

MULTI-PURPOSE VERTICAL MACHINING CENTER

VCF 850II

VCF 850SR II
VCF 850LSR II



VCF 850SR II · 850LSR II SERIES

VCF 850II series is new, multi-purpose vertical machining centers suitable for a wide range of machining applications. The upgraded series feature high-rigidity and durable B-axes for improved cutting performance and machining flexibility. VCF 850II moving-column machines are equipped with 3 metre X-axes and their performance and productivity can be increased through a range of options that include rotary tables and center partitions. Equipped with large X-axis travels and a range of high-productivity and flexible options, VCF machines deliver unrivalled performance and versatility.

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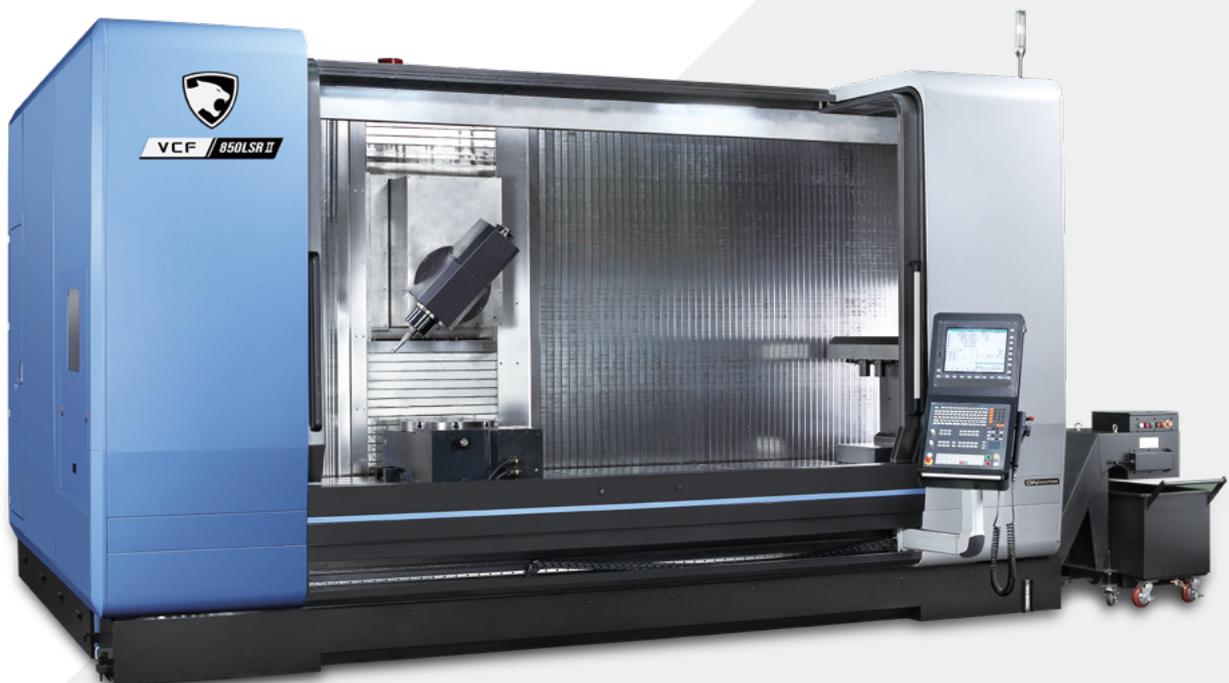
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**HIGH PERFORMANCE &
HIGH RIGIDITY ON B-AXIS**



The high-rigidity Roller Gear Cam structure on the B-axis provides excellent cutting performance and durability.

**INCREASED PRODUCTIVITY
THROUGH A WIDE RANGE
OF OPTIONS**

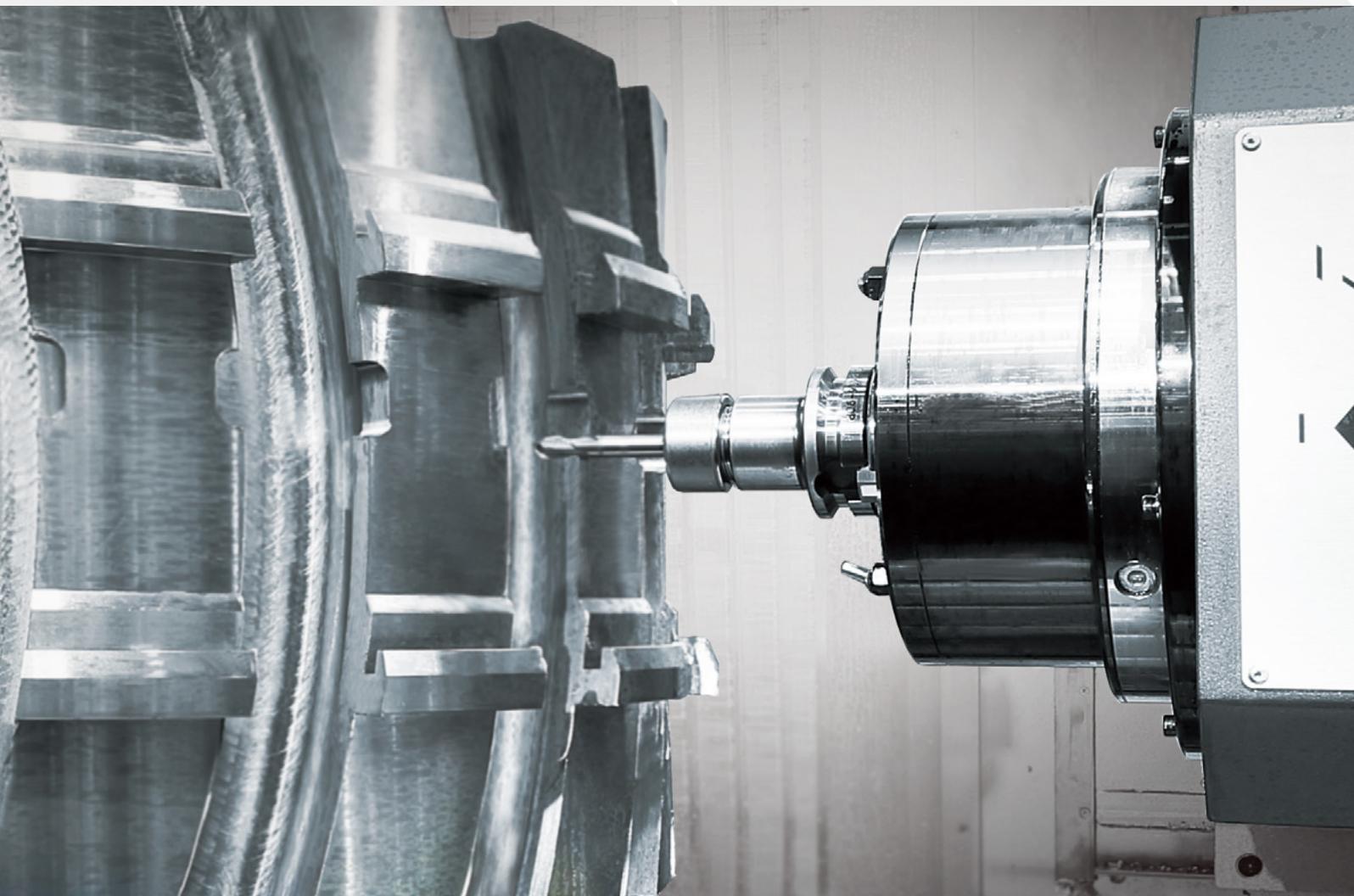


Availability of rotary tables, center partitions and pick-up magazines help manufacturers significantly increase operational efficiencies.

**MULTI-PURPOSE MACHINE
TOOL CAPABLE OF
3- TO 5- AXIS SIMULTANEOUS
MACHINING**



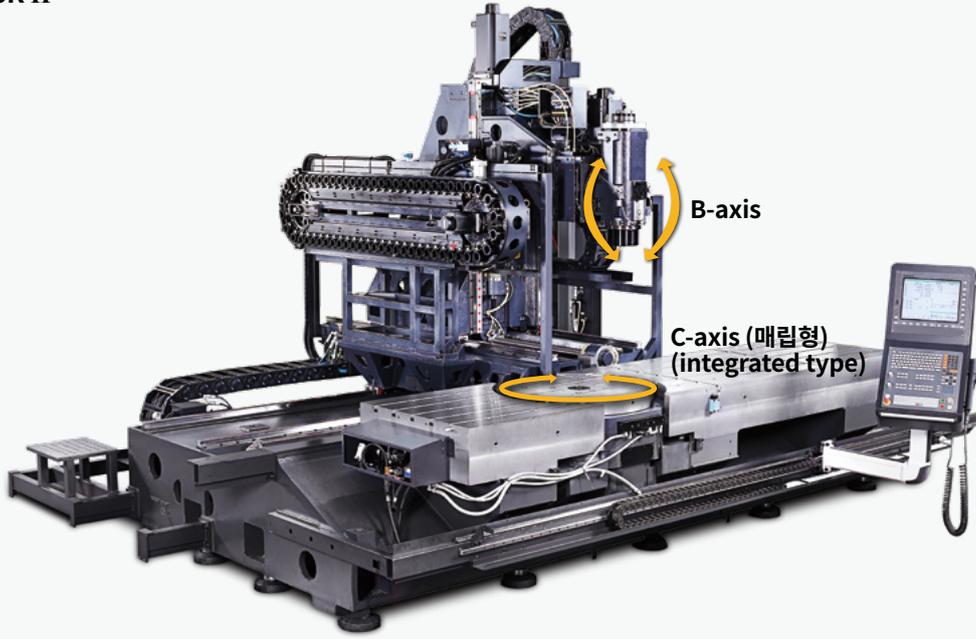
Simultaneous machining operations from 3- to 5-axes (with X-axis of 2 m or 3 m) are symptomatic of a real multipurpose machine.



