



High Efficiency Double Column Machining Center



General Machining Center

- Z-axis adopts double counterweight, oil-gas separation accumulator distribution device. There is no traditional mechanical hydraulic delay. Z-axis retracting function at power failure, providing the most stable performance on mold machining.
- Heavy-loaded roller type linear guideway on XY axis, possesses the low friction and rigidity characters ensures the best dynamic accuracy performance while machining.
- The working table structure is designed for high-rigidity and lightweight to ensure cutting on high acceleration and deceleration when table is loaded.

Multi-Angel
Machining



Specification | SF-xx16/ xx20 Series

MODEL			Unit	SF-2116	SF-2616	SF-3116	SF-4116	SF-2120	SF-2620	SF-3120	SF-4120
TRAVEL											
X axis			mm	2,100	2,600	3,100	4,100	2,100	2,600	3,100	4,100
Y axis			mm	1,600				2,000			
Z axis	Box way		mm	800 / 1,020(Opt.)				800 / 1,020(Opt.)			
	Linear way		mm	800(Opt.) / 1,000(Opt.)				800(Opt.) / 1,000(Opt.)			
Distance from spindle nose to table	Box way (2-step gear/ Belt-driven)	Z axis=800	mm	150-950 / 350-1,150(column+200)				150-950 / 350-1,150(column+200)			
		Z axis=1,020	mm	130-1,150(column+200)				130-1,150(column+200)			
	Linear way (2-step gear/ Direct-driven)	Z axis=800	mm	150-950 / 350-1,150(column+200)				150-950 / 350-1,150(column+200)			
		Z axis=1,000	mm	150-1,150(column+200)				150-1,150(column+200)			
Distance from spindle center to column			mm	453				453			
Distance between columns (port width)			mm	1,700				2,100			
TABLE											
Dimension			mm	2,000x1,500	2,500x1,500	3,000x1,500	4,000x1,500	2,000x1,800	2,500x1,800	3,000x1,800	4,000x1,800
T-slot(Width x Number x Pitch)			mm	22x9x160				22x11x160			
Max. table load			kg	8,000	9,000	10,000	12,000	8,000	9,000	10,000	12,000
SPINDLE											
Spindle motor(cont./30 min. rated)			kW	18.5/22kW (22/26kW Opt.)				18.5/22kW (22/26kW Opt.)			
Spindle speed	Box way	2-step gear	rpm	6,000/ 4,000 (Opt.)				6,000/ 4,000 (Opt.)			
	Linear way	Direct-driven		10,000(Opt.)/ 12,000(Opt.)				10,000(Opt.)/ 12,000(Opt.)			
		Built-in		10,000(Opt.)				10,000(Opt.)			
Spindle taper			-	ISO 50 / (ISO 40 Opt.)				ISO 50 / (ISO 40 Opt.)			
FEED											
Cutting feed rate			mm/min	1-10,000				1-10,000			
Rapid traverse			m/min	XY:24 Z:15			X:18 Y:24 Z:15	XY:24 Z:15			X:18 Y:24 Z:15
3 axis motor power (FANUC)			kW	XYZ:4			X:7 YZ:4	XYZ:4			X:7 YZ:4
ACCURY											
Positioning accuracy	Refer to ISO 230		mm	±0.005/300, ±0.010/Full travel				±0.005/300, ±0.010/Full travel			
	Refer to VDI 3441		mm	P0.018		P0.018	P0.020	P0.018		P0.020	
Repeatability	Refer to ISO 230		mm	±0.003				±0.003			
	Refer to VDI 3441		mm	Ps0.015		Ps0.018		Ps0.015		Ps0.018	
ATC											
ATC capacity	Vertical type tool change		pcs	32/40(Opt.)				32/40(Opt.)			
Max. tool weight			kg	18				18			
Tool size (DxL) (Full tools)			mm	Ø125				Ø125			
Max. tool size (DxL) (next pocket empty)			mm	Ø180				Ø180			
Tool shank			-	BT50/CAT50				BT50/CAT50			
Pull stud			-	P50T-1				P50T-1			
OTHERS											
Power requirement			kVA	50				50			
Machine net weight			kg	20,000	22,000	24,000	27,500	21,000	23,000	25,500	29,500
Machine gross weight			kg	23,500	25,500	28,000	31,500	24,500	26,500	29,500	33,500
Max. space (LxWxH)			m	9.4 x 5.9 x 4.4	10.4 x 5.9 x 4.4	11.4 x 5.9 x 4.4	13.4 x 5.9 x 4.4	9.4 x 6.3 x 4.4	10.4 x 6.3 x 4.4	11.4 x 6.3 x 4.4	13.4 x 6.3 x 4.4

※ All specifications and designs are subject to change without notice.

