Double Column type CNC Vertical Turning Center

VTB/VTC Series

VTB(C)-2530E/3040E/4050E/5060E

HANKOOK

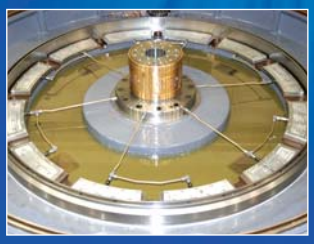
VTB/VTC-2530E/3040E/4050E/5060E

Double Column type CNC Vertical Turning Center with Cross-rail Elevating

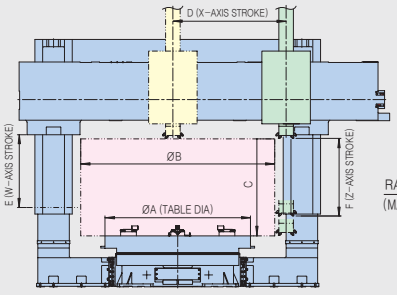
■ High Productivity
- Maximum 6000mm turning capacity
- 60 tons load capable table
- 150kW(200HP) main drive motor power
- Elevating cross rail of 1500~2500mm stroke
- Fully controlled C-axis and rotary spindle

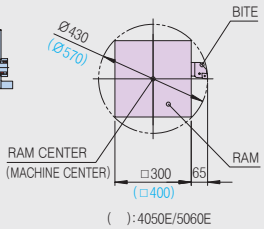
■ High Reliability
- Heavy duty guide ways of box type
- Massive one-piece cast iron bed, column and cross rail
- Induction-hardened and precise-ground guide ways
- Extra large 300 and 400mm square spheroidal-graphite-iron ram
- Hydrostatic table bearing(option)

■ High Accuracy
- Qualified precision bearings & ball screws
- Fluoroplastic-bonded & hand-scraped guide ways
- Full automatic lubrication to all critical areas



■ Machining Range





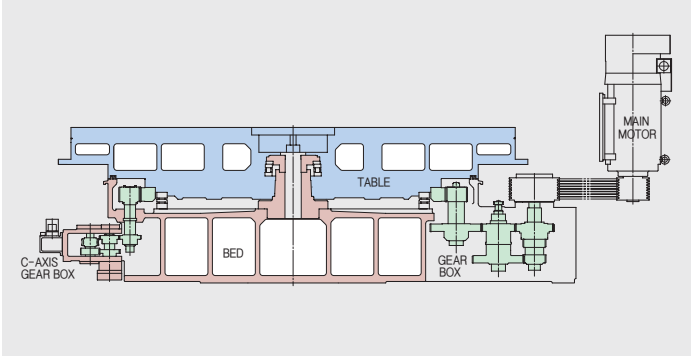
●Minimum Boring

Unit : mm

	VTB(C)-2530E	VTB(C)-3040E	VTB(C)-4050E	VTB(C)-5060E
A	2500	3000	4000	5000
B	3000	4000	5000	6000
C	2000/2500	2000/2500	2500/3000	2500/3000
D	1835	2335	3745	4245
E	1500/2000	1500/2000	2000/2500	2000/2500
F	1600	1600	2000	2000

Super large CNC vertical ***VTB/VTC*** *series presents a new standard of double column type vertical turning center.*

Bed/Table

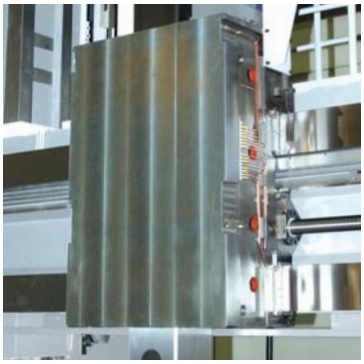


- One-piece casting bed of box shape and rib structure safely support the load of large work-piece to the maximum 60 tons.
- Table is made of high quality casting, and the variously shaped work-piece can be clamped with 8T-slots and 8 independent manual slide jaws on the table.
- Table is supported on the high precision thrust cylindrical roller bearing and tapered roller bearing, and it fully stands heavy-duty cutting load with rigidity.
- Gear driven table by a large diameter helical gear connected with powerful main motor and v-belts, and the gears are changed at two-step(high & low) by hydraulic cylinder.
- Shafts and gears are made by special steel, and heat-treated, precise-ground, so those help the table in stable rotation even at high torque.
- On VTC model, C-axis drive unit is installed on bed, and it can index to the minimum 0.001degree, so various milling jobs are possible with this unit.