BASIC STRUCTURE

The machine's fixed table, moving-column structure combined with its compact footprint and large X axis, appeal to a wide range of manufacturers.

VCF 850SR / LSR II



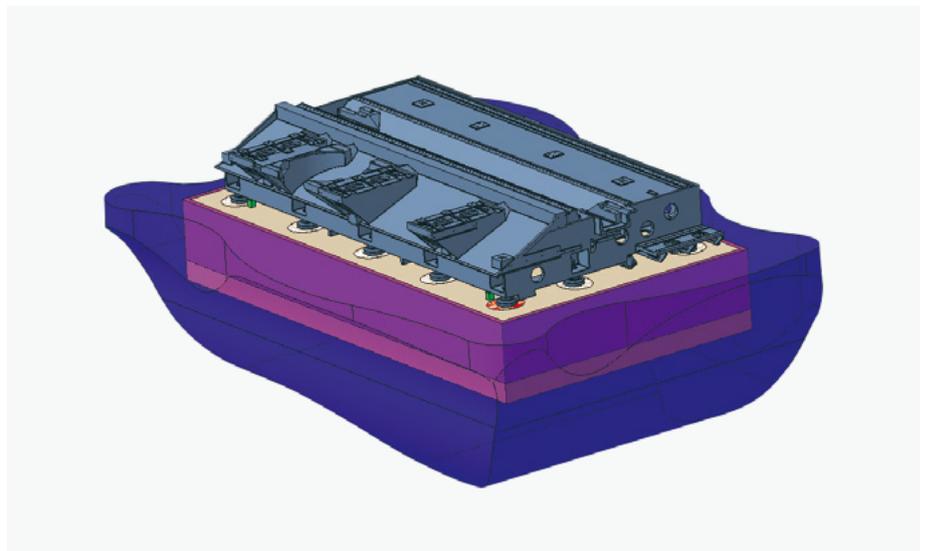
Multi-purpose vertical machining center

VCF 850II machines are multi-functional machine tools with a new design concept. Everything from small precision parts to large workpieces with complex shapes and features, can be manufactured on these machines.



Machine foundation*

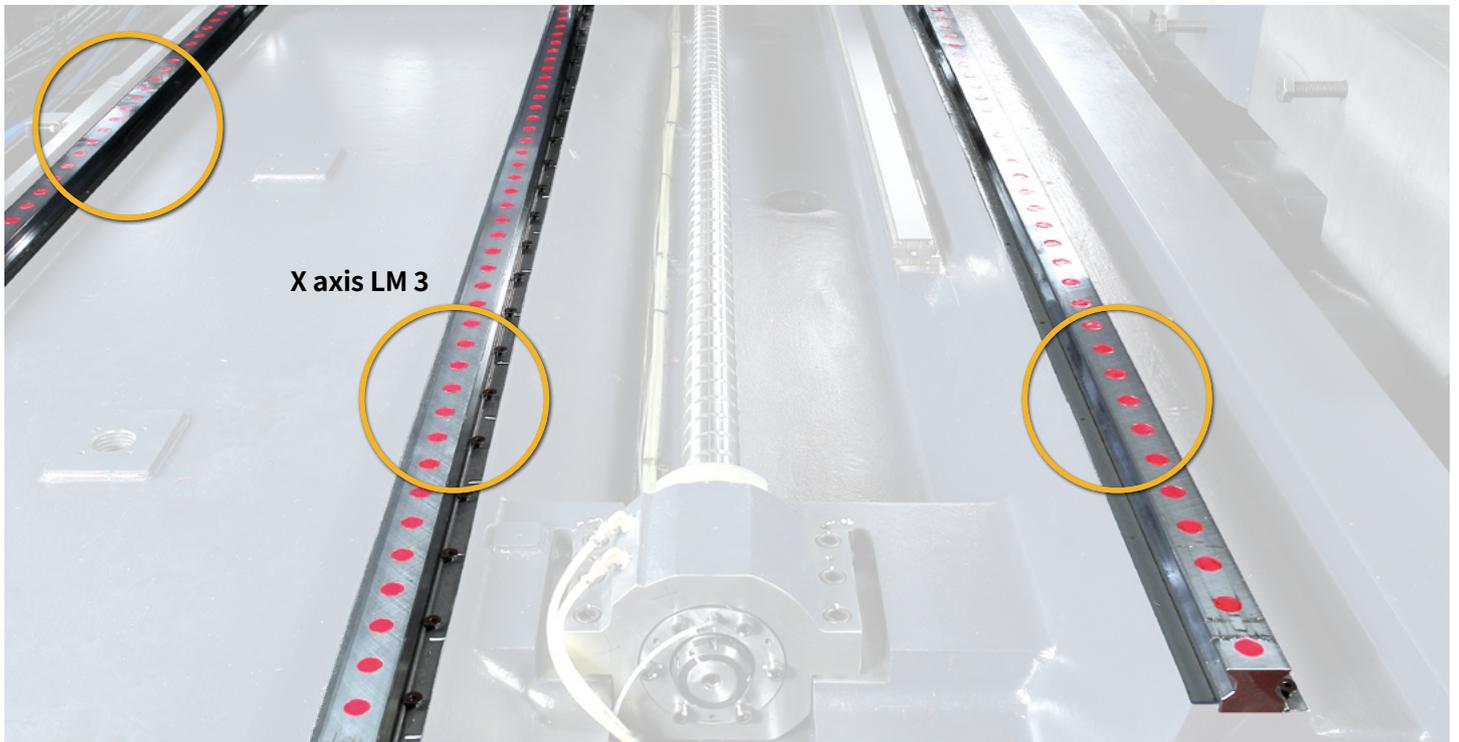
Anchoring is recommended to provide a stable foundation and ensure high accuracy machining in the short, medium and long term. Anchor bolts and other foundation equipment and parts are supplied as standard items.



* Please consult with DN Solutions sales technicians regarding all foundation-related issues.

AXIS SYSTEM

The linear axes are equipped with roller LM guideways for increased rigidity, and a cooling system supplied as standard helps to minimize thermal displacement.



X axis LM 3

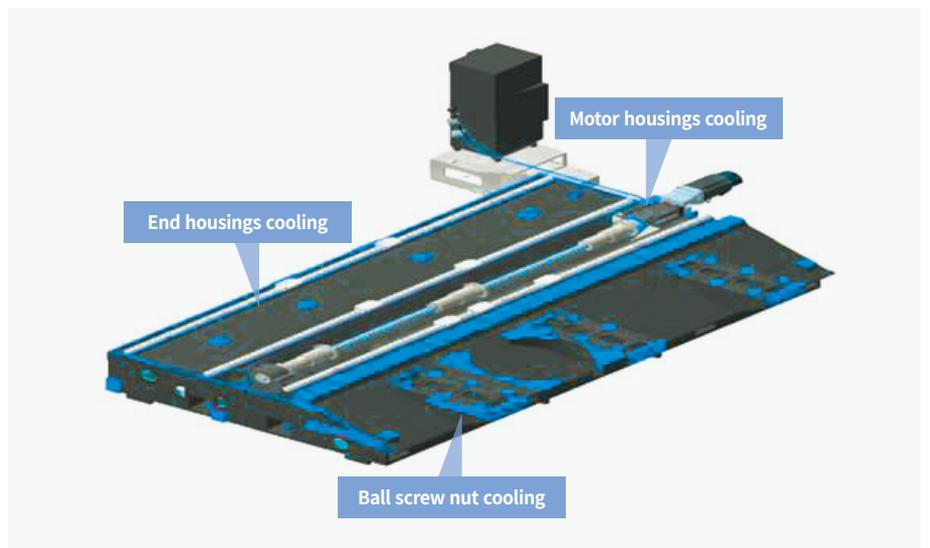
Stable and smooth axes

Roller-type LM guideways and high-rigidity coupling help deliver outstanding long-term accuracies, repeatability's and unrivalled performance.

Description	Unit	X	Y	Z
Travel distance	mm (inch)	3000 (118.1)	850 (33.5)	800 (31.5)
Type		Roller type		
LMG structure	rows	3	2	2
Rapid traverse	m/min	40 (1574.8)		

Cooling system for high accuracy*

The temperature of the ballscrew nuts and bearing housings are maintained at optimal levels by a cooling system designed to minimize thermal error and maintain the rigidity and integrity of the feed system.



* All machines and all axes

SPINDLE INFORMATION

Built-in spindles deliver outstanding reliability. They are cooled to minimize thermal error and to guarantee excellent accuracy during long periods of operation.

Built-in spindle

Delivers the highest productivity and reliability at the lowest noise and vibration levels.

Max. spindle speed

FANUC

12000 / 18000 r/min

HEIDENHAIN

12000 / 18000 r/min



System	Type	Speed (r/min)	Spindle	
			Power kW (Hp)	Torque N·m (ft·lb)
FANUC	ISO #40	12000	22/18.5 (29.5/24.8)	204 (150.6)
		18000	22/18.5 (29.5/24.8)	117.7 (86.9)
HEIDENHAIN		12000	32/24 (42.9/32.2)	126.3 (93.2)
		18000	30/24 (40.2/32.2)	155 (114.4)

SWIVEL HEAD

Roller Gear Cam structure on B-axis offers excellent cutting performance and excellent durability.

220° Rotating B-axis

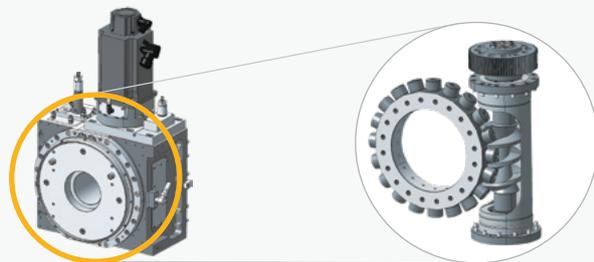
220° rotating spindle suitable for milling tapered surfaces.



