



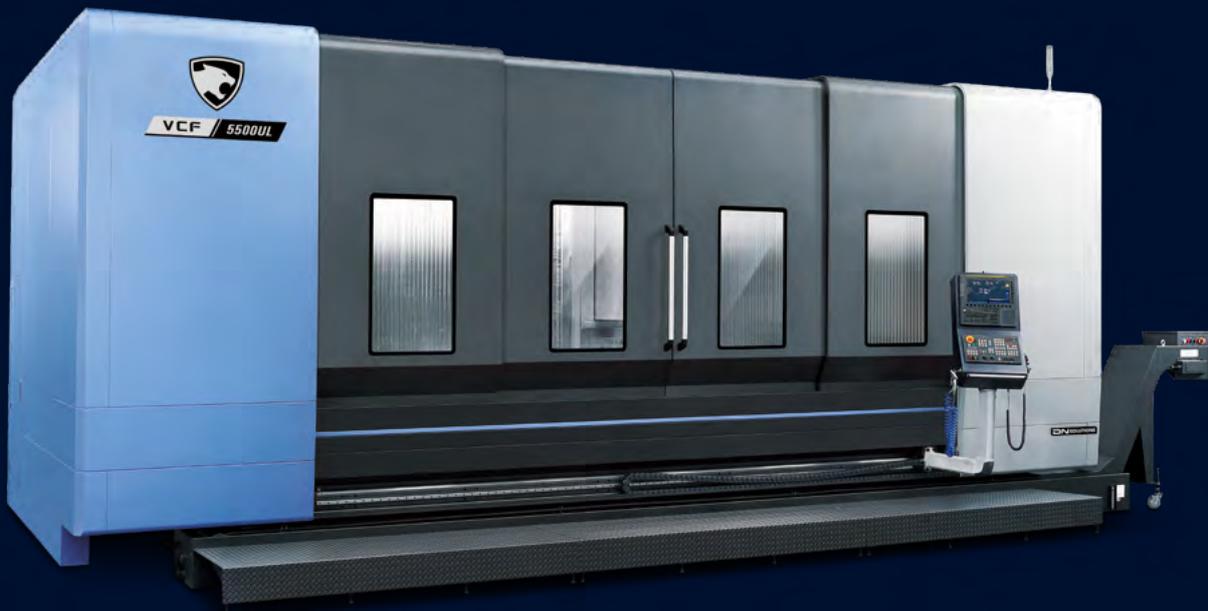
MULTI-PURPOSE  
VERTICAL MACHINING CENTER

# VCF

5500L • 5500UL • 5500SL

# VCR

5500L



**DN** SOLUTIONS

# VCF 5500 SERIES • 5500L • 5500UL • 5500SL VCR 5500 SERIES • 5500L

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. VCR 5500L is a high-productivity column moving machine equipped with rotary tables for 2.2M length and is optimized for machining long-shaped parts such as EV(Electric Vehicle) frames and battery systems.



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.
- VCR 5500L with the rotary table guarantees smooth chip handling when machining high chip volume materials like AL die-casting.

### 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

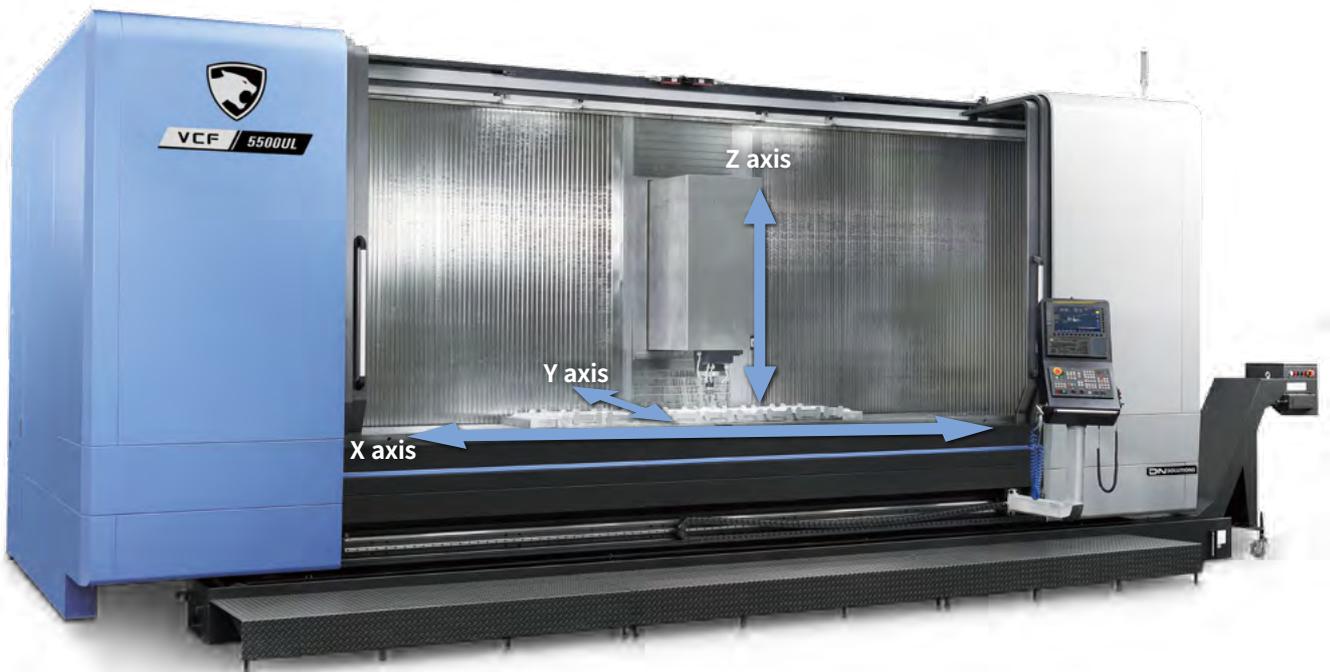
The moving-column, fixed table structure is suitable for machining narrow and long parts.

