



# Vturn - V560/V760/V1000

## Vertical Turning Lathes

- **Box Slideways** for heavy cutting
- **Meehanite® Casting** for high reliability
- **High Rapid Feed** for improved productivity
- **Leakage Free Coolant System** with optimum chip disposal

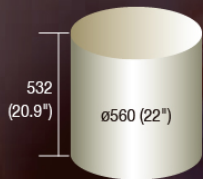


Victor Taichung - an established ISO-9001 & 14001 company

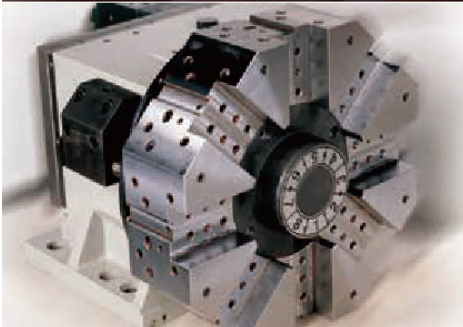


# Vturn - V560

## Turning Area

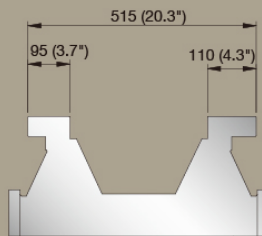


**Compact VTL designed for heavy cutting**  
 Following on from the Victor Taichung extremely successful range of horizontal lathes, our range of vertical lathes has been designed to meet higher roundness requirements.



## Fast indexing hydraulic turret

- Curvic coupling for high accuracy positioning.
- Hydraulic clamping for heavy cutting.
- Fast indexing with bi-directional random selection.



## Wide Span for high rigidity

- Moving column with 515 mm wide span sits on the machine base ensuring a stable structure for heavy cutting.

## High power and high torque spindle

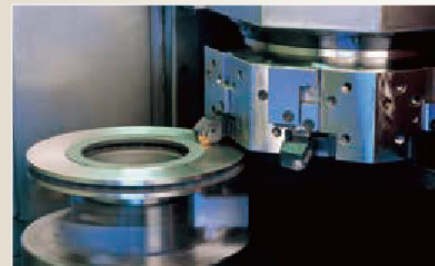
- Encased in a heavily ribbed headstock for maximum heat dissipation.
- A wide range spindle motor delivers maximum torque at a very low spindle speed of only 216 rpm.
- 12" hydraulic chuck as standard with an optional 10" chuck available for use at higher spindle speeds up to 3500 rpm.
- NN type roller bearings featuring large contact areas which facilitate heavy cutting, whilst an angular thrust bearing absorbs the cutting forces.
- An optional C-axis spindle with 0.001 degree indexing is available along with a VDI turret which allows secondary machining operations such as milling and drilling to be performed in one set up.





### **Box slideways for optimal dynamic stiffness**

- A moving carriage with large base is fitted to the box slideways bolted on Z-axis column to ensure optimal rigidity and uniform cutting conditions at any location.
- 15/24 m/min rapid feed rate in X/Z axes bonded with Turcite-B and forced lubrication improve performance by eliminating stick-slip characteristics normally inherent in plain contact surface.
- The counter balanced design featuring powerful servo motors and large diameter ballscrews guarantee minimal wear to the box slideways thus prolonging the machines service life.
- The Z-axis motor incorporates a brake which prevents the turret falling should a sudden loss of power occur.

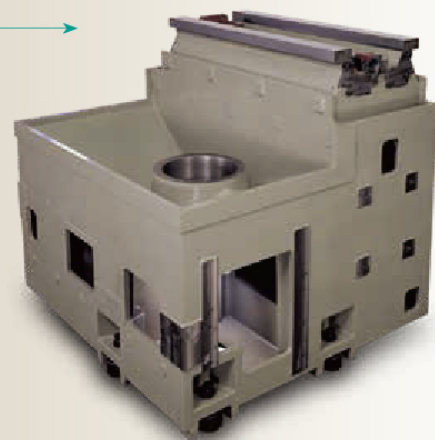


### **Leakage free coolant system with optimum chip disposal**

- The rear disposal chip conveyor allows easy integration into a manufacturing cell.
- Coolant and chips are collected in the machine base, guaranteeing no coolant leakage during machining.
- The large coolant tank with a capacity of 260 litres minimizes heat build up during continuous production.

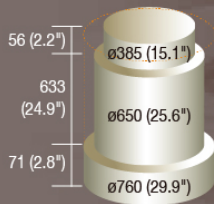
### **Meehanite® cast iron structure**

- The Meehanite® gray cast iron provides the structural stiffness and vibration damping properties which provide superior surface finishes and prolong the machines service life.
- The one piece box structure with box slideways provides the machine optimal structural rigidity.
- The steeply angled design of the machine base around the chuck and spindle areas minimizes swarf accumulation.
- The FEM (Finite Element Method) determined, optimized ribbed structure minimizes deformation during the machining operation.



# Vturn - V760

## Turning Area

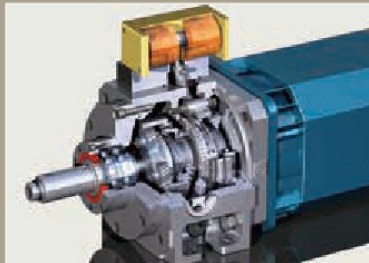


## High rigidity and high reliability VTL

With a maximum turning diameter of 760 mm (29.9") and a swing of 900 mm (35.4") the Vturn-V760 meets the increasing demands for large size and/or heavy part turning. The standard FANUC  $\alpha$ P40i wide range motor along with ZF gearbox provide high torque at extremely low spindle speeds.

