MULTI-PURPOSE VERTICAL MACHINING CENTER

VCF

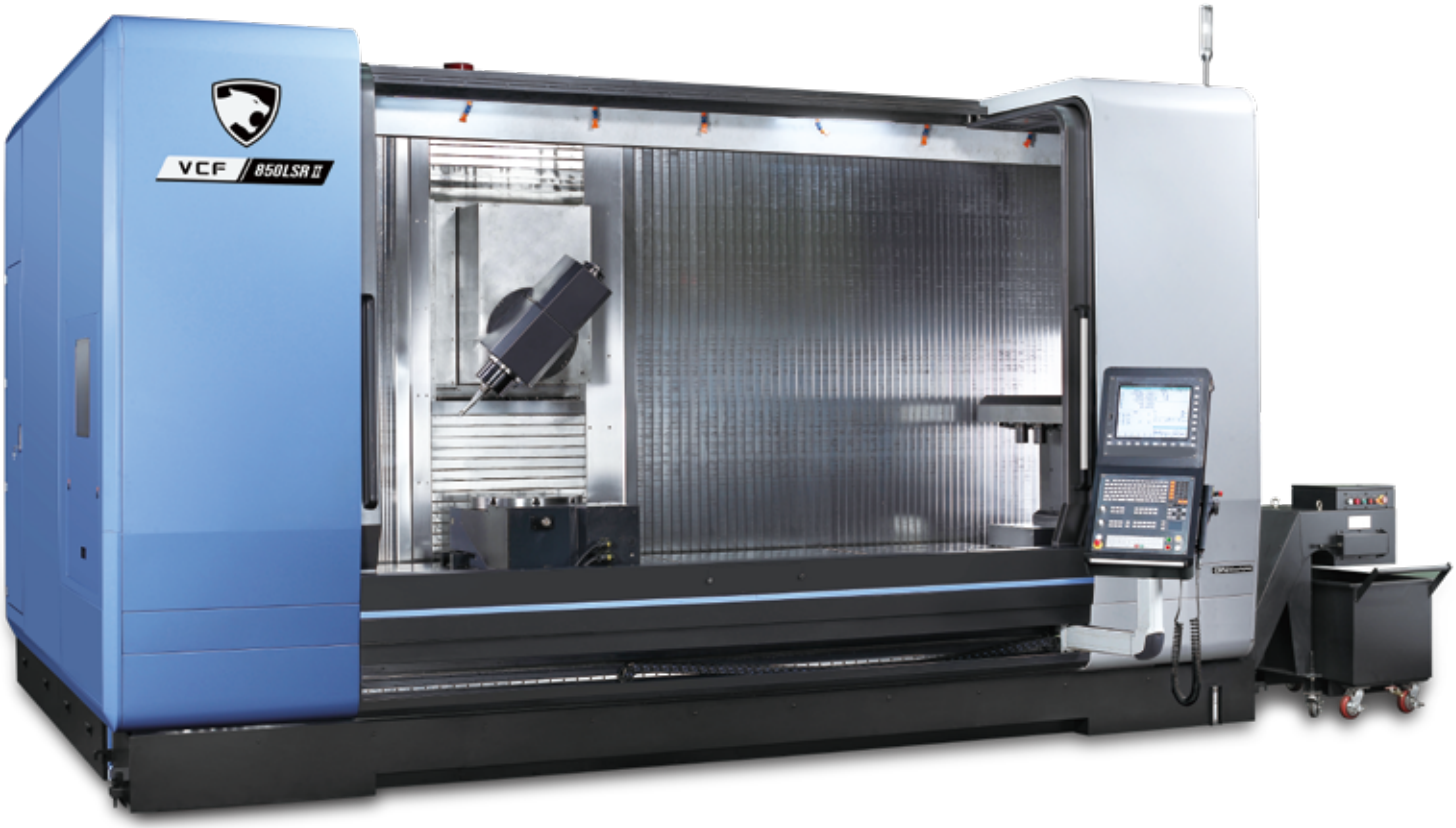
850 II · **850**L II · **850**SR II · **850**LSR II

DN SOLUTIONS

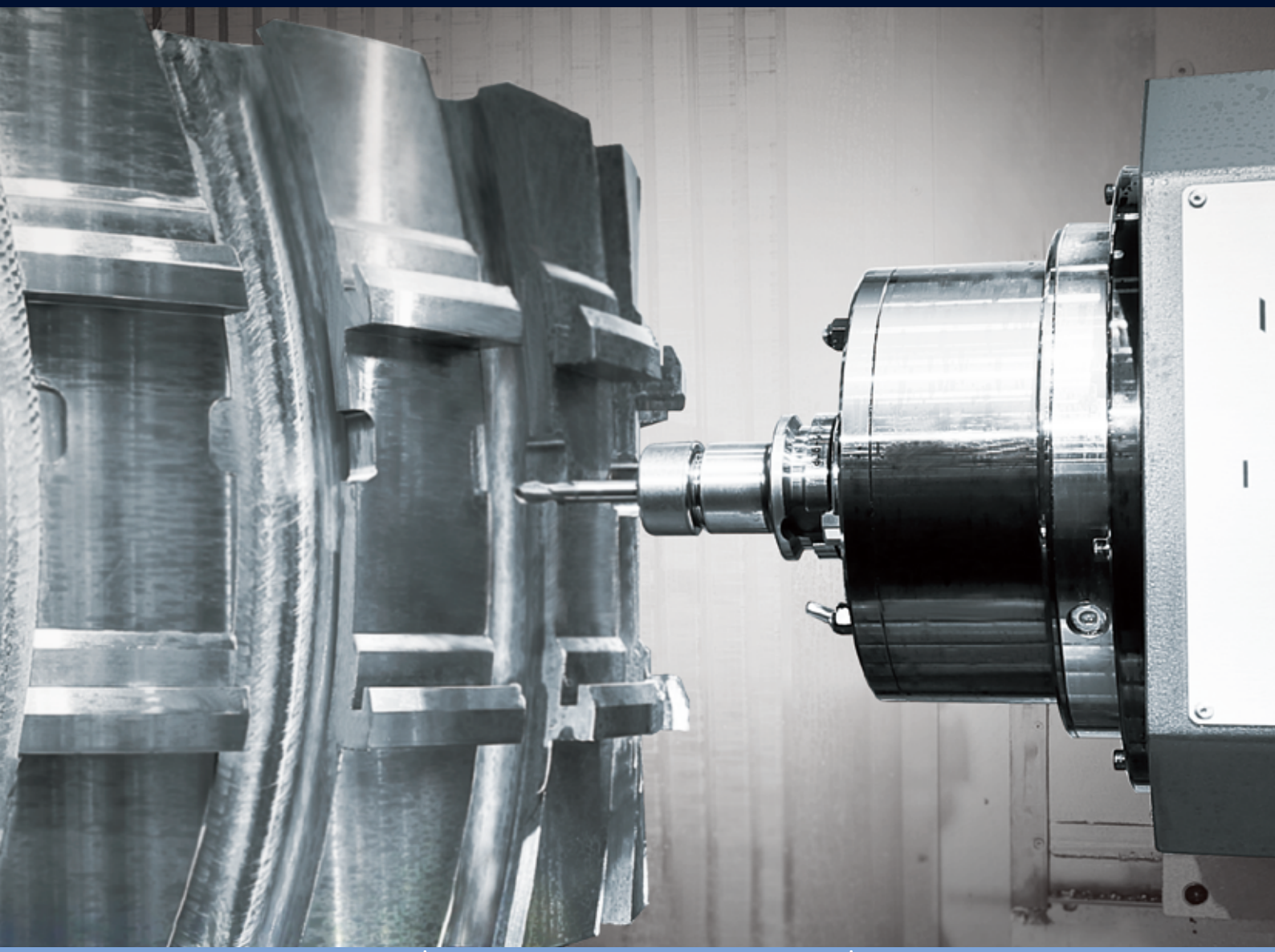
VCF 850 II SERIES

850 II · 850L II · 850SR II · 850LSR II

VCF 850 **II** 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 850 **II** 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.



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 multi-purpose machine.

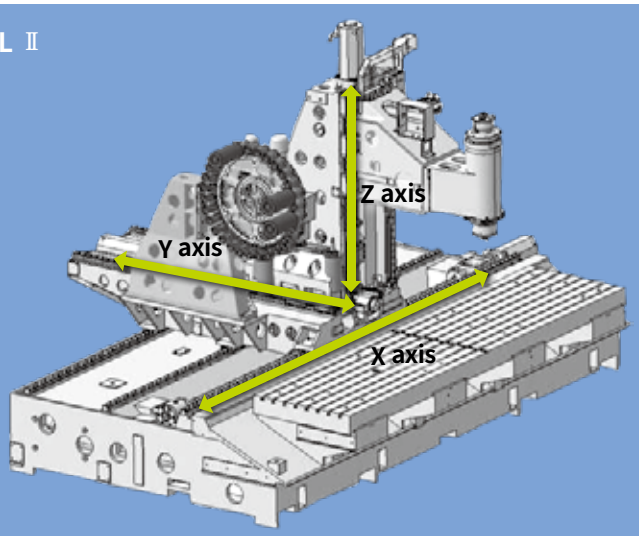
BASIC STRUCTURE

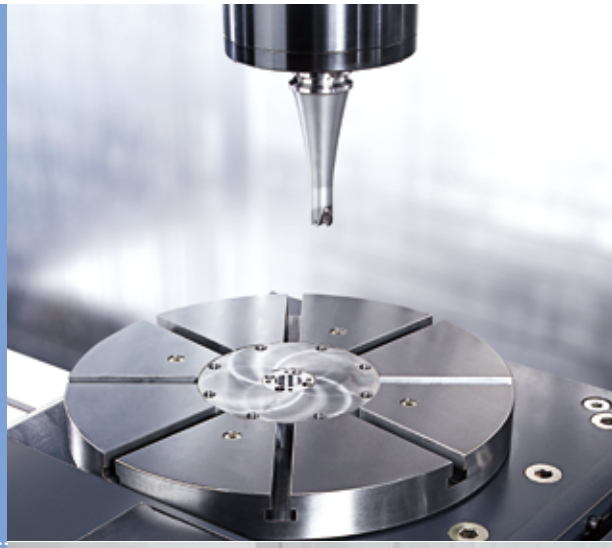
The machine's fixed table, moving-column structure combined with its compact footprint and large X axis, appeal to a wide range of manufacturers.