## Travel distance (X x Y x Z axis)

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

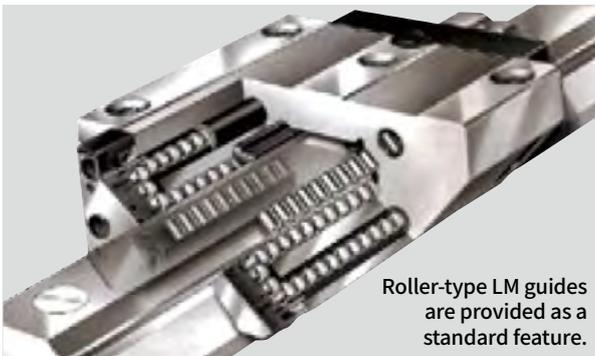
VCF 5500UL **5000 x 550 x 570** mm (196.9 X 21.7 X 22.4 inch)

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 VCR 5500L	<b>42/42/42</b>	1653.5/1653.5/1653.5 ipm
VCF 5500UL	<b>30/36/46</b>	1181.1/1417.3/1811.0 ipm
VCF 5500SL	<b>20/36/46</b>	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

VCF 5500L/UL/SL **12000** r/min

VCR 5500L **10000** r/min

## Max. spindle motor power

**18.5** kW

24.8 hp

## Max. spindle motor torque

**117.8** N.m

24.8 hp

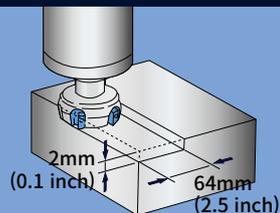


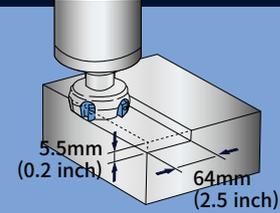
Dual contact as a standard

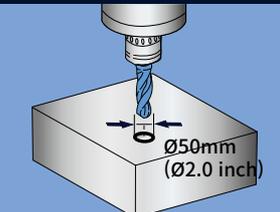
# CUTTING PERFORMANCE

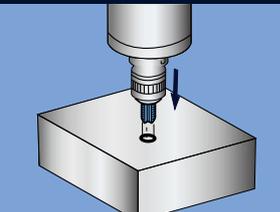
The VCF series delivers optimum cutting performance thanks to its rigid machine structure and spindle design.

**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 <sup>3</sup> /min (inch <sup>3</sup> /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 <sup>3</sup> /min (inch <sup>3</sup> /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 <sup>3</sup> /min (inch <sup>3</sup> /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)	

\* The results are provided as examples only. Different cutting and environmental conditions may well deliver different results.

# 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



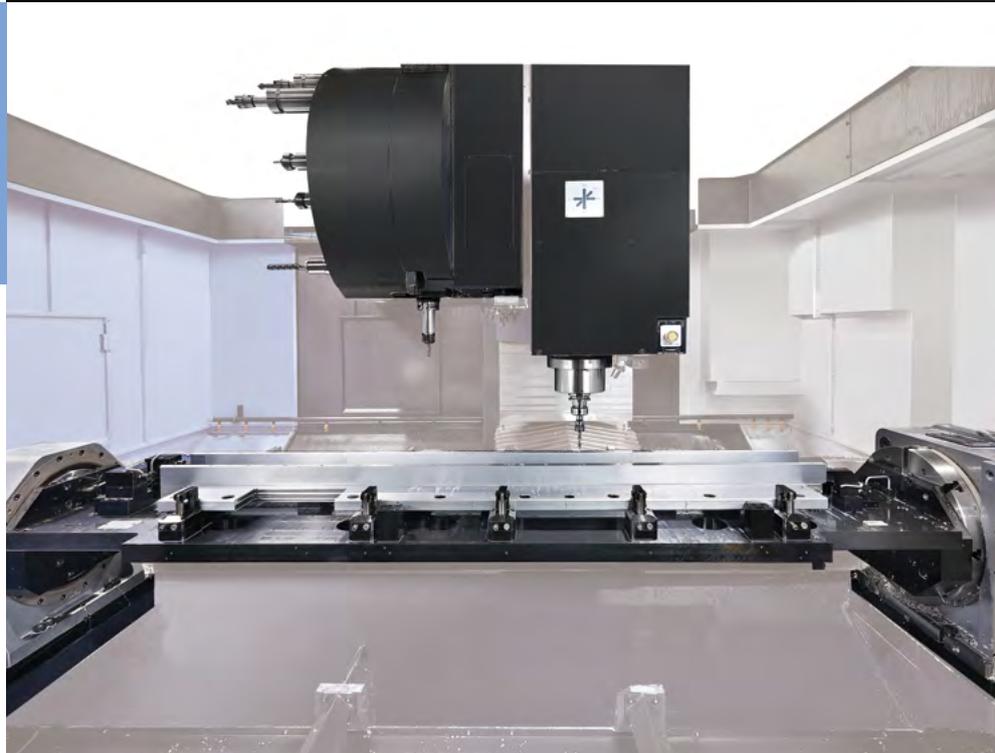
VCR 5500L has a structure exclusively for mounting a rotary table, which guarantees increased machining flexibility and smooth chip disposal.

## Max. weight on table

VCR 5500L **500** kg (1102.3 lb)

## Table size

VCR 5500L **2200 x Ø600** mm  
86.6 x 23.6 inch



# AUTOMATIC TOOL CHANGER

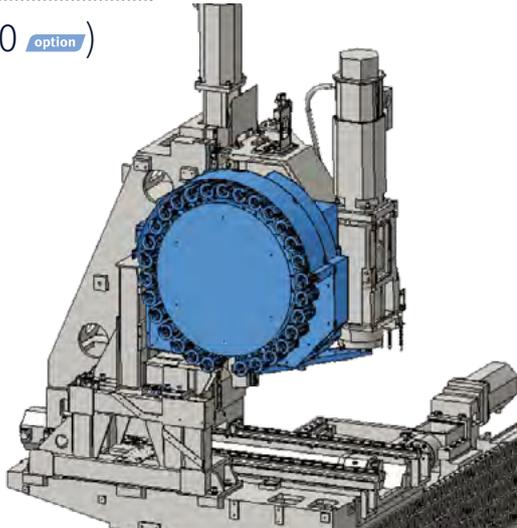
The servo-driven ATC provides high reliability and accuracy.