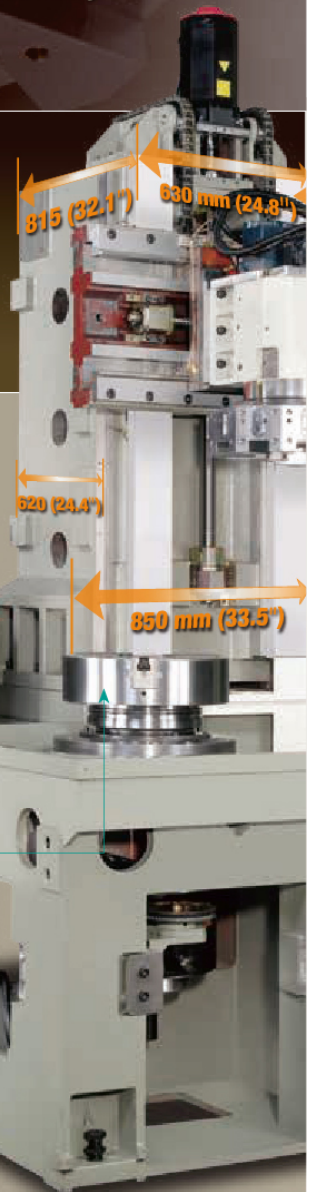
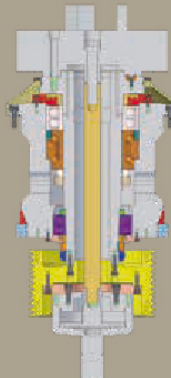
## Wide range spindle motor coupled with gearbox

- FANUC wide range motor  $\alpha$ P40i offers 22 kW (30 HP) output.
- Optional motor  $\alpha$ 30i offers even higher output 37 kW (50 HP)
- The German made ZF gearbox which lowers the base speed to 83 rpm ( $\alpha$ P40i motor) provides the capability to efficiently machine the most exotic alloys at low rpm.
- The 2 stage gearbox also allows for the machining of smaller parts at higher speeds.



## High power and high torque spindle

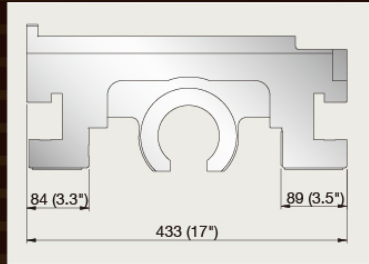
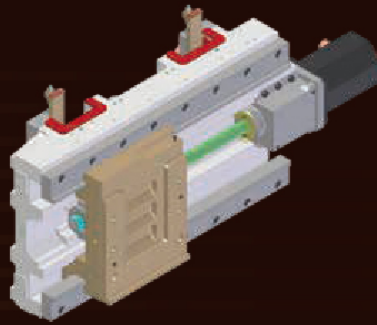
- Encased in a heavily ribbed headstock providing maximum heat dissipation.
- 18" solid chuck as standard and available with optional 15"/ 21"/ 24" chucks.
- NN type roller bearings featuring large contact areas which facilitate heavy cutting, whilst an angular thrust bearing absorbs the cutting forces.
- An optional C-axis spindle with 0.001 degree indexing is available along with a VDI turret which allows secondary machining operations such as milling and drilling to be performed in one set up.





**Wide span box slideways**

- The heavy column with a wide span of 850 mm (33.5") sits on the machine base providing a stable structure for heavy machining.
- The carriage for the hydraulic turret also features a wide span of 433 mm (17") ensuring the rigidity required for heavy machining.
- Z-axis motor of 7 kW (9.4 HP) ensures smooth operation and improves drilling capability.



130 (5.1") x 2



**Fast indexing hydraulic turret**

- Curvic coupling for high accuracy positioning.
- Hydraulic clamping for heavy cutting.
- Fast indexing with bi-directional random selection provides quick tool selection.



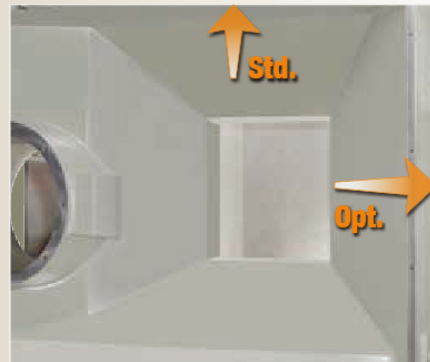
**Meehanite cast iron**

- Supplied by Victor Taichung's own foundry, this Meehanite casting features superior vibration damping and high rigidity providing improved surface finishes.
- All castings are certificated by following Meehanite process for high quality nodular gray iron.

MEEHANITE

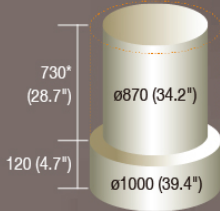
**Leakage Free Coolant System with optimum chip disposal**

- A Rear Disposal chip conveyor allows easy integration into a manufacturing cell.
- An optional Right Disposal chip conveyor is also available which is suitable for stand alone machines.
- The coolants and chips are collected by the cast base guaranteeing no leakage.
- The large coolant tank minimizes heat build up during continuous production.



# Vturn - V1000

## Turning Area



## High reliability VTL with turning diameter 1000mm

Following the success of our Vturn-V760, with a swing diameter of 1100mm (43.3") and a maximum turning diameter of 1000mm (39.4"), the VTL Vturn-V1000 with its powerful 45kW (60HP) spindle motor coupled to a 2 step Gearbox provides high torque at low rpm's.

## High rigidity spindle with NN type bearings

- NN type bearings featuring double rollers with double contact area facilitate heavy cutting and longer surface life.
- 24" solid chuck as standard and available with bigger chuck up to 40".

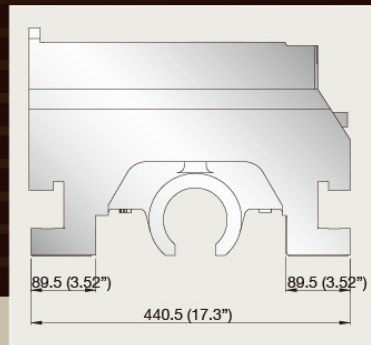


## Powerful spindle motor coupled with gearbox

- Fanuc spindle motor a40i offers 45kW (60HP) output.
- German made ZF gearbox is included as standard to lower the base speed to 96 rpm for heavy cutting on steel parts with high torque 4490 Nm (3312 ft-lbf).
- 2 step gearbox facilitates higher speed turning on the smaller parts.