Multi-purpose vertical machining center

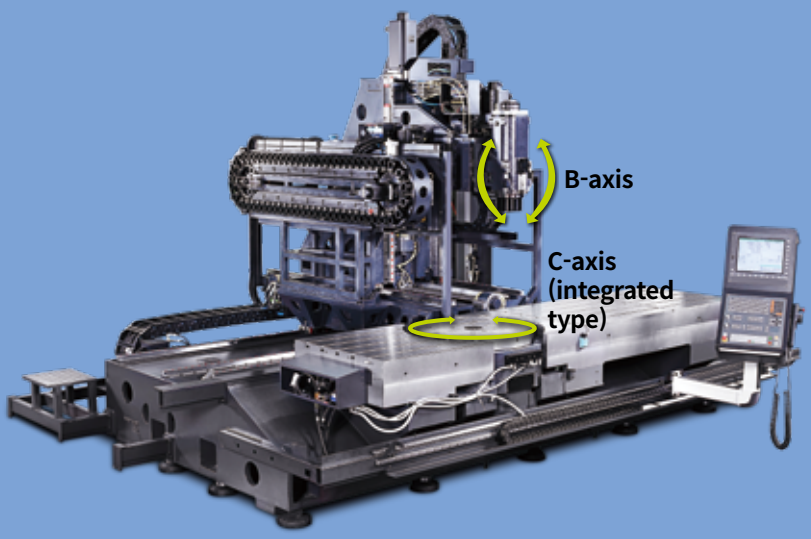
VCF 850 Ⅱ machines are multi-functional machine tools with a new design concept. Everything from small precision parts to large workpieces with complex shapes and features, can be manufactured on these machines.

VCF 850 / L Ⅱ



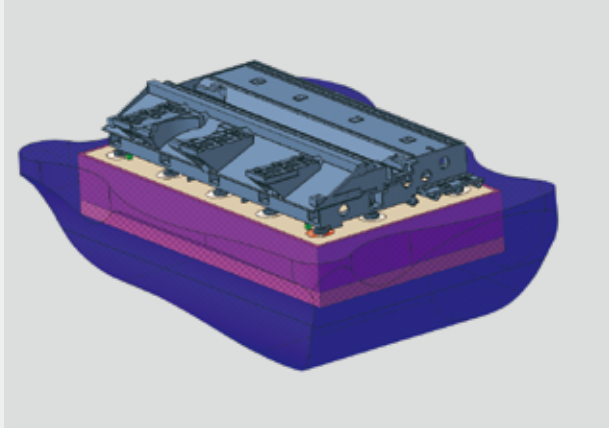


VCF 850SR / LSR Ⅱ



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

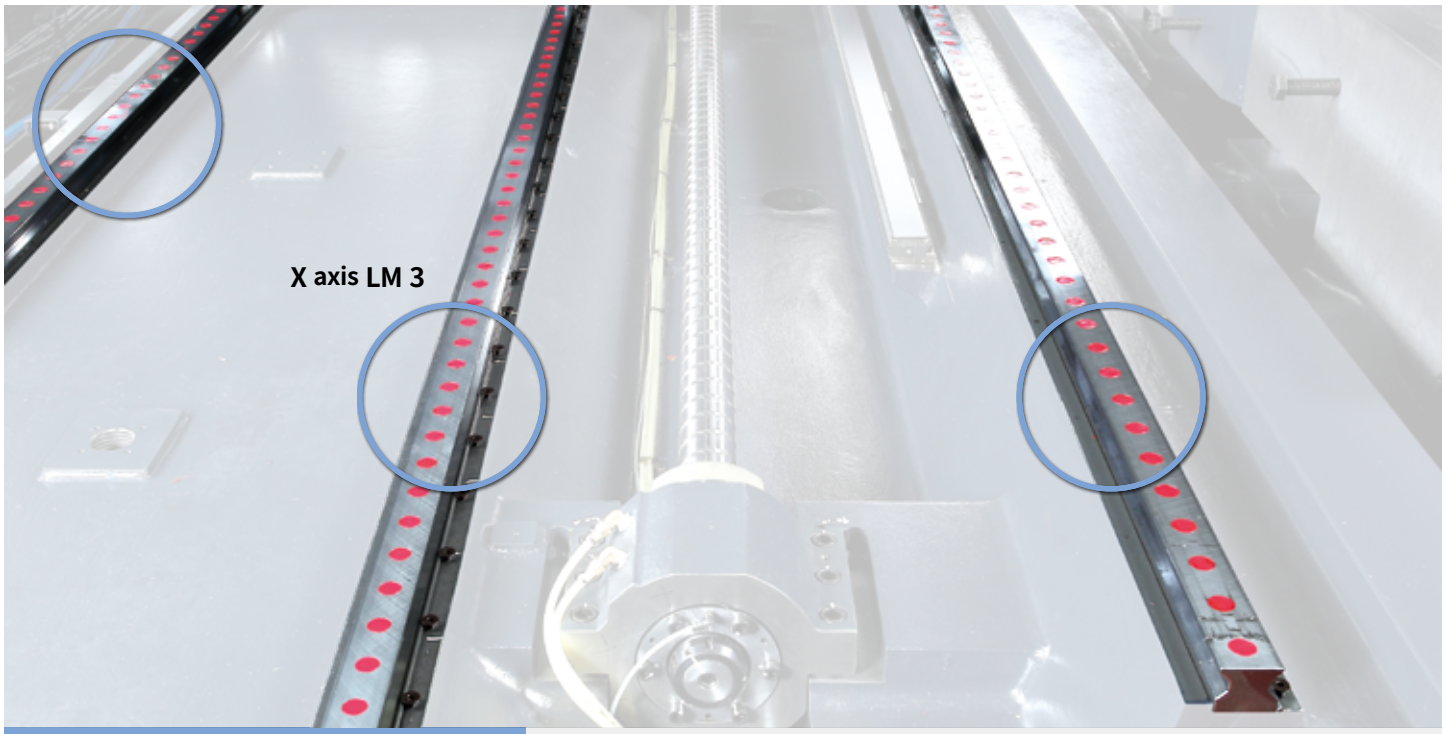
The linear axes are equipped with roller LM guideways for increased rigidity, and a cooling system supplied as standard helps to minimize thermal displacement.

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 {2000*} (118.1 {78.7}*)	850 (33.5)	800 (31.5)
Type		Roller type		
LMG structure	rows	3	2	2
Rapid traverse	m/min (ipm)	40 (1574.8)		

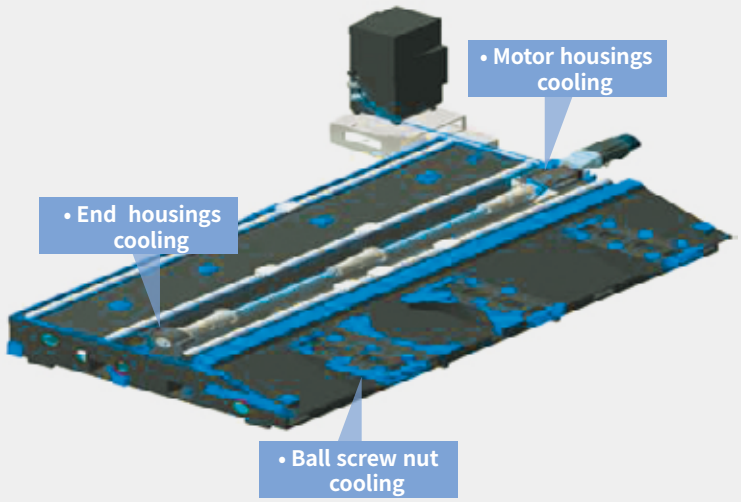
*VCF 850 Ⅱ



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

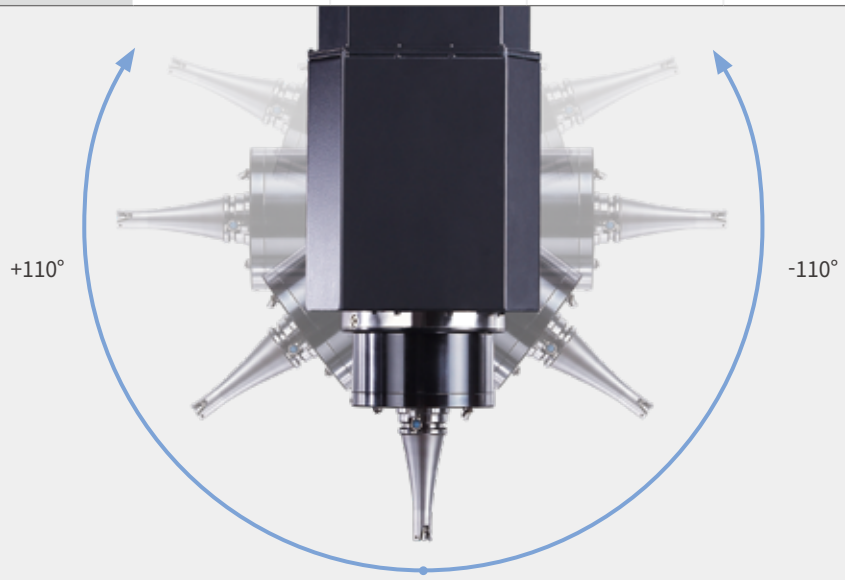
HEIDENHAIN

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.