## 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.

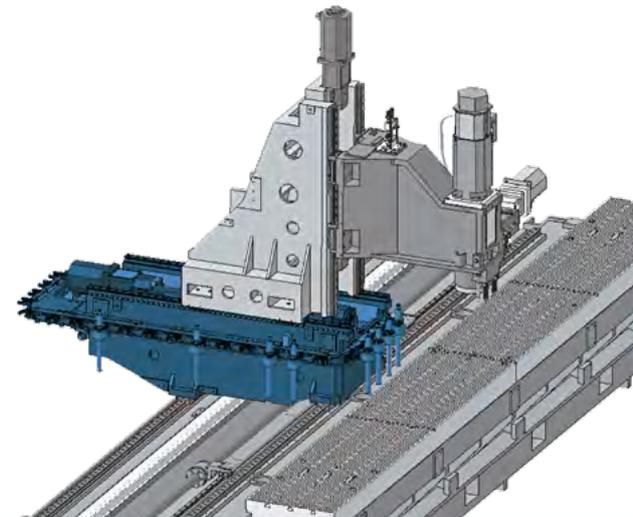


## VCF 5500UL/SL

**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)

## VCR 5500L

**Tool selection :** RANDOM ADDRESS

**Tool storage capacity**

**20** ea

**Tool change time**

T-T-T(Tool to Tool time)

**1.3** S

C-T-C(Chip to Chip time)

**3.5** S



# STANDARD | OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.

Description	Features		VCF 5500L	VCF 5500UL	VCF 5500SL	VCR 5500L
Spindle	12000 r/min, Direct		●	●	●	X
	10000 r/min, Direct		X	X	X	●
Spindle cooling system (Oilcooler)	Apply		●	●	●	X
	not apply		X	X	X	●
Tool storage capacity	20 ea		X	X	X	●
	30 ea		●	X	X	X
	35 ea		X	●	●	X
	40 ea		○	X	X	X
	60 ea		○	X	X	X
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(1.5/4.0 kW)	○	○	○	○
		7.0 Mpa(5.5kW)	○	○	○	○
	Flushing (PUMP MOTOR POWER/ MAX PRESSURE)		● (0.15MPa/ 1.1kW)	● (2.5MPa/ 0.32kW)	● (2.5MPa/ 0.32kW)	● (0.15MPa/ 1.1kW)
	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*4)		○	—	—	○
Precision machining option	Linear scale	X axis	○	●	●	○
		Y / Z axis	○	○	○	○
	AICC II (200 block)		●	●	●	●
AICC II (400 block)		○*1)	○*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)	●*2)
	iHMI with machining cycle		○*3)	○*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 DN Solutions for detailed specification information.

● Standard ○ Optional X Not applicable

\*When using a semi-synthetic type or synthetic type, contact our sales representative or service center in advance.

\*1) AICC2 (400block) of 0iMF 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

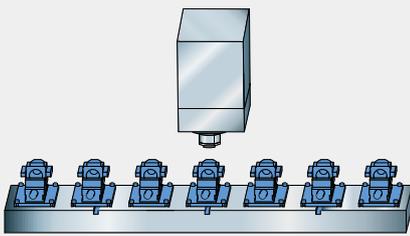
\*4) VCF 5500L only, The full cover is the standard for the 'VCF 5500UL' model

# APPLICATIONS

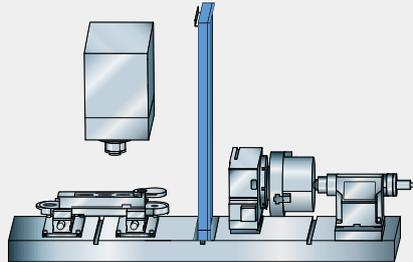
Whatever the application the VCF series is flexible enough to deliver the optimum machining solution.

## VCF 5500L/UL/SL

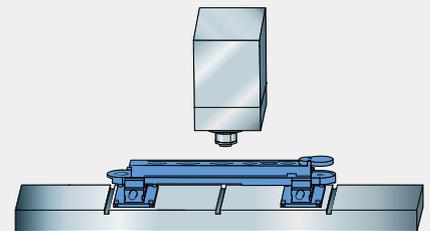
Various configurations are available to meet customers' different application requirements: all are designed to deliver the highest levels of productivity.



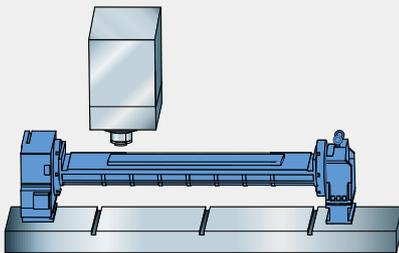
Small items, mass production



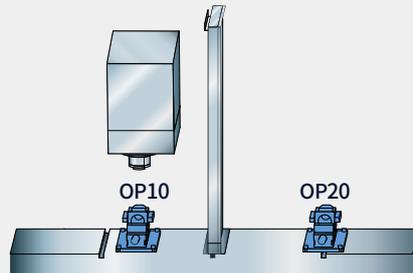
Multi-functional use of table with center partitioning



