



MULTI-PURPOSE
VERTICAL MACHINING CENTER

VCF

5500L • 5500UL • 5500SL



VCF 5500 SERIES · 5500L · 5500UL · 5500SL

VCF 5500L/UL/SL is multi-purpose, moving column vertical machining centers equipped with fixed tables that are suitable for a range of applications. The machines have a user-friendly design and their productivity is further enhanced by an optional center partition.



Equipped with up to a 5000mm X-axis travel (196.9 inch.), and an extensive range of flexible options, the VCF Series delivers incredible flexibility and productivity from a single machine.



LARGE MACHINING AREA AND EXCELLENT CHIP DISPOSAL

- The machines have the largest machining area in their class as well as an efficient coolant system for excellent chip disposal.
- Diverse X-axis size are offered for customer's optimizing investment.

EFFICIENT OPERATION AND WIDE VARIETY OF APPLICATIONS

- Higher productivity and efficiencies can be achieved by selecting/specifying a range of different options.

THE LINEAR AXES ARE EQUIPPED WITH ROLLER-TYPE LM GUIDEWAYS

- Linear axes are equipped with roller-type LM guideways for increased rigidity, long life and high rapid traverse rates. The linear scale is applied to the X axis as standard to optimize positional accuracy.

BASIC STRUCTURE

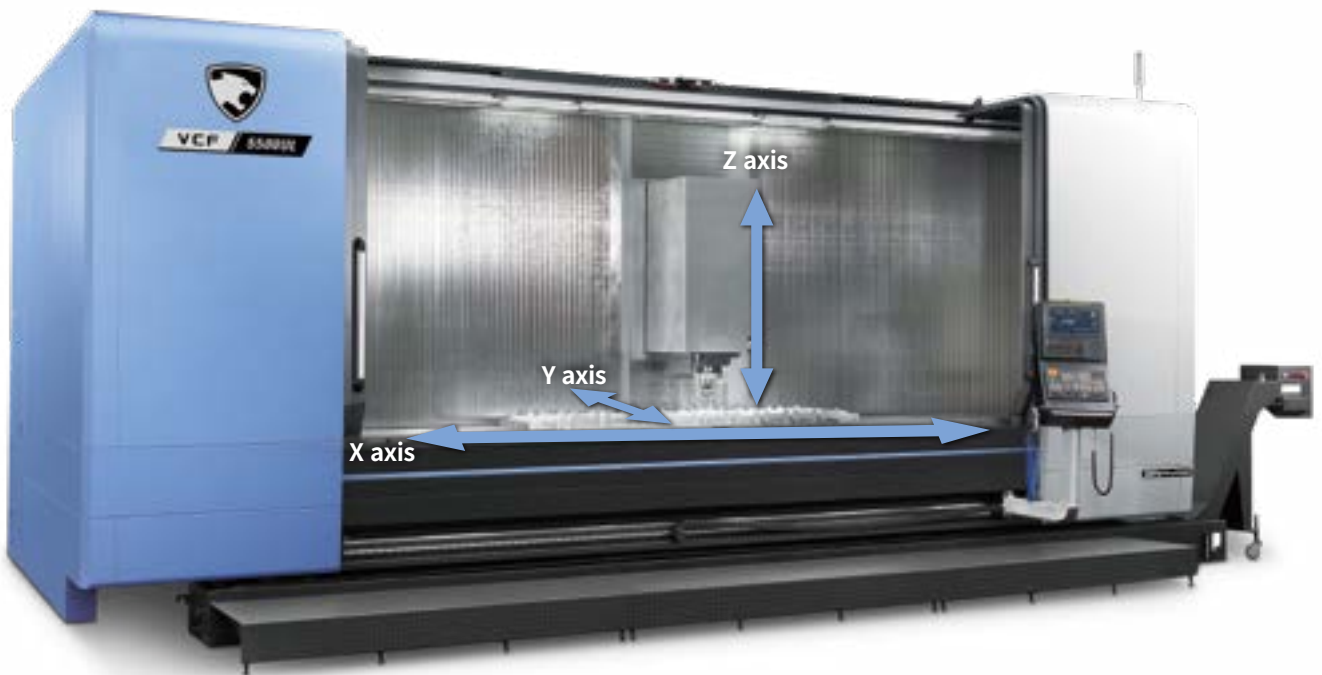
The moving-column, fixed table structure is suitable for machining narrow and long parts.

Travel distance (X x Y x Z axis)

VCF 5500L **2200 x 550 x 510** mm (86.6 X 21.7 X 20.1 inch)

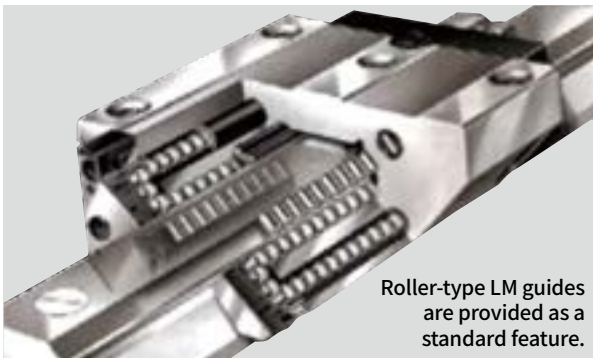
VCF 5500UL **5000 x 550 x 570** mm (196.9 X 21.7 X 22.4 inch)

VCF 5500SL **6200 x 550 x 570** mm (244.1 X 21.7 X 22.4 inch)



AXIS SYSTEM

The linear axes are equipped with roller-type LM guideways for increased rigidity, long life and high rapid rates.