Type	Axis	Speed (r/min)	Travel (deg)	Rotary encoder
Roller gear cam	B-axis	50	220 (+110, -110)	Standard

Roller gear cam structure as a standard

Smooth and precise machining over long periods of time with no backlash errors or issues.

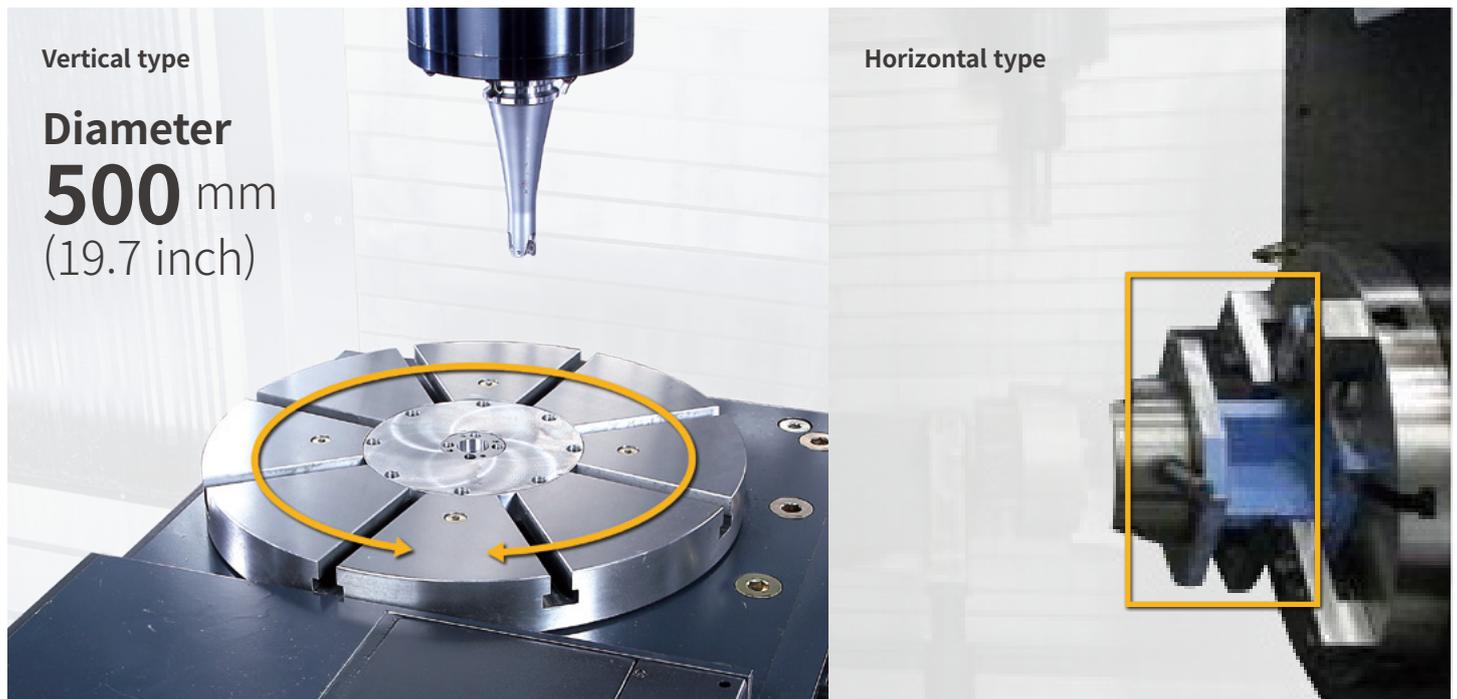


ROTARY TABLE

Mounted or integrated rotary tables are available to suit customers' application requirements.

Two types of rotary table provide the ultimate in customer choice and satisfaction OPTION

Top-mounted attachable / detachable* rotary tables are available with either a horizontal or a vertical configuration.



Vertical type

Diameter
500 mm
(19.7 inch)

Horizontal type

Workpieces with a maximum diameter of $\varnothing 1050\text{mm}$ can be accommodated on the integrated tables.

Integrated

Diameter
800 mm
(31.5 inch)

Type	Rotary table diameter mm (inch)	Max. work diameter mm (inch)	Rapid r/min	Load capacity kg (lb)	
Mounted	$\varnothing 500$ (19.7)	$\varnothing 730$ (28.7)	30	Vertical	600 (1322.8)
				Horizontal**	300 (661.4)
Integrated	$\varnothing 800$ (31.5)	$\varnothing 1050$ (41.3)	25	1200 (2645.5)	

* Please consult us about the attachable/detachable configuration.

** For the rotary table only (excluding support).

MAGAZINE

Magazine reliability is guaranteed by the integration of servo motors. Tool storage capacity can be extended up to 60 tools.

Tool magazine

The reliability and high-performance of the ATC is assured through the integration of a servo motor.



Specifications		Max tool diameter mm (inch)		Max tool length mm (inch)	Max. tool weight kg (lb)
		Continuous	Adjacent pot empty		
Standard	30T	80	130	300 (11.8)	8 (17.6)
Optional	60T	76	130		

Pickup magazine OPTION

An optional feature for tools with large diameters or lengths.



No. of Tools (ea)	Max tool diameter mm (inch)		Max. tool length mm (inch)	Max. tool weight kg (lb)
	Continuous	Adjacent pot empty		
5	150 (5.9)	230 (9.1)	450 (17.7)	8 (17.6)

STANDARD | OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.

Description	Features	VCF 850SR [LSR] II	
Tool magazine	30 tools	●	
	60 tools	○	
Tool shank type	BIG PLUS BT40	●	
	BIG PLUS CAT40	○	
	BIG PLUS DIN40	○	
	HSK 63A	○	
		○	
Auto door lock		●	
Rotary table	Ø500 (mounted)	○	
	Ø800 (integrated)	○	
Linear scale	X-axis	○	
	Y-axis	○	
	Z-axis	○	
Components for installation	Foundation bolt set	●	
Center partition		○	
Spindle	12000 r/min	22/18.5 kW (29.5/24.8 Hp) (FANUC)	●
		32/24 kW (42.9/32.2 Hp) (HEIDENHAIN)	●
	18000 r/min*	22/18.5 kW (29.5/24.8 Hp) (FANUC)	○
		30/24 kW (40.2/32.2 Hp) (HEIDENHAIN)	○
	Spindle head cooling system		●
	Thermal error compensation system		●
Auto tool measuring device	Swivel head		●
	RENISHAW / TS27R		○
	HEIDENHAIN / TT160		○
	BLUM / ZX Speed		○
Auto work measuring device	RENISHAW / RMP60		○
	HEIDENHAIN / TS460		○
	BLUM / TC-60		○
Chip bucket		○	
Chip conveyor	Chip pan		●
	Hinged type		○
	Scraper type		○
	Drum type		○
Coolant	FLOOD	0.75kW_0.45 (0.3)MPa	●
	BED CHIP FLUSHING		●
	Water soluble Coolant Chiller**		○
	Coolant gun		○
Test bar		○	
Table size	2500 [3500] x 870mm (98.4 [137.8] x 34.3 inch)	●	
Pickup magazine		○	
AIR	AIR BLOWER		○
	AIR GUN		○
MPG	Portable MPG		●
NC controller	DN Solutions-FANUC i		○
	FANUC 31i-5		○
	HEIDENHAIN TNC 640		●
OIL SKIMMER	BELT TYPE		○
RAISED COLUMN		X	
TSC	NONE		●
	1.5 kW_2.0 MPa		○
	2.9kW_3.0 Mpa		○
	4.0 kW_2.0 MPa		○
	7.5kW_7.0Mpa		○
SMART THERMAL CONTROL	SENSOR TYPE (ONLY SPINDLE)		○
Customized special option	SERVO AUTO DOOR (w/ SAFETY EDGE)		○
	Long part solution #1		○
	Long part solution #2		○
	Long part solution #3		○
	Add axis preparation #P1		○
	Add axis preparation #P2		○
	Add axis preparation #P3		○
	Air-Oil Lubrication for linear axis		○
	Rotary joint for table		○
	Rotary table with electric rotary joint for magnetic chuck		○
	Dual integrated type D800 rotary table		○
	100 tool Magazine		○

* Please contact us about high-speed specifications. For more details, please contact DN Solutions.

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

** Technical consultation is mandatory for the chilling of non-water soluble coolant

● Standard ○ Optional X N/A

 **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.

PERIPHERAL EQUIPMENT

Center partition OPTION

Delivers machining efficiency equivalent to having two tables, thereby maximizing productivity.

Productivity is maximized by partitioning the table into two working areas.

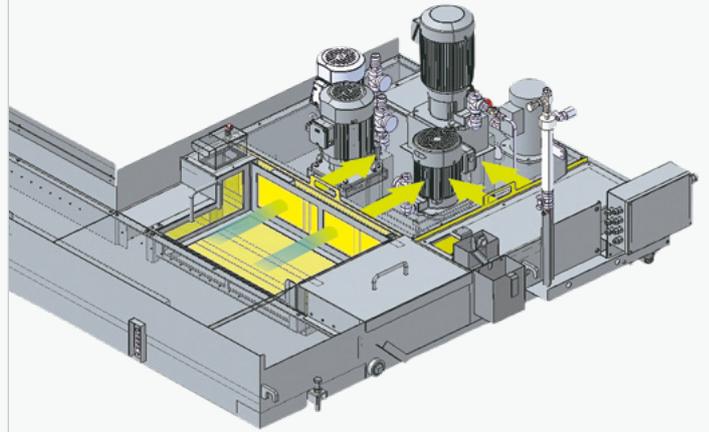


A area
- machining

B area
- loading / unloading work

Coolant tank OPTION

The new coolant tank delivers improved coolant recovery rates and a longer filter cleaning cycle.