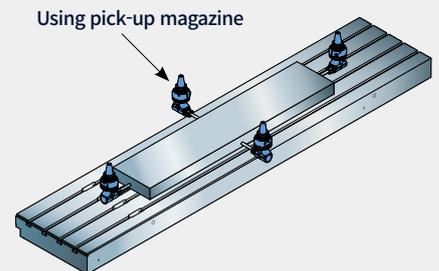
Long workpiece machining



4-axis rotary table and long workpiece



Eliminate operator loading time through use of the center partition



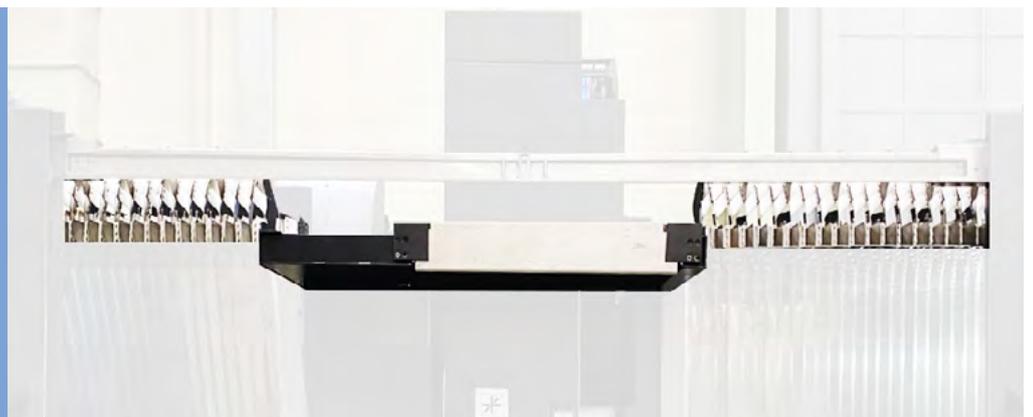
4-side machining using angled head

*\* 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 Work 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)
		VCF 5500L/UL/SL, VCR 5500L
Controlled axis	Controlled axes	3 (X,Y,Z)
	Simultaneously controlled axes	4 axes
Data input/output	Additional controlled Axis	●
	Fast data server	○
	Memory card input/output	●
	USB memory input/output	●
	Large capacity memory(2GB)*2	○
Interface function	Embedded Ethernet	●
	Fast Ethernet	○
	Enhanced Embedded Ethernet function	●
Operation	DNC operation	●
	DNC operation with memory card	●
Program input	Workpiece coordinate system	●
	Addition of workpiece coordinate system	●
	Tool number command	●
	Tilted working plane indexing command	T4 digits
Feed function	AI contour control I	X
	AI contour control II	●
	AI contour control II	X
	AI contour control II	X
	High smooth TCP	X
Operation guidance function	EZ Guidei (Conversational Programming Solution)	●
	iHMI with Machining Cycle	X
	EZ Operation package	●
Setting and display	CNC screen dual display function	●
	FANUC MTConnect	⊕
Network	FANUC OPC UA	⊕
	Others	10.4" color LCD
Display unit		X
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		X
10240M(4MB)_1000 programs		●
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

● Standard ○ Optional X N/A ⊕ Available  
Network: FANUC MT Connect and FANUC OPC UA available.