B-axis 220° (±110°)

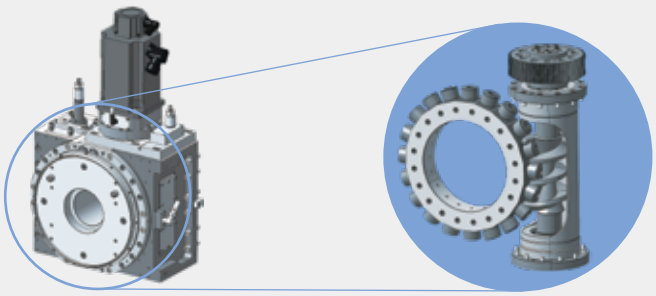
220 ° Rotating B-axis

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.



MACHINING PERFORMANCE

Multiple machining applications and operations including end milling, face milling, drilling, tapping, etc. can be performed quickly and accurately with minimal setups.

Machining performance

VCF 850 / L II

Face mill carbon steel (SM45C)

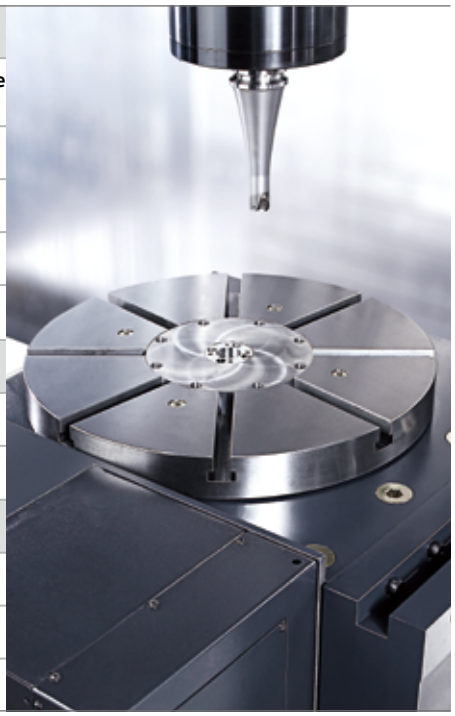
Tool mm (inch)	Spindle speed r/min	Feed rate mm/min (ipm)	Cutting width mm (inch)	Cutting depth mm (inch)	Chip removal rate cm³/min (inch)
D80 (D3.1)	1200	3000 (118.1)	64 (2.5)	3.0 (0.1)	576 (35.1)
	1200	2400 (94.5)	64 (2.5)	4.0 (0.2)	614 (37.5)
	1200	1800 (70.9)	64 (2.5)	5.0 (0.2)	576 (35.1)
	1200	1400 (55.1)	64 (2.5)	6.0 (0.2)	538 (32.8)

U-Drill carbon steel (SM45C)

Tool mm (inch)	Spindle speed r/min	Feed rate mm/min (ipm)	Cutting depth mm (inch)
D50 (D2.0)	1080	240 (9.4)	50 (2.0)

TAP carbon steel (SM45C)

Tool mm (inch)	Spindle speed r/min	Feed rate mm/min (ipm)	Cutting depth mm (inch)
M36 x P4.0 (M1.4 x P0.2)	133	532 (20.9)	45 (1.8)
M42 x P4.5 (M1.7 x P0.2)	114	513 (20.2)	45 (1.8)



VCF 850SR / LSR II

Face mill carbon steel (SM45C)

Tool mm (inch)	Spindle speed r/min	Feed rate mm/min (ipm)	Cutting width mm (inch)	Cutting depth mm (inch)	Chip removal rate cm³/min (inch)
D80 (D3.1)	1500	1500 (59.1)	64 (2.5)	3.5 (0.1)	336 (20.5)
	1500	1500 (59.1)	64 (2.5)	4.0 (0.2)	384 (23.4)
	1500	1500 (59.1)	64 (2.5)	4.5 (0.2)	432 (26.4)
	1500	1500 (59.1)	64 (2.5)	5.0 (0.2)	480 (29.3)

U-Drill carbon steel (SM45C)

Tool mm (inch)	Spindle speed r/min	Feed rate mm/min (ipm)	Cutting width mm (inch)	Cutting depth mm (inch)	Chip removal rate cm³/min (inch)
D40 (1.6)	2000	1000 (39.4)	40 (1.6)	3.0 (0.1)	120 (7.3)
	2000	1000 (39.4)	40 (1.6)	3.8 (0.1)	152 (9.3)

TAP carbon steel (SM45C)

Tool mm (inch)	Spindle speed r/min	Feed rate mm/min (ipm)	Cutting width mm (inch)	Cutting depth mm (inch)	Chip removal rate cm³/min (inch)
D12 (0.5)	1600	475 (18.7)	5 (0.2)	10 (0.4)	24 (1.5)

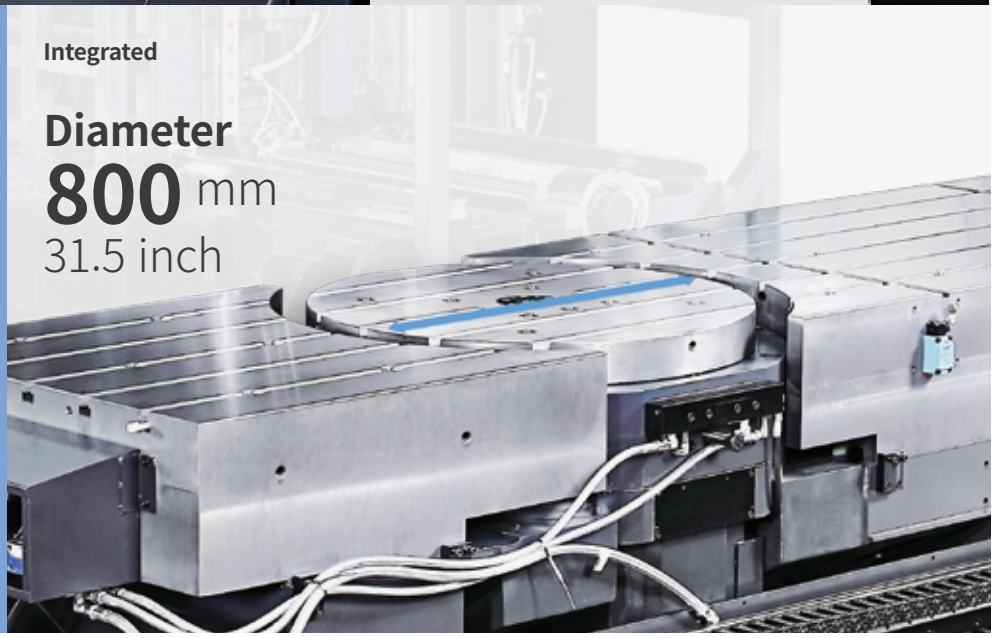
ROTARY TABLE

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.

Workpieces with a maximum diameter of ø1050mm can be accommodated on the integrated tables.



Type	Rotary table diameter mm (inch)	Max. work diameter mm (inch)	Rapid r/min	Load capacity kg (lb)	
Mounted	ø500 (19.7)	ø730 (28.7)	30	Vertical	600 (1322.8)
				Horizontal**	300 (661.4)
Integrated	ø800 (31.5)	ø1050 (41.3)	25	1200 (2645.5)	

** Please consult us about the attachable/detachable configuration.* *** For the rotary table only (excluding support).*

MAGAZINE

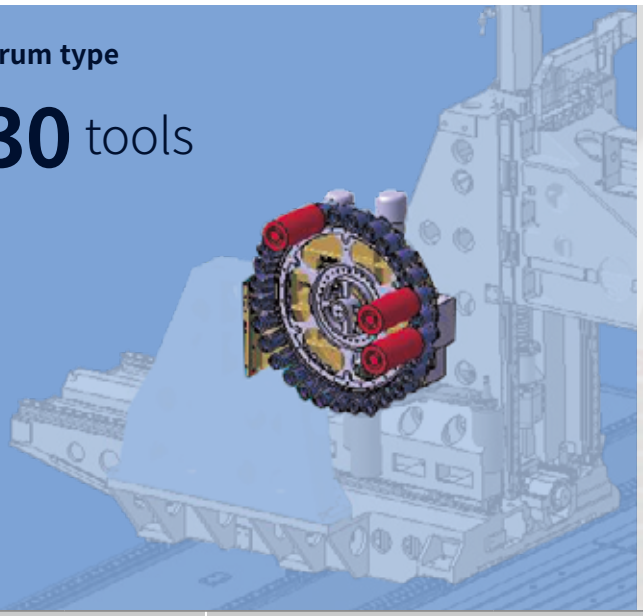
Magazine reliability is guaranteed by the integration of servo motors. Tool storage capacity can be extended up to 60 tools.

