CNC · VERTICAL TURNING CENTER

HEAVY TURNING

- Up to **44,000** lb Table Load
- **60** hp Table Motor
- **2-Speed** Gear Driven Table

*Add a **90° Angular Head** to extend machining reach*

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MIGHTY VT
ISO 9001:2008

Large Parts
Heavy-Duty
Turning

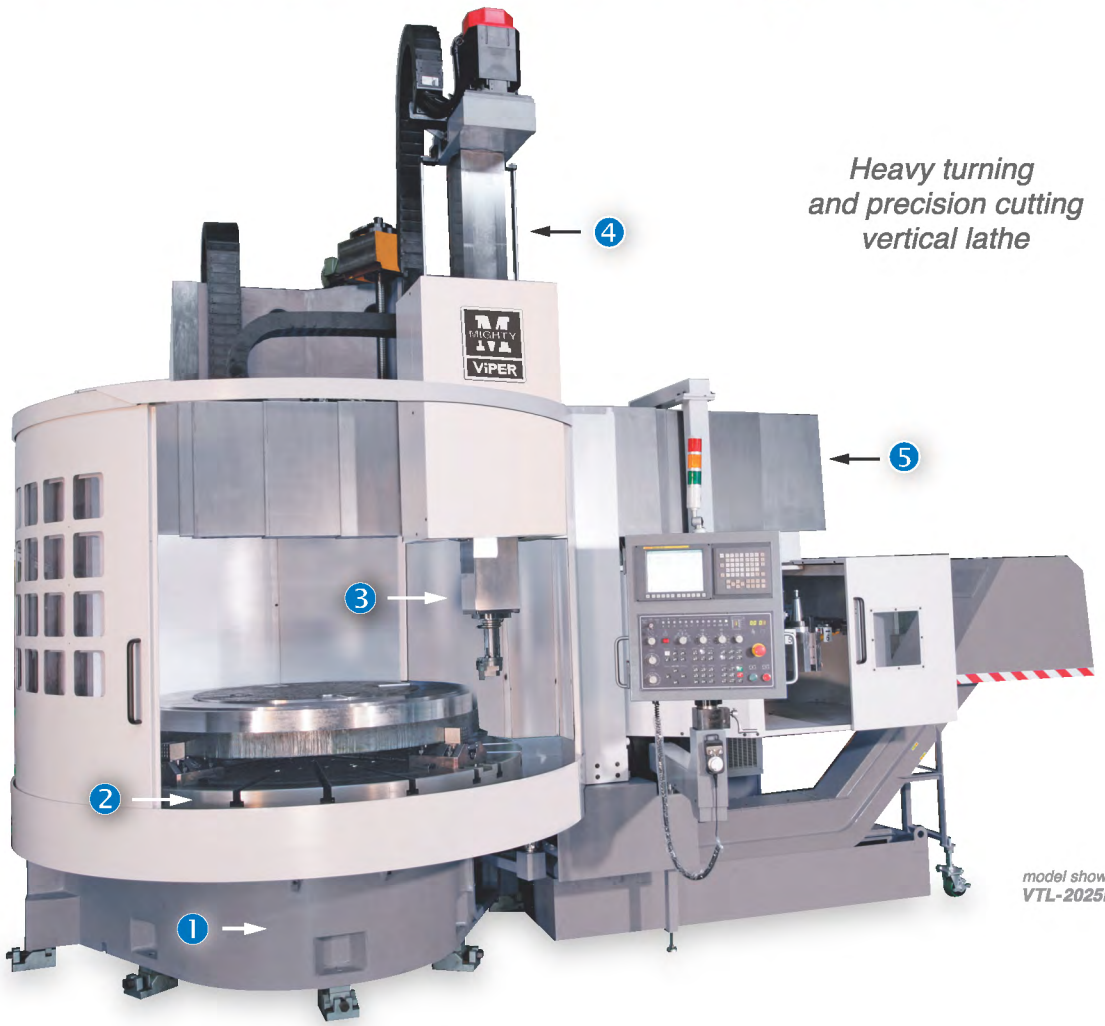
VTL Series

1620
2025
2734

www.mightyviper.com

Solid mechanical performance for greater

Power And Rigidity



Heavy turning and precision cutting vertical lathe

***Moglice** high-precision slideways with anti-stick-slip properties*

model shown VTL-2025M

Designed for heavy duty turning for large parts, the **Mighty Viper VTL** is engineered for the manufacturing of parts that require high rigidity and stability. With an optional milling function feature, the VTL is well suited for aerospace, oil field and power generation industries.