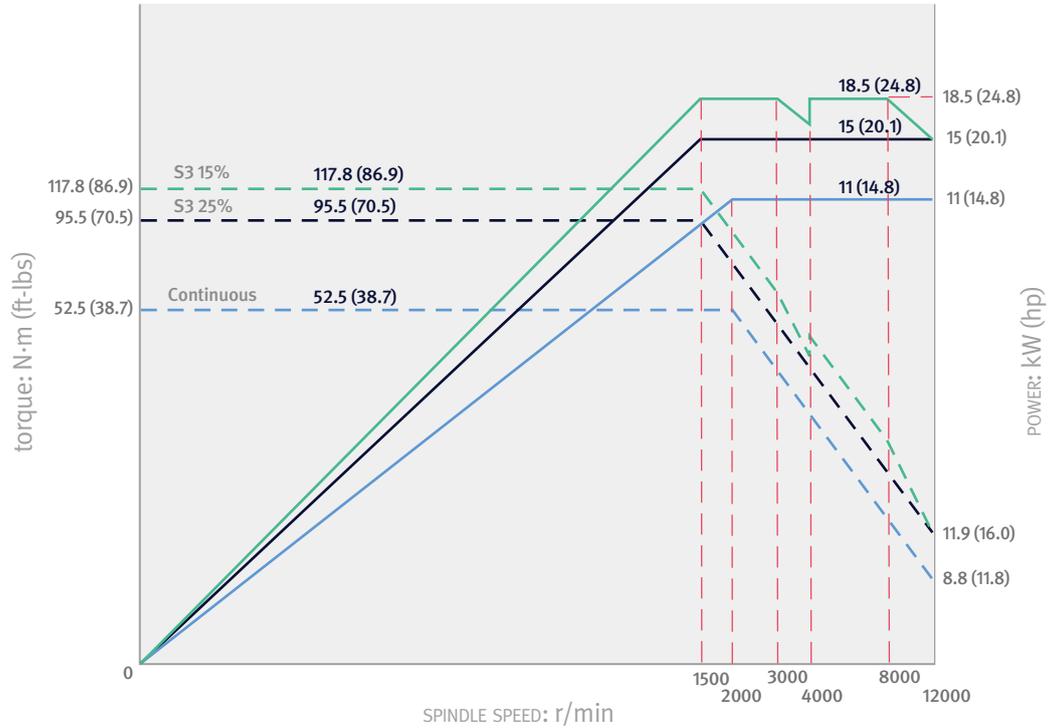
# POWER | TORQUE

## 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

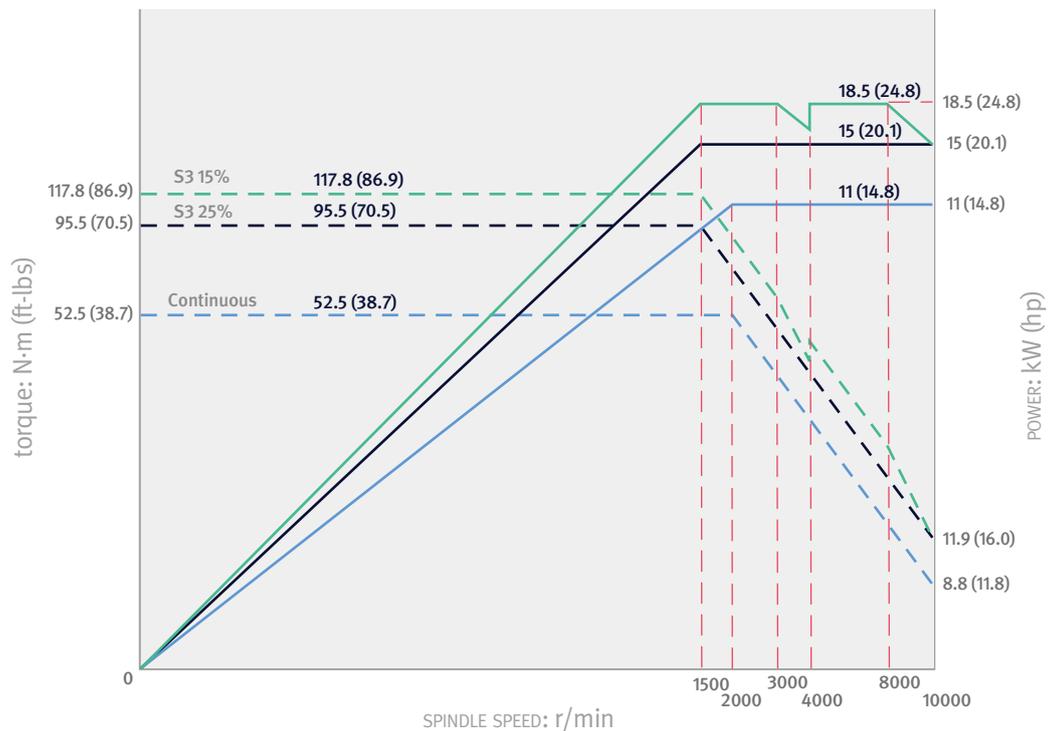


## VCR 5500L

SPEED: **10000** r/min

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

TORQUE: **117.8** N·m  
86.9 ft-lbs

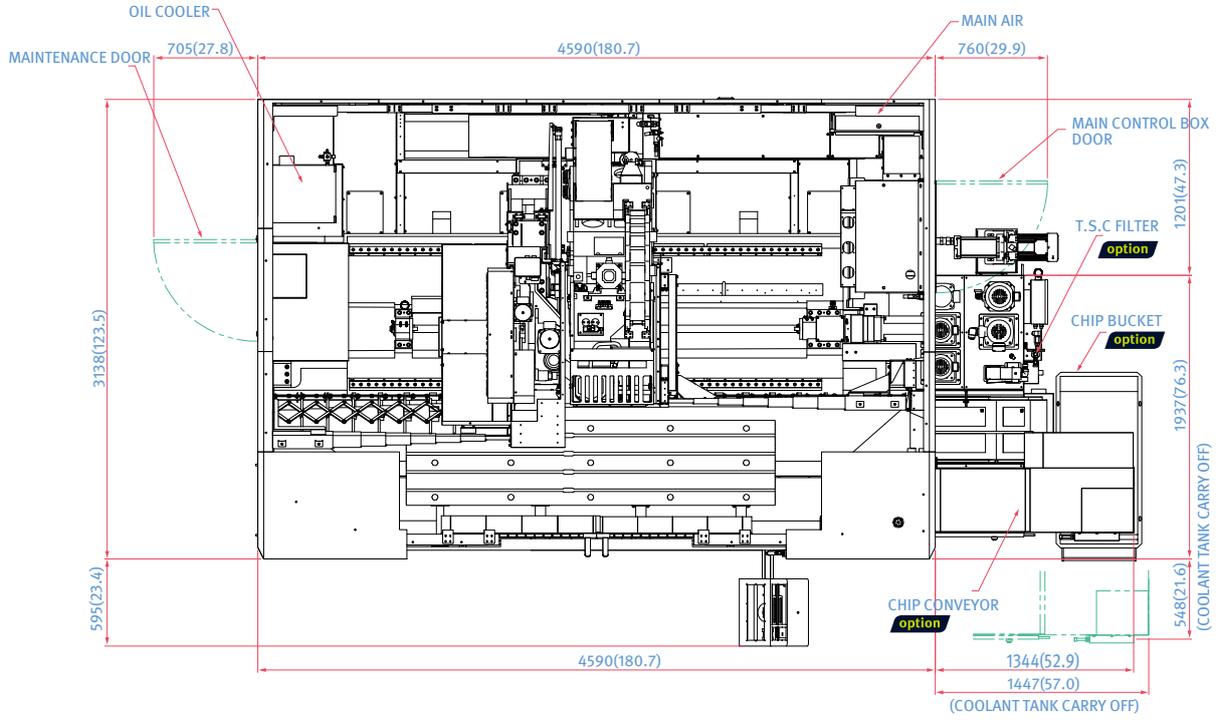


# DIMENSIONS

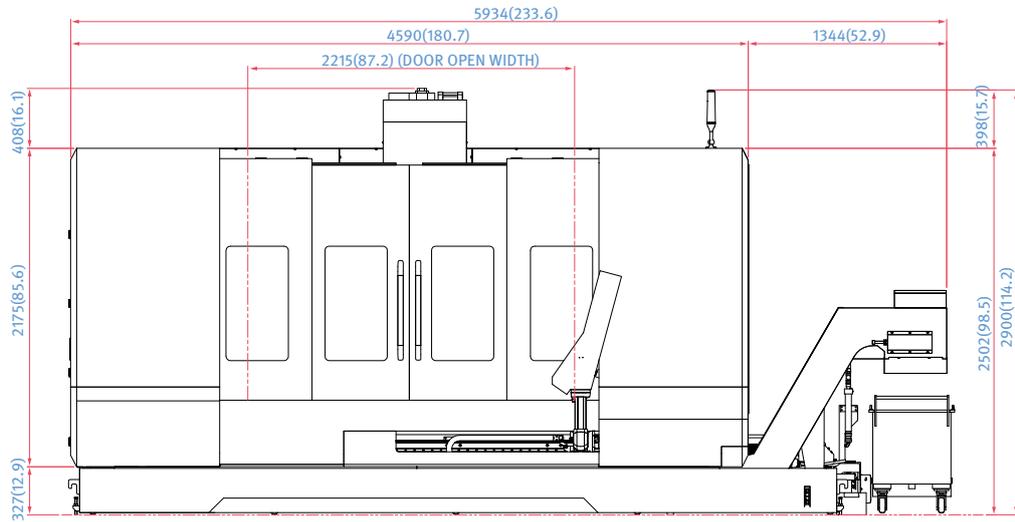
## VCF 5500L

Units : mm (inch)