Roller-type LM guides are provided as a standard feature.

Rapid traverse rate (X/Y/Z axis)

VCF 5500L **42/42/42** 1653.5/1653.5/1653.5 ipm

VCF 5500UL **30/36/46** 1181.1/1417.3/1811.0 ipm

VCF 5500SL **20/36/46** 787.4/1417.3/1811.0 ipm

Linear scales

The linear scale feedback system (supplied as standard on X axis), provides reliable and robust positional accuracies.

* VCF 5500UL/SL Only standard



SPINDLE INFORMATION

A direct-coupled spindle is a standard feature and helps minimize vibration and noise whilst, at the same time, improving productivity, precision and the working environment.

Max. spindle speed

12000 r/min

Max. spindle motor power

18.5 kW
24.8 hp

Max. spindle motor torque

117.8 N.m
86.9 ft-lbs



Dual contact as a standard

TABLE

The large capacity table can be used for many different types of application.

Max. weight on table

VCF 5500L **2000** kg (4409.2 lb)

VCF 5500UL **6000** kg (13227.5 lb)

VCF 5500SL **7500** kg (16534.4 lb)

Table size

VCF 5500L **2500 x 580** mm
98.4 X 22.8 inch

VCF 5500UL **5600 x 580** mm
220.5 x 22.8 inch

VCF 5500SL **6600 x 580** mm
259.8 x 22.8 inch



AUTOMATIC TOOL CHANGER

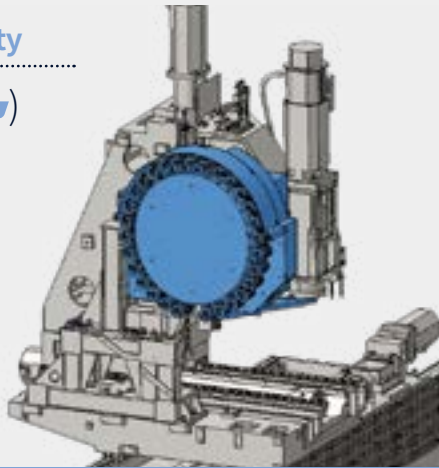
The servo-driven ATC provides high reliability and accuracy.

VCF 5500L

Tool selection : RANDOM ADDRESS

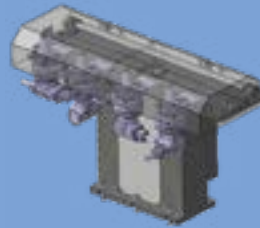
Tool storage capacity

30 ea (40/60 option)



Pickup magazine option

An optional feature for tools with large diameters or lengths.

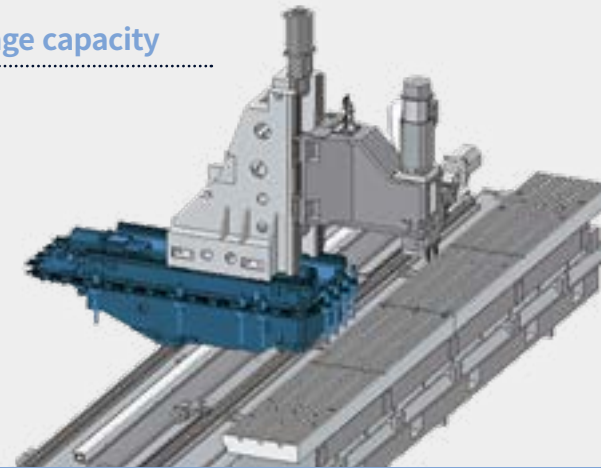


VCF 5500UL/SL

Tool selection : FIXED ADDRESS

Tool storage capacity

35 ea



Description		Unit	VCF 5500UL/SL
Max. tool diameter	Continuous	mm (inch)	150 (5.9)
	Adjacent pot empty	mm (inch)	230 (9.1)
No. of Tools		ea	4
Max. tool length		mm (inch)	420 (16.5)
Max. tool weight		kg (lb)	8 (17.6)

CUTTING PERFORMANCE

The VCF series delivers optimum cutting performance thanks to its rigid machine structure and spindle design.

Test result (12000r/min, Direct connection, 18.5/11kW (24.8/14.8 Hp))

Face mill (ø80mm (3.15 inch)) Carbon steel (SM45C)			
Chip removal rate cm ³ /min (inch ³ /min)	Spindle speed r/min	Feedrate mm/min (ipm)	
576 (35.1)	1500	4500 (177.2)	

Face mill (ø80mm (3.15 inch)) Aluminum (AL6061)			
Chip removal rate cm ³ /min (inch ³ /min)	Spindle speed r/min	Feedrate mm/min (ipm)	
1774 (108.3)	1500	5040 (198.4)	

Drill (ø50mm (2.0 inch)) Carbon steel (SM45C)			
Chip removal rate cm ³ /min (inch ³ /min)	Spindle speed r/min	Feedrate mm/min (ipm)	
530 (32.3)	1500	270 (10.6)	

Tap Carbon steel (SM45C)			
Tap size mm	Spindle speed r/min	Feedrate mm/min (ipm)	
M30 x P3.5	290	1015 (40.0)	

STANDARD | OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.