Cross-rail/Column

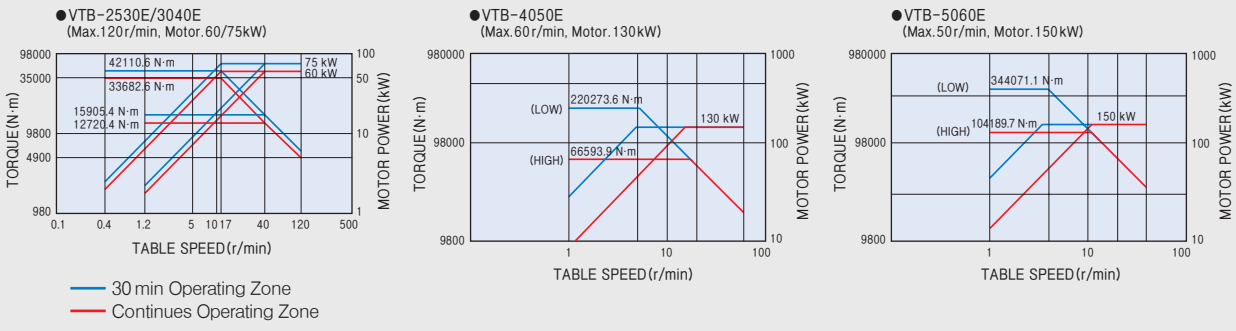
- Cross-rail is accurate-sliding on the column guide-way by AC servo motor and high precise ball screw and strong-fixed by hydraulic clamping device after positioning. It travels to the maximum 2500mm.
- Column has thick wall and rib structure of box-shape, so can be fully rigid to sustain torsion or bending generated during heavy-duty cutting.

Saddle/Ram



- The saddle enclosing the ram is one-piece casting to keep the high rigidity.
- The ram of special cast iron is heat-treated and precise-ground. 300 and 400mm sized square ram can vertically travel to the 1600 and 2000mm maximum.
- Ram head can equip tool holders of ISO 7/24 taper #50(BT50) standard and MAS P50T-I pull stud.
- Each guide-way for feeding axis is lubricated and attached with Turcite for reduced wear and friction-resistance and to keep it in the most optimum condition.
- It is possible to face-mill, end-mill, drill or do other multiple milling jobs on VTC, so it increases productivity accompanied with intensive work progress and effective process.

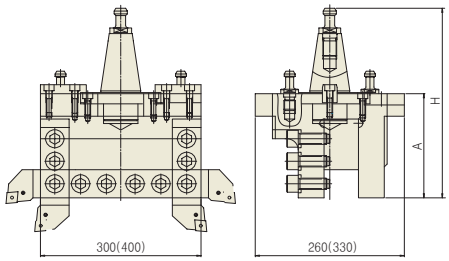
Table Torque-Power Diagram



■ *Tool Holders (Option)*

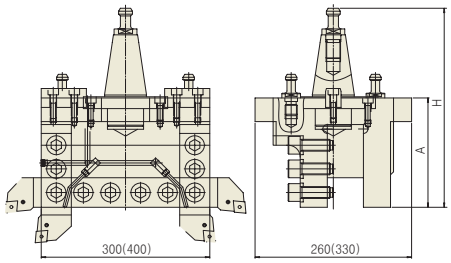
Unit : mm

● Square tool holder (Standard type)



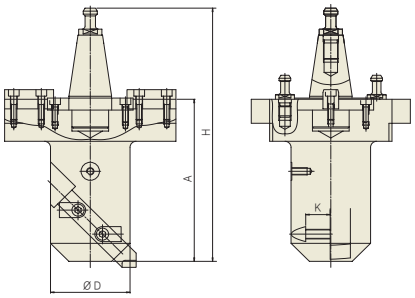
Model No.	A	H	Tool Size
TE25(40)-41000-0060	185	336.8	□ 50
TE25(40)-41000-0061	235	336.8	□ 50
TE25(40)-41000-0062	285	436.8	□ 50