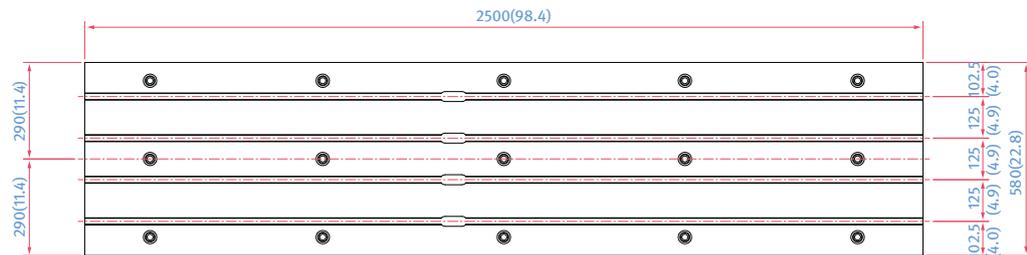
### TOP VIEW



### FRONT VIEW



### TABLE



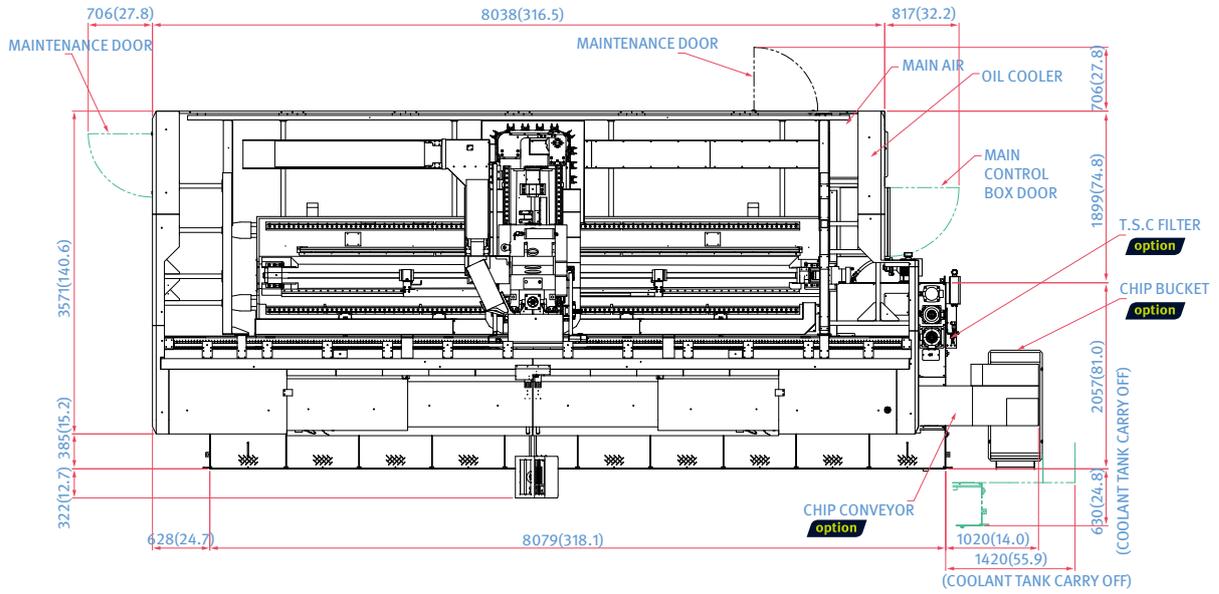
\* Some peripheral equipment can be placed in other places

# DIMENSIONS

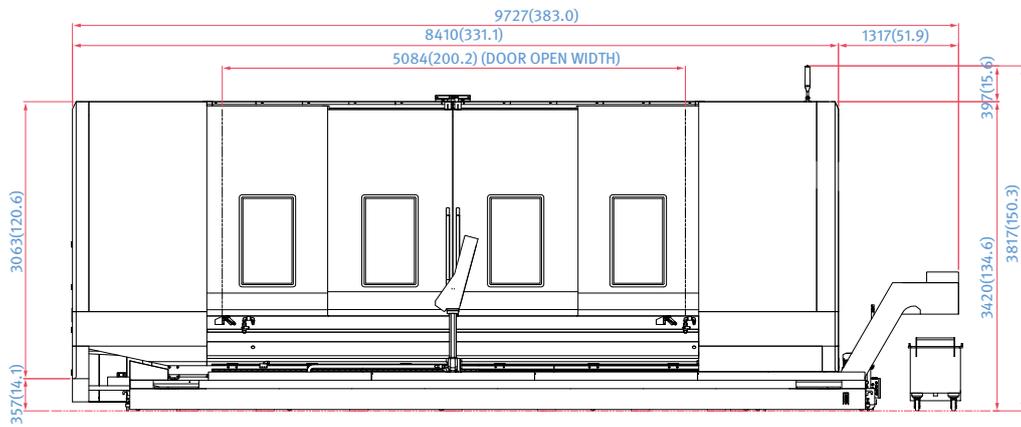
## VCF 5500UL

Units : mm (inch)

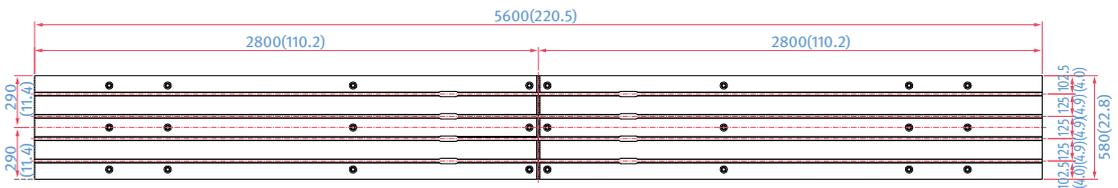
### TOP VIEW



### FRONT VIEW



### TABLE



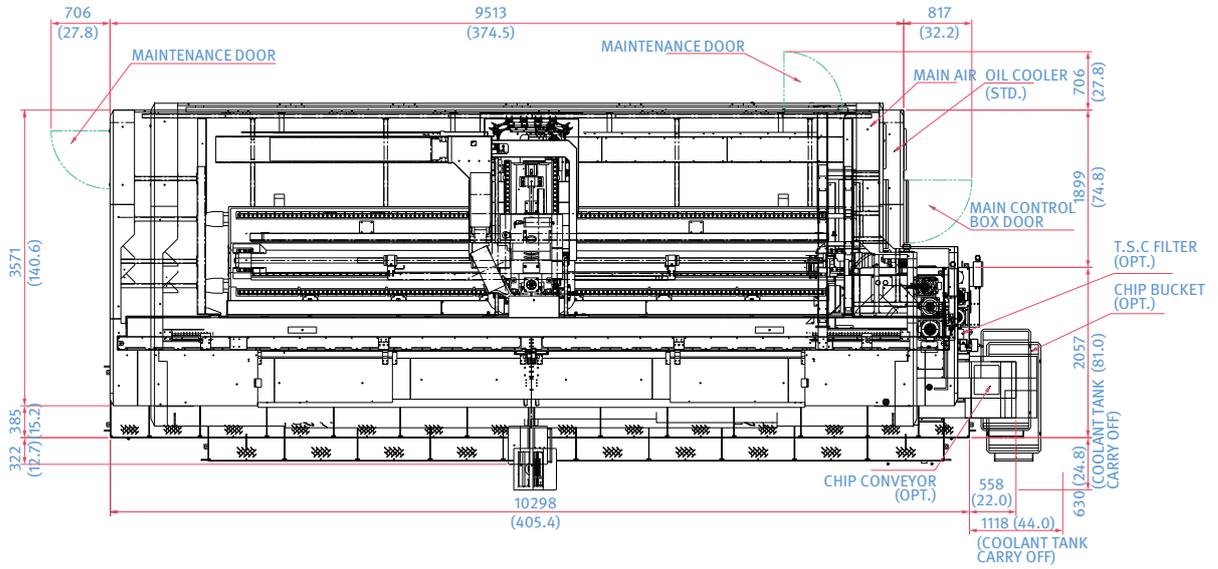
\* Some peripheral equipment can be placed in other places