Description	Features		VCF 5500L	VCF 5500UL	VCF 5500SL	
Spindle	12000 r/min	Direct connection	18.5/11 kW	●	●	●
	Spindle cooling system (Oilcooler)		12000 r/min	Direct connection	●	●
Magazine	Tool storage capacity	35 ea	30	●	●	●
Tool shank type	ISO #40	BIG PLUS BT40	●	●	●	
		BIG PLUS CAT40	○	○	○	
		BIG PLUS DIN40	○	○	○	
Coolant	FLOOD	0.45 MPa (1.1 kW)	●	●	●	
	TSC (Top COVER is recommended for 'VCF 5500L' models when selecting the TSC option.)	2.0 Mpa(1.5/4.0kW)	○	○	○	
		7.0 Mpa(5.5kW)	○	○	○	
	Flushing (PUMP MOTOR POWER/ MAX PRESSURE)		●	●	●	
			(0.15MPa/ 1.1kW)	(2.5MPa/ 0.32kW)	(2.5MPa/ 0.32kW)	
	Oil Skimmer	Belt type	○	○	○	
	MQL		○	○	○	
Chip disposal	Chip conveyor	Hinged type (Right)	○	○	○	
		Magnetic scraper type (Right)	○	○	○	
	Chip bucket	○	○	○		
	Air blower	○	○	○		
	Air gun	○	○	○		
	Coolant gun	○	○	○		
	Mist collector	○	○	○		
	Top cover (VCF 5500L only, The full cover is the standard for the 'VCF 5500UL' model.)		○	—	—	
Precision machining option	Linear scale	X axis	○	●	●	
		Y / Z axis	○	○	○	
	AICC II (200 block)	●	●	●		
	AICC II (400 block)	○*1)	○*1)	○*1)		
Measurement & automation	Automatic tool measurement	TS27R	○	○	○	
	Automatic tool breakage detection		○	○	○	
	Automatic workpiece measurement	RMP 60	○	○	○	
	Automatic front door		○	○	○	
Others	LED work light		●	●	●	
	Signal tower		●	●	●	
	4th axis auxiliary device interface		○	○	○	
	Tool load monitoring		●	●	●	
	EZ guide i (Conversational programming solution)		●*2)	●*2)	●*2)	
	iHMI with machining cycle		○*3)	○*3)	○*3)	
	Automatic power off		○	○	○	
	4TH AXIS PREPARATION CABLING FOR SERVO/1-PNEUMATIC PIPING	FACTORY READY MADE	○	○	○	
PARTITION FOR PENDULUM MACHINING MODE		○	○	○		
Customized special option	DRUM CHIPCONVEYOR	HINGE TYPE	○	○	○	
		SCRAPER TYPE	○	○	○	
	SMART THERMAL CONTROL	SENSOR TYPE (ONLY SPINDLE)	○	○	○	

* Please contact DOOSAN to select detailed steady rest specifications.

* 1) AICC2 (400block) of OiMF must be changed to High Speed Main board. Ask R&D center for information

* 2) Only with 15" LCD standard * 3) Only with 15" Touch LCD standard

* 4) VCF 5500L only, The full cover is the standard for the 'VCF 5500UL' model

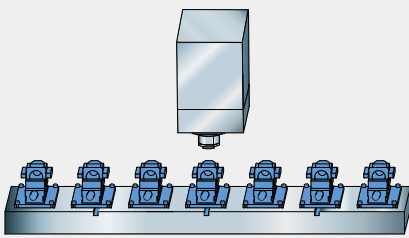
 **Fire Safety Precautions** | There is a high risk of fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting the controlled and careful use of coolants and modifying the machine without the consent of the manufacturer. Always check the SAFETY GUIDELINES carefully before using the machine.

APPLICATIONS

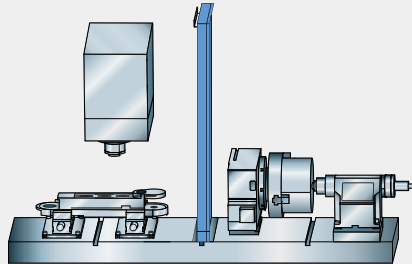
Whatever the application the VCF series is flexible enough to deliver the optimum machining solution.

VCF 5500L/UL/SL

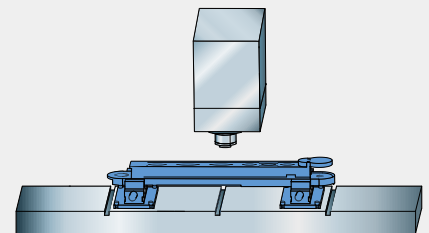
Various configurations are available to meet customers' different application requirements: all are designed to deliver the highest levels of productivity.