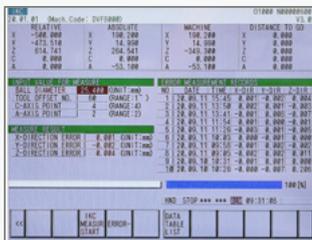


Intelligent kinematic compensation for 5-axis machining

For high-accuracy 5-axis machining, the Intelligent Kinematic Compensation function is recommended. This function minimizes errors in complex 5-axis machining applications by maintaining the tool point in the correct position relative to the workpiece. In order to use this function, the following optional items are required

Recommended optional items

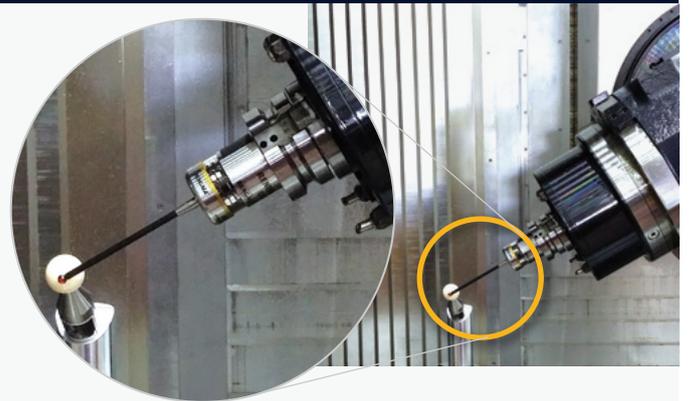
Software



FANUC NC: DCP-i
(Developed by DN Solutions)



Heidenhain NC: Kinematic opt



Receiver

Recommended Option



Touch probe

Recommended Option



Datum ball

Recommended Option



Automatic tool measurement

Recommended Option



Master tool

Recommended Option



APPLICATIONS

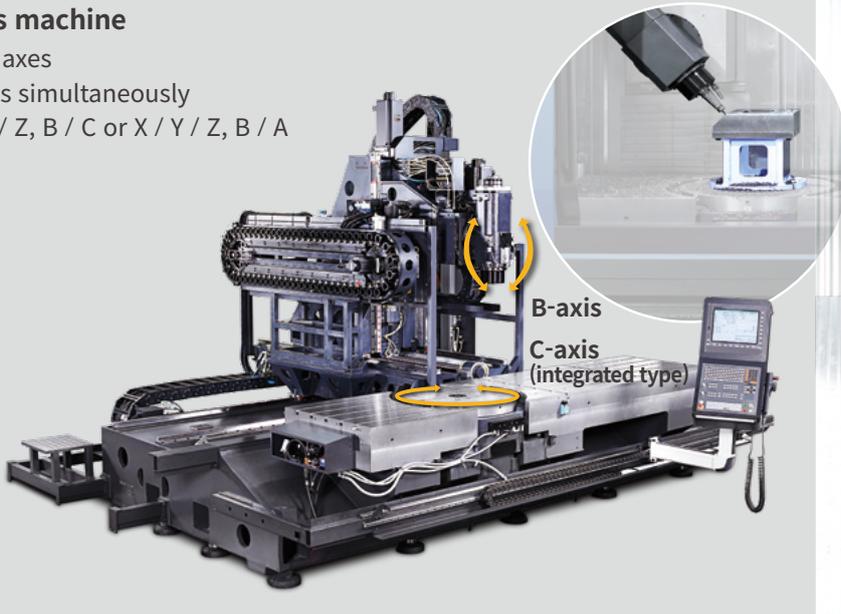
A wide range of different machining and production solutions are available to customers.

VCF 850SR / LSR II

A range of flexible, high-productivity solutions are available to customers using the center position, and the machines' 4- and 5-axis simultaneous machining capabilities.

5 axes machine

- 4 + 1 axes
- 5 axes simultaneously
- X / Y / Z, B / C or X / Y / Z, B / A



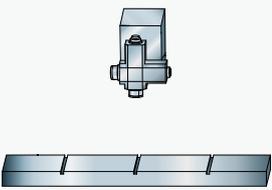
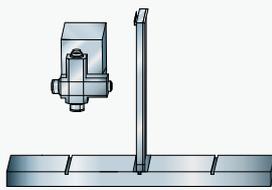
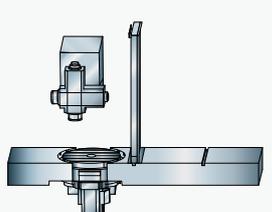
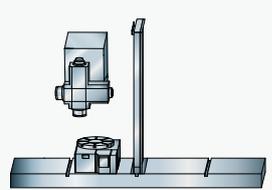
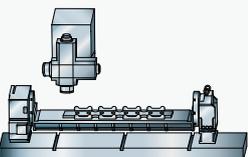
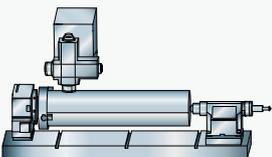
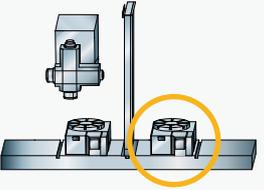
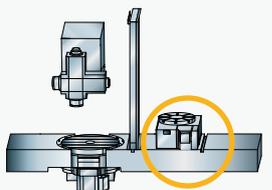
Horizontal or vertical type independent **OPTION**



Swivel head

- Roller gear cam as a standard



 <p>4 axis standard machining</p>	 <p>4 axis rear-side divided standard machining</p>	 <p>5 axis rear-side divided standard machining (Embedded rotary table)</p>	 <p>5 axis rear-side divided standard machining (Top-mounted rotary table)</p>
 <p>5 axes long workpiece machining (One-setting, continuous machining)</p>	 <p>5 axes long workpiece machining (Tilting machining and end support)</p>	 <p>5 axis rear-side divided standard machining (Top-mounted rotary table) + additional axis VCF 850LSR II only</p>	 <p>5 axis rear-side divided standard machining (Embedded rotary table) + additional axis VCF 850LSR II only</p>

FANUC 31i PLUS

Fanuc 31i Plus maximizes customer productivity and convenience.

15" Touch screen + New OP

DN Solutions Fanuc 31iB/B5 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.

FANUC 31i Plus

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

USB and PCMCIA card QWERTY keyboard

- EZ-Guide i standard
- Ergonomic operator panel
- Enhance AICC BLOCK
- Touch pen provided as standard
- 4MB Memory
- Hot keys

iHMI touchscreen

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



Item	Specifications	F31iB5 Plus	F0i Plus	
		VCF 850		
Controlled axis	Controlled axes	5 (X,Y,Z,C,A)(X,Y,Z,C,B)	5 (X,Y,Z,A,C)	
	Simultaneously controlled axes	5 axes	4 axes	
	Additional controlled Axis	Add 1 Axis (5th Axis)	○	○
Data input/output	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	G52 - G59	●	
	Addition of workpiece coordinate system	G54.1 P1 X 48 (48 pairs)	●	●
	Tool number command		T4 digits	T4 digits
	Tilted working plane indexing command	G68.2 TWP	●	●
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_, 1000 Blocks *1)	●	X
	High smooth TCP		●	X
Operation guidance function	EZ Guidei (Conversational Programming Solution)	●	●	
	EZ Operation package	●	●	
Setting and display	CNC screen dual display function	●	●	
Network	FANUC MTConnect	●	●	
	FANUC OPC UA	●	●	
Others	Display unit	15" color LCD with Touch Panel	●	
	Part program storage size & Number of registerable programs	1280M(512KB)_1000 programs	○	X
		2560M(1MB)_1000 programs	○	X
		5120M(2MB)_1000 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

● Standard ○ Optional XN/A ● Available
Network: FANUC MTConnect and FANUC OPC UA available.

EZ WORK

The software developed by DN Solutions's own technology provides numerous functions designed for convenient operation.

EZ work

The EZ work package delivers speed and efficiency. This menu-driven innovation not only helps customers reduce setup times, but also simplifies common tasks and procedures, reducing the potential for errors. EZ work reduces operating time, protects machinery, enhances quality and speeds up maintenance interventions.



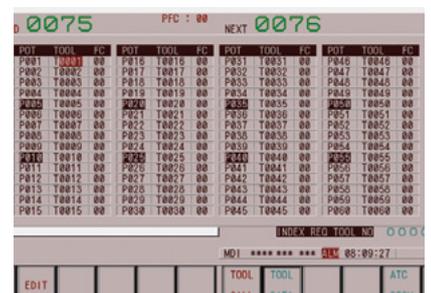
Thermal Compensation

A function to maintain high-precision machining quality by analyzing and correcting the amount of thermal displacement of a structure through a temperature sensor



M/G-Code List

Functional description of M code and G code



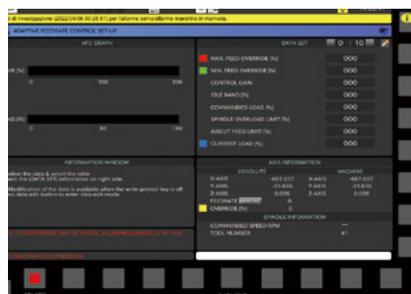
Tool Management

Function to manage tool information [Tool information / Tool No. / Tool condition (normal, large diameter, worn / damaged, used for the rst time, manual) / Tool name]



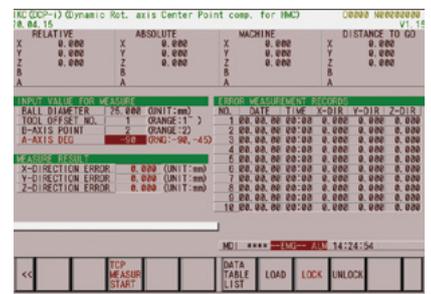
Operation Rate

Machine operation history management function by date based on load



Adaptive Feed Control

Function to control feedrate so that the cutting can be carried out at a constant load



IKC (DCP-I)

The function to compensate the position of the workpiece and the tool tip to be constant regardless of the rotation of the rotating shaft error