The VTL's large column and base along with an asymmetrical design are complemented by a 9″ x 9″ high speed steel square ram. Sliding crossrail provides precision movement and is moveable in set increments with auto latching against fixed stops. The column has three box ways for high rigidity Z-axis movement.

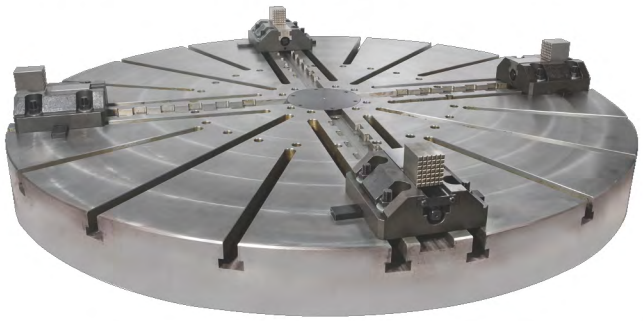
VTL-2025M Machine Features

1. 60 hp / 18,150 ft-lb gear transmission*
2. 44,000 lb maximum table load
3. 20 hp milling spindle
4. 9″ x 9″ square ram made of special grade high-speed steel
5. 5-position sliding crossrail with 5 steps at 7.9″ intervals

Ø79″ (VTL-2025)

Table chuck has four independent jaws

Ø63″ (VTL-1620)



VTL-2025 driving gear shown

Large Table and High Torque

Table diameter measures 79″ and has a maximum turning capacity of 96″. Table incorporates a manual independent 4-jaw chuck with top jaws that are 63″ in diameter or 79″ in diameter.

The Mighty Viper VTL series boast a geared table drive that generates high table torque. Driving gear is made from high grade nickel-chrome alloy steel. Class 3 ballscrews are driven by servo motors that ensure high precision turning movement.

◀ *Dual bearing systems: dynamic and static • Driving gear made of high grade nickel-chrome alloy steel*

Powerhouse Gearbox

Gearbox slides in-and-out for easy maintenance ▼

Air-cooled chiller regulates oil temperature ▼

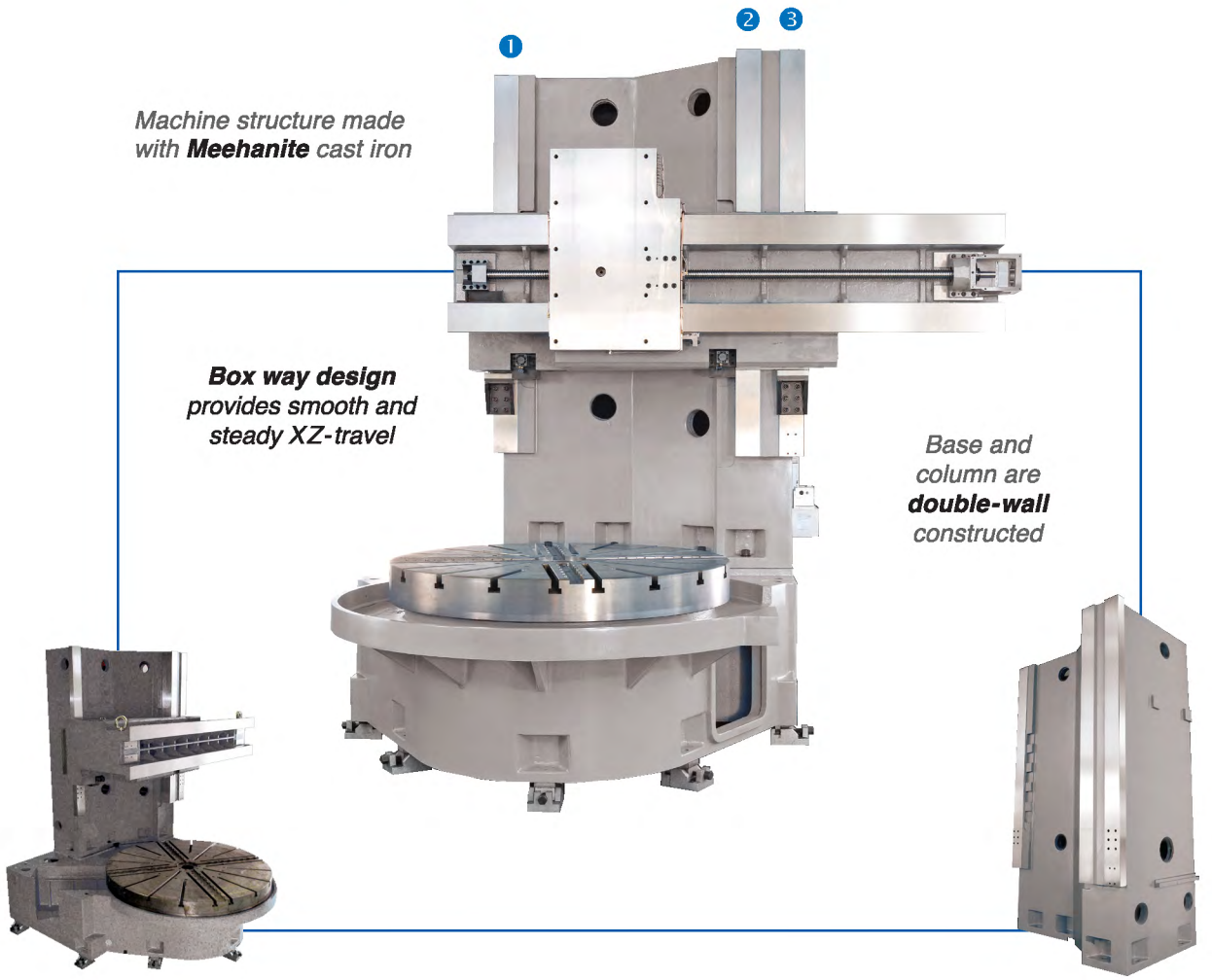
A heavy-duty spindle motor teamed with a two-speed gear assembly delivers high torque and fast speeds. As a result heavy duty machining and fine finishing are easily performed.