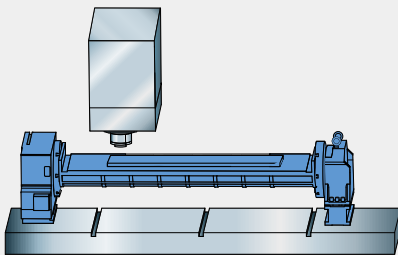
Small items, mass production



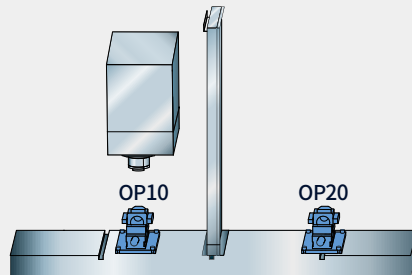
Multi-functional use of table with center partitioning



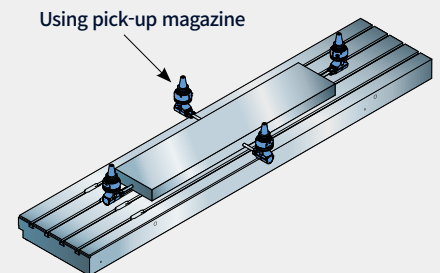
Long workpiece machining



4-axis rotary table and long workpiece



Eliminate operator loading time through use of the center partition



4-side machining using angled head

** Please contact DN Solutions for more details.*

PERIPHERAL EQUIPMENT

Top cover (for VCF 5500L Only **option**)

The top cover protects against coolant and chip ingress, and is recommended when using TSC.



DN SOLUTIONS FANUC i PLUS

DN Solutions Fanuc i Plus is optimized for maximizing customer productivity and convenience.

15" Screen + New OP

DN Solutions Fanuc i Plus' operation panel enhances operating convenience by incorporating common-design buttons and layout. It features a Qwerty keyboard for fast and easy data input and operation.

DN Solutions Fanuc i Plus

- 15-inch color display
- Intuitive and user-friendly design

USB and PCMCIA card QWERTY Keyboard

- EZ-guide i standard
- Ergonomic operator panel
- 2MB Memory
- Hot keys



iHMI touchscreen option

iHMI provides an intuitive interface that uses a touchscreen for quick and easy operation.

Range of applications

Providing various applications related to planning, machining, improvement and utility, for customer convenience.

NUMERIC CONTROL SPECIFICATIONS

FANUC

Item		Specifications	DN Solutions Fanuc i (0i Plus) VCF5500 L / SL / UL
Controlled axis	Controlled axes		3 (X,Y,Z)
	Simultaneously controlled axes		4 axes
Data input/output	Additional controlled Axis	Add 1 Axis (5th Axis)	●
	Fast data server		○
	Memory card input/output		●
	USB memory input/output		●
	Large capacity memory(2GB)*2	Available Option only with 15" Touch LCD (iHMI Only) *2)	○
Interface function	Embedded Ethernet		●
	Fast Ethernet		○
	Enhanced Embedded Ethernet function		●
Operation	DNC operation	Included in RS232C interface.	●
	DNC operation with memory card		●
Program input	Workpiece coordinate system	G52 - G59	●
	Addition of workpiece coordinate system	G54.1 P1 X 48 (48 pairs)	●
	Tool number command		T4 digits
	Tilted working plane indexing command	G68.2 TWP	X
Feed function	AI contour control I	G5.1 Q_, 40 Blocks	X
	AI contour control II	G5.1 Q_, 200 Blocks	●
	AI contour control II	G5.1 Q_, 600 Blocks	X
	AI contour control II	G5.1 Q_, 1000 Blocks *1)	X
	High smooth TCP		X
Operation guidance function	EZ Guidei (Conversational Programming Solution)		●
	iHMI with Machining Cycle	Only with 15" Touch LCD standard *2)	X
	EZ Operation package		●
Setting and display	CNC screen dual display function		●
	FANUC MTConnect		⊕
Network	FANUC OPC UA		⊕
	Others	Display unit	10.4" color LCD
15" color LCD			X
15" color LCD with Touch Panel		●	
640M(256KB)_500 programs		X	
1280M(512KB)_1000 programs		X	
2560M(1MB)_1000 programs		X	
5120M(2MB)_1000 programs		●	
Part program storage size & Number of registerable programs		10240M(4MB)_1000 programs	X
		20480M(8MB)_1000 programs	X
		2560M(1MB)_2000 programs	X
		5120M(2MB)_4000 programs	X
		10240M(4MB)_4000 programs	X
		20480M(8MB)_4000 programs	X

*1) The number of look-ahead blocks may be changed or limited depending on the peripheral device or the configuration of the internal NC system.

