and embrace a simpler and more convenient approach to factory management.



Tailored one-to-many automation planning

Intelligent Automated Production Line Unit (Opt.)



Customizing an automated factory just for you, effectively reducing costs and enhancing competitiveness.

Easy to get started

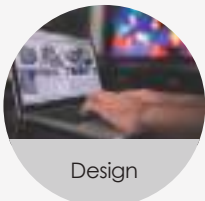
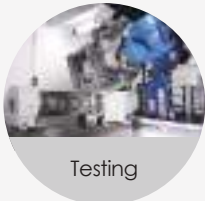
Hartford Robocell provides you a professional robot training and rich automation experience, to let you quickly learn and easily operate your automation systems.

Quality control monitoring

Automation systems have to pass all the strict Quality Control tests at every stage like design, assembly, testing, final inspection and shipment, complete quality control processes for all the products.

Professional analysis

Robocell Machining optimization service, to let you be on the top by using professional machining methods.



Hartrol Premium

Hartford Smartcenter APPS

1 Automation & Smart Factory

- Autopilot V2 Package
- Real-time Monitor Package
- Efficiency Improvement Package
- Smart Lubrication System
- Machine Play – Smartphone Remote Operation
- Wireless Network Function (Wi-Fi)

2 Monitoring & Energy Management

- Real-time Monitor Package (CCD Monitor / IP Camera)
- Energy Monitoring

3 Tool Protection & Machining Stability

- Tool Protection Suite (TPS)
- AFC – Automatic Feed Control
- Rigid Tapping Automatic Learning

4 CNC Control & Operation Enhancement

- Handwheel Simulation Mode
- HP Level R1–R10 Parameter Package

5 High-Speed / High-Accuracy Machining

- SSS High-speed High-accuracy Control
- High-speed High-accuracy Control III (G5P20000)
- High Speed Milling

6 Programming & User Interface

- Conversational Programming (HCP)

24 HR

Online Update System

Keep your operating system in optimal condition and stay up to date with the latest features from Hartford.



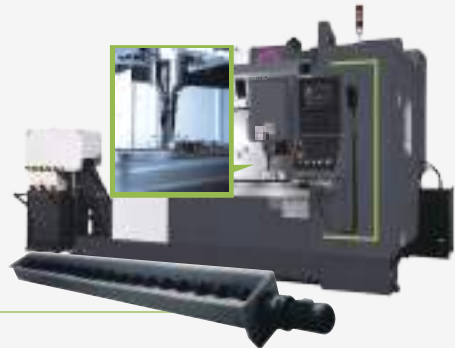
Hartford ZDT

Early warning before machine failure helps reduce unexpected downtime, minimizing productivity loss and cost.



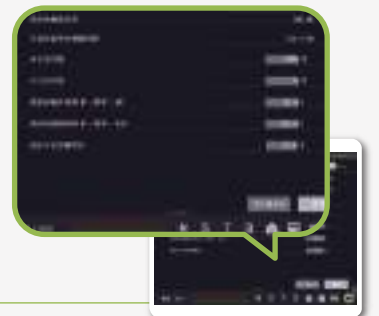
Chip Conveyor Opt.

Smart detection based on spindle current clears chips only when needed. The system runs on a 50% on/off cycle during cutting to save up to 50% motor power, and automatically reverses when chips build up to prevent overload and protect the conveyor.



Lubrication Opt.

The system smartly delivers oil based on machine and cutting conditions, saving up to 50% oil and reducing costs while supporting eco-friendly operation.



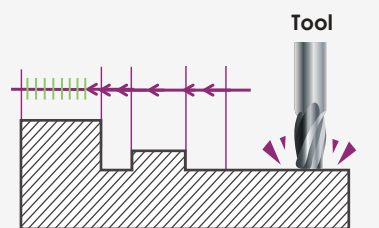
Position Opt.

When performing workpiece measurement with Hartrol Premium and Fanuc 15" IPC, operators can simply enter values through the intuitive guided interface—no need to memorize complex measurement commands, making the process effortless.



AFC Opt.

Spindle load monitoring allows users to set tool-specific load limits, boosting efficiency by up to 21% in heavy operations like face and side milling.



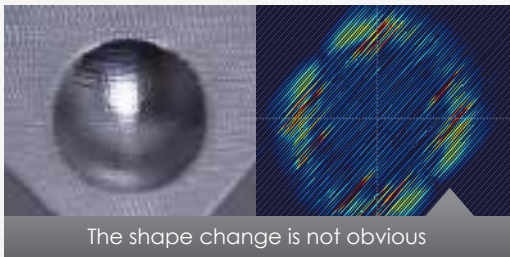
Eliminate interference and mechanical collision issues during the machining process

Digital Transformation (Opt.)