● Square tool holder (Through tool coolant)



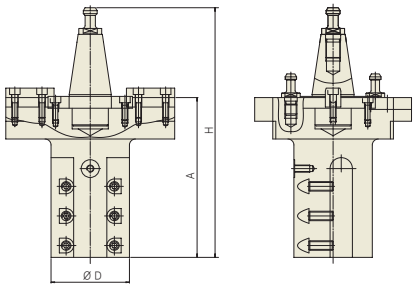
Model No.	A	H	Tool Size
TE25(40)-41000-0160	185	336.8	□ 50
TE25(40)-41000-0161	235	336.8	□ 50
TE25(40)-41000-0162	285	436.8	□ 50

● Boring tool holder (BA type)



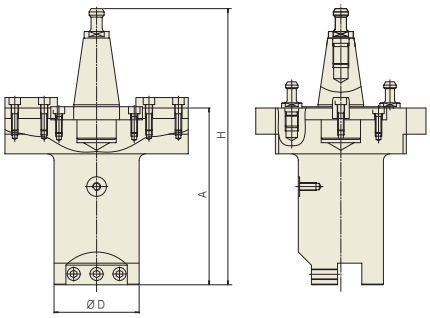
Model No.	A	D	H	Tool Size
TE25(40)-41000-5040	270	ø 130	421.8	□ 32
TE25(40)-41000-5041	320	ø 130	471.8	□ 32
TE25(40)-41000-5042	370	ø 130	521.8	□ 32
TE25(40)-41000-5043	420	ø 130	571.8	□ 32

● Boring tool holder (BP type)



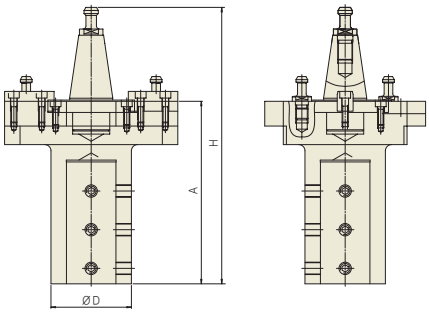
Model No.	A	D	H	Tool Size
TE25(40)-41000-5140	270	ø 130	421.8	□ 32
TE25(40)-41000-5141	320	ø 130	471.8	□ 32
TE25(40)-41000-5142	370	ø 130	521.8	□ 32
TE25(40)-41000-5143	420	ø 130	571.8	□ 32

● Boring tool holder (BF type)



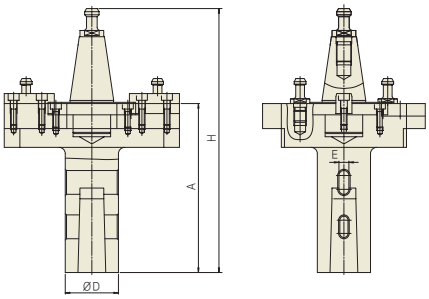
Model No.	A	D	H	Tool Size
TE25(40)-41000-5240	270	ø 130	421.8	□ 32
TE25(40)-41000-5241	320	ø 130	471.8	□ 32
TE25(40)-41000-5242	370	ø 130	521.8	□ 32
TE25(40)-41000-5243	420	ø 130	571.8	□ 32

● Side lock holder



Model No.	A	D	H	Tool Size
TE25(40)-41000-5350	220	ø 80	371.8	ø 40
TE25(40)-41000-5360	220	ø 100	371.8	ø 50
TE25(40)-41000-5370	245	ø 100	396.8	ø 60
TE25(40)-41000-5380	295	ø 130	446.8	ø 80

● Morse taper holder



Model No.	A	D	H	Tool Size
TE25(40)-41000-5450	270	ø 80	421.8	MT # 5
TE25(40)-41000-5460	345	ø 110	496.8	MT # 6
TE25(40)-41000-5470	420	ø 130	571.8	MT # 7