*2) Available Option only with Fanuc i plus iHMI

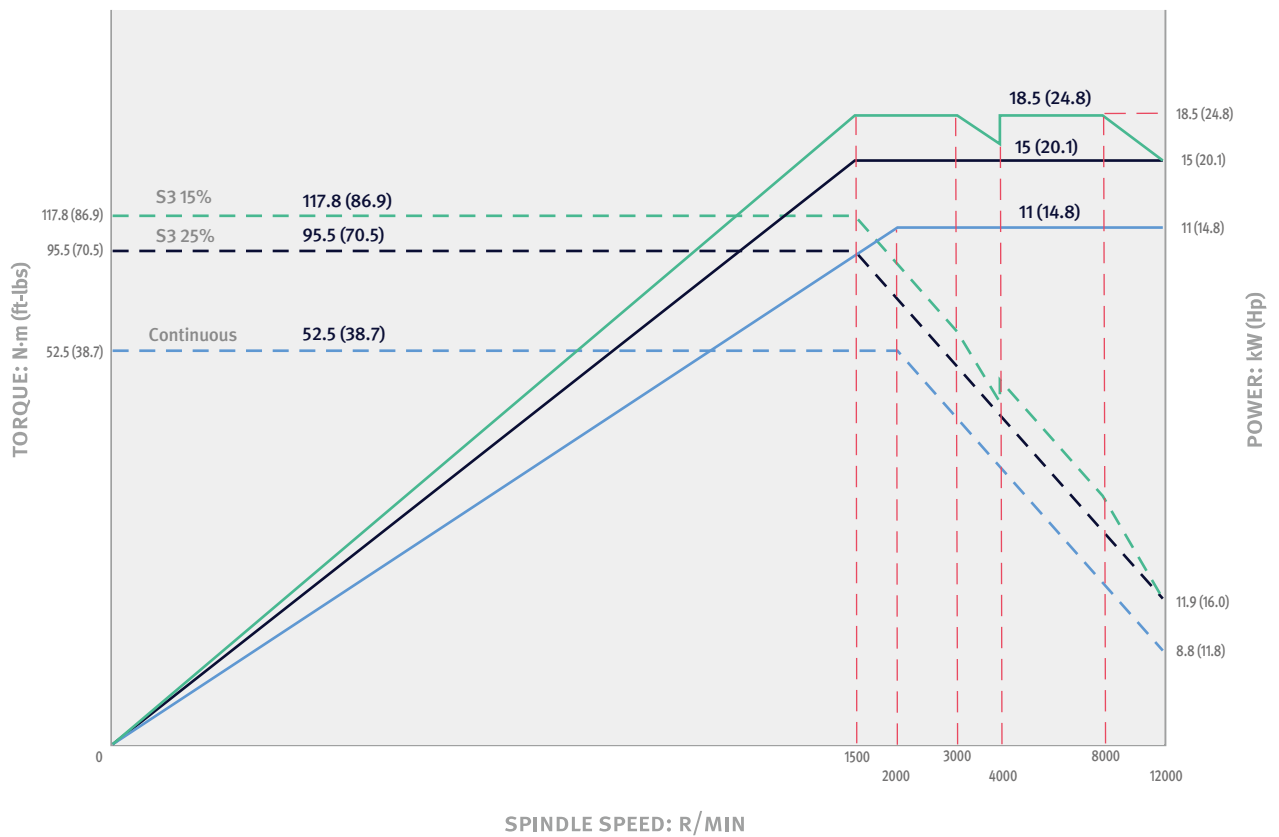
POWER | TORQUE

VCF 5500L/UL/SL

SPEED: **12000** r/min

POWER: **18.5/11** kW
24.8/14.8 hp

TORQUE: **117.8** N·m
86.9 ft-lbs

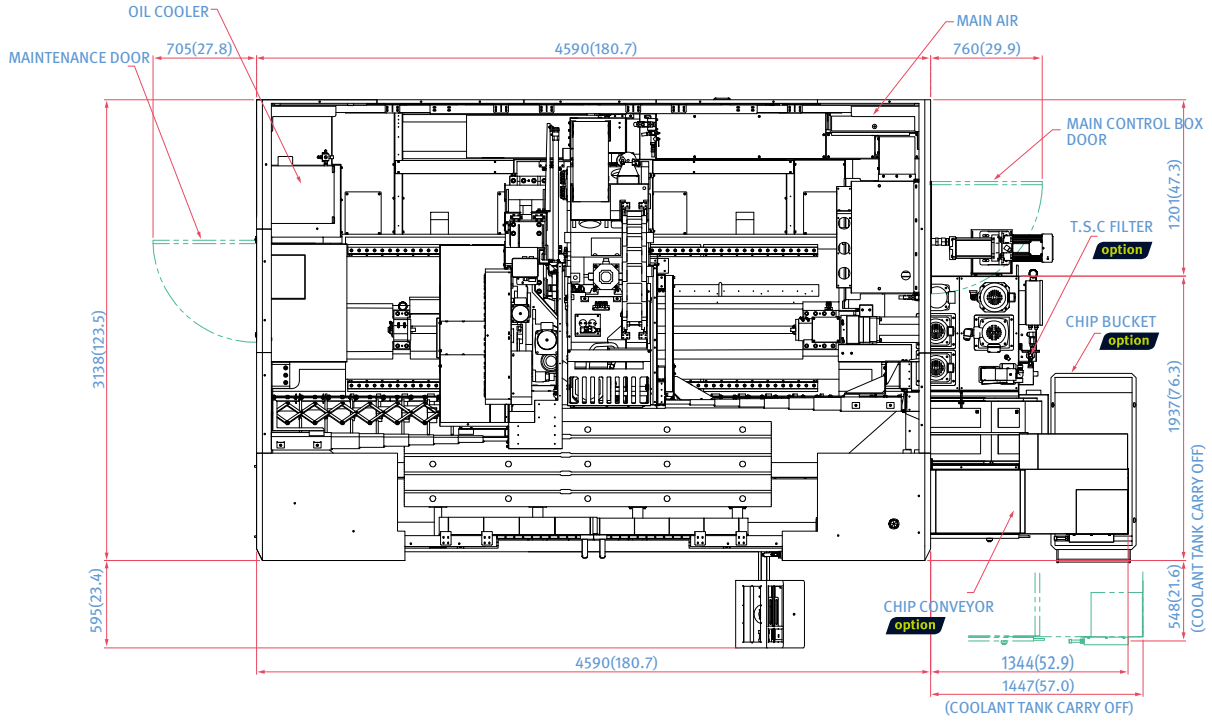