Specification | SF-xx23/ xx27 Series

MODEL			Unit	SF-2123	SF-2623	SF-3123	SF-4123	SF-2127	SF-2627	SF-3127	SF-4127
TRAVEL											
X axis			mm	2,100	2,600	3,100	4,100	2,100	2,600	3,100	4,100
Y axis			mm	2,300				2,700			
Z axis	Box way		mm	800 / 1,020 (Opt.)				800 / 1,020 (Opt.)			
Distance from spindle nose to table	Box way	Z axis=800	mm	450-1,250 (column+300)				450-1,250 (column+300)			
		Z axis=1,020	mm	230-1,250 (column+300)				230-1,250 (column+300)			
Distance from spindle center to column			mm	453				453			
Distance between columns (port width)			mm	1,700				2,100			
TABLE			mm								
Dimension			mm	2,000x1,500	2,500x1,500	3,000x1,500	4,000x1,500	2,000x1,800	2,500x1,800	3,000x1,800	4,000x1,800
T-slot(Width x Number x Pitch)			mm	22x9x160				22x11x160			
Max. table load			Kg	8,000	9,000	10,000	12,000	8,000	9,000	10,000	12,000
SPINDLE											
Spindle motor(cont./30 min. rated)			kW	18.5/22 (22/26 Opt.)				18.5/22 (22/26 Opt.)			
Spindle speed	Box way	2-step gear	rpm	6,000/ 4,000 (Opt.)				6,000/ 4,000 (Opt.)			
Spindle taper			-	ISO 50				ISO 50			
FEED											
Cutting feed rate			mm/min	1-10,000				1-10,000			
Rapid traverse			m/min	X/Y/Z:24/20/15			X/Y/Z:18/20/15	X/Y/Z:24/20/15			X/Y/Z:18/20/15
3 axis motor power (FANUC)			kW	XYZ:4			X:7 YZ:4	XYZ:4			X:7 YZ:4
ACCURY											
Positioning accuracy	Refer to JIS B6333		mm	±0.005/300, ±0.010/Full travel				±0.005/300, ±0.010/Full travel			
	Refer to VDI 3441		mm	P0.018		P0.020		P0.018		P0.018	P0.020
Repeatability	Refer to JIS-B6333		mm	±0.003				±0.003			
	Refer to VDI 3441		mm	Ps0.015		Ps0.018		Ps0.015		Ps0.018	
ATC											
ATC capacity	Floor-standing type vertical tool change		pcs	32/40(Opt.)				32/40(Opt.)			
	Floor-standing type vertical-horizontal tool change		pcs	32(Opt.)/40(Opt.)/60(Opt.)				32(Opt.)/40(Opt.)/60(Opt.)			
Max. tool weight			kg	18				18			
Tool size (DxL) (Full tools)			mm	Ø125				Ø125			
Max. tool size (DxL) (next pocket empty)			mm	Ø180				Ø180			
Tool shank			-	BT50/CAT50				BT50/CAT50			
Pull stud			-	P50T-1				P50T-1			
OTHERS											
Power requirement			kVA	50				50			
Machine net weight			kg	22,500	24,500	26,500	30,500	24,000	26,000	28,000	32,000
Machine gross weight			kg	26,000	28,000	30,000	34,000	27,500	29,500	32,000	36,000
Max. space (LxWxH)	Floor-standing type vertical tool change		m	9.4 x 6.6 x 4.9	10.4 x 6.6 x 4.9	11.4 x 6.6 x 4.9	13.4 x 6.6 x 4.9	9.4 x 7.0 x 4.9	10.4 x 7.0 x 4.9	11.4 x 7.0 x 4.9	13.4 x 7.0 x 4.9
	Floor-standing type vertical-horizontal tool change			9.4 x 7.4 x 4.9	10.4 x 7.4 x 4.9	11.4 x 7.4 x 4.9	13.4 x 7.4 x 4.9	9.4 x 8.0 x 4.9	10.4 x 8.0 x 4.9	11.4 x 8.0 x 4.9	13.4 x 8.0 x 4.9