### Wide span box slideways

- The heavy duty column with a wide span of 995mm (39.2") attached to the machine base provides a stable structure for heavy machining.
- The hydraulic turret is also designed with a wide span of 440.5mm (17.3") to ensure sufficient rigidity for heavy machining.
- The 7kW (9.4HP) high torque Z-axis motor ensures heavy duty drilling capability.



### Bolt Mounted Turret (BMT-85)

- Fast indexing BMT-85 turret with bi-directional random selection for quick selection.
- Hirth coupling is included for high positioning accuracy.

### Integral chip disposal without coolant leakage

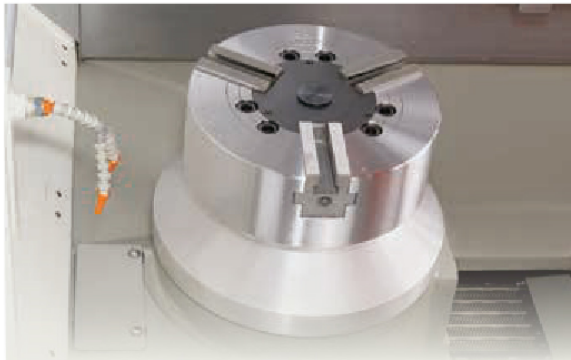
- **Rear disposal** chip conveyor can be bolted and fastened on the machine base without sitting on the coolant tank so the tank can be removed separately and easily for maintenance.
- **Optional Right Disposal** chip conveyor is also available which can be useful for stand alone machines.
- Coolants and chips are collected by casted base guarantees no leakage onto the ground floor.
- Large coolant tank reduces the heat rise-up to affect machining accuracy.



## Standard Accessories

### **Reliable Fanuc Oi-TF Plus control system**

- The proven reliability of Fanuc Oi-TF Plus controller is combined with Victor's own designed PLC to offer the customer an integral control system with 10.4" LCD monitor for color graphic display.
- Large inside space design of electrical cabinet and fully protected cables assure optimal heat dissipation for long time machining.



### **Solid power chuck**

- Autostrong® hydraulic solid chucks are included on all lathes.
- Chuck is foot operated for safe and easy operation.
- Kitagawa® chuck (optional) can be also specified if required.

### **Chip conveyor and cart**

Separate chip conveyor is positioned from the rear of machine to reduce machine width to facilitate line production.



### **Victor's lubrication pump**

- Victor's own lube pump including Japanese-made pressure switch offers the required lubricants between contact surfaces of box slideways to ensure smooth and continuous movement.



### **Air conditioner for electrical cabinet**

To prolong the service life on the costly control components, air conditioner is installed to remove heat away from the electrical cabinet.





# Optional Accessories



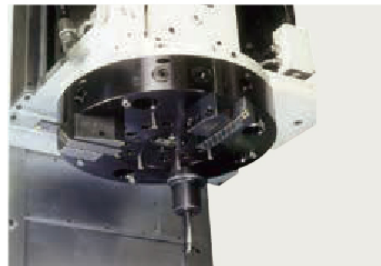
## Manual tool presetter (by Renishaw®):

The tedious time-consuming cuts to determine tool geometry can be reduced by manual tool presetter (M.T.P). With Renishaw® repeatable arm with RP3 probe is employed, the tool offset value is compensated automatically to the according parameters. Detachable design enlarges the turning range on big diameter parts without interference.



## VDI turret with or without live tooling

VDI tool holders provide an accurate and fast method of affixing tool holders to the turret disk. The round serrated shank tool holders fit into the tool pockets located on the face of the tool disc to achieve precise, rigid and secure locking of the tool holder. Live tooling option is also available by VDI turret model (CV option).

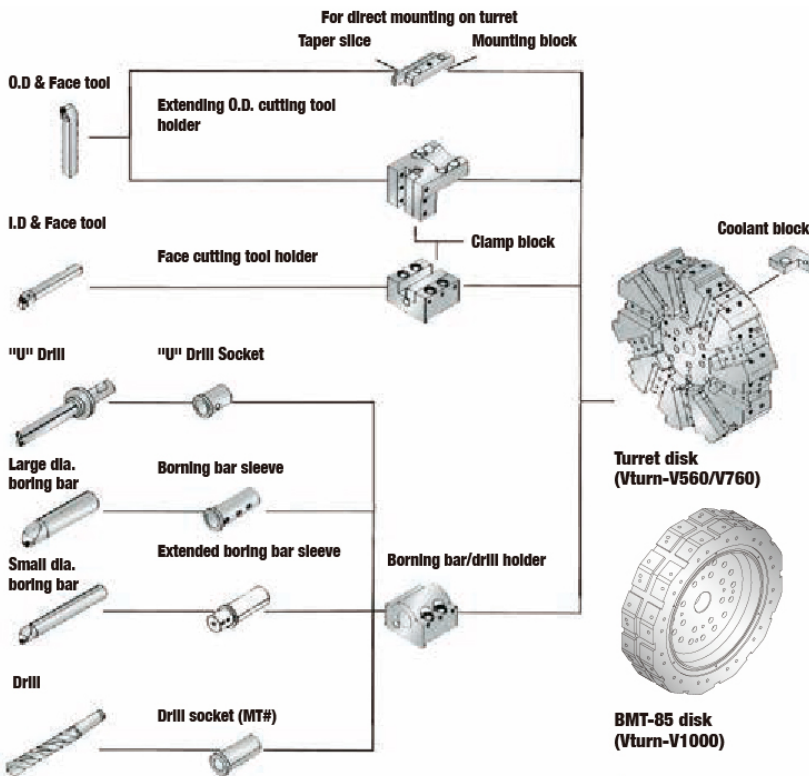


## High pressure Coolants

Higher pressure coolants help removing chips more efficiently to improve surface finish on the machined parts.