DIMENSIONS

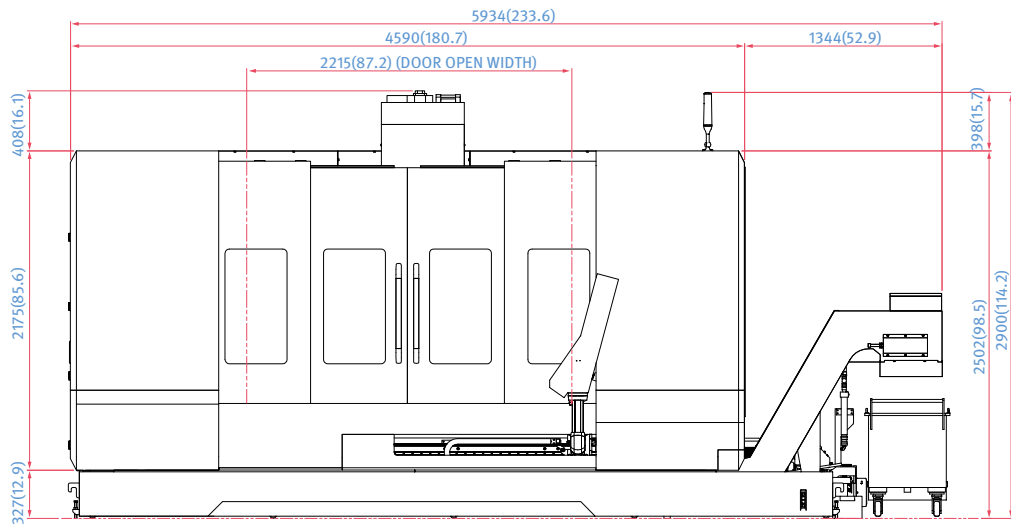
VCF 5500L

Units : mm (inch)

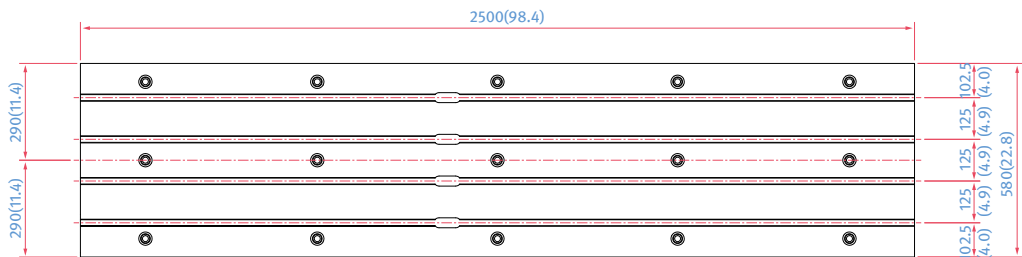
TOP VIEW



FRONT VIEW



TABLE



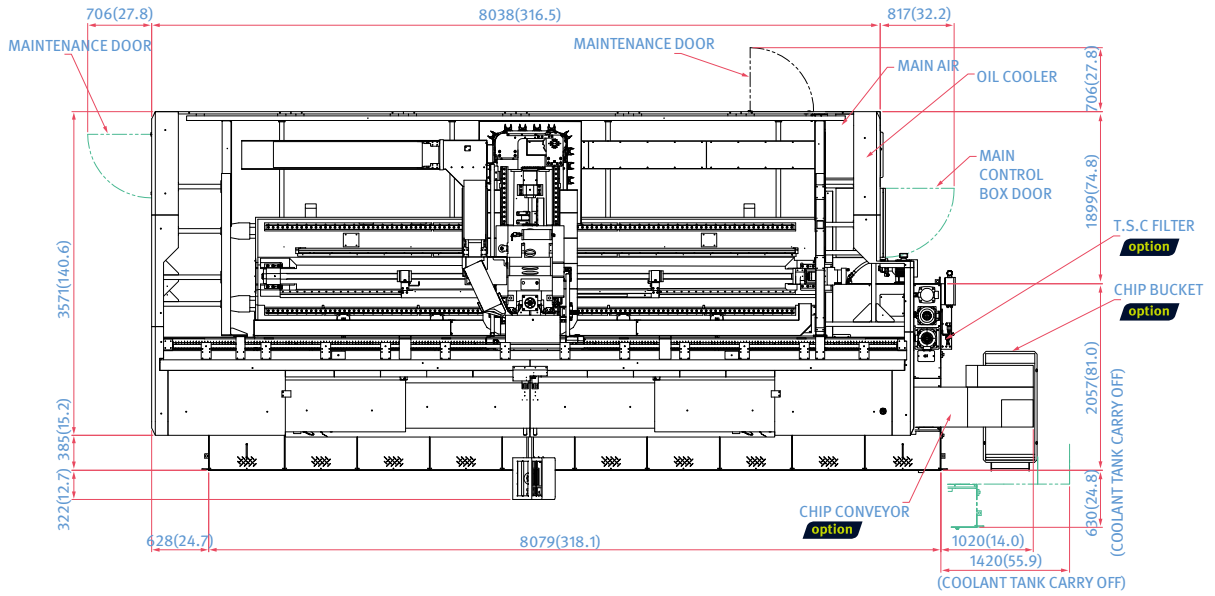
* Some peripheral equipment can be placed in other places