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Standard Accessory and Function

- 1 FANUC 0iMF controller
- 2 6,000rpm 2-step gear type spindle (Z axis box way)
- 3 Spindle cooling system
- 4 Twin hydraulic cylinders with pressured Nitrogen assistance counterweight system
- 5 Centralized auto lubrication system
- 6 Independent lubrication oil collector
- 7 Air blast through spindle
- 8 Wash gun and pneumatic interface
- 9 Cutting fluid cooling system
- 10 Vertical type tool magazine 32T with arm type ATC
- 11 Enclosed sheet metal guard (without roof)
- 12 Swiveling arm type operation panel
- 13 Screw type chip conveyor on table side
- 14 Caterpillar type chip conveyor
- 15 Heat exchanger for electrical cabinet
- 16 Working lamp
- 17 Operation cycle finish and alarm light
- 18 Movable manual pulse generator
- 19 Footswitch for tool clamping
- 20 RJ45 interface
- 21 XYZ axis absolute pulse coder feedback
- 22 XYZ axis travel hard limits protection
- 23 Spindle cutting load software protection
- 24 Remote monitoring software-standard
(Not available for SIEMENS controller)
- 25 Auto power off function
- 26 Vision Wide FX graphical user interface
- 27 Foundation pads and bolts kits
- 28 Adjustment tool and tool kits
- 29 Technical manuals
(operation, maintenance manual and circuit diagram)

Optional Accessory & Function

- 1 FANUC 31iB/ HEIDENHAIN TNC640/ MITSUBISHI M80 Type A/ MITSUBISHI M830/ SIEMENS 828D/ 840D
- 2 4,000rpm 2-step gear type spindle (Z axis box way)
- 3 10,000(BT-50)/ 12,000(BT-40) rpm direct-driven spindle
- 4 Z axis travel 1,020mm(box way spindle head, for AC head attachment)
- 5 Z axis travel 1,000mm(linear way spindle head)
- 6 200/ 300/ 400/ 500mm higher column
- 7 Spindle ring cutting coolant device(for no head attachment)
- 8 Coolant through spindle system 20/70 bar(Vertical spindle)
- 9 Coolant through tool holder interface
- 10 Coolant through tool holder 5/20 bar cutting fluid interface
- 11 Oil skimmer
- 12 Oil mist cooling device
- 13 Vertical type tool magazine 40/60 tools /
- 14 Floor-standing vertical type tool magazine 32/40/60 tools /
Floor-standing vertical-horizontal type tool magazine 32 tools
Enclosed sheet metal guard (with roof)
- 15 Helical bladed screw conveyor on table side
- 16 Chip cart
- 17 Air conditioning for electrical cabinet
- 18 XYZ-axis linear scale
- 19 3-axis independent manual pulse generator
- 20 Sub working table
- 21 Rotary table
- 22 Interface reserved for fourth axis
- 23 Spindle cutting load hardware protection
- 24 Z axis retract function at power failure
- 25 Anti-collision and process simulation software
- 26 Remote monitoring software-professional
- 27 (Not available for SIEMENS controller)
Auto tool length measurement
- 28 Auto workpiece coordinate measurement
- 29 Transformer
- 30 Auto warm up
- 31 Thermal compensation system

Optional Accessory for Head Attachment

- 1 Z axis travel 1,020mm(box way spindle head, for AC head attachment)
- 2 AC 90 degree angular head/ AC extended head/ AC 2-axis head
- 3 AC milling head/ small head/ customized head attachment
- 4 Manual 90 degree angular head/ extended head/ universal head
- 5 Manual swiveling arm type head bracket on operation side(one head attachment)
- 6 Auto swiveling arm type head bracket on operation side(one head attachment, one cover)
- 7 Multi-heads magazine on magazine side(For SF-xx23/27)
- 8 AC 90 degree angular head and AC 2-axis head offered coolant through spindle

● For the specification of each model, please contact our sales representatives.