Digital Twin-NCVS software combines workpiece CAD, tools, and machine parameters to simulate the machining process in advance. It accurately reflects real conditions, going beyond traditional CAD/CAM by including machine data. The system verifies CNC parameter settings, analyzes part geometry and machine travel limits, and ensures alignment between programmed data and actual machine performance.. This helps prevent interference and collisions, ensuring safe, stable machining and better productivity.

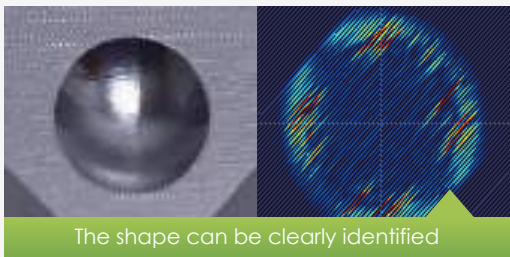
Simulation vs. Actual Machining Results

OFF



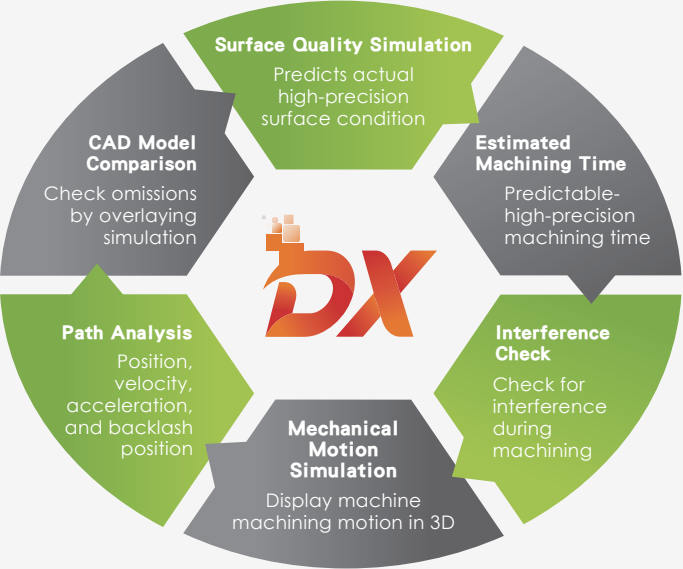
The shape change is not obvious

ON



The shape can be clearly identified

6 Key Features



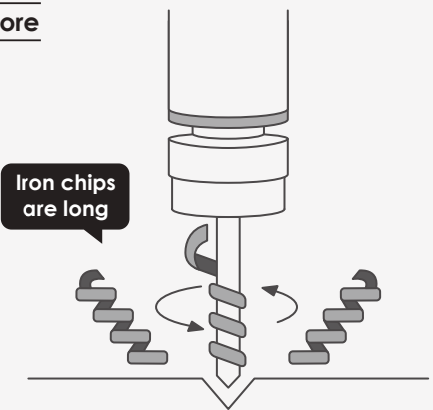
Solve the problem of chips wrapping around your cutting tool

Drilling Chip Breaker Feature (Opt.)



In deep-hole machining, the lack of effective chip-breaking can lead to issues like chips wrapping around the tool, scratching the workpiece, and making chips cleaning difficult. With Hartford's exclusive chips breaking for drilling function, chips are finely broken down, preventing them from wrapping around the tool. This ensures the workpiece remains intact, chips are easily cleaned, productivity is increased.

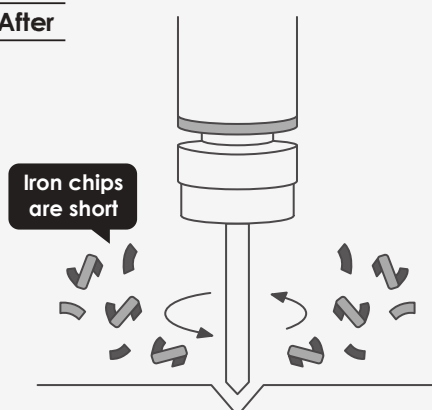
Before



▲ Function Off

Long iron chips cannot be effectively broken into manageable chips.