# Standard tooling accessories (excl. live tools or VDI tool holders)



TOOLS \ MODEL	VT-V560	VT-V760	VT-V1000
No. of tool stations	8	12	12
Tool shank for turret disk	32 mm	32 mm	32 mm
Maximum boring bar dia.	50 mm	60 mm (Opt. 63 mm)	60 mm (Opt. 80 mm)
Taper slice + mounting block	6	7	-
Extending O.D. cutting tool holder	1	1	4
Face cutting tool holder	1	1	2
<b>Boring bar holder</b>			
32 mm	-	-	-
40 mm	Opt.	-	-
50 mm	5	Opt.	-
60 mm	-	6	4
63 mm	-	Opt.	Opt.
80 mm	-	-	Opt.
<b>Boring bar sleeve</b>			
10 mm	1	-	-
12 mm	1	-	-
16 mm	2	-	-
20 mm	2	2	2
25 mm	2	2	2
32 mm	2	2	2
40 mm	2	2	2
50 mm	-	2	2
Extended boring bar sleeves	-	2	2
<b>Drill socket</b>			
MT3	Opt.	Opt.	Opt.
MT4	1	1	1
<b>U drill socket</b>			
25 mm	1	-	-
32 mm	1	2	2
40 mm	-	2	2

# Victor Taichung's Fanuc Oi-TF Plus (type-1) Control Specifications

## Standard

ITEM / SPECIFICATION	DESCRIPTION
<b>Controlled Axes:</b>	
1. Controlled Axes	2 Axes (X, Z)
2. Simultaneous Controlled Axes	Position/Linear Interpolation/Circular Interpolation (2/2/2)
3. Least Input Increment	0.001mm / 0.0001 inch / 0.001 deg.
4. Least Input Increment /10	0.0001mm / 0.00001 inch / 0.0001 deg.
5. Max. command value	± 99999.999 mm (± 9999.9999 in)
6. Fine Acceleration & Deceleration Control	Std.
7. H/RV Control	Std.
8. Inch / Metric Conversion	Std. (G20/G21)
9. Interlock	All Axes / Each Axis / Cutting Block Start
10. Machine Lock	All Axes / Each Axis
11. Emergency Stop	Std.
12. Over-travel	Std.
13. Stored Stroke Check 1	Std.
14. Mirror Image	Each Axis
15. Chamfering on/off	Std.
16. Follow-up	Std.
17. Unexpected disturbance torque detection function	Std. (to be used to tool load monitoring)
18. Position switch (with Victor's own PLC)	Std. (to be used for security)
<b>Operation:</b>	
1. Automatic Operation	Std.
2. MDI Operation	MDI B
3. DNC Operation	Reader / Puncher Interface is Required
4. DNC Operation with Memory Card	PC/MCIA Card Attachment is Required
5. Program Number Search	Std.
6. Sequence Number Search	Std.
7. Sequence number comparison and stop	Std.
8. Buffer Register	Std.
9. Dry Run	Std.
10. Single Block	Std.
11. JOG Feed	Std.
12. Manual Reference Position Return	Std.
13. Manual Handle Feed	1 Unit / Each Path
14. Manual Handle Feed Rate	X1, X10, X100
<b>Interpolation:</b>	
1. Positioning	G00
2. Threading synchronous cutting	Std.
3. Multiple threading	Std.
4. Threading retract	Std.
5. Continuous threading	Std. (G76)
6. Variable threading	Std. (G34)
7. Linear Interpolation	G01
8. Circular Interpolation	G02, G03 (multi-quadrant is possible)
9. Dwell	G04
10. Skip Function	G31
11. Reference Position Return	G28
12. Reference Position Return Check	G27
13. 2nd Reference Position Return	Std.
<b>Feed:</b>	
1. Rapid Traverse Rate	Std.
2. Rapid Traverse Override	F0, 25%, 60%, 100%
3. Feed Per Minute	G98 (mm/min)
4. Feed Per Revolution	G99 (mm/rev)
5. Tangential Speed Constant Control	Std.
6. Cutting Feed rate Clamp	Std.
7. Automatic Acceleration / Deceleration	Rapid traverse: linear; Cutting feed: exponential
8. Linear speed / deceleration after cutting feed interpolation	Std.
9. Feed rate Override	0-160%
10. Jog Override	0-100%
11. Feed Stop	Std.
<b>Program Input:</b>	
1. BIA / I/O Automatic Recognition	Std.
2. Label Skip	Std.
3. Parity Check	Std.
4. Control In / Out	Std.
5. Optional Block Skip	1
6. Max. Programmable Dimension	± 9-Digit
7. Program Number	04-Digit
8. Sequence Number	N6-Digit
9. Absolute / Incremental Programming	G90/G91(G code System B, C)
10. Decimal Point Programming / Pocket Calculator Type Decimal Point Programming	Std.
11. Input Unit 10 Time Multiply	Std.
12. Diameter / radius programming	G17, G18, G19
13. Plane Selection	Std.
14. Automatic Coordinate System Setting	G52-G60
15. Work piece Coordinate System	Std.
16. Direct Drawing Dimension Programming	Std.
17. G code System A	Std.
18. Chamfering/corner R	G10
19. Programmable Data Input	10 folds nested
20. Sub Program Call	Std.
21. Custom Macro B	Std.
22. Canned Cycles	Std. (G70-G76)
23. Multiple Repetitive Cycle	Std. (G70-G76 type II)
24. Multiple Repetitive Cycle 2 (Pocket profile)	Std.
25. Canned Cycle for Drilling	Std.
26. Program Format	FANUC Std. format
27. Program Stop / Program End	M00 / M01 / M02 / M30
28. Circular Interpolation by 9-digit R designation	Std.
<b>Auxiliary Spindle Speed Function:</b>	
1. Auxiliary Function Lock	Std.
2. High Speed M / S / T Interface	Std.
3. Spindle Speed Function	Std.
4. Constant Surface Speed Control	60-120%
5. Spindle Override	Std.

6. Actual Spindle Speed Output	Std.
7. 1st Spindle Orientation	Std.
8. 1st Spindle Output Switching Function	Std.
9. M Code Function	M3 digit
10. S Code Function	S6 digit
11. T Code Function	T2 digit
12. Rigid Tapping (Spindle)	Std.