Note. ( ) : 4050E/5060E

Machine Specifications

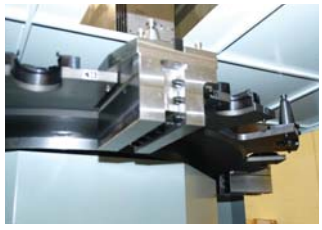
Items		Unit	VTB [VTC]	
			VTB(C)-2530E	VTB(C)-3040E
Capacity	Maximum swing	mm(inch)	3000 (118.1)	4000 (157.5)
	Maximum turning diameter	mm(inch)	3000 (118.1)	4000 (157.5)
	Maximum turning height	mm(inch)	2000/2500 (78.7/98.4)	2000/2500 (78.7/98.4)
	Maximum load on table	kg(lbs)	20,000 (44,100)	30,000 (66,140)
Table	Table diameter	mm(inch)	2500 (98.5)	3000 (118.1)
	Table speed	rpm	1~120	1~100
	Number of table speed range	step	Automatic 2	
C-axis	Cutting feed	deg/min	[0~180]	
	Maximum speed	rpm	[0.5]	
Tool Head	Tool size	mm(inch)	□50 (□2)	
	Spindle taper	–	ISO 7/24 No.50	
	Section dimension of square ram	mm(inch)	300×300 (11.8×11.8)	
	Mill spindle speed	rpm	[15-1500]	
Travel & Feed	X-axis travel(Saddle cross)	mm(inch)	1835 (72.2)	2335 (92.0)
	Z-axis travel(Ram vertical)	mm(inch)	1600 (63.0)	
	W-axis travel(Cross rail vertical)	mm(inch)	1500/2000 (59.1/78.7)	
	X/Z-axis cutting feed-rate	mm/min	Max. 8000	
	X/Z-axis rapid traverse	mm/min(ipm)	8000 (315)	
	W-axis rapid traverse	mm/min(ipm)	500 (19.7)	
ATC	Type of tool holder	–	MAS BT50	
	Number of tool	set	VTB : 12 tools, VTC : 24 tools	
	Maximum tool weight	kg(lbs)	90 (198)	
	Type of pull stud	–	P50T-I	
Motors	Table motor	kW(Hp)	AC 60/75 (80/100)	
	Mill spindle motor	kW(Hp)	[AC 22/26 (25/30)]	
	X-axis servo motor	kW(Hp)	AC 9 (12)	
	Z-axis servo motor	kW(Hp)	AC 9 (12)	
	C-axis servo motor	kW(Hp)	[AC 9 (12)]	
	W-axis servo motor	kW(Hp)	AC 7 (9.5)	
Machine weight		kg(lbs)	90,000 (198,400)	95,000 (209,500)
CNC system		–	FANUC 31i-A	

Standard Accessories

- CNC controller, FANUC 31i-A
- AC table and servo drives and motors
- Heavy duty 4-jaw independent chuck
- Automatic tool changer system (VTB:Turning 12-tool, VTC:Turning 12, Milling 12-tool)
- Table gears & bearings oil cooling unit
- C-axis scale(VTC only)
- Hydraulic power unit
- Automatic lubrication system for guides
- Coolant system
- Splash guard
- X-axis telescopic steel cover
- Work light
- Patrol lamp(Red, Yellow, Green)
- Levelling block
- Foundation bolt & nut
- Operating tool box & tool kits

Optional Accessories

- Through spindle coolant
- Chip conveyor & bucket
- NC power off
- Transformer
- Tool setter
- Tool holders
- Scale feedback(X/Z/W)



VTB[VTC]	
VTB(C)-4050E	VTB(C)-5060E
5000 (196.9)	6000 (236.2)
5000 (196.9)	6000 (236.2)
2500/3000 (98.4/118.1)	2500/3000 (98.4/118.1)
50,000 (110,230)	60,000 (132,280)
4000 (157.5)	5000 (196.9)
1~60	1~50
Automatic 2	
[0~120]	
[0.333]	
□50 (□2)	
ISO 7/24 No.50	
400×400 (15.7×15.7)	
[30-3000]	
3745 (147.4)	4245 (167.1)
2000 (78.7)	
2000/2500 (78.7/98.4)	
Max. 6000	
6000 (236)	
500 (19.7)	
MAS BT50	
VTB : 12 tools, VTC : 24 tools	
110 (243)	
P50T-I	
DC 130 (175)	DC 150 (200)
[AC 37/45 (50/60)]	
AC 14 (19)	
AC 14 (19)	
[AC 16 (21)]	
AC 14 (19)	
220,000 (485,000)	250,000 (551,000)
FANUC 31i-A	