DIMENSIONS

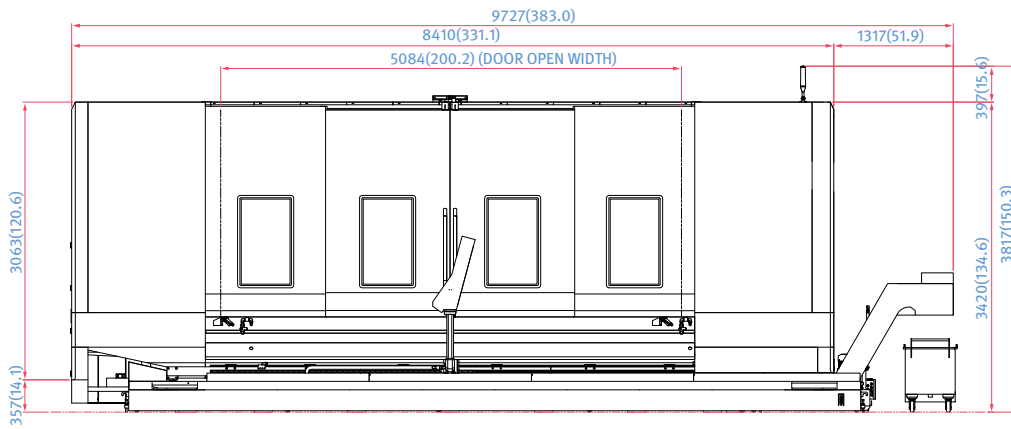
VCF 5500UL

Units : mm (inch)

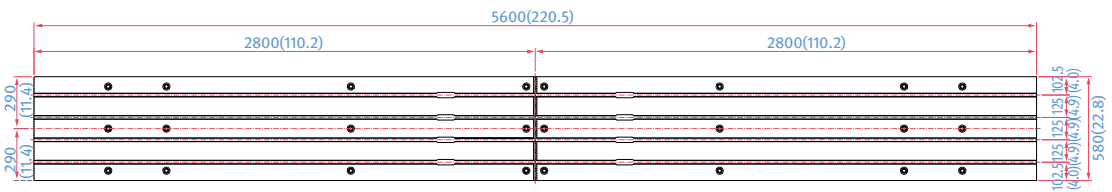
TOP VIEW



FRONT VIEW



TABLE

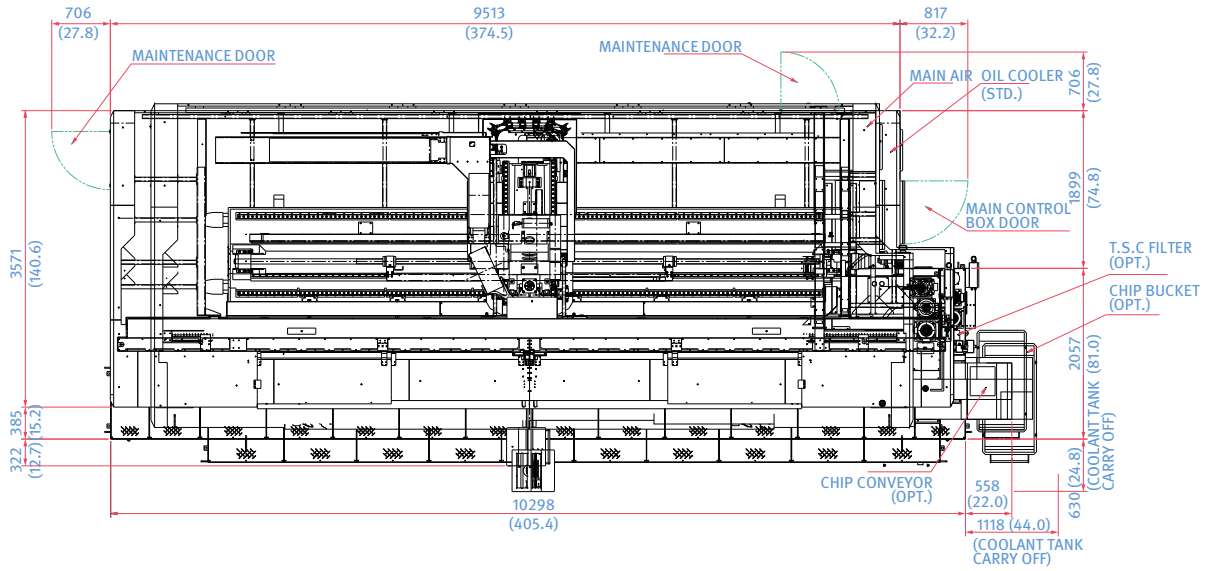


DIMENSIONS

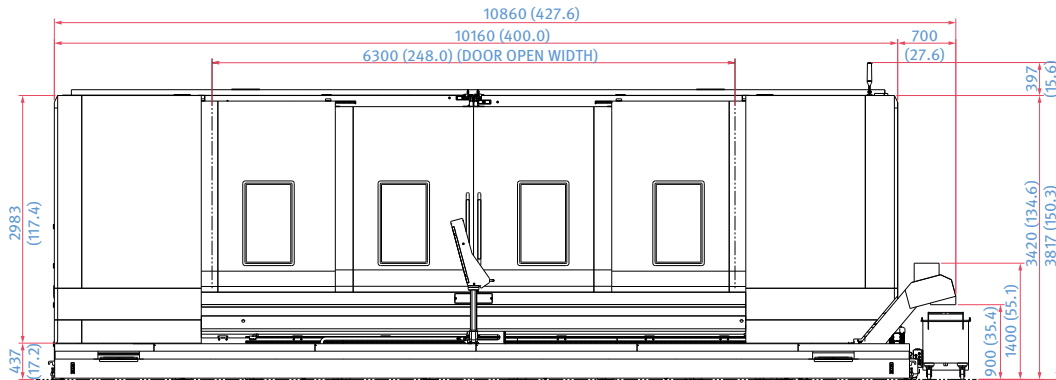
VCF 5500SL

Units : mm (inch)