After



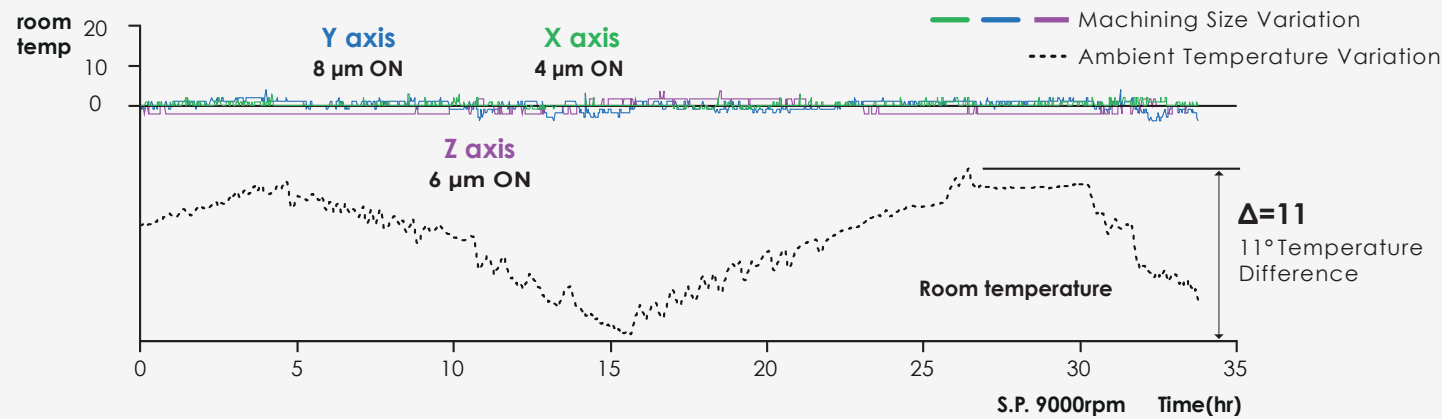
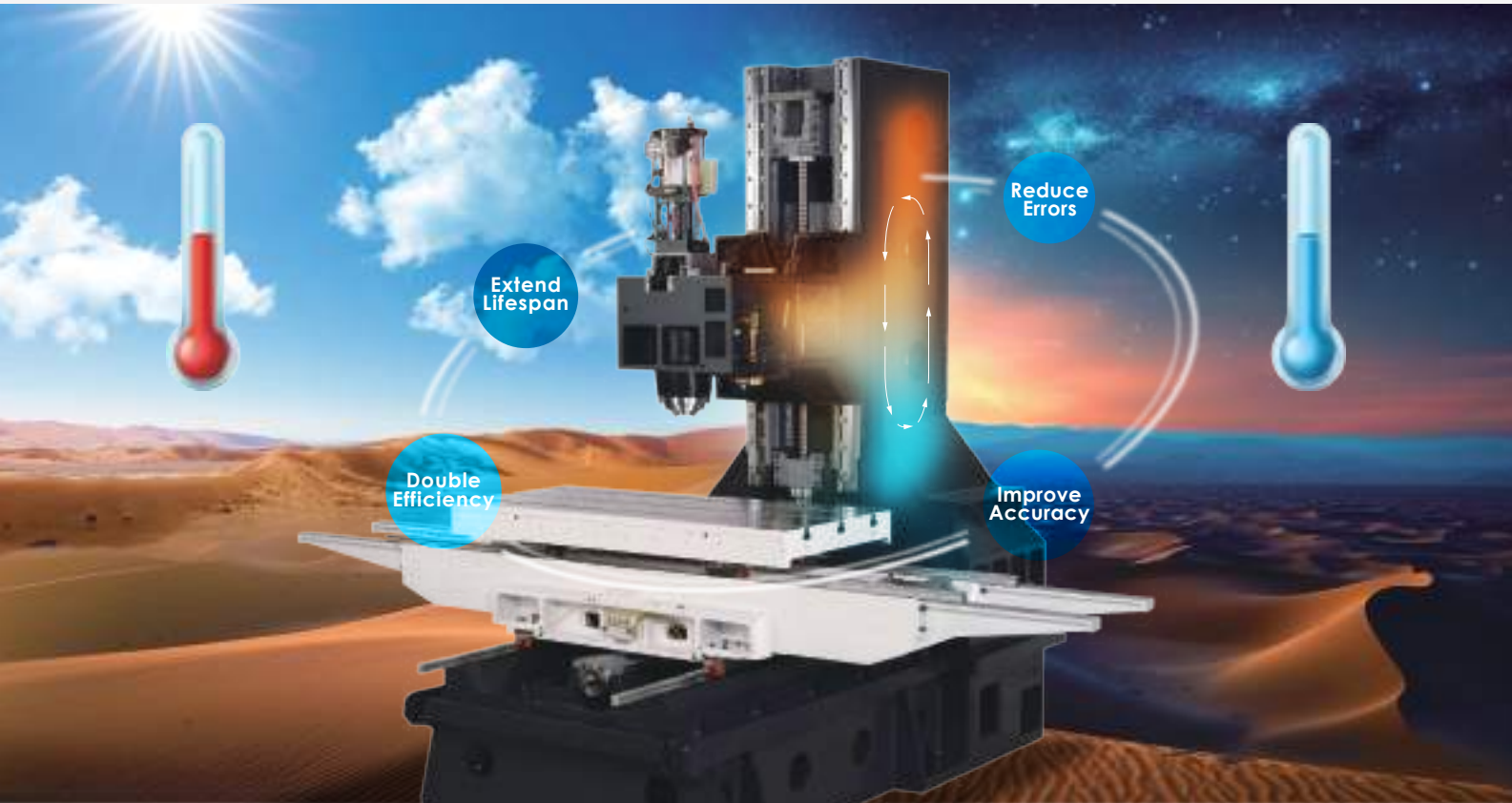
▲ Function On