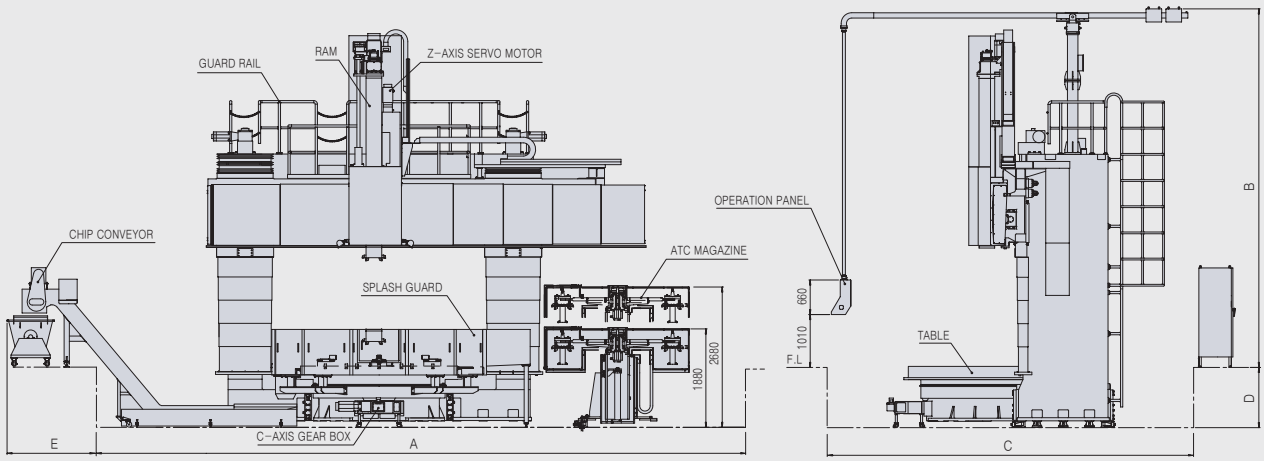
■ *Standard CNC Control Features*

FANUC 31i-A Control Features:
- Simultaneously controllable axes: 2
- Minimum programmable increment: 0.001mm(0.0001″)
- Tape storage length: 640m(2099feet)
- Registerable programs: 1000EA
- Backlash compensation
- Pitch error compensation
- Constant surface speed control
- Self diagnostic functions

Programming Features:
- Graphic display
- Dynamic graphic display(without manual Guide-i)
- Circular interpolation by radius designation
- Tool nose radius compensation (G40-G42)
- Combined use of absolute/incremental command
- Chamfering, corner R
- Canned cycles (G90, G92, G94)
- Decimal point programming
- Reference point return (G27-G30)
- Sub-program 10 holds nested
- Custom macro B
- Multiple repetitive cycles (G70-G76)
- Multiple repetitive cycle Ⅱ
- Custom macro additional variable (#500-#999)

Operation Features:
- 10.4″ TFT LCD
- Incremental encoder
- Geometry and wear offsets
- 32 pairs of tool offsets
- Run hour display
- Thread cutting retract
- Input/output interface (RS232C)
- Keyboard type manual data input(MDI full key)
- Program protect key
- Incremental offset
- Rapid traverse override
- Feed rate override
- Spindle speed override
- Tape code: EIA, ISO automatic recognition

■ *External Dimensions*



Unit : mm

Model	A	B	C	D	E
VTB-2530E (W stroke 1500/2000)	11770	6850/7350	8250	1150	1400
VTB-3040E (W stroke 1500/2000)	13100	6850/7350	8250	1150	1700
VTB-4050E (W stroke 2000/2500)	15600	8540/9040	10500	1500	2000
VTB-5060E (W stroke 2000/2500)	16500	8540/9040	10500	1500	2000