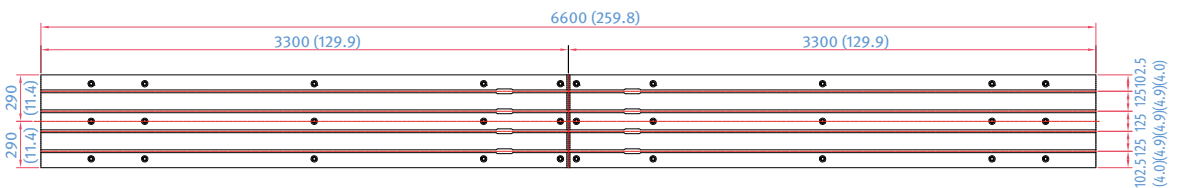
TOP VIEW



FRONT VIEW



TABLE



* Some peripheral equipment can be placed in other places

MACHINE SPECIFICATIONS

VCF 5500 series

Description		Unit	VCF 5500L	VCF 5500UL	VCF 5500SL	
Travels	Travel distance	X axis	mm (inch)	2200 (86.6)	5000 (196.9)	6200 (244.1)
		Y axis	mm (inch)	550 (21.7)		
		Z axis	mm (inch)	510 (20.1)	570 (22.4)	
	Distance from table top to spindle nose	mm (inch)	150~660(5.9~26.0)	140~710(5.5~28.0)		
Table	Table size	mm (inch)	2500 x 580 (98.4 x 22.8)	5600 x 580 (220.5 x 22.8)	6600 x 580 (259.8 x 22.8)	
	Table loading capacity	kg (lb)	2000 (4409.2)	6000 (13227.5)	7500 (16534.4)	
	Table surface type	mm (inch)	T-SLOT (4-125x18H8)			
Spindle	Max. spindle speed	r/min	12000			
	Taper	-	ISO #40			
	Max. spindle power	kW (Hp)	18.5/11 (24.8/14.8)			
	Max. spindle torque	N·m (lbf-ft)	117.8 (86.9)			
Feedrates	Rapid traverse rate	X axis	m/min (ipm)	42 (1653.5)	30 (1181.1)	20 (787.4)
		Y axis	m/min (ipm)	42 (1653.5)	36 (1417.3)	
		Z axis	m/min (ipm)	42 (1653.5)	46 (1811.0)	
Automatic tool changer	Type of tool shank	Tool shank	-	BT 40 {CAT40/DIN40}*		
		Pull stud	-	PS806		
	Tool storage capa.	ea	30 {40, 60}	35		
	Max. tool diameter	Continous	mm (inch)	80{76} (3.1{3.0})	140 (5.5)	
		Without adjacent Tools	mm (inch)	125 (4.9)		
	Max. tool length	mm (inch)	300 (11.8)			
	Max. tool weight	kg (lb)	8 (17.6)			
	Tool selection	-	RANDOM ADDRESS	FIXED ADDRESS		
	Tool change time (Tool-to-tool)	sec	1.3	5.5		
	Tool change time (Chip-to-chip)	sec	4.5	14.0		
Power source	Electric power supply(rated capacity)	kVA	46.3	44.3		
	Compressed air supply	MPa (psi)	0.54 (78.3)			
Tank capacity	Coolant tank capacity	L (gal)	480 (126.8)	1300 (343.5)	1600 (422.7)	
Machine dimensions	Height	mm (inch)	2950 (116.1)	3420 (134.6)	3420 (134.6)	
	Length	mm (inch)	4590 (180.7)	3571 (140.6)	3571 (140.6)	
	Width	mm (inch)	3138 (123.5) {3538 (139.3) with 60T ATC}*	8410 (331.1)	10160 (400.0)	
	Weight	kg (lb)	12000 (26455.1)	23000 (50705.6)	26000 (57319.3)	
Control	NC system	-	DN Solutions Fanuc i Plus			

*{ } : Option

RESPONDING TO CUSTOMERS ANYTIME, ANYWHERE

DN Solutions Global Network

DN Solutions provides systems-based professional support services, before and after the machine tool sale, by responding quickly and efficiently to customers. By supplying spare parts, product training, field service and technical support, we provide the expert care, attention and assistance our customers expect from a market leader.

Global sales and service support network		51	Technical centers Technical center, Sales support, Service support, Parts support
4	Corporations	200	Service posts
156	Dealer networks	3	Factories



CUSTOMER SUPPORT AND SERVICES

We're there for you whenever you need us.

We help our customers operate at maximum efficiency by providing them with a range of tried, tested and trusted services - from pre-sales consultancy to post-sales support.



Field services

- On-site service
- Machine installation and testing
- Scheduled preventive maintenance
- Machine repair service



Parts supply

- Supplying a wide range of original DN Solutions spare parts
- Parts repair service



Training

- Programming, machine setup and operation
- Electrical and mechanical maintenance
- Applications engineering



Technical support

- Supports machining methods and technology
- Responds to technical queries
- Provides technical consultancy



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* For more details, please contact DN Solutions.

* Specifications and information contained within this catalogue may be changed without prior notice.