# DIMENSIONS

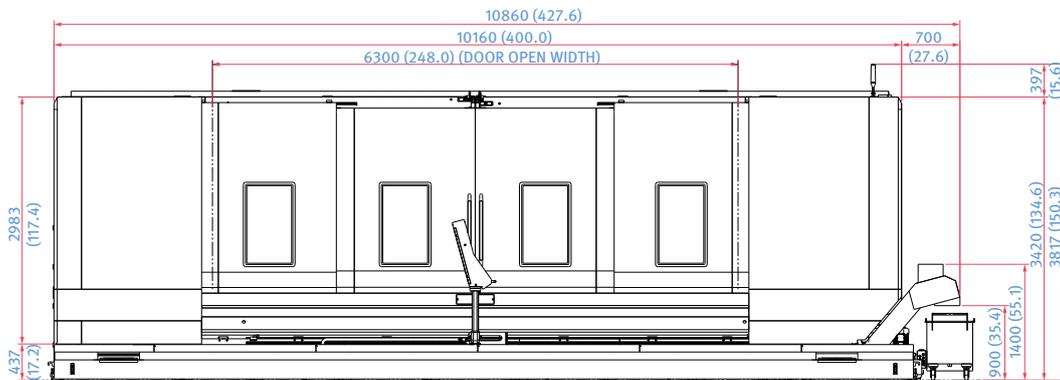
## VCF 5500SL

Units : mm (inch)

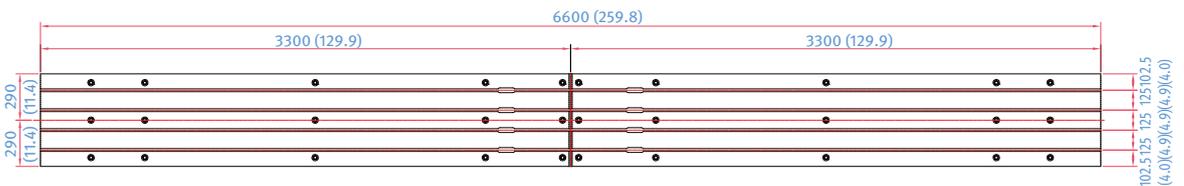
### TOP VIEW



### FRONT VIEW



### TABLE

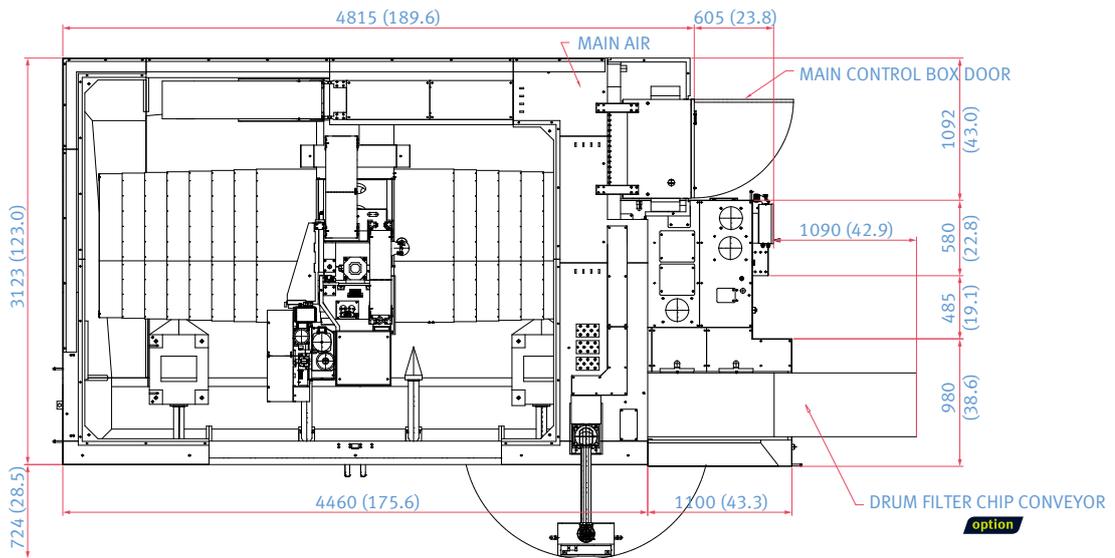


# DIMENSIONS

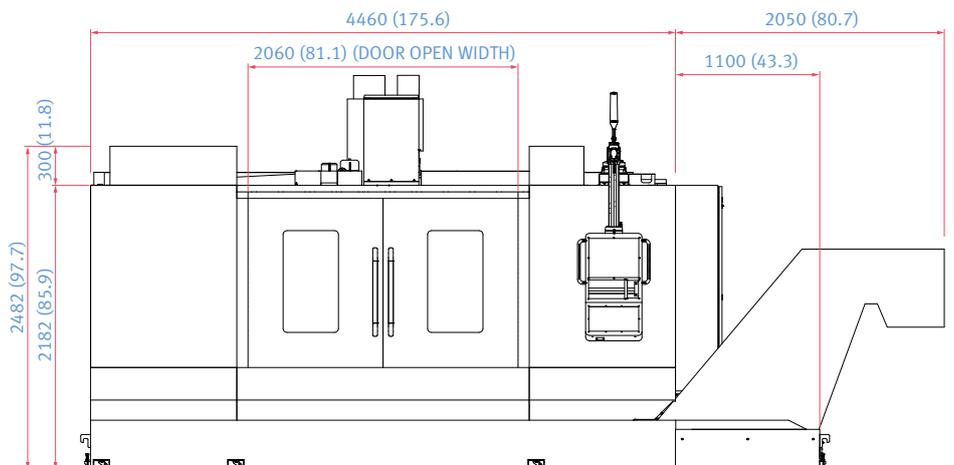
## VCR 5500L

Units : mm (inch)