Tool magazine

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

Drum type

30 tools



Chain type option

60 tools

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 850 [L] Ⅱ	VCF 850 SR [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		●	●
	Swivel head		×	●
Auto tool measuring device	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 (1.1 kW_0.44MPa)		●	●
	BED CHIP FLUSHING		●	●
	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			×	×
TSC	NONE		●	●
	1.5 kW_2.0 MPa		○	○
	4.0 kW_2.0 MPa		○	○
	5.5 kW_7.0 MPa		○	○
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 intergrated type D800 rotary table)		○	○
	100 tool Magazine		○	○

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

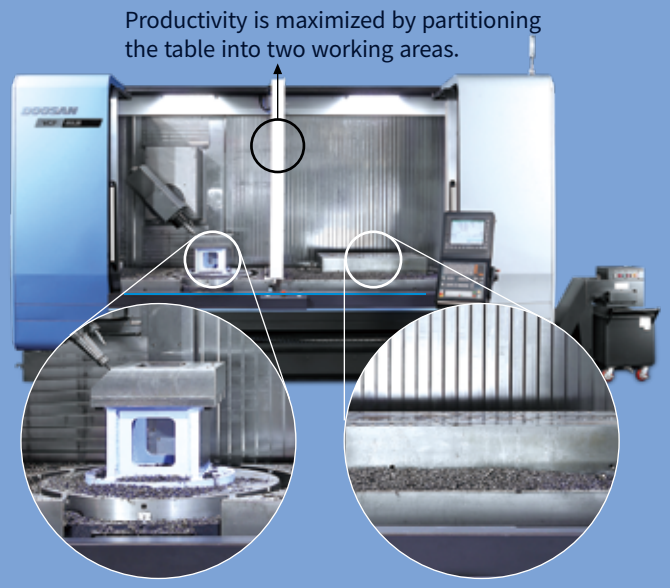
● *Standard* ○ *Optional* × *Not applicable*

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

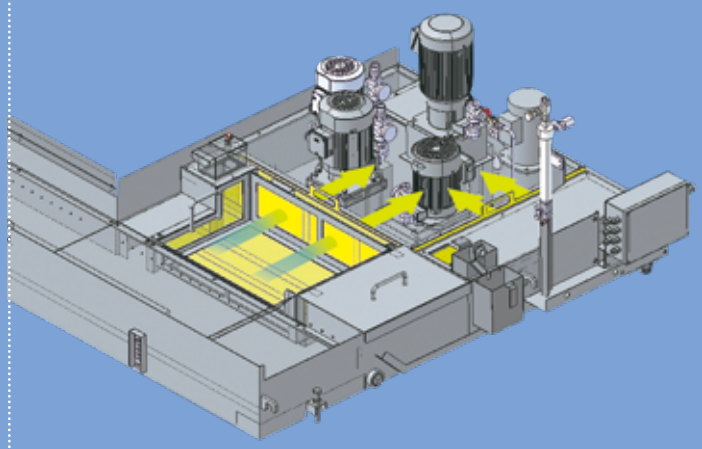
Center partition *option*

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



Coolant tank *option*

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

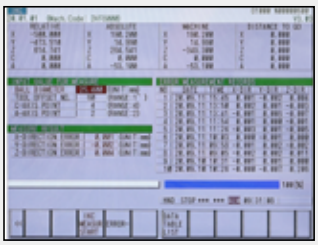


Intelligent kinematic compensation for 5-axis machining

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

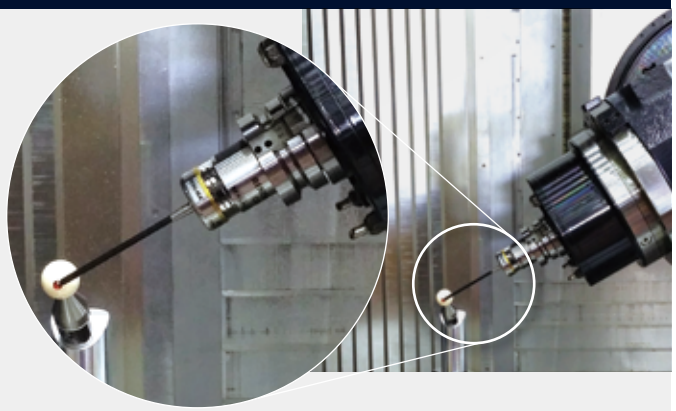
Recommended optional items

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

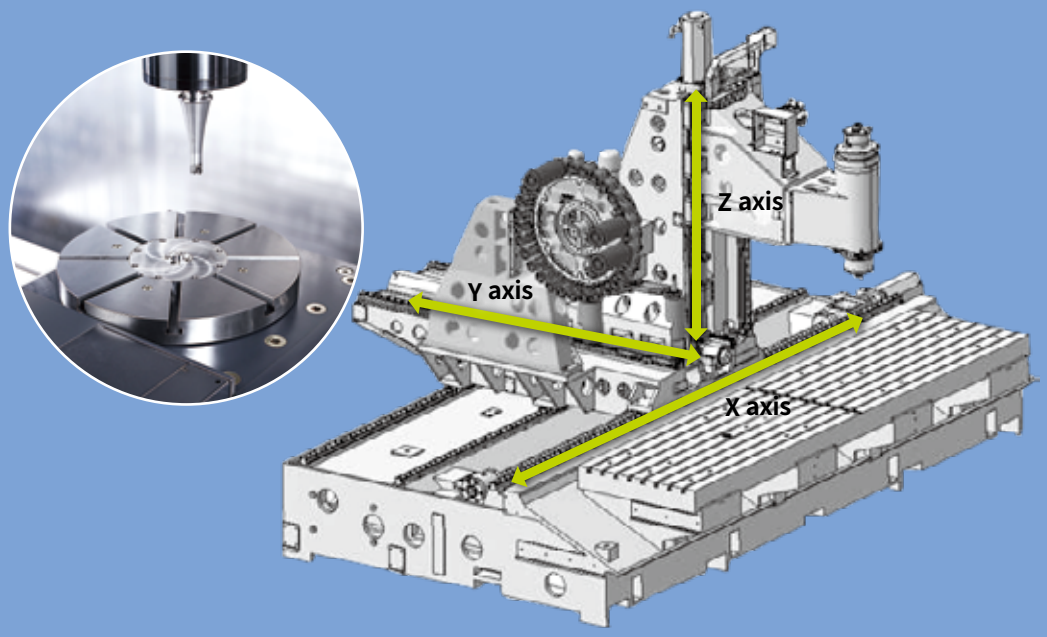
APPLICATIONS

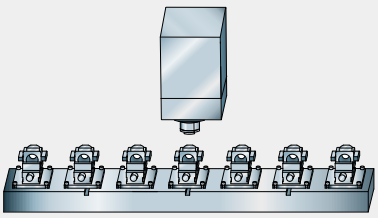
A wide range of different machining and production solutions are available to customers.

VCF 850 / L Ⅱ

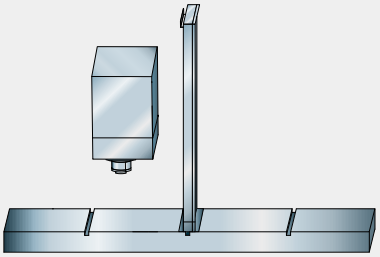
A range of flexible, high-productivity solutions are available to customers using the center position and the machines' 3-axis capabilities.

3-axes standard machine

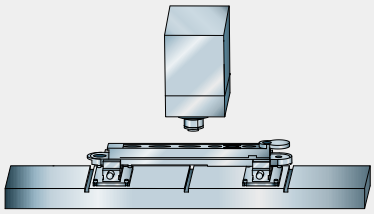




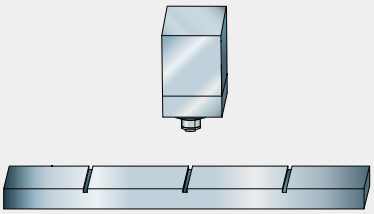
Small items, mass production



Multi-functional application of table by center partitioning



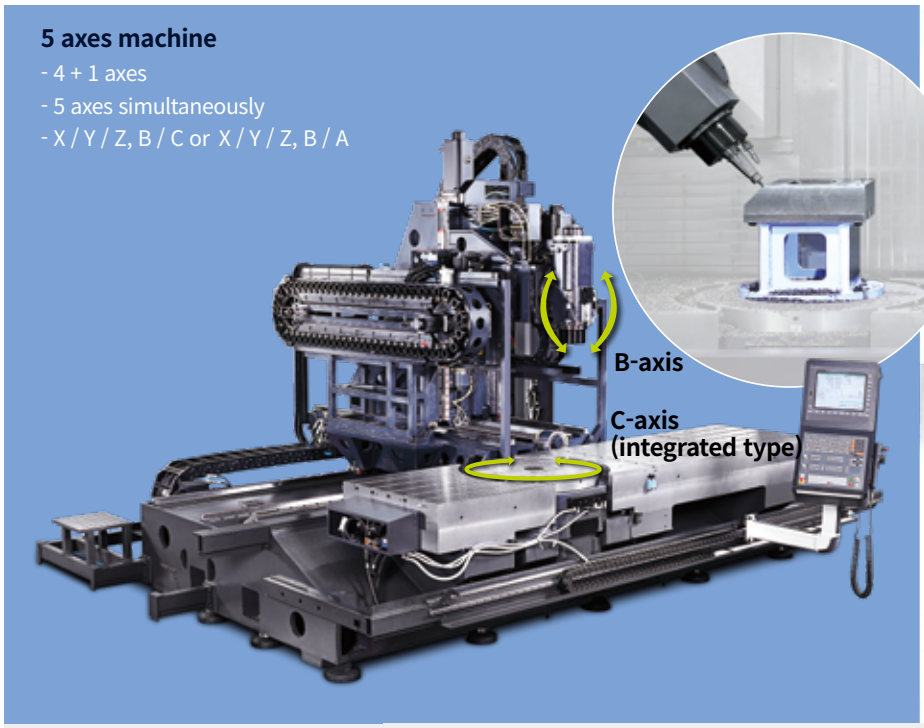
Long work piece machining as one piece

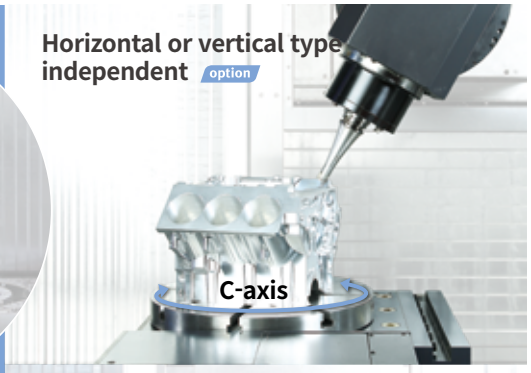


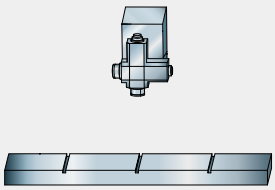
3-axes standard machining

VCF 850SR / LSR Ⅱ

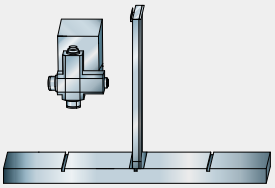
A range of flexible, high-productivity solutions are available to customers using the center position, and the machines' 4- and 5-axis simultaneous machining capabilities.