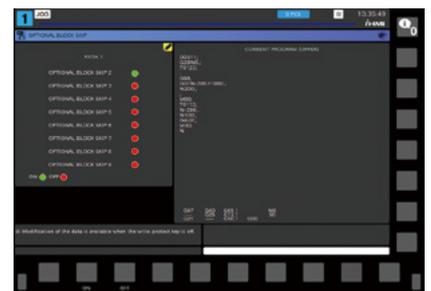
Spindle Warm Up

A function that assists spindle warm-up for spindle life when the spindle has not been used for a certain period of time



ATC Recovery

Function to view detailed info with recommended actions and to perform step-by-step operation manually (when an alarm is triggered during an ATC operation)



Addition of Optional Block Skip

In addition to the OPTIONAL BLOCK SKIP of the operation panel, the function to skip a specific block selected in the machining program

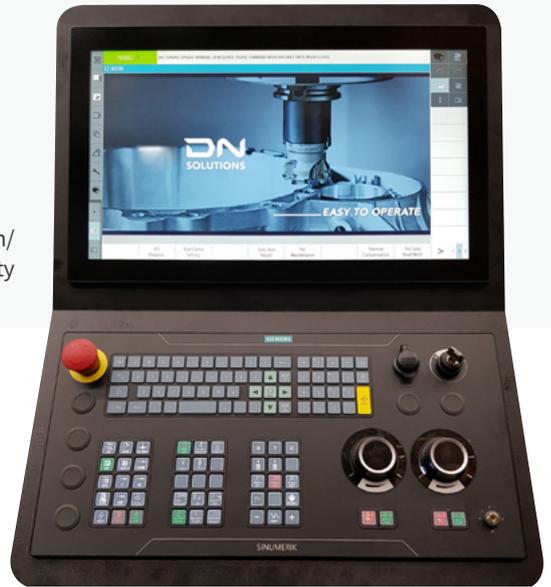
CONVENIENT OPERATION

SIEMENS SINUMERIK ONE

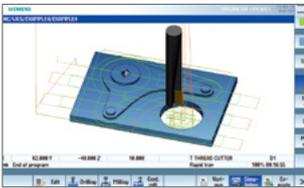
Even Faster & Easier processing + 21.5" screen

All programming, set-up, actual machining and verification process are getting easier and faster. Especially, intuitive conversational programming guidance with 3D UI(user interface) on 21.5" large touch screen is helpful for unskilled engineers.

- 21.5 inch touch screen
- 50% improvement in processing speed (compared to S840D)
- Graphic programming
- PLC-based flexible automation/peripheral device expandability



Conversational convenient function



Simulation and machining contour monitoring



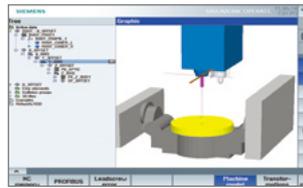
Smart function



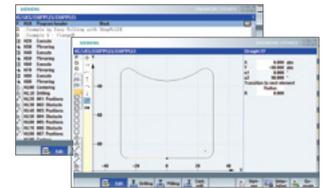
Side screen widget



5-axis kinematic measuring cycles



3D collision avoidance and collision avoidance ECO



Shop mill part programming

NUMERIC CONTROL SPECIFICATIONS

SIEMENS

Item		Specifications	S-ONE
Controlled axis	Controlled axes		5 (X,Y,Z,C,A) (X,Y,Z,C,B)
	Simultaneously controlled axes		5 axes
Data input/output	Memory card input/output	(Local drive)	●
	USB memory input/output		●
Interface function	Ethernet	(X130)	●
	On network drive	(without EES option, Extcall)	●
Operation	On USB storage medium, e.g. memory stick	(without EES option, Extcall)	●
	Workpiece coordinate system	G54 - G57	●
Program input	Addition of workpiece coordinate system	G505 - G599	●
	Top surface		○
Interpolation & Feed function	Look ahead number of block		1000
	3D simulation, finished part		●
Programming & Editing function	Simultaneous recording		●
	Measure kinematics		●
	DXF Reader for PC integrated in SINUMERIK Operate		○
Operation Guidance Function	ShopMill		●
	EZ Work		●
Setting and display	Operation via a VNC viewer		●
	MTConnect		⊕
Network	OPCUA		○
	18.5" color display with touch screen		○
Others	21.5" color display with touch screen		●
	CNC user memory	10 MB	●
	Max. CNC user memory	28 MB	○
	Collision avoidance (machine, working area)		○
	Collision avoidance ECO (machine, working area)		●

CONVENIENT OPERATION

HEIDENHAIN TNC7

Visualized, intuitive task support, customized UI

The TNC7 makes machining even easier, for everything from programming to program validation and from machine setup to actual machining. You intuitively operate highly complex applications directly on the touchscreen with various integrated solutions for standard tasks.

TNC7 **NEW**

- 24 inch touch screen
- 189GB Program memory
- Look-ahead 5000 blocks
- Touch Probe Cycles Graphical Programming



< TNC7 >

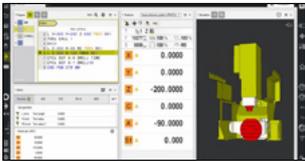
Conversational convenient function



Data are controlled in the folder structure; convenient communication via USB devices



KinematicOpt & KinematicComp **OPTION**
(Touch probe cycle for automatic measurement)



Collision protection system **OPTION**



Various built-in pattern cycles for a wider scope of application (Software standard)



Graphic simulation



Enhanced collision protection function DCMv2 **OPTION**



Improved maintenance environment



Highly practical programming and setup based on touch operation

NUMERIC CONTROL SPECIFICATIONS



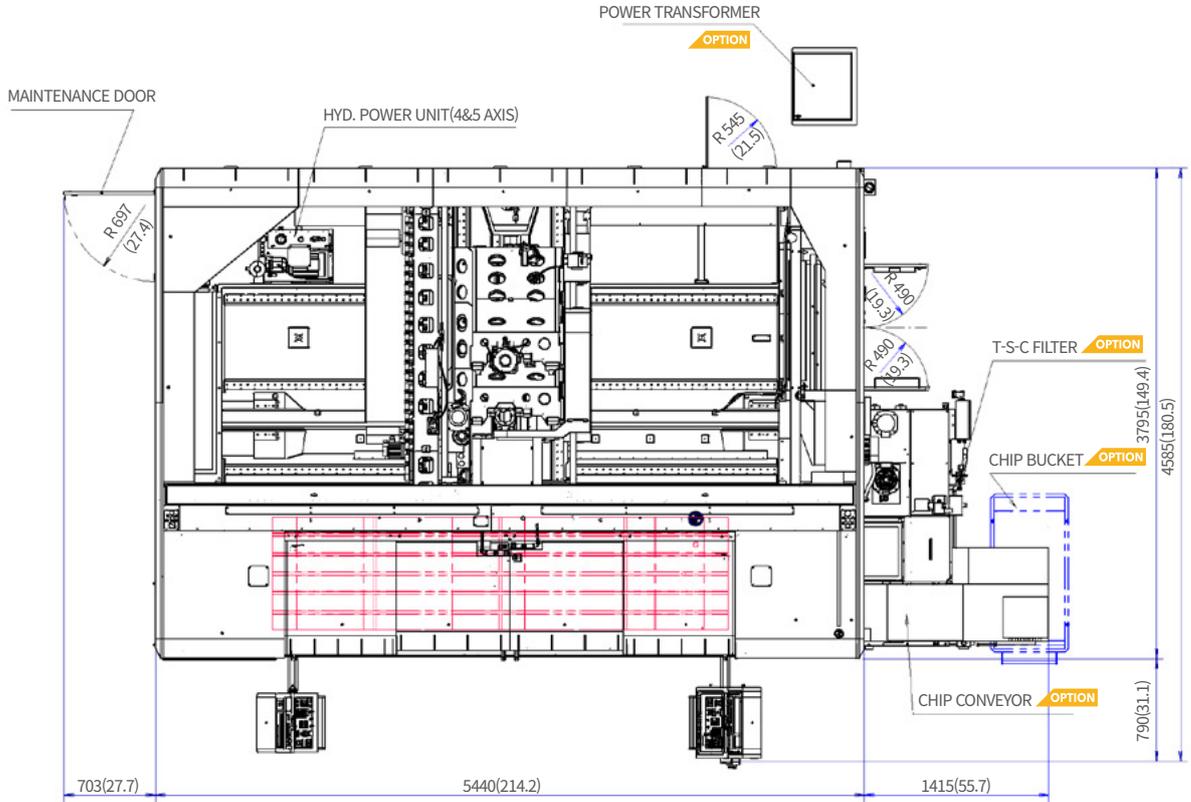
Item		Specifications	TNC7
Controlled axis	Controlled axis		5 (X,Y,Z,C,A) (X,Y,Z,C,B)
	Simultaneously controlled axis		5 axes
Interface function	Embedded ethernet		●
	USB interface (USB 2.0)		●
Feed function	Look-ahead	5000 blocks	●
Axis compensation	KinematicsOpt	Automatic measurement and optimization of machine kinematics	●
Collision monitoring	Dynamic collision monitoring (DCM)		○
Network	MT Connect		⊕
Others	Display unit	touch panel	24"
	Program memory for NC programs		189GB