TOP VIEW



FRONT VIEW



\* Some peripheral equipment can be placed in other places

# MACHINE SPECIFICATIONS

Description		Unit	VCF 5500L	VCF 5500UL	VCF 5500SL	VCR 5500L	
Travels	Travel distance	X axis	mm (inch)	2200	5000	6200	2200
		Y axis	mm (inch)	550			
		Z axis	mm (inch)	510	570	510	
	Distance from table top to spindle nose	mm (inch)	150~660	140~710	150~660		
Table	Table size	mm (inch)	2500 x 580	5600 x 580	6600 x 580	Rotary table (2200 x Ø600)	
	Table loading capacity	kg (lb)	2000	6000	7500	500	
	Table surface type	mm (inch)	T-SLOT (4-125x18H8)			-	
Spindle	Max. spindle speed	r/min	12000			10000	
	Taper	-	ISO #40				
	Max. spindle power	kW (Hp)	18.5/11				
	Max. spindle torque	N·m (lbf-ft)	117.8				
Feedrates	Rapid traverse rate	X axis	m/min (ipm)	42	30	20	42
		Y axis	m/min (ipm)	42	36	42	
		Z axis	m/min (ipm)	42	46	42	
Automatic tool changer	Type of tool shank	Tool shank	-	BT 40 {CAT40/DIN40}			
		Pull stud	-	PS806	PS806		
	Tool storage capa.	ea	30{40, 60}	35	20		
	Max. tool diameter	Continous	mm (inch)	80{76}	140	80	
		Without adjacent Tools	mm (inch)	125	125		
	Max. tool length	mm (inch)	300	300			
	Max. tool weight	kg (lb)	8	8			
	Tool selection	-	RANDOM ADDRESS	FIXED ADDRESS	RANDOM ADDRESS		
	Tool change time (Tool-to-tool)	sec	1.3	5.5	1.3		
	Tool change time (Chip-to-chip)	sec	4.5	14.0	3.5		
Power source	Electric power supply(rated capacity)	kVA	45	44.3	38.8		
	Compressed air supply	MPa (psi)	0.54				
Tank capacity	Coolant tank capacity	L (gal)	480	1300	1600	480	
Machine dimensions	Height	mm (inch)	2950	3420	3420	2875	
	Length	mm (inch)	4590	3571	3571	3123	
	Width	mm (inch)	3138 {3538 with 60T ATC}* 3138	8410	10160	4460	
	Weight	kg (lb)	12000	23000	26000	10000	
Control	NC system	-	DN Solutions Fanuc i Plus				

\*{ } : Option

# WHY DN SOLUTIONS

The DN Solutions promise, MACHINE GREATNESS, has two important meanings. The first is simple: DN Solutions makes great machines. The second is a challenge to our end-users. With a product line that is this comprehensive, accurate and reliable, we equip our customers to machine greatness. The big question: **Why should you choose DN Solutions over other options?**

Here's why...



**MACHINE  
GREATNESS™**



WHAT YOU MAKE AND HOW YOU MAKE IT MATTERS—SO MAKE IT  
GREAT WITH DN SOLUTIONS.

## UNBEATABLE MACHINES

You won't find a more comprehensive range or a better combination of value, performance and reliability anywhere else.

## ROBUST PRODUCT LINE

We offer an impressive range of machine models and hundreds of configurations. Whatever your machining needs and requirements, there's a DN Solutions for you.

## READILY AVAILABLE - ANYWHERE IN THE WORLD

Machining centres (including 5-axis machines), lathes, multi-tasking turning centres and mill-turn machines, and horizontal borers with best-in-class specifications are all available...ready to install.

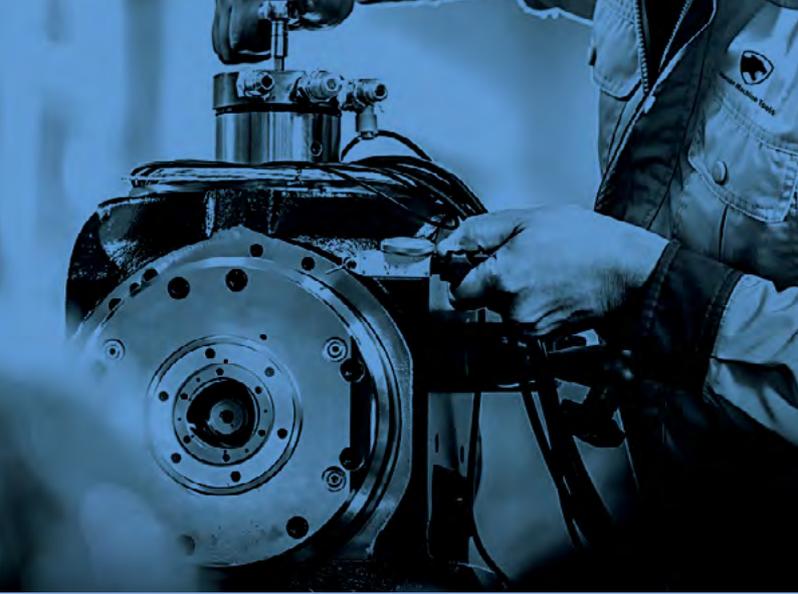
## EXPERT SERVICE

Our dedicated, experienced and knowledgeable team is totally committed to improving your productivity, growth and success.

# 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.



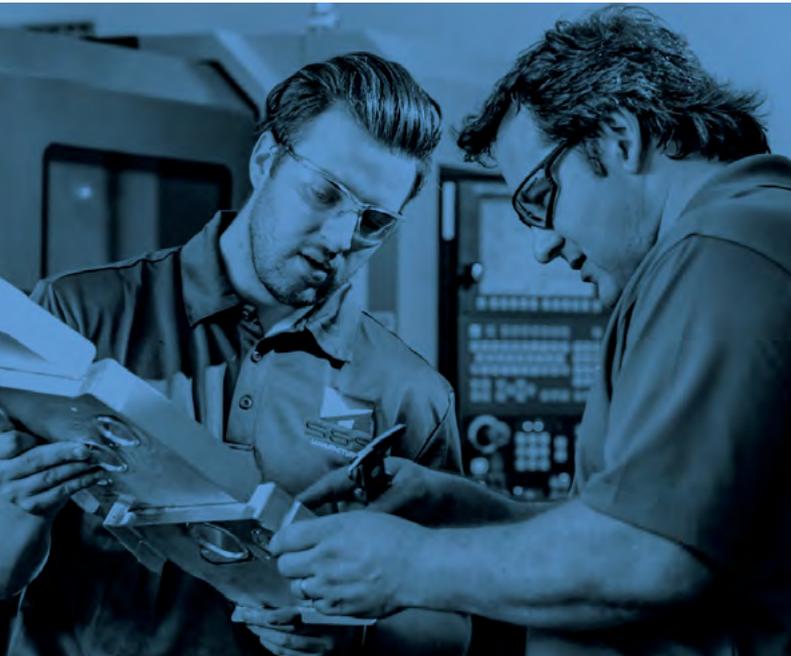
## FIELD SERVICES

- 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

# 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

<b>4</b>	<b>Corporations</b>
<b>155</b>	<b>Dealer networks</b>
<b>51</b>	<b>Technical centers</b> Technical Center, Sales Support, Service Support, Parts Support
<b>200</b>	<b>Service posts</b>
<b>3</b>	<b>Factories</b>





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\* For more details, please contact DN Solutions.

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