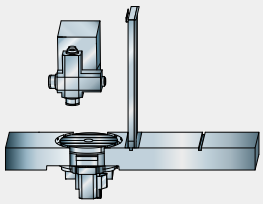




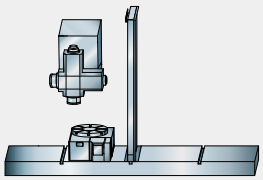
4 axis standard machining



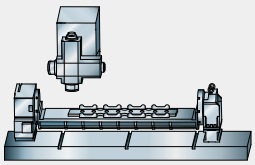
4 axis rear-side divided standard machining



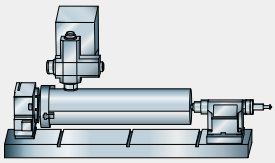
5 axis rear-side divided standard machining (Embedded rotary table)



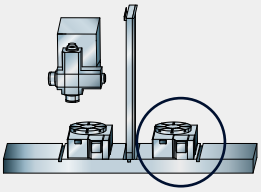
5 axis rear-side divided standard machining (Top-mounted rotary table)



5 axes long workpiece machining (One-setting, continuous machining)



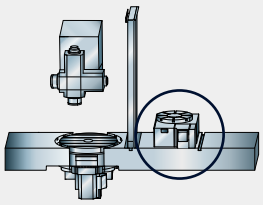
5 axes long workpiece machining (Tilting machining and end support)



5 axis rear-side divided standard machining (Top-mounted rotary table)

+ additional axis

VCF 850LSR Ⅱ only



5 axis rear-side divided standard machining (Embedded rotary table)

+ additional axis

VCF 850LSR Ⅱ only

FANUC 31i/32i PLUS

Fanuc 31i/32i 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/32i Plus

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

USB and PCMCIA card QWERTY keyboard

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

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

FANUC

Item		Specifications	F31iB5 Plus	0i 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	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	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	X	●
	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 X N/A ✪ Available
Network: FANUC MT Connect 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

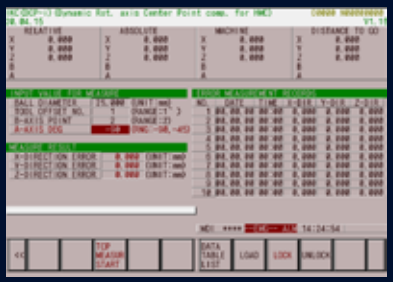
Function to manage tool information [Tool information / Tool No. / Tool condition (normal, large diameter, worn / damaged, used for the rst time, manual) / Tool name]

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)

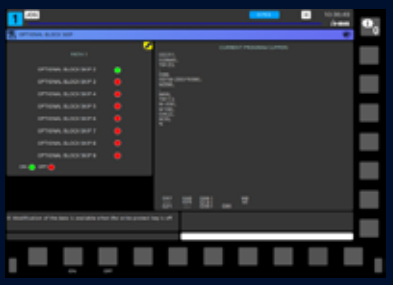
The function to compensate the position of the workpiece and the tool tip to be constant regardless of the rotation of the rotating shaft error

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

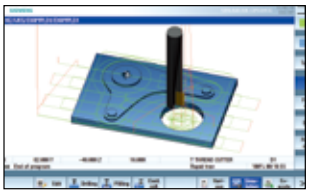
SIEMENS 840D

15.6" screen + New operation panel

The newly-designed operation panel improves the customer convenience by incorporating and using common-design buttons and layouts, and includes the familiar QWERTY keyboard for fast and easy operation.

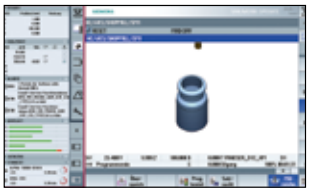
- 15.6" display
- 10MB high capacity user memory
- USB & ethernet (standard)
- QWERTY keyboard (standard)
- High-speed calculation and simulation can be fulfilled by improved processor functionality

Conversational convenient function



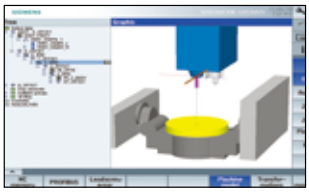
Simulation and machining contour monitoring

Smart function

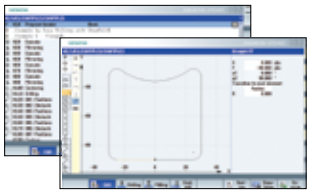


Side screen widget

5-axis kinematic measuring cycles



3D collision avoidance and collision avoidance ECO



Shop mill part programming

NUMERIC CONTROL SPECIFICATIONS

SIEMENS

	Item	Specifications	S840Dsl VCF850LSR
Controlled axis	Controlled axes	-	5 axis
	Simultaneously controlled axes	-	5 axis
Data input/output	Memory card input/output	(Local drive)	●
	USB memory input/output		●
Interface function	Ethernet	(X130)	●
Operation	On network drive	(without EES option, Extcall)	●
	On USB storage medium, e.g. memory stick	(without EES option, Extcall)	●
Program input	Workpiece coordinate system	G54 - G57	●
	Addition of workpiece coordinate system	G505 - G599	●
Interpolation & feed function	Advanced surface		●
	Top surface		○
	Look ahead number of block	S/W version 4.8	1000
Programming & editing function	3D simulation, finished part		●
	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		●
Network	MTConnect		✪
	OPCUA		○
Etc. function	15.6" color display with touch screen		●
	19" color display without touch screen		○
	21.5" color display with touch screen		○
	CNC user memory	10 MB	●
	Expansion by increments	2 ~ 12 MB	○
	Collision avoidance		○
	Collision avoidance ECO (machine, working area)		●

● *Standard* ○ *Optional* X *Not Available* ✪ *Available*

CONVENIENT OPERATION

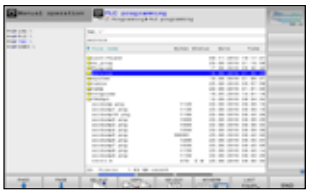
Heidenhain TNC640

Superior hardware specifications

The TNC 640 features optimized motion control, short block processing times and special control strategies. Together with its uniform digital design and its integrated digital drive control (including inverters), it enables you to achieve high machining speeds and the best possible contour accuracy.

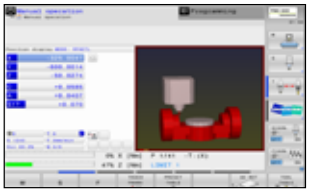
- 15.6" display
- 21GB Storage memory
- 1024 look ahead blocks
- High user convenience with folder structure data management

Conversational convenient function



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

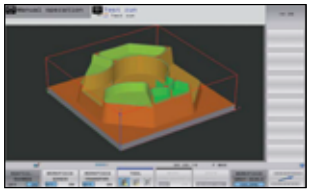
KinematicOpt & kinematicComp option
Touch probe cycle for automatic measurement



Collisionprotection system(DCM) option

Adaptive feed control (AFC) option

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



Graphic simulation

NUMERIC CONTROL SPECIFICATIONS

HEIDENHAIN

Item		Specifications	TNC640 VCF850LSR
Controlled axis	Controlled axis		5 (X,Y,Z,B) (X,Y,Z,B,A) (X,Y,Z,B,C)
	Simultaneously controlled axis		5 axis
Data input/output	USB memory input/output		●
Interface function	Embedded ethernet		●
Feed function	Look-ahead	5000 blocks	●
Axis compensation	KinematicsOpt	Automatic measurement and optimization of machine kinematics	●
Collision monitoring	Dynamic collision monitoring (DCM)		○
Network	MTConnect		✪
Others	Display unit	15.1 inch TFT color flat panel	●
		15.1 inch TFT color with Touch Panel	○
		19 inch TFT color flat panel	○
		19 inch TFT color with Touch Panel	○
	Part program storage size & number of registerable programs	21 GB	●
		1.8GB	X

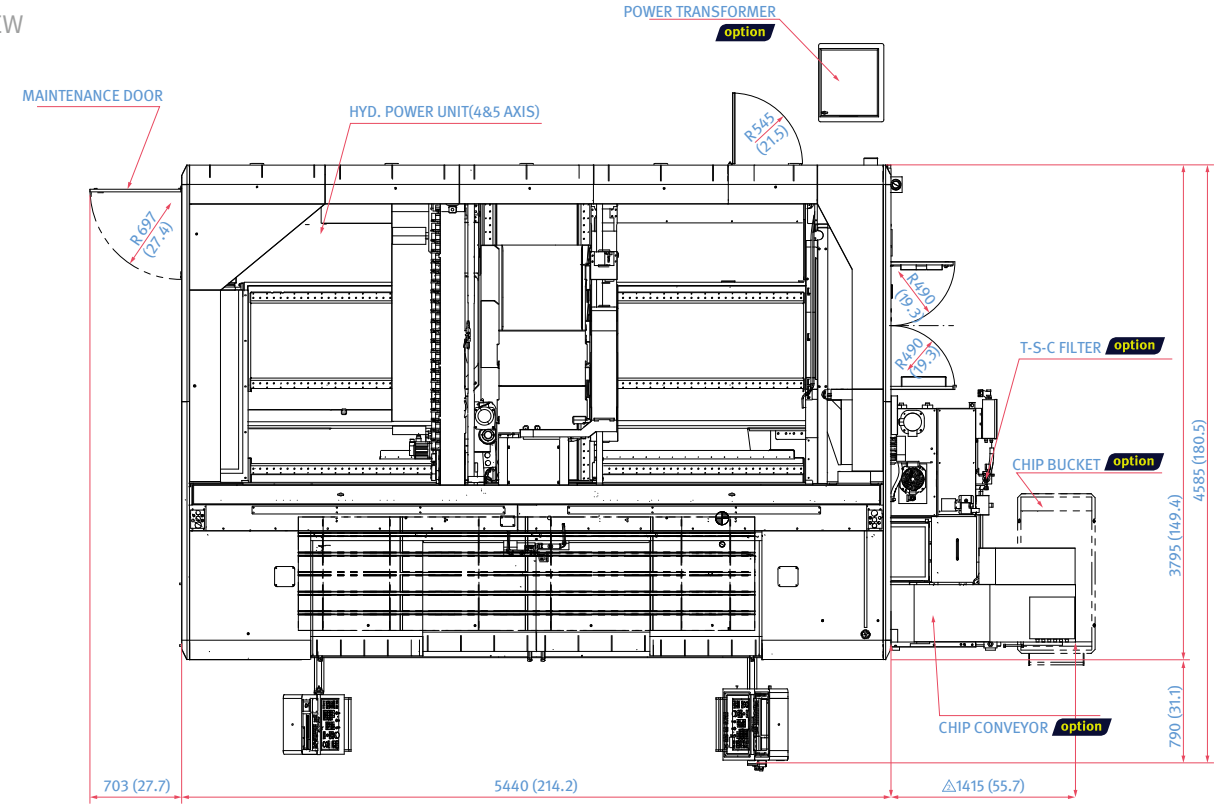
● *Standard* ○ *Optional* X *Not Available* ✪ *Available*