VCF SERIES DIMENSIONS

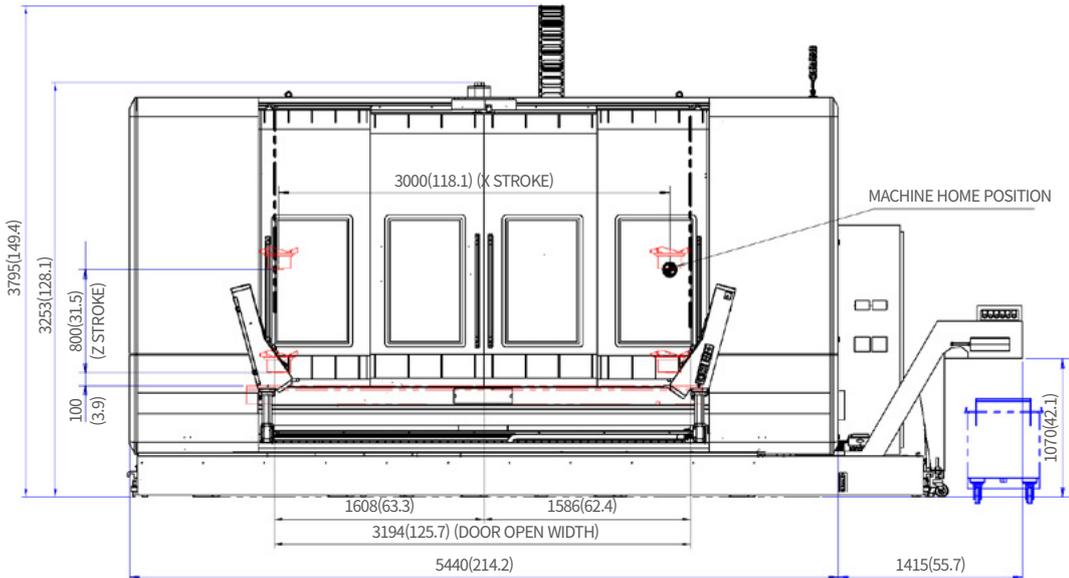
VCF 850LSR II (Right chip conveyor)

Units : mm (inch)

TOP VIEW



FRONT VIEW

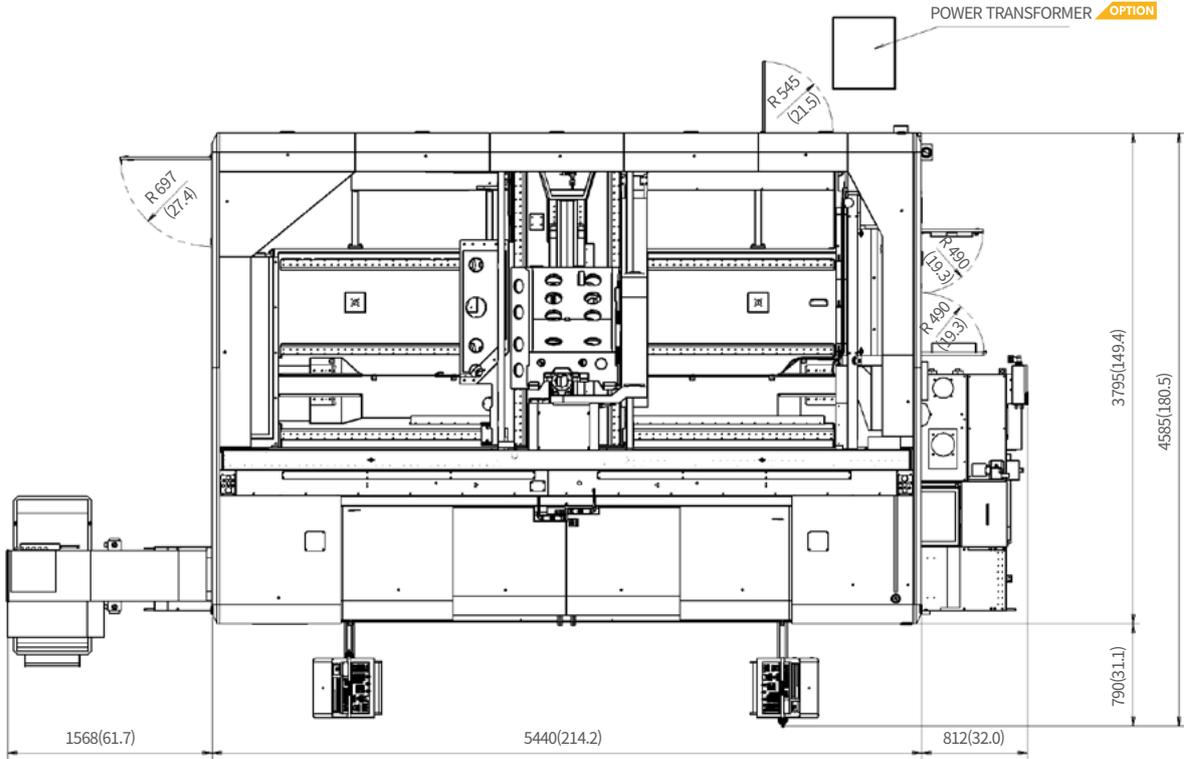


VCF SERIES DIMENSIONS

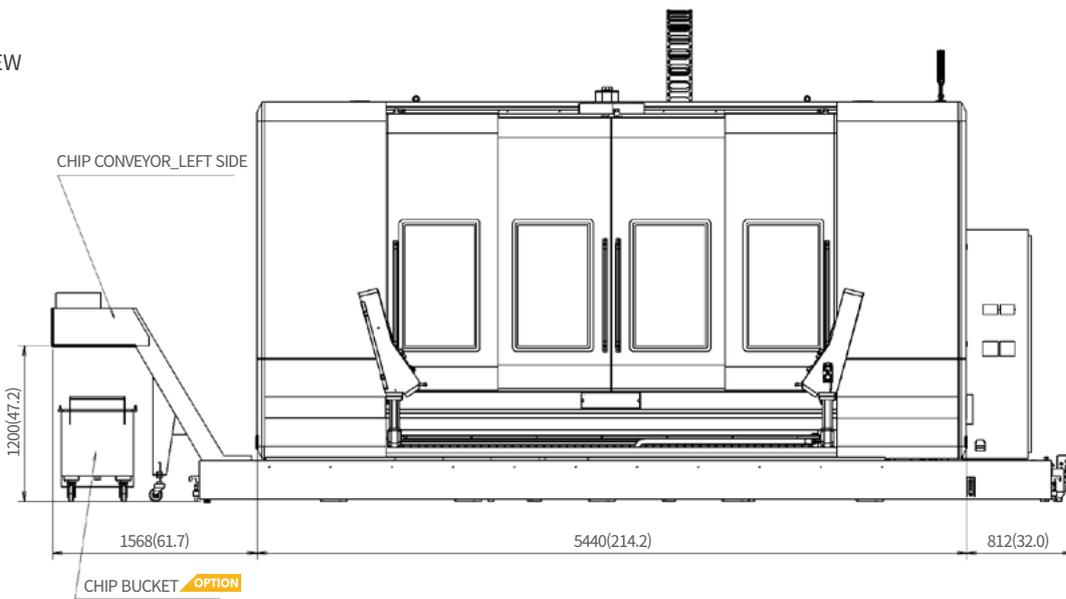
VCF 850LSR II (Left chip conveyor)

Units : mm (inch)

TOP VIEW



FRONT VIEW



* Some peripheral equipment can be placed in other places

POWER | TORQUE

FANUC

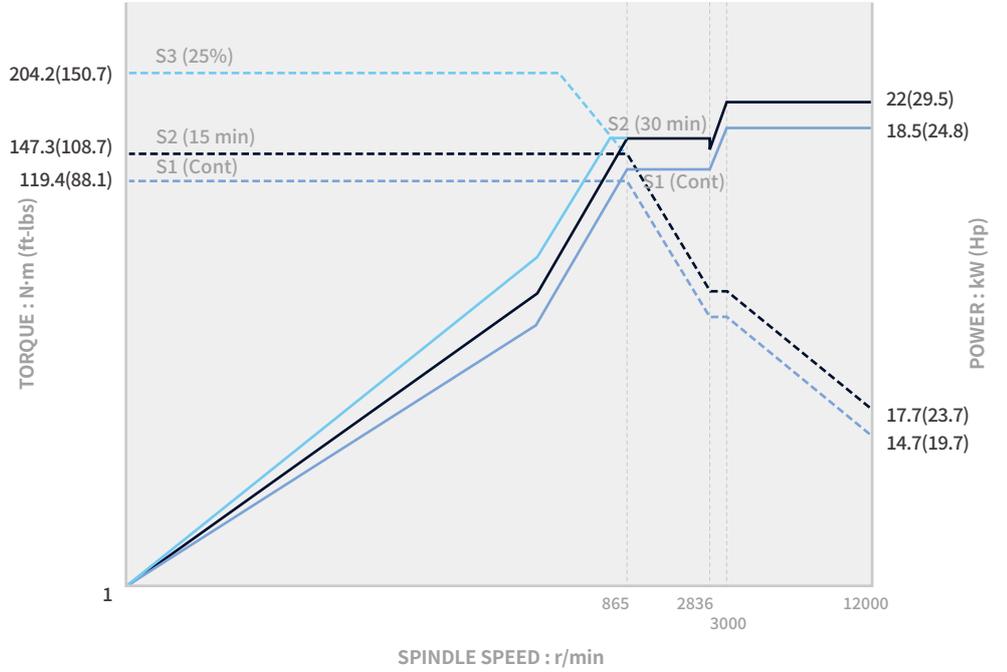
12000 r/min

POWER

22 / 18.5 kW
(29.5/24.8 hp)