Tool Function & Tool Compensation:	
1. Tool Function	T7+1/T8+2/digits
2. Tool Offset Pairs	± 7-digit 64 pairs
3. Tool Nose Radius Compensation	Std. (G40/G41/G42)
4. Tool Geometry/Wear Compensation	Std.
5. Number of Tool Offsets (in total)	128 sets
6. Automatic Tool Offset	Std.
7. Direct Input of Tool Offset Value Measured B	Std.

Accuracy Compensation:	
1. Backlash Compensation	Rapid Traverse / Cutting Feed
2. Stored Pitch Error Compensation	Std.

Edit Operation:	
1. Part Program Storage Length (in total)	6120m (2MB)
2. Number of Register able programs (in total)	1000
3. Part Program Editing	Std.
4. Program Protect	Std.
5. Background Editing	Std.
6. Memory card editing	Std.

Setting and Display:	
1. Status Display	Std.
2. Clock Function	Std.
3. Current Position Display	Std.
4. Program Display	Program name 32 characters
5. Parameter Setting and Display	Std.
6. Self Diagnosis Function	Std.
7. Alarm Display	Std.
8. Alarm History Display	60
9. Operation History Display	Std.
10. Help Function	Std.
11. Run Hour and Parts Count Display	Std.
12. Actual Cutting Feed rate Display	Std.
13. Display Spindle Speed and T Code At All Screens	Std.
14. Dynamic Graphic Display	Std. (Available in MGI by another function)
15. Servo Setting Screen	Std.
16. Display of Hardware and Software Configuration	Std.
17. Multi-Language Display	Std.
18. Data Protection Key	Std.
19. Erase CRT Screen Display	Std.
20. Spindle Setting Screen	Std.
21. Color LCD (MDI)	10.4"

Data Input / Output:	
1. Reader / Puncher Interface	RS-232 interface
2. Memory Card Interface	Std.
3. External Work piece number search	9999
4. Embedded Ethernet (10Mbps)	Std.
5. USB port	Std.

C Axis Function:	
1. Control Axis Expansion	Std.
2. Simultaneously Controlled Axes Expansion	Std.
3. Coordinate System Rotation	Std.
4. Rotary Axis Designation	Std.
5. Rotary Axis Roll-over	Std.
6. Axis Control by PMC	Std.
7. Control Axis Detach (for C axis)	Std.
8. Polar Coordinate Interpolation	Std. (G112/G119)
9. Cylindrical Interpolation	Std. (G107)
10. Rigid Tapping (C-axis) with Victor's own PMC	Std.

## Options

ITEM	SPECIFICATION	Oi-TF Plus
<b>With hardware included:</b>		
1.	Conversational programming (Manual guide I) <sup>1)</sup>	Std.
2.	Conversational programming (Cap I)	N.A.
3.	Data server (with PCB and ATA card)	Std.
4.	Fast Ethernet (100Mbps, available in Data server)	Std.
5.	Tool life management	Std.
6.	Optional block skip 2-9	Std.
7.	Polygon turning (by C-axis) with Victor's own PLC	Std.
8.	Manual handle feed 2 (2nd MPG)	Std.
9.	Reader/Puncher interface 2 (2nd RS232 interface)	Std.
10.	External data input	Std.
11.	Program restart (Std. on CE-marked machines)	Std.
12.	Profibus	Std.
<b>Without hardware included:</b>		
13.	Program number 08-digit	N.A.
14.	Circular thread cutting (G36)	N.A.
15.	Number of registered program 1000 (in total)	N.A.
16.	G code system B/C	Std.
17.	Type format for FG 10/11	Std.
18.	Play back	Std.
19.	3-dimensional coordinate system conversion	N.A.
20.	Direct input of offset value measured for 2 spindle lathe	N.A.
21.	AI contour control II (S6.1 Q1)	Std.
22.	JERK control	N.A.



# Machine Specification

Item \ model	Unit	Vturn-V560 (CV)	Vturn-V760 (CV)	Vturn-V1000 (CM)	
Capacity	Swing over bed	mm	600	900	1100
	Swing over carriage	mm	540	650	870
	Max. turning dia.	mm	560	760	1000
	Max. turning length	mm	532 (512)	760	850 (825)
	Std. turning dia.	mm	470	630	885 (756)
Travel	X axis stroke	mm	280+130	380+40 (380+30 for CV)	500+40
	Z axis stroke	mm	540 (520)	780	850
Spindle	Max. spindle speed	rpm	2500	2000	1500
	Spindle nose		A2-8	A2-11	A2-15
	Spindle bore	mm	86	105	105
	Inner bearing	mm	130	160	200
	Chuck diameter	inch	12" (opt. 10"/15"/18")	18" (opt. 15"/21"/24"/28")	24" (opt. 28"/32"/36"/40")
	Max. part weight (incl. chuck)	kg	593	1160	1250
Turret	No. of tools	no.	8	12	12
	No. of live tools (opt.)	no.	8 (VDI-40) (DIN-5482, axial type, left-hand)	12 (VDI-50) (DIN-5480, radial type, left-hand)	12 (BMT-85)
	Tool shank size	mm	32	32	32
	Max. boring bar dia.	mm	50	60 (opt. 63)	60 (opt. 80)
	Exchange time	sec.	1 (hydraulic)	1 (hydraulic) (0.2 servo for CV)	1 (hydraulic) (0.2 servo for CM)
Feedrate	Rapid feedrate	m/min	X/Z = 15/24	X/Z = 20/20	X/Z = 20/20
	X axis ballscrew	mm	Ø50 x P10 (moving column)	Ø40 x P10	Ø50 x P8
	Z axis ballscrew	mm	Ø40 x P12	Ø50 x P10	Ø50 x P8
	JOG feedrate	mm/min	X/Z=0~1260	X/Z=0~1260	X/Z=0~1260
Motor	Spindle motor	kW	15/18.5 (αP30i) opt. 18.5/22 (αP40i)	18.5/22 (αP40i) opt. 30/37 (α30i)	37/45 (α 40i)
	Gearbox		opt.	ZF gearbox (Std.)	ZF Gearbox (Std.)
	X/Z axis servo motor	kW	X:4, Z:4	X:4, Z:7	X:4, Z:7
	Milling motor (opt.)	kW	4	7	7
	Milling speed	rpm	3000	3000	3000
Machine	Fanuc controller		0i-TF Plus (10.4")	0i-TF Plus (10.4")	0i-TF Plus (10.4")
	Coolant tank	Liter	260	300	400
	W x L x H (including chip conveyor)	mm	1560 x 3250 x 2918	2032 x 3915 x 3400	2510 x 4155 x 3546
	Power requirement	kVA	29 (33 for CV)	35 (39 for CV)	56 (60 for CM)
	Net weight	kg	6100	12500	16000