VCF SERIES DIMENSIONS

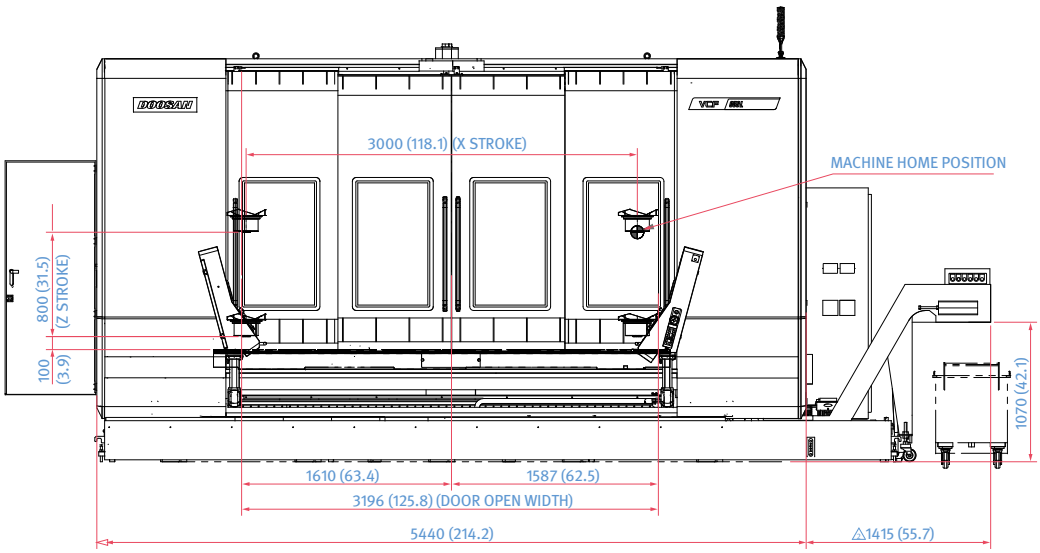
VCF 850LSR Ⅱ (Right chip conveyor)

Units : mm (inch)

TOP VIEW



FRONT VIEW



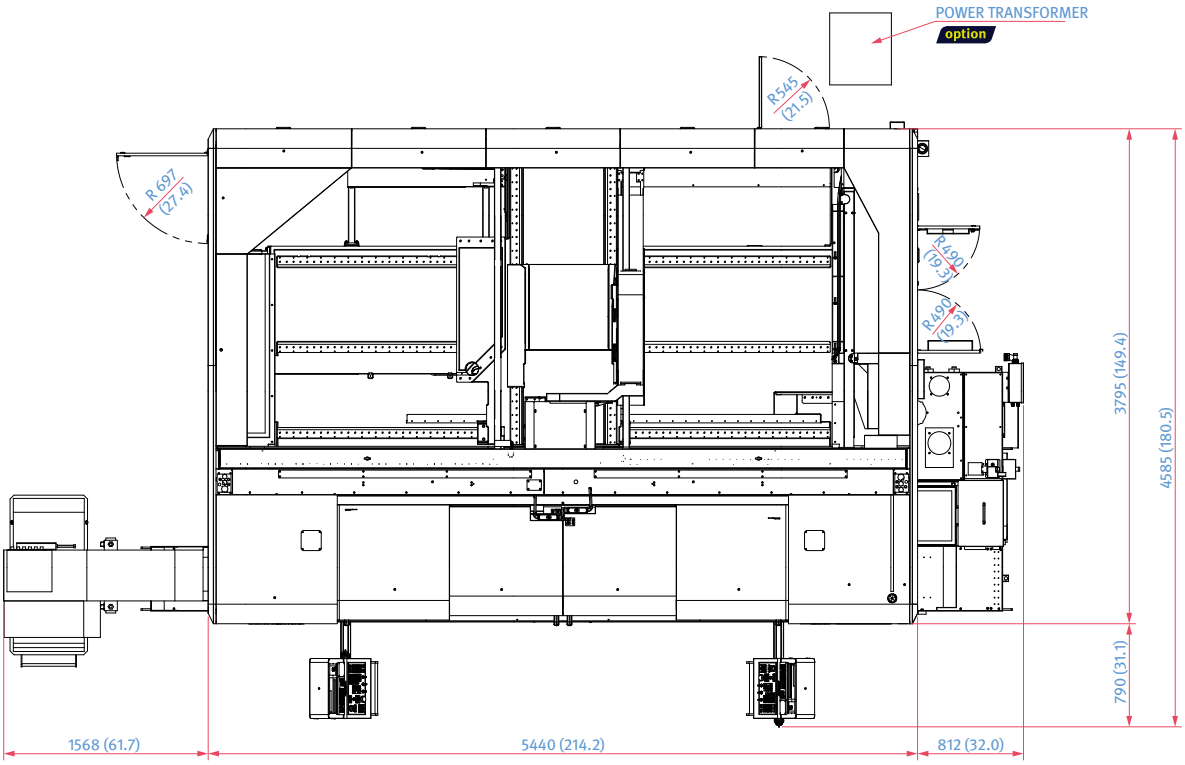
** Some peripheral equipment can be placed in other places*

VCF SERIES DIMENSIONS

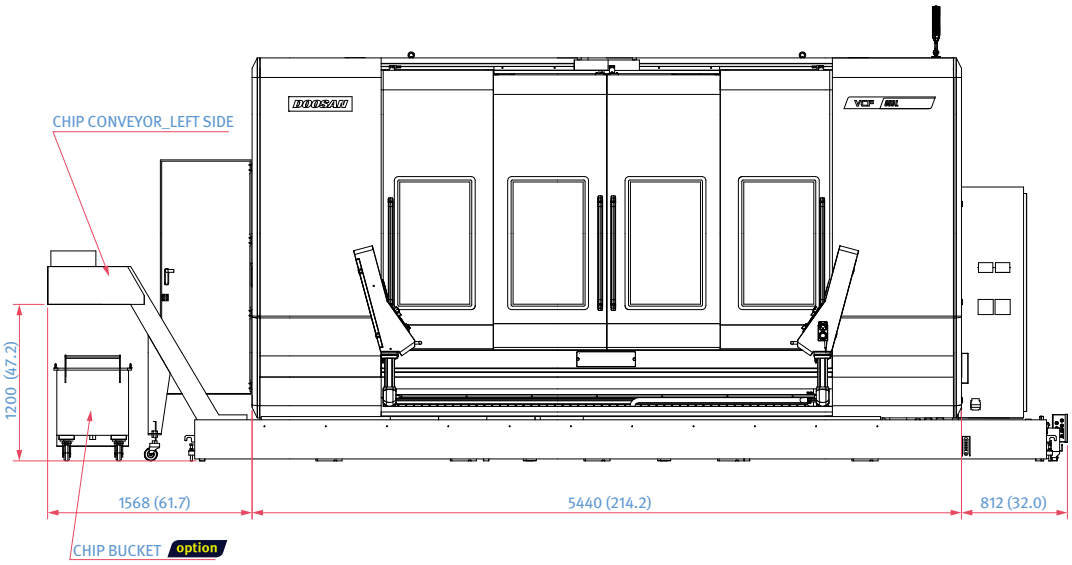
VCF 850LSR Ⅱ (Left chip conveyor)

Units : mm (inch)