TORQUE

204.2 N·m
(150.6 ft-lbs)



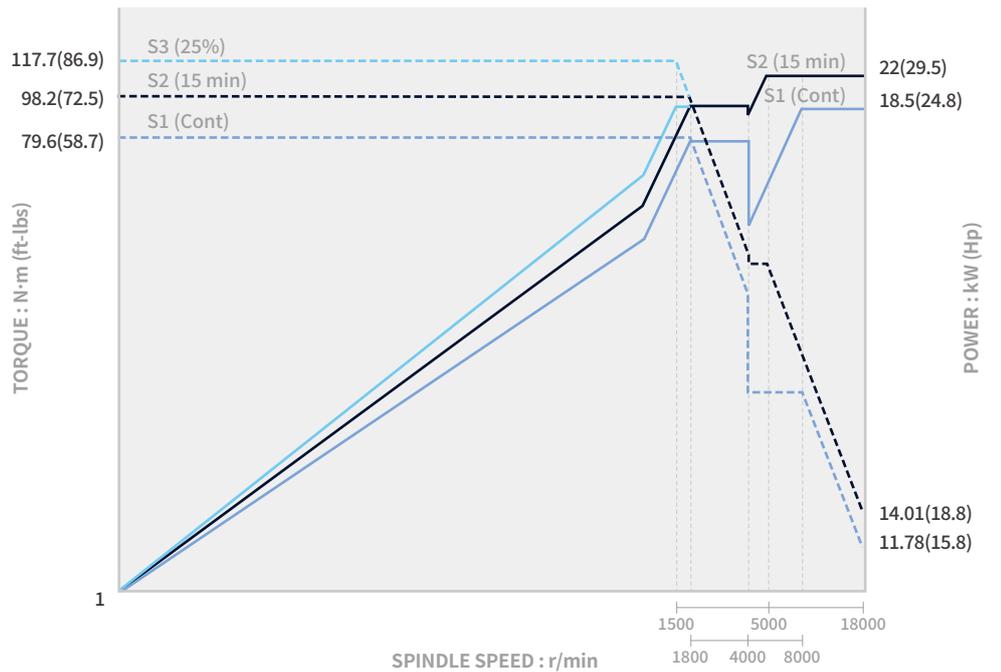
18000 r/min OPTION

POWER

22 / 18.5 kW
(29.5/24.8 hp)

TORQUE

117.7 N·m
(86.9 ft-lbs)



POWER | TORQUE

SIEMENS

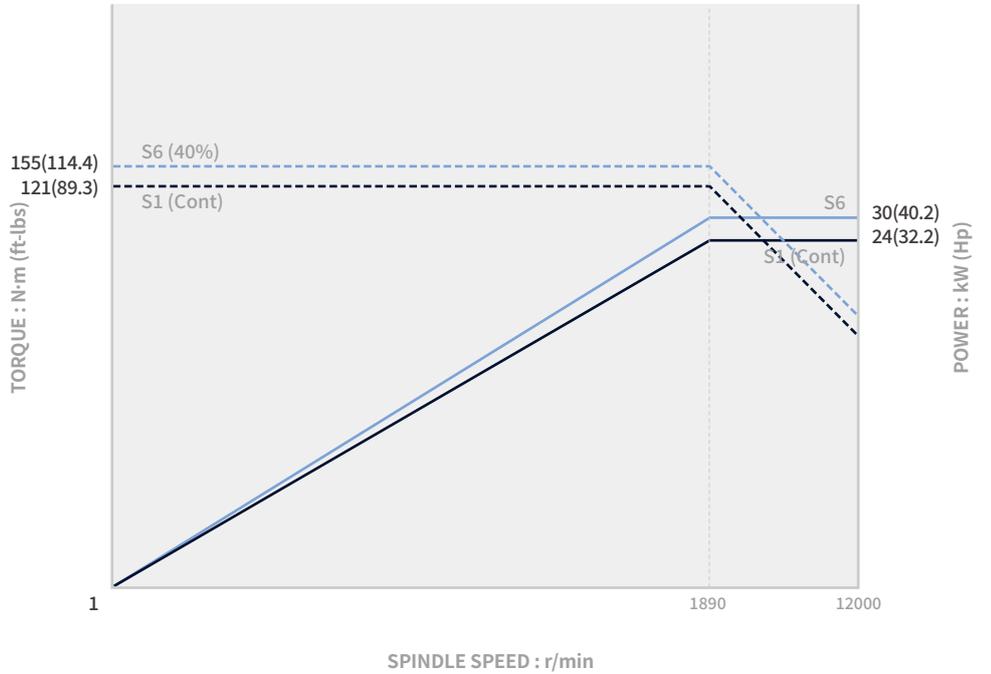
12000 r/min

POWER

30 / 24 kW
(40.2/32.2 hp)

TORQUE

155 N·m
(114.4 ft-lbs)



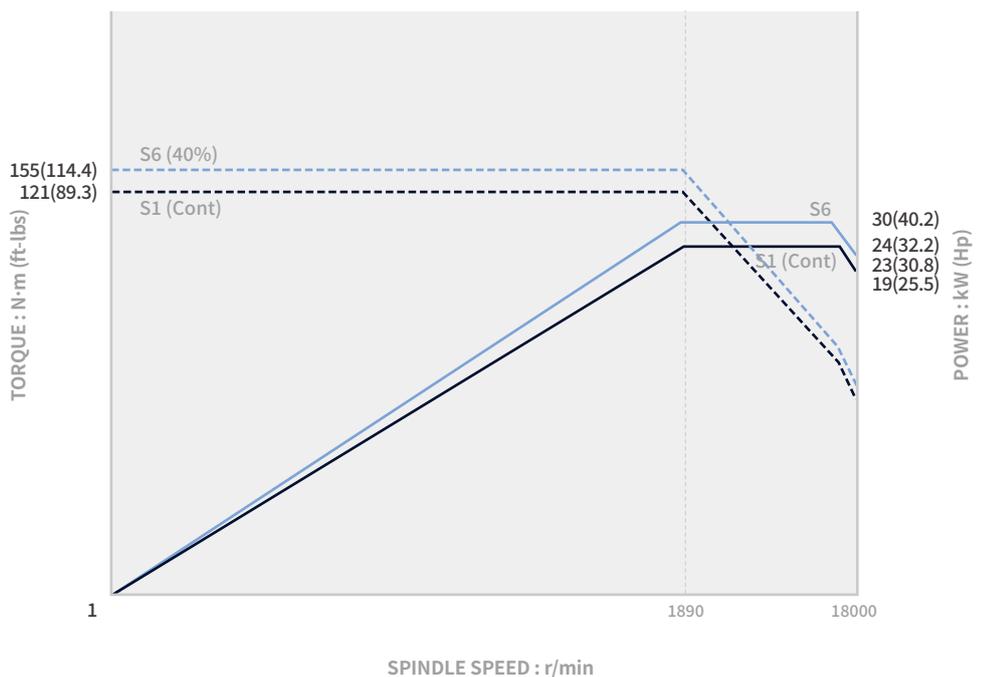
18000 r/min OPTION

POWER

30 / 24 kW
(40.2/32.2 hp)

TORQUE

155 N·m
(114.4 ft-lbs)



POWER | TORQUE

HEIDENHAIN

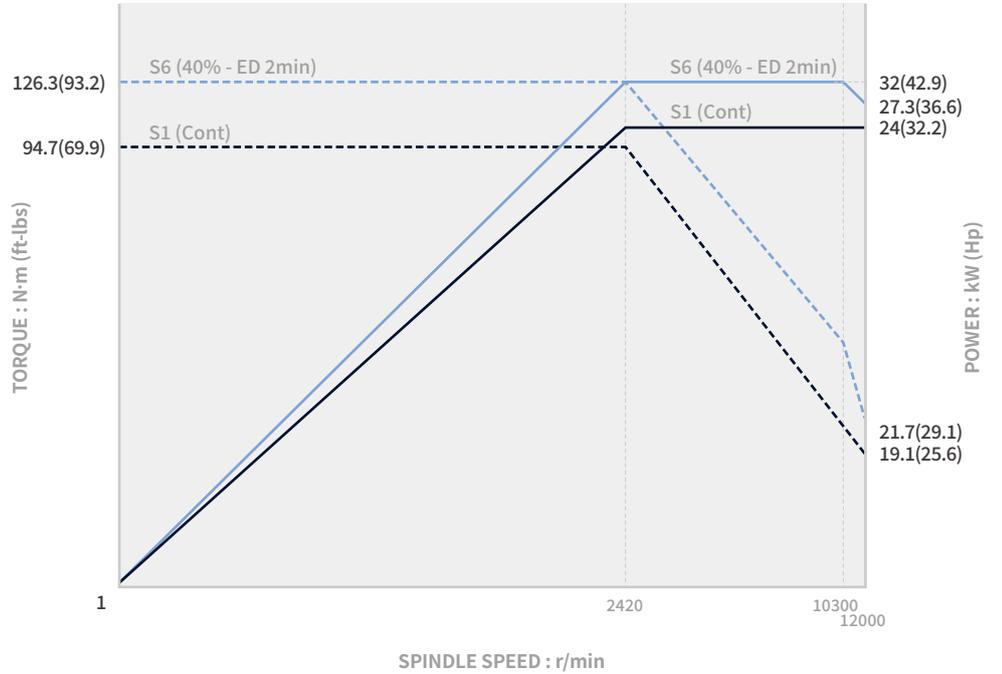
12000 r/min

POWER

32 / 24 kW
(42.9/32.2 hp)

TORQUE

126.3 N·m
(93.2 ft·lbs)



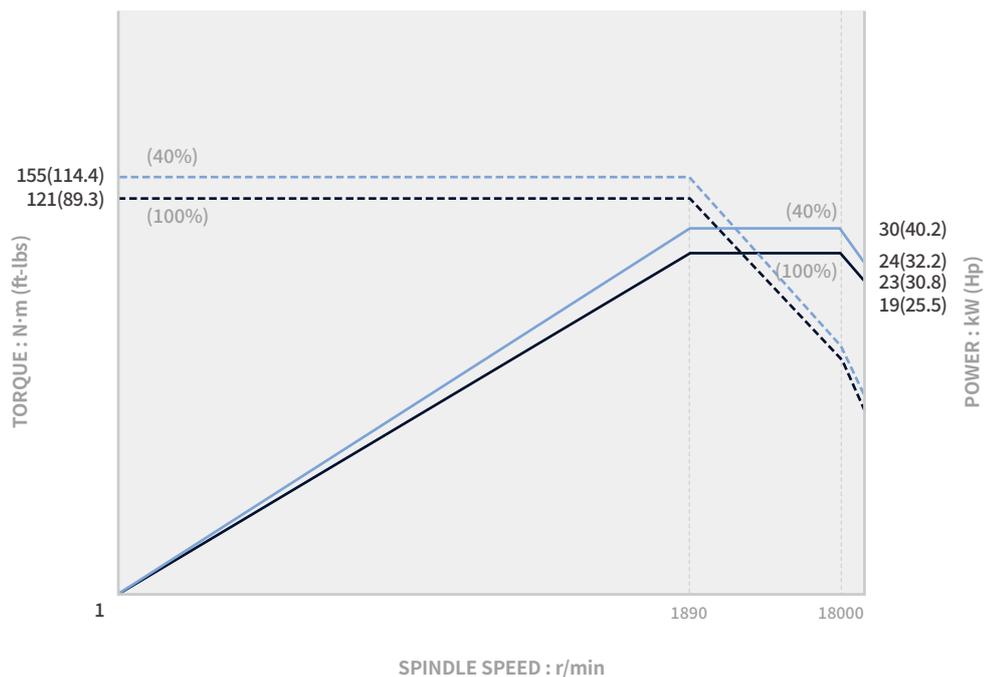
18000 r/min OPTION

POWER

30 / 24 kW
(40.2/32.2 hp)

