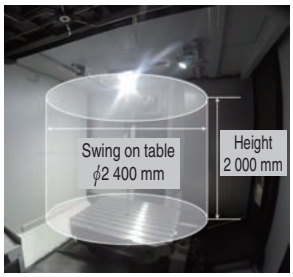
FH12500SX5-i/FH12500SW5-i Horizontal Spindle Machining Center

The FH1250SX/FH1250SW horizontal machining center which can produce large parts with high efficiency has been well received since 2008. In recent years, demand for large components such as semiconductor manufacturing equipment has been increasing and in energy-related fields, the components sizes have been increasing as well. A processing machine that can produce larger parts with higher efficiency is required, so we have developed the new FH12500SX5-i/FH12500SW5-i.

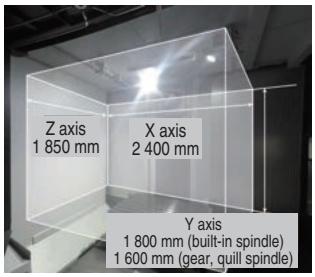
Main Features

①First in its class machining area

Workpieces up to a maximum of 2 400 mm × 2 000 mm can be loaded, the largest in its class. The movement range of each axis is 2 400 mm × 1 800 mm × 1 850 mm, giving it the largest machining area in its class. The FH12500SW5-i is equipped with a quill spindle with a quill (W) axis movement amount 560 mm. This provides improved accessibility for machining parts inside large components.



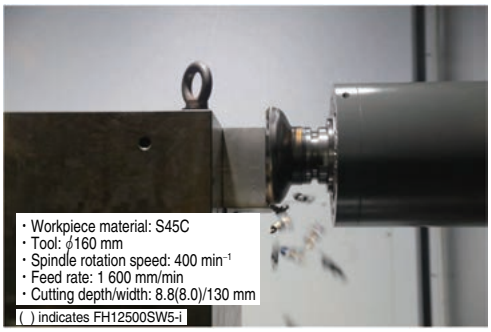
Maximum workpiece size



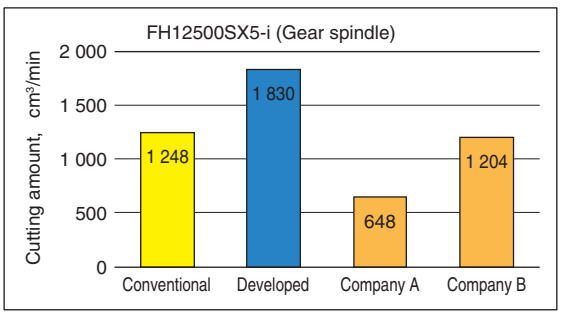
Movement amount

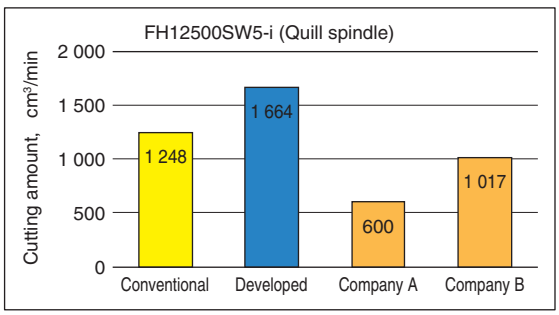
②First in its class cutting performance

The newly developed HIGH TORQUE GEAR SPINDLE with a maximum torque of 2 200 N·m is standard equipment. Individual structures, such as columns, provide a robust platform based on FEM analysis and our casting technology, and help to maximize spindle performance. It achieves amazing cutting performance of 1 830 cm^3/min in iron milling.



Milling example





Milling cutting performance

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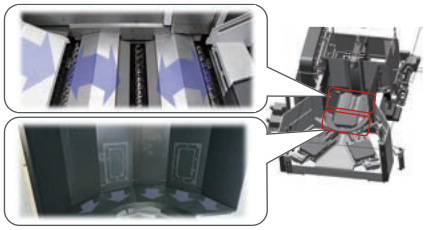
Three chip conveyors are installed inside the machine to keep pace with the cutting performance, and its chip ejection performance is the highest level in its class. In addition, we paid particular attention to the inclined surface of the machine cover to prevent the accumulation of chips.