## Standard accessories

- Solid chuck with soft jaws
- Chip conveyor with cart (rear disposal)
- Automatic forced lubrication
- Fully enclosed splash guarding
- Tool holders (exch VDI tooling)
- 3 step warning light
- Fanuc 0i-TF Plus (10.4") control
- Remote MPG (handwheel) (except Vturn-V560)
- Oil cooler for gearbox (Vturn-V760/V1000)
- Fanuc e-book (CD)

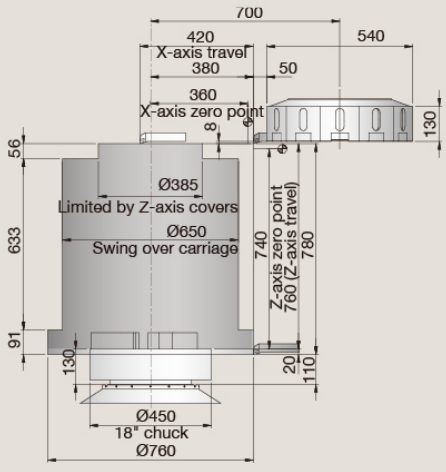
## Optional accessories

- Bigger chucks (21" chuck/1700rpm, 24" chuck/1400rpm, 28" chuck/1200rpm, 32" chuck/1100rpm, 36" chuck/1000rpm, 40" chuck/800rpm)
- Oil skimmer
- Bigger spindle motor
- Renishaw tool presetter (detachable) (Max. 15" chuck for VT-V560, 24" chuck for VT-V760, 36" chuck for V1000)
- High pressure coolant
- Auto door
- VDI turret (except Vturn-V1000)
- Higher column (100mm more)
- Right disposal chip conveyor (for Vturn-V760/V1000)
- Higher outlet chip conveyor (for Vturn-V560)
- Detachable chip conveyor (to reduce the floor space when cleaning)
- Fanuc Manuals

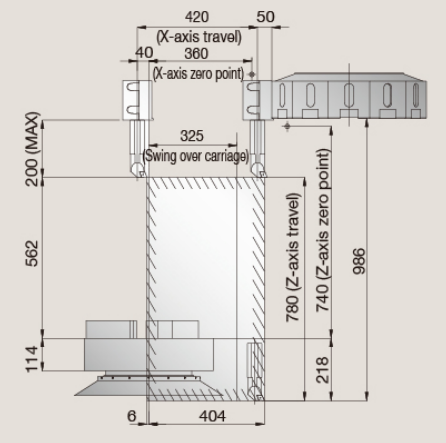


# Vturn-V760

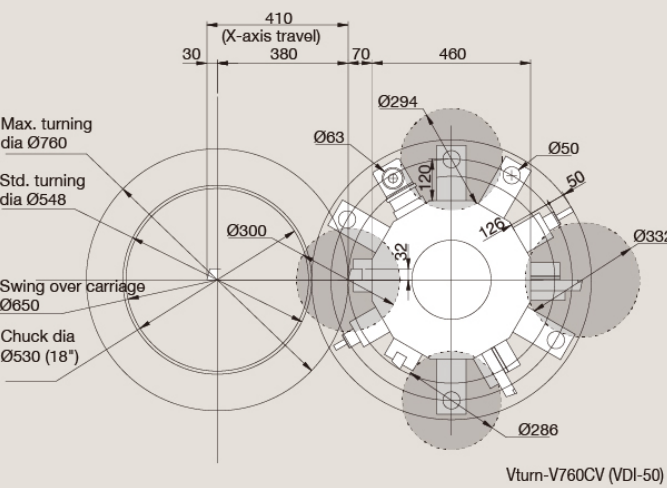
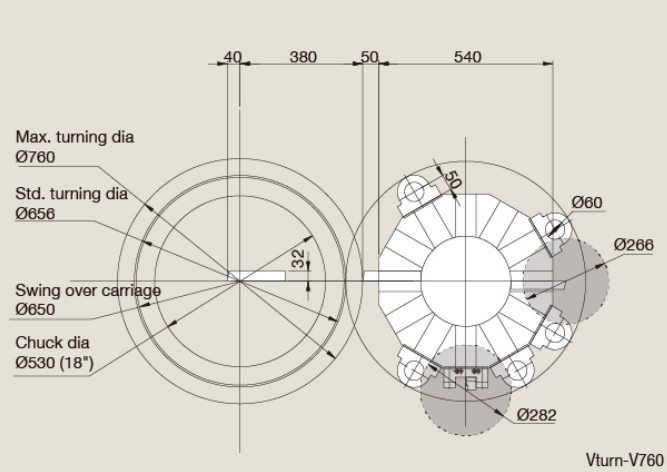
## O.D. Turning range



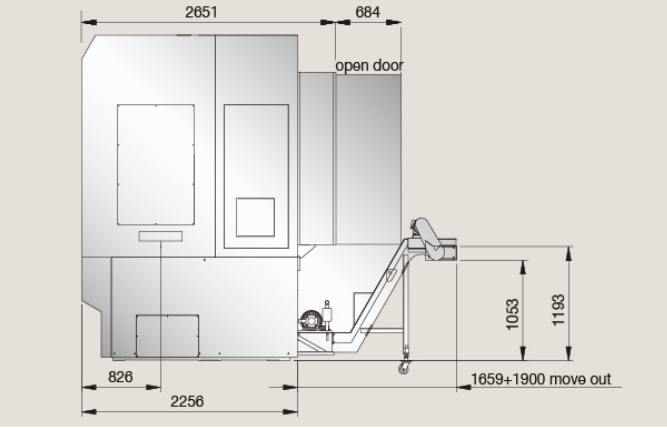
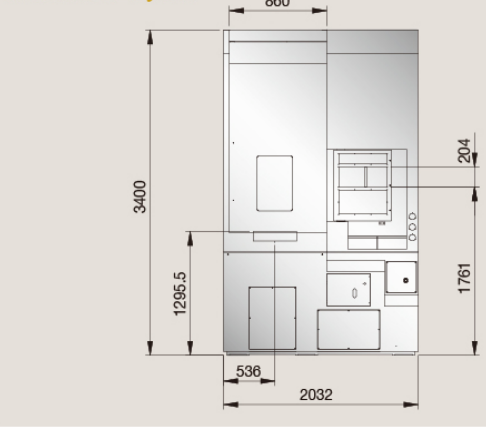
## I.D. Turning range