Effectively breaks long chips into short chips for improved chip control.

No More Thermal Drift –
Precision Machining, Zero Defects

Thermal Compensation System (Opt.)

Exclusive whole-machine ambient temperature thermal displacement compensation function ensures that machining equipment does not cause workpiece deformation due to prolonged heat accumulation, thereby maintaining machining accuracy. Additionally, it effectively reduces the time required for temperature adaptation and thermal displacement modeling across different machine models and ambient temperature variations, significantly shortening delivery time.



04 Hartrol Premium

Eco-Friendly Solutions for Energy Management

ECO and Energy Monitoring Dashboard (Opt.)



Gas-based weight replacement instead of hydraulic
All lighting equipment is LED
FEM analysis for structural lightweight design

Energy Monitoring Dashboard

Real-time monitoring of energy consumption for each electrical component of the machine, with the ability to query historical energy consumption data and generate reports.



Eco Mode

Helps you control five peripheral devices, including the hydraulic motor, oil cooler, mist collector, work lights, and chip conveyor, to prevent unnecessary energy consumption when the machine is idle.



Spindle type

- #40 Pulley 8,000 / 10,000 / 12,000 rpm
- #40 DDS 10,000 / 15,000 / 20,000 rpm

BBT for optional

- Dual contact between the taper and the flange
- Improves the rigidity, accuracy, speed and performance. Radial deflection, vibration and deviation are significantly reduced

Not suitable for DDS 20,000 rpm spindle

Optimized Performance For speed and Cutting Efficiency

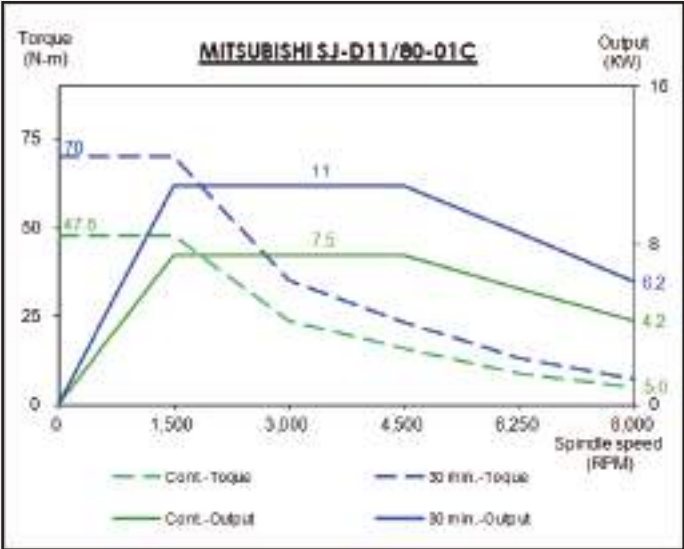
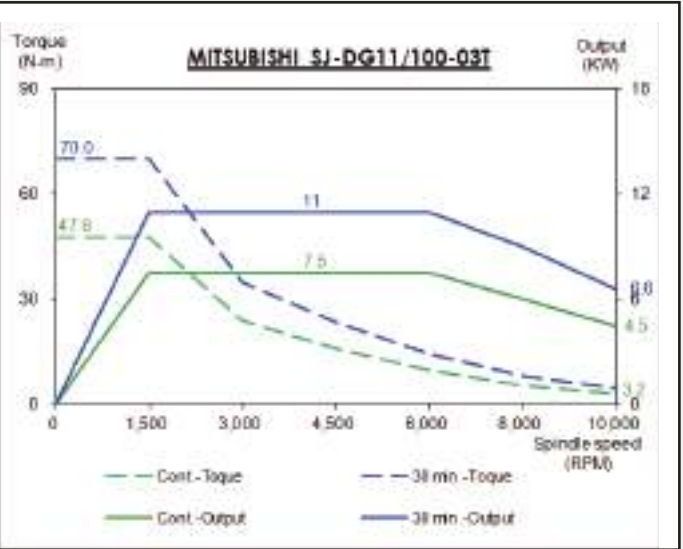
- Model : S-Plus 10
- Spindle : 10,000 rpm DDS type 11kw
 - Cutting material : S45C