Three chip conveyors installed inside the machine

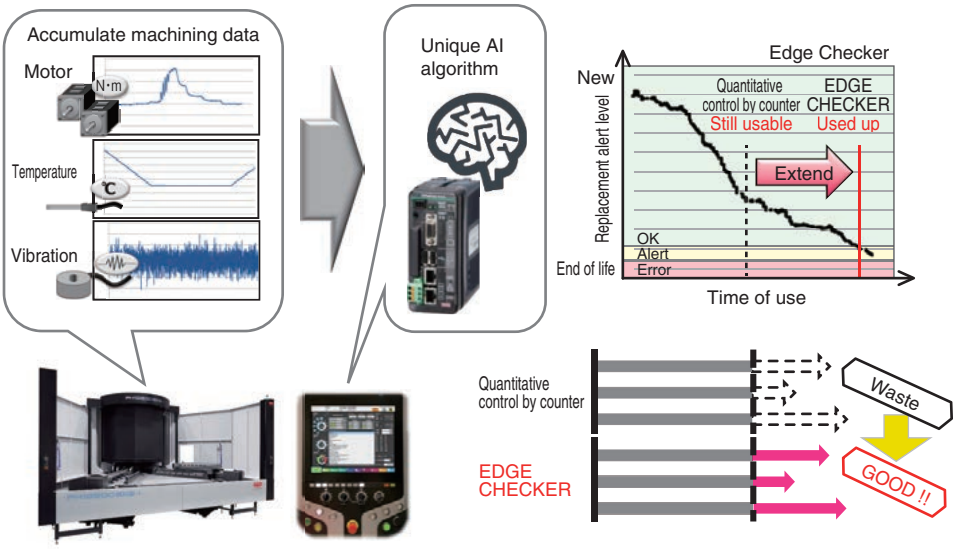


Machine cover surface designed with an incline to prevent accumulation of chips

Chip conveyors

③Automation/Autonomy

The Edge Checker can accumulate machining data and determine the tool life in real time using its original AI. Tools can be used up fully as compared to the conventional method, where tools that could still be used were replaced for quantitative control.



Edge Checker

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Main Specifications

Item			Unit	FH12500SX5-i			FH12500SW5-i	
				Standard specification	Special specification		Standard specification	Special specification
Spindle driving system				Gear	Built-in	Built-in	Quill	
Spindle	Quill diameter		mm				ϕ130	
	Movement amount	W	mm				560	
	W axis feed rate	Rapid feed rate	m/min				20	
		Cutting feed rate	m/min				10	
	Spindle rotation speed		min^{-1}	6 000	6 000	15 000	4 000	
	Output	Instant	kW	55	55	37	55	
		Constant	kW	37	37	30	37	
	Torque	Instant	N·m	2 200	1 202	530	2 200	
		Constant	N·m	1 690	553	239	1 690	
Feed	Movement amount	X	mm	2 400			2 400	
		Y	mm	1 600	1 800		1 600	
		Z	mm	1 850			1 850	
	Distance between spindle center and pallet upper surface		mm	200～1 800	100～1 900		200～1 800	
	Distance between spindle nose and table center		mm	200～2 050			205～2 055	
	Rapid feed rate	X	m/min	42			42	
		Y	m/min	42			42	
		Z	m/min	42			42	
		B	°/min	2 880			2 880	
Table	90° indexing time		sec	4.3			4.3	
	Pallet dimension		mm	□1 250	1 250×1 600		□1 250	1 250×1 600
	Maximum workpiece size	Diameter	mm	ϕ2 400			ϕ2 400	
		Height	mm	2 000			2 000	
		Net mass	kg	5 000			5 000	

(Machine System Engineering Dept., Machine Tools & Manufacturing Systems Business Unit)

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