TOP VIEW



FRONT VIEW



** Some peripheral equipment can be placed in other places*

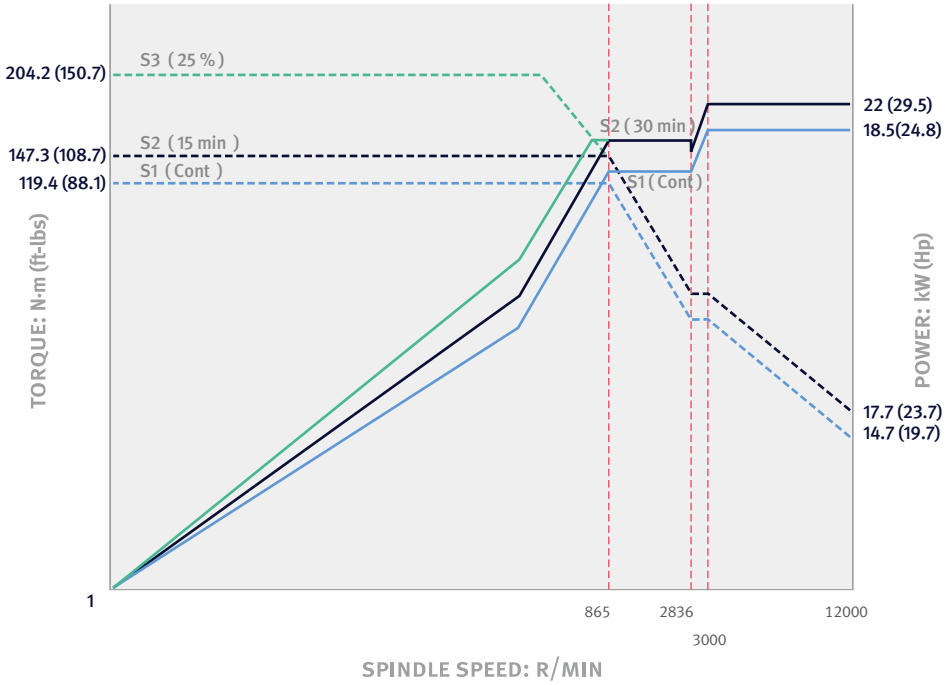
POWER | TORQUE

FANUC

12000 r/min

POWER: **22/18.5** kW
29.5/24.8 hp

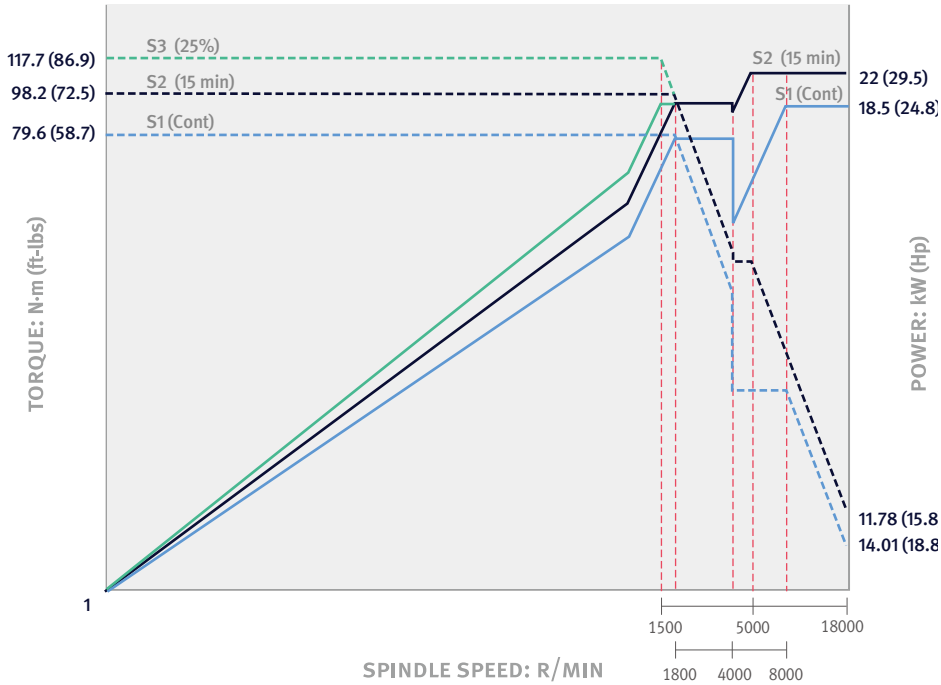
TORQUE: **204.2** N · m
150.6 ft-lbs



18000 r/min option

POWER: **22/18.5** kW
29.5/24.8 hp

TORQUE: **117.7** N · m
86.9 ft-lbs



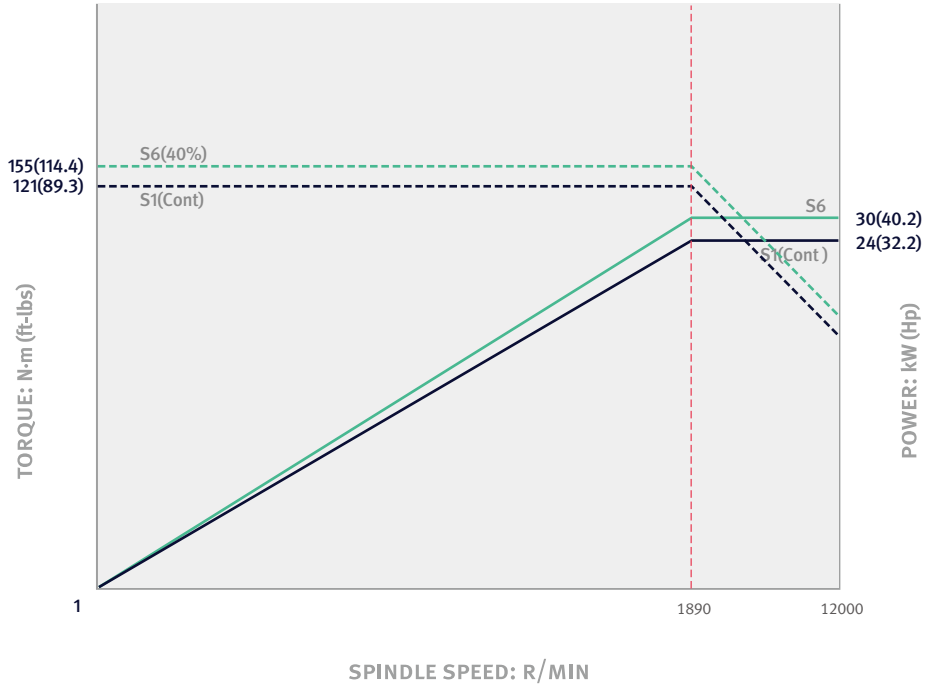
POWER | TORQUE

SIEMENS

12000 r/min

POWER: **30/24** kW
40.2/32.2 hp

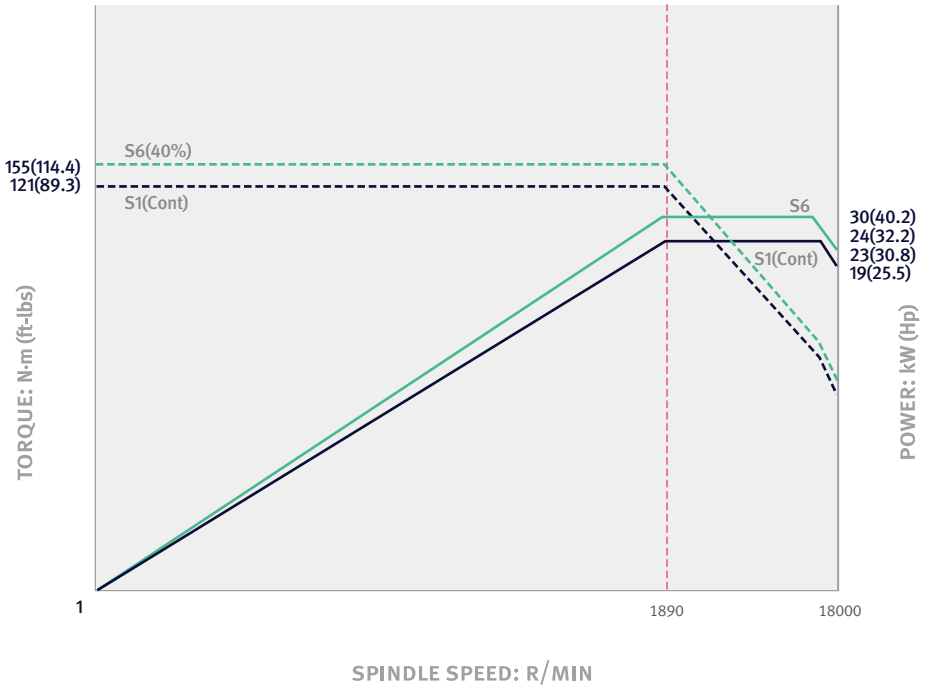
TORQUE: **155** N · m
114.4 ft-lbs



18000 r/min option

POWER: **30/24** kW
40.2/32.2 hp

TORQUE: **155** N · m
114.4 ft-lbs



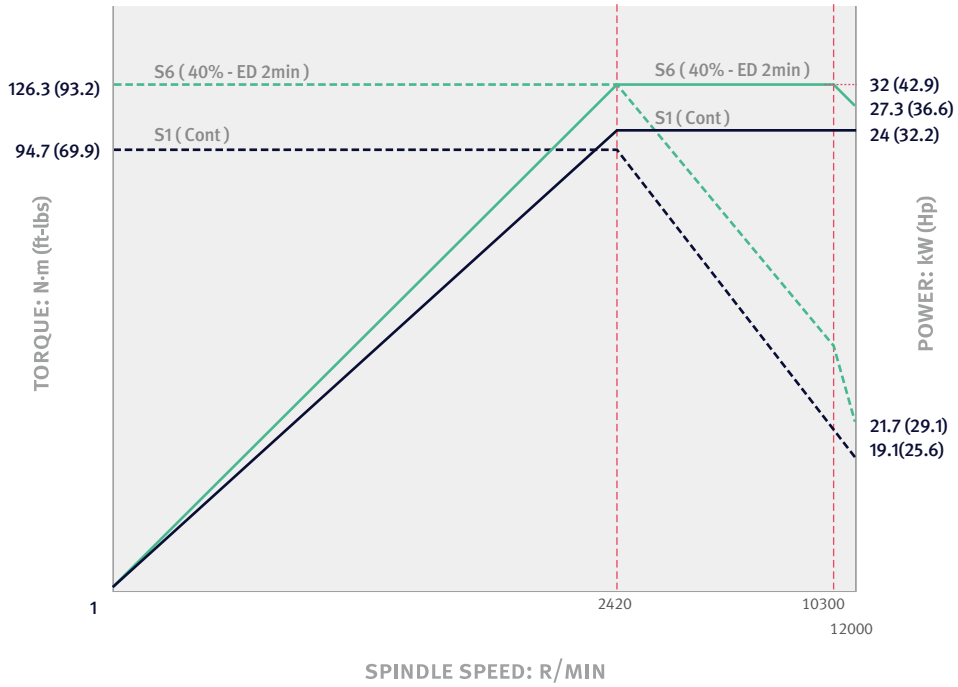
POWER | TORQUE

HEIDENHAIN

12000 r/min

POWER: **32/24** kW
42.9/32.2 hp

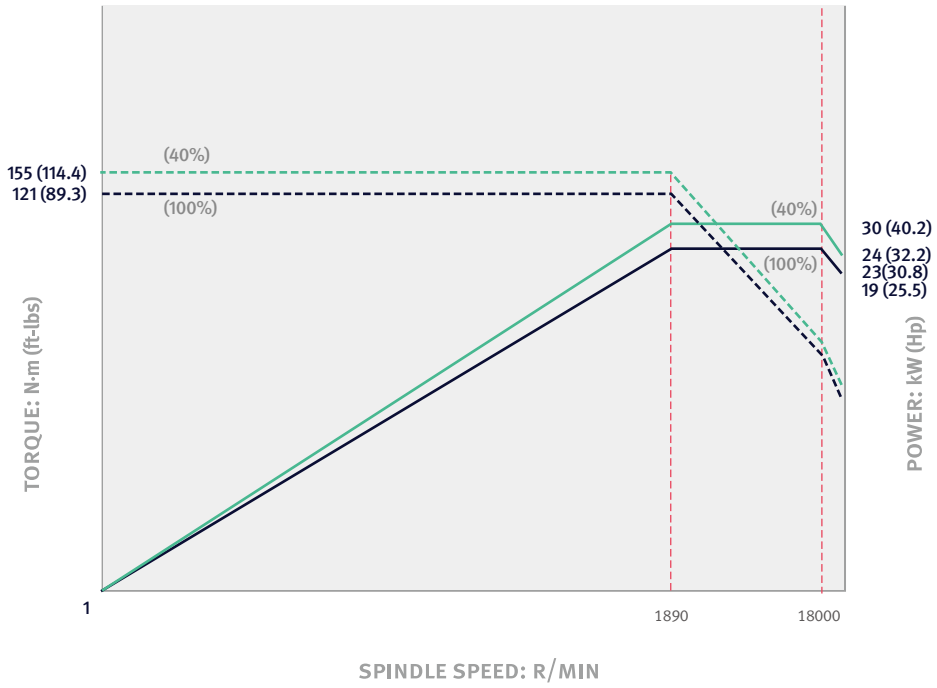
TORQUE: **126.3** N · m
93.2 ft-lbs



18000 r/min option

POWER: **30/24** kW
40.2/32.2 hp

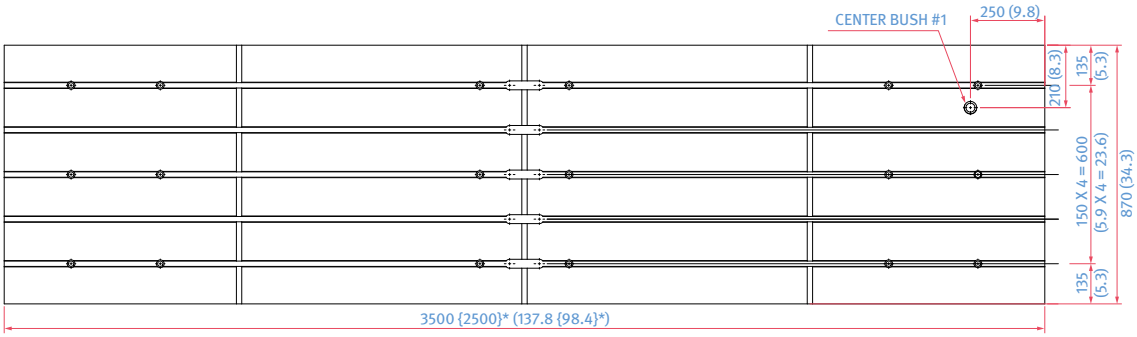
TORQUE: **155** N · m
114.4 ft-lbs



TABLE

Rigid table

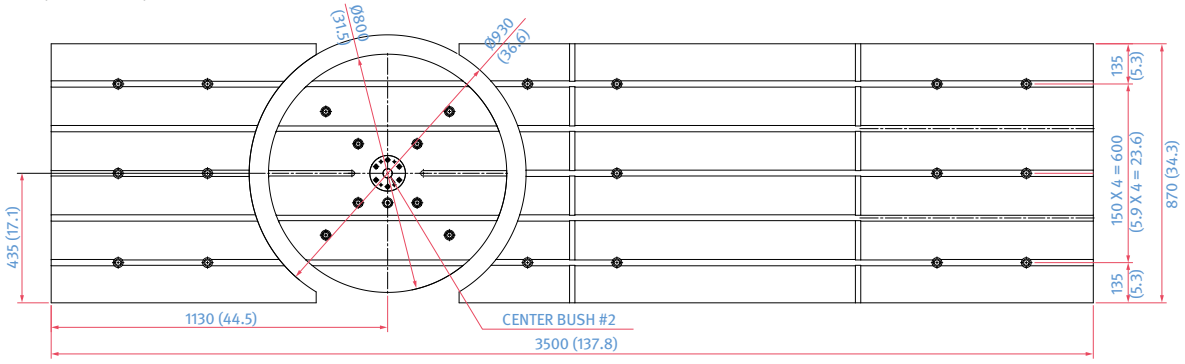
Units : mm (inch)



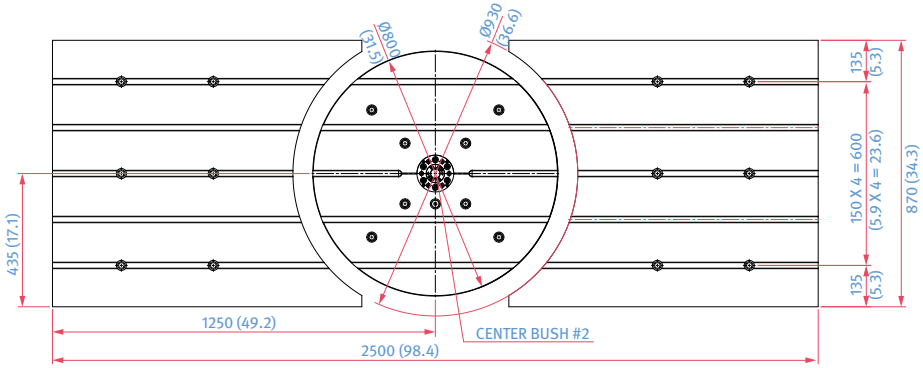
{ } : Option

Rigid table w/D800 built-in rotary table

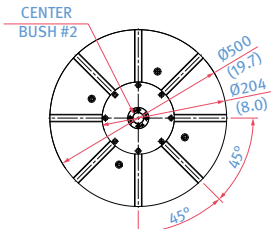
VCF 850LSR Ⅱ (X axis 3m)



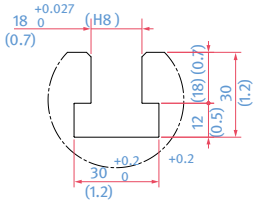
VCF 850SR Ⅱ (X axis 2m)



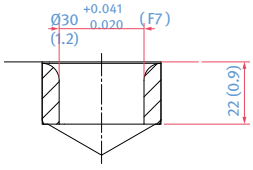
D500 Rotary table



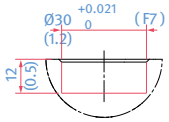
T-slot detail



Center bush #1 detail



Center bush #2 detail



MACHINE SPECIFICATIONS

VCF 850 series

Description			Unit	VCF 850 [L] Ⅱ	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)	100 ~ 900 (3.9 ~ 35.4)	Mounted Rotary Table	Distance between Spindle nose & Table top	100 ~ 900 (3.9 ~ 35.4)
						Distance between B axis center & Table top	435 ~ 1235 (17.1 ~ 48.6)
					Integrated Rotary Table	Distance between Spindle nose & Table top	-40 ~ 760 (-1.6 ~ 29.9)
						Distance between B axis center & Table top	295 ~ 1095 (11.6 ~ 43.1)
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	7200			
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)	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			
	Tool change time (tool to tool)		s	5.5			
	Tool change time (chip to chip)		s	13			
Motor	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)	0.9 (1.2)			