TORQUE

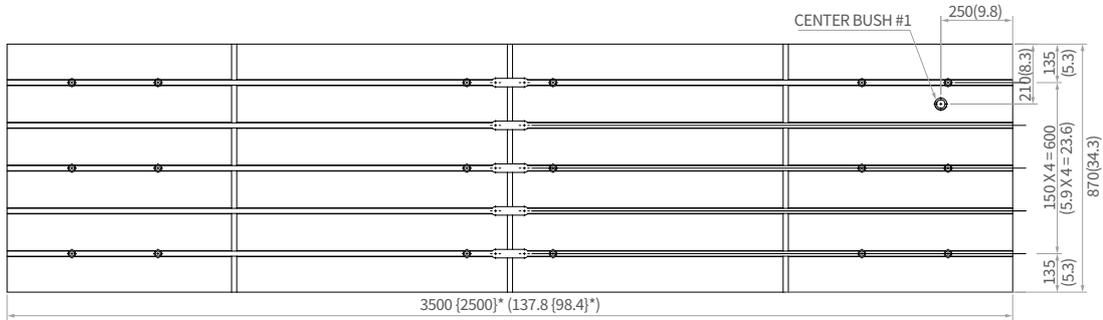
155 N·m
(114.4 ft·lbs)



TABLE

Rigid table

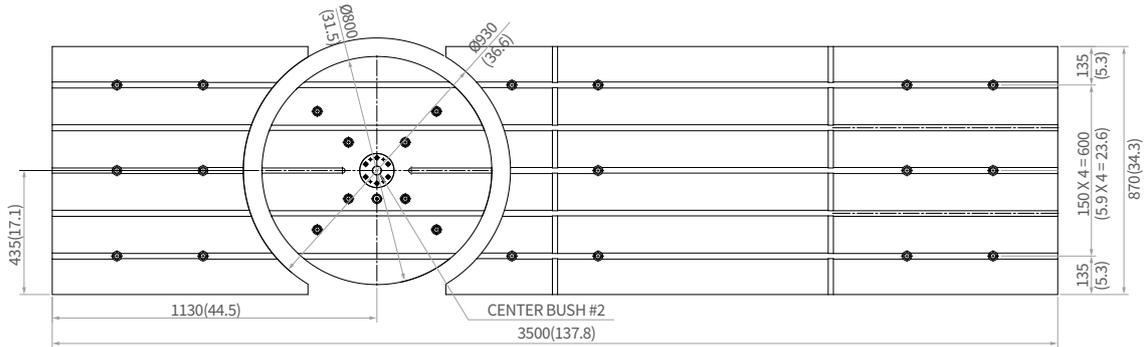
Units : mm (inch)



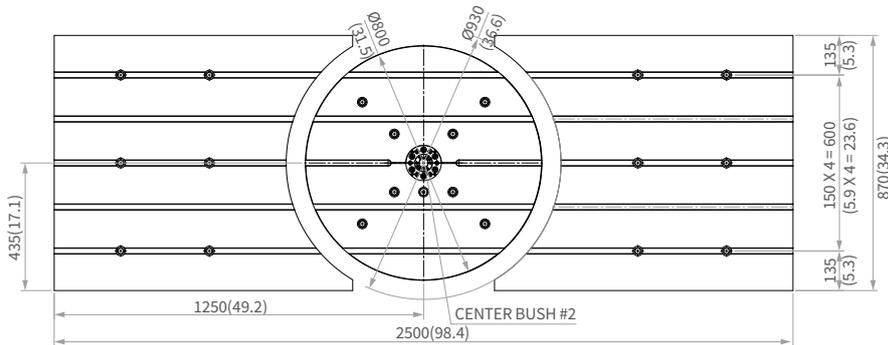
*{ } : Option

Rigid table w/D800 built-in rotary table

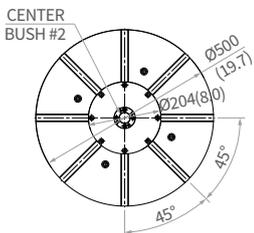
VCF 850LSR II (X axis 3m)



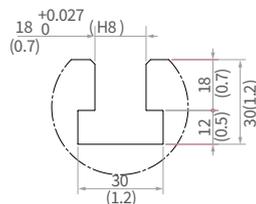
VCF 850SR II (X axis 2m)



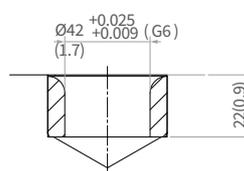
D500 Rotary table



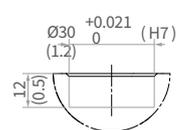
T-slot detail



Center bush #1 detail



Center bush #2 detail



MACHINE SPECIFICATIONS

VCF 850 series

Description		Unit	VCF 850SR [LSR] II			
Travels	Travel distance	X-axis	mm (inch)	2000 [3000] (78.7 [118.1])		
		Y-axis	mm (inch)	850 (33.5)		
		Z-axis	mm (inch)	800 (31.5)		
		B-axis	deg	220 (+110, -110)		
	Distance from spindle center to table top			mm (inch)	Mounted Rotary Table	Distance between Spindle nose & Table top 100 ~ 900 (3.9 ~ 35.4)
					Integrated Rotary Table	Distance between B axis center & Table top 435 ~ 1235 (17.1 ~ 48.6)
Feed rate	Rapid traverse rate	X, Y, Z axes	m/min (ipm)	40 (1574.8)		
	Rapid rotating speed	B-axis	r/min	50		
	Cutting feedrate	X, Y, Z axes	mm/min (ipm)	20000 (787.4)		
		B, C-axis	deg/min	18000/9000		
Table	Table size		mm (inch)	2500 x 870 [3500 x 870] (98.4 x 34.3 [137.8 x 34.3])		
	Loading capacity		kg (lb)	2500 (5511.5) [3500 (7716.1)]		
	Table type			T-SLOT (5-150 x 18H8)		
Rotary table				D500	D800	
	Table type			T-SLOT (5-150 x 18H8)		
	Table size		mm (inch)	Ø 500 (Ø 19.7)	Ø 800 (Ø 31.5)	
	Travel distance		deg	360		
	Rapid rotating speed		r/min	30	25	
	Max. work diameter		mm (inch)	Ø 730 (Ø 28.7)	Ø 1050 (Ø 41.3)	
	Max. work height		mm (inch)	490 (19.3) (V), 905 (35.6) (H)	680 (2.9) (V), 1095 (43.1) (H)	
	Max. work weight		kg (lb)	600 (1322.8) (V), 300 (661.4) (H)	1200 (2645.5)	
Spindle	Max. spindle speed		r/min	12000 {18000}*		
	Spindle taper			ISO #40, 7/24 TAPER		
	Max. spindle torque (HEIDENHAIN)		N·m (ft·lb)	126.3 {155}* (93.2 [114.4])		
	Max. spindle torque (FAUNC)		N·m (ft·lb)	204 (150.6) (25 % ED)		
	Max. spindle torque (SIMENS)		N·m (ft·lb)	126.27 {155}* (93.2 [114.4])		
Automatic tool changer	Tool shank type			BT 40 {CAT 40 / DIN / HSK-A63}*		
	Tool storage capacity		ea	30 {60}*		
	Max. tool diameter	Continuous		mm (inch)	80 {76}* (3.1 {3.0})	
		Near port empty		mm (inch)	130 (5.1)	
	Max. tool length		mm (inch)	300 (11.8)		
	Max. tool weight		kg (lb)	8 (17.6)		
	Max. tool moment		N·m (ft·lbs)	5.88 (4.3)		
	Tool selection			RANDOM ADDRESS		
Motor	Tool change time (tool to tool)		s	5.5		
	Tool change time (chip to chip)		s	13		
	Spindle motor power (HEIDENHAIN)		kW (Hp)	32/24 {30/24}* (42.9/32.2 {40.2/32.2})		
	Spindle motor power (FAUNC)		kW (Hp)	22/18.5 {22/18.5}* (29.5/24.8 {29.5/24.8})		
	Spindle motor power (SIMENS)		kW (Hp)	32/24 (42.9/32.2)		
	Coolant pump motor power		kW (Hp)	0.75 (1.0)		
	Power source	Power consumption (HEIDENHAIN)		kVA	74.5	
Power consumption (FAUNC)			kVA	54		
Power consumption (SIMENS)			kVA	54		
Compressed air pressure			MPa	0.54		
Tank capacity	Coolant tank capacity		L (galon)	520 (137.4) [560 (148.0)]		
	Lubricant tank capacity		L (galon)	4.3 (1.1)		
Machine dimensions	Height		mm (inch)	3253 (128.1)		
	Length		mm (inch)	3795 (149.4)		
	Width		mm (inch)	4440 [5440] (174.8 [214.2])		
	Weight		kg (lb)	22000 (48501.0) [24000 (52910.2)]		
Control	Standard			FANUC 31iB5, HEIDENHAIN TNC 640		
	Option			Sinumerik One		

*{ } : Option

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