Face milling		End Milling		Tapping		Drilling	
Tool diameter	Ø80 mm	Tool diameter	Ø63 mm	Tool diameter	M20 x P2.5	Tool diameter	Ø18 mm
Feed rate	1,400 mm/min	Feed rate	1,600 mm/min	Feed rate	1,000 mm/min	Feed rate	200 mm/min
Cutting depth	2 mm	Cutting depth	30 mm	Cutting depth	20 mm	Cutting depth	25 mm
Cutting width	65 mm	Cutting width	3 mm				
Cutting volume	182 cc	Cutting volume	144 cc				

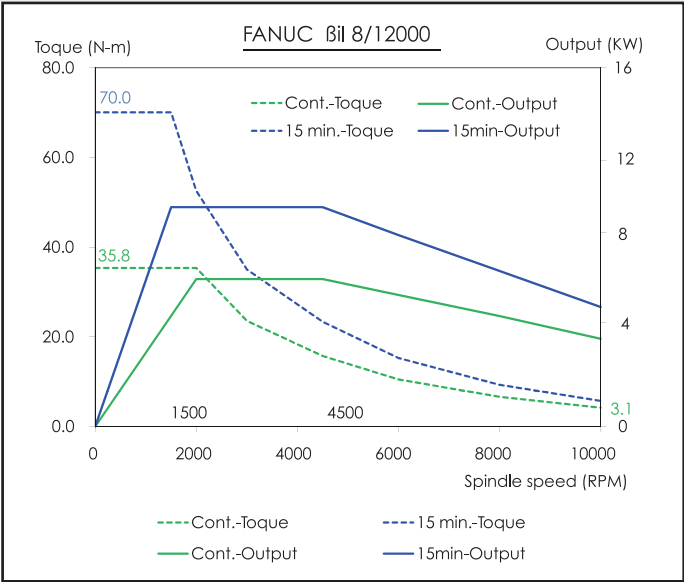
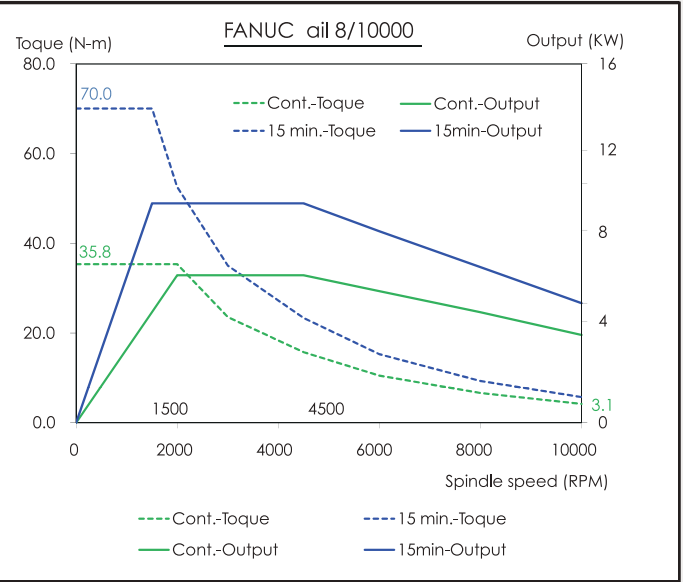
05 Actual Cutting Tests / Spindle Torque Diagrams