Power source	Power consumption (HEIDENHAIN)		kVA	60			
	Power consumption (FANUC)		kVA	54			
	Power consumption (SIMENS)		kVA	54			
	Compressed air pressure		MPa	0.54			
Tank capacity	Coolant tank capacity		L (galon)	VCF 850 [SR] Ⅱ : 520 (137.4) VCF 850L [LSR] Ⅱ : 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)	VCF 850 [SR] Ⅱ : 22000 (48501.0) VCF 850L [LSR] Ⅱ : 24000 (52910.2)			
Control	Standard			FANUC 31iB5, CUFOS, HEIDENHAIN TNC 640			
	Option			SIEMENS S840D			

*{ } : Option

WHY 5-AXIS MACHINING?

Single setup efficiency

5-axis machining allows you to approach the workpiece from all angles, with complete access to five sides of the part in a single setup. This reduces the overall number of part setups compared to traditional machining, which minimizes machine downtime and maximizes chip making time.

Improved part accuracy

When making parts with multi-sided features using traditional 3-axis machining, multiple part setups are required. This means new inaccuracies can arise each time the workpiece is repositioned. 5-axis machining eliminates stacked tolerances and improves overall part dimensional accuracy.

Extended machine shop capability

DN Solutions 5-axis machines open up new doors for your machine shop. The increased efficiency will make you instantly more competitive, and full 5-axis machining capabilities give you the opportunity to quote on jobs that previously weren't possible. So, what are you going to make today?

"Compared with similar machines from Japan or Europe, DN Solutions has the same level of precision and quality at a better value for money."

– ***OMGM Group**, Italy*

"Our DN Solutions 5-axis is making complex, high precision parts for aerospace and defense. Cycle times have been reduced dramatically."

– ***Aerotech Precision Manufacturing**, Great Britain*

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…

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.

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.

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.

EXPERT SERVICE

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

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**
155	**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.

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