## Tool interference chart

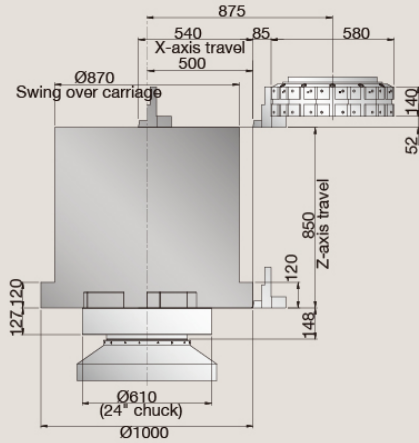


## Machine Layout

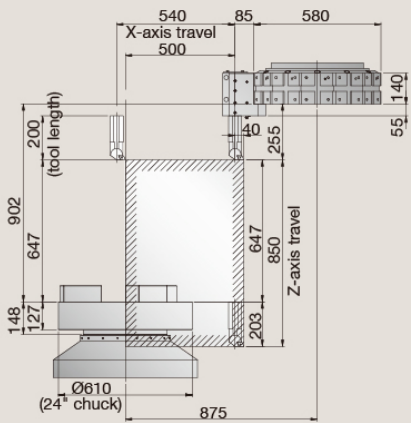


# Vturn-V1000

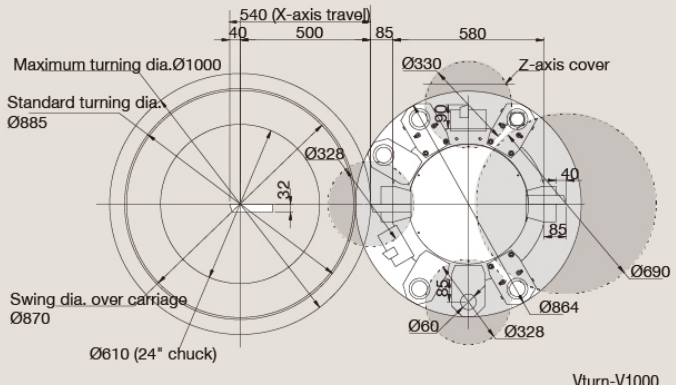
## O.D. Turning



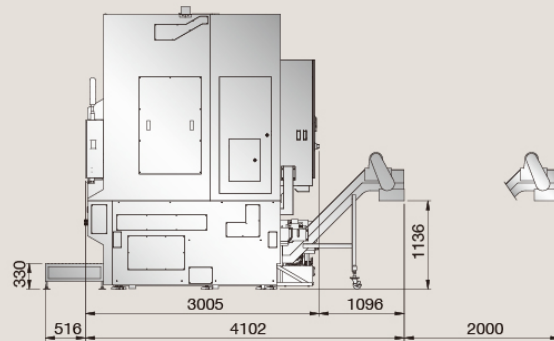
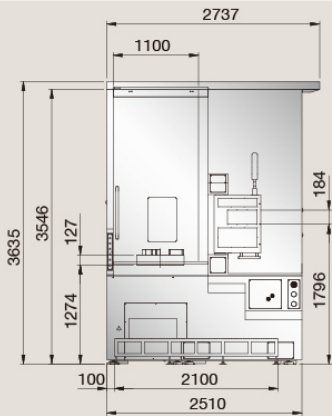
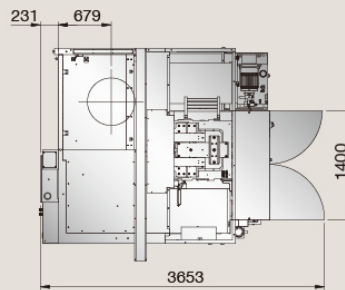
## I.D. Turning



## Tool interference chart



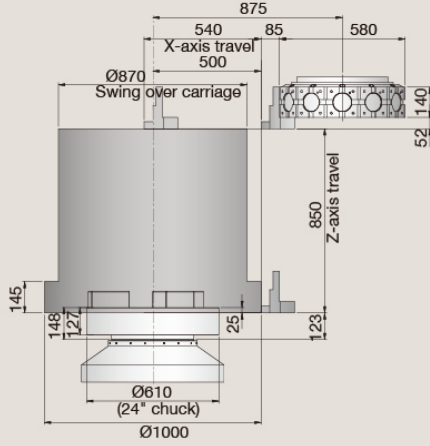
## Machine Layout (excl. Transformer)