Spindle torque diagrams

■ Mitsubishi

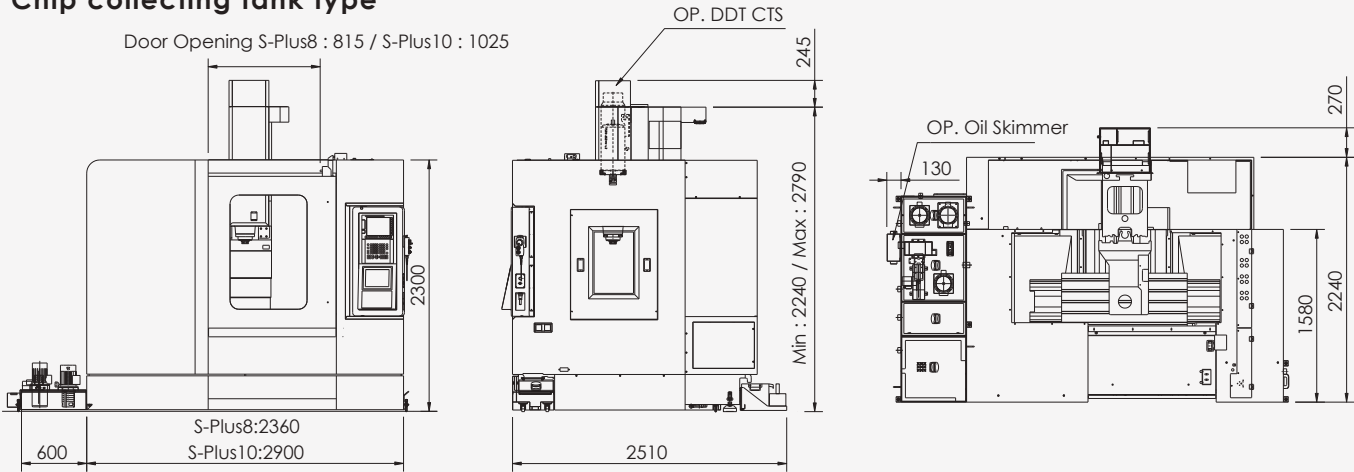


■ Fanuc

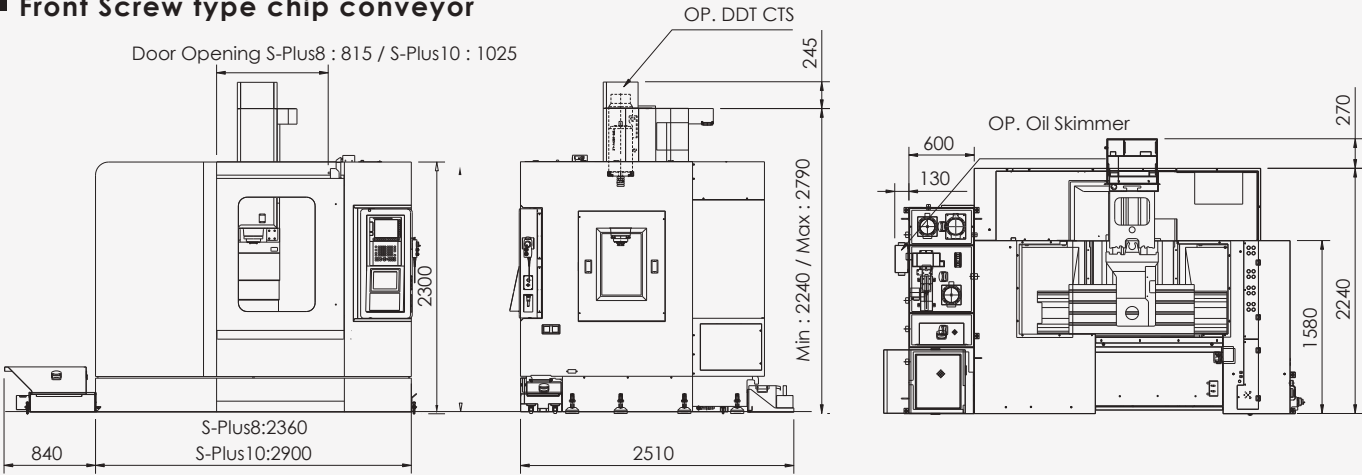


S-Plus 8/10

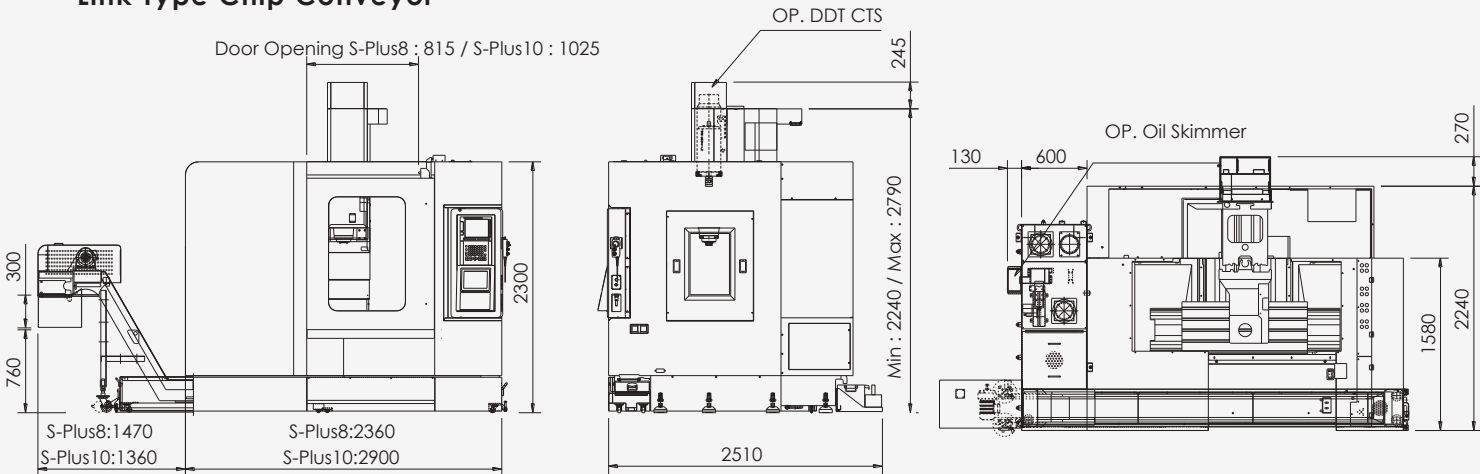
■ Chip collecting tank type



■ Front Screw type chip conveyor

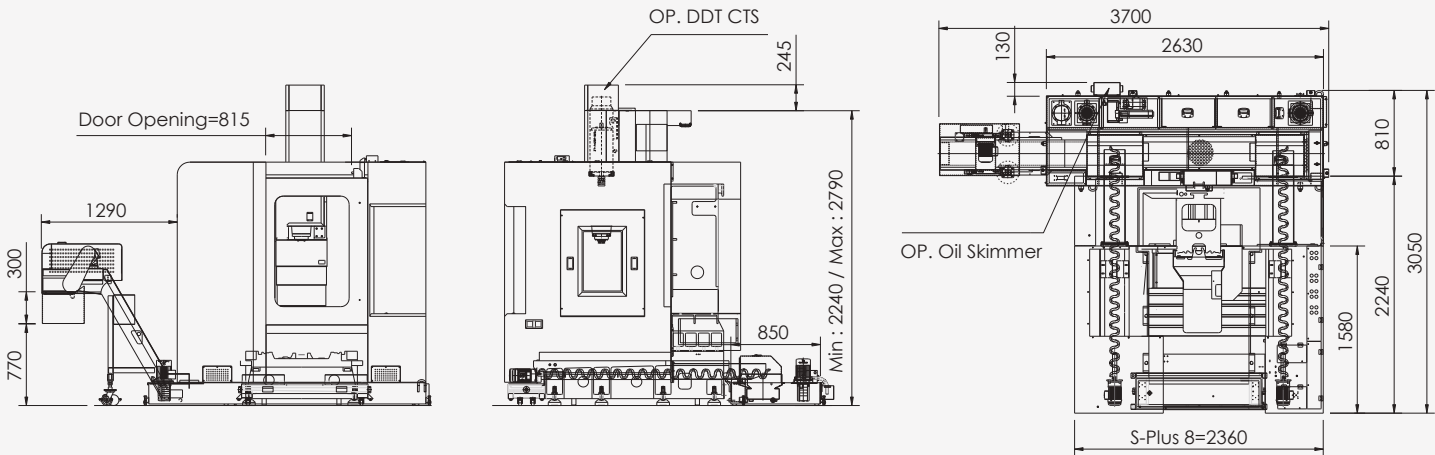


■ Link Type Chip Conveyor



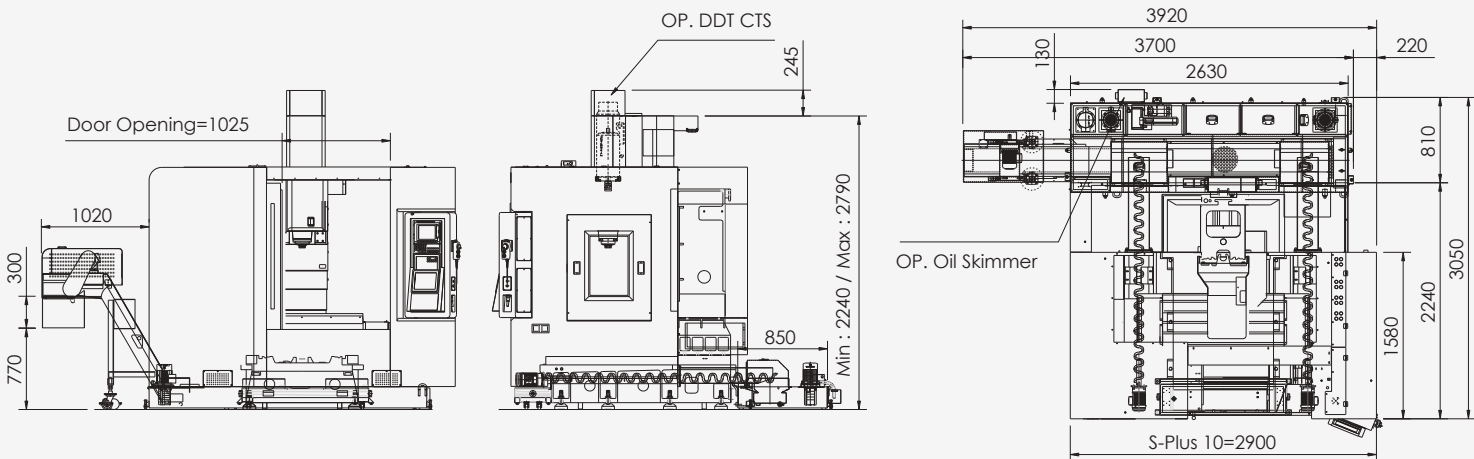
S-Plus 8

■ Link type chip conveyor & portable chip bucket (with Two side screw type chip) Opt.



S-Plus 10

■ Link type chip conveyor & portable chip bucket (with Two side screw type chip) Opt.



		Unit	S-Plus 8	S-Plus 10
Table	Working surface	mm	950 x 520	1150 x 520
	T-slot Width x pitch(number)	mm	18 x 100(5)	18 x 100(5)
	Max. load (Average)	kg	500	700
Travel	X -axis travel	mm	800	1020
	Y -axis travel	mm	520	520