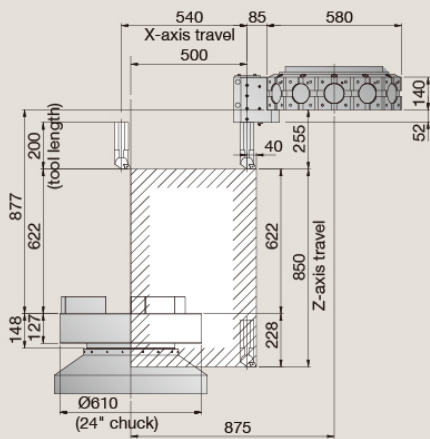


# Vturn-V1000CM

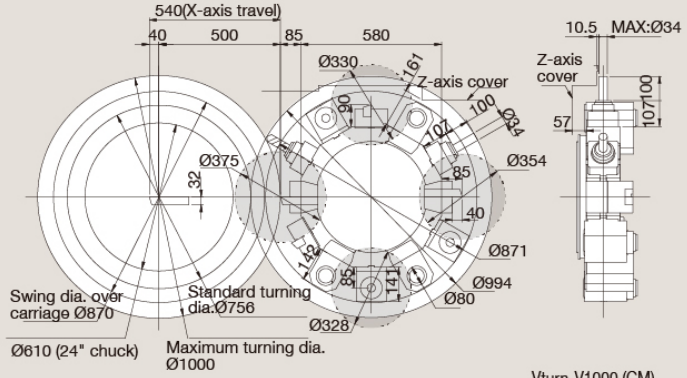
## O.D. Turning



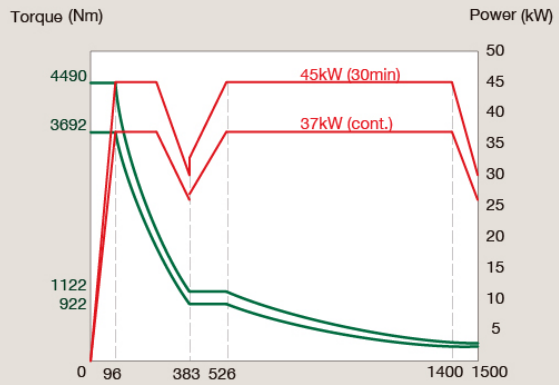
## I.D. Turning



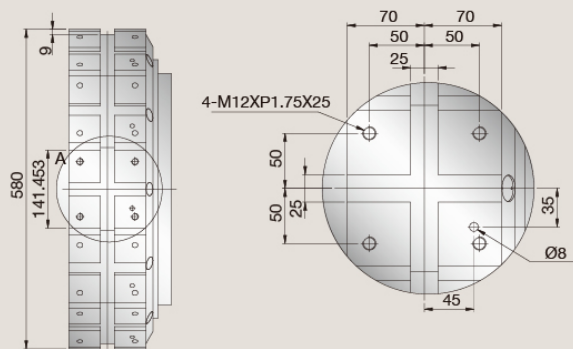
## Tool interference chart



## Spindle Output

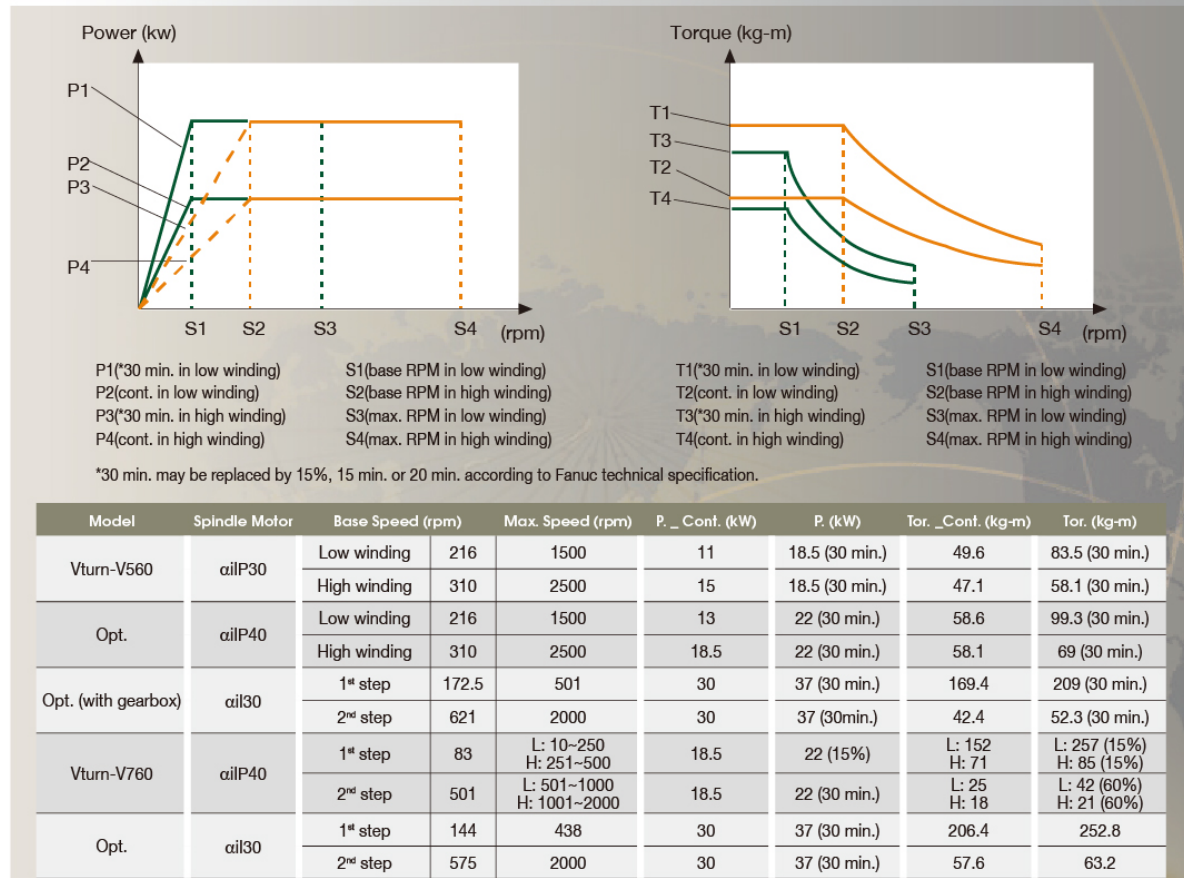


## BMT-85 interface and tool holders



- O.D. cutting tool holder
- Face cutting tool holder
- Boring bar/drill
- Live tool holder (0°)
- Live tool holder (90°)

# Spindle Output for Vturn-V560/V760



**Victor Taichung profile:**  
 Sales turnover: USD 101.5 mil's (in 2019)\*  
 No. of employees: 806  
 \*Exchange rate: 1 USD=30 TWD.



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|--|--|---|---|
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|--|--|---|---|

Victor Taichung was also marketed under the brand names **VICTOR** (outside North America) and **FORTUNE** VtvGE20EE