	Z -axis travel	mm	550	550
	Distance from spindle to table	mm	100~650 opt. 300~850	100~650 opt. 300~850
	Distance from spindle center to column	mm	569	569
Spindle	Spindle nose taper	rpm	#40	#40
	Spindle speed(Pulley)	rpm	8000/10000/12000	8000 / 10000 / 12000
	Spindle speed(DDS)	rpm	10000/12000/15000	10000 / 12000 / 15000
Feed	Cutting feedrate(X / Y / Z)	m/min	12 / 12 / 12	12 / 12 / 12
	Rapid traverse rate(X / Y / Z)	m/min	40 / 40 / 32	40 / 40 / 32
ATC	Capacity	pcs	A : 24 (30)	A : 24 (30)
	Max. tool weight	kg	7	7
	Max. tool size (dia.x length)	mm	A : Ø75 x 300L	A : Ø75 x 300L
	Tool shank		BT40 (BBT / CAT / DIN)	BT40 (BBT / CAT / DIN)
	Pull stub bolt		P40T-1 (CAT-40 / DIN 69872)	P40T-1 (CAT-40 / DIN 69872)
Motor	Spindle drive motor(cont./30 min)	KW	5.5/7.5 opt. 7.5/11, 11/15, 15/18.5	5.5/7.5 opt. 7.5/11, 11/15, 15/18.5
Positioning Accuracy	Positioning accuracy (JIS B6330), without linear scale	mm	±0.008	±0.008
	Repeatability (JIS B6330), without linear scale	mm	±0.002	±0.002
	Positioning accuracy (JIS B6330), with linear scale	mm	±0.006	±0.006
	Repeatability (JIS B6330), with linear scale	mm	±0.002	±0.002
	Positioning accuracy (VDI 3441)	mm	0.010 / MGPS:0.008	0.010 / MGPS:0.008
	Repeatability(VDI 3441)	mm	0.006 / MGPS:0.005	0.006 / MGPS:0.005
Other	Required air pressure	kg/cm²	6.5	6.5
	Electric power requirement	KVA	15~40	15~40
	Machine weight	kg	4700	5000
	Coolant tank(standard)	L	260	285
	Machine dimension(LxWxH)	mm	2360 x 2240 x 2790	2900 x 2240x 2790
	Floor space (standard tank)	mm	2960 x 2510	3500 x 2510