Oil chiller circulates oil through the gearbox, lowering oil temperature, for cooler gear oil. Chiller yields longer machine service life, and helps preserve machine accuracy.

◀ *Helical gearbox delivers tremendous torque (up to 43,140 ft-lb)*

Rugged construction yields more rigidity for

Heavy Duty Cuts



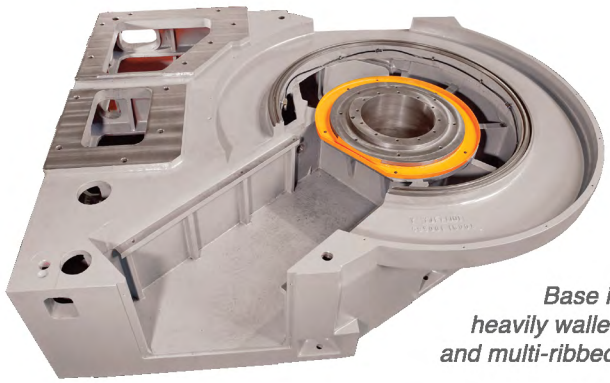
Greater Dynamic Stability

All major castings are heavily and symmetrically ribbed to provide increased dynamic stability and to keep vibration to a minimum during heavy-duty machining. **Meehanite** cast iron frames and box ways ensure that the machine has high rigidity for performing heavy cutting.

The machine base and column structures are double-wall constructed. The structures have scientifically designed rib reinforcement, that results in the dual benefit of uniform and maximum distribution of casting stress. The entire structure is manufactured from high quality **GB300** or **GA350** Meehanite cast iron, specially heat treated to relive stress, ensures that the structure remains free of distortion for the life of the machine.

Less Casting Stress

The heavy column structure is designed to foster high stability and rigidity for solid support of the sliding cross rail. Both X and Z-axes are supported by box ways, that are over-sized, hardened and ground for greater rigidity. All box ways on the cloumn and cross beam are coated with **Turcite-B** on mating surfaces and hand scraped for perfect fit and alignment.



Base is heavily walled and multi-ribbed.

Base and Column Construction

One of the most important features of the Viper VTL is the one-piece Meehanite casting base. Unlike conventional jointing by welding method, Viper's one-piece structure effectively solves problems of insufficient rigidity and excessive vibration. The base is heavily walled and multi-ribbed for rigidity and high thermal stability while supporting workloads up to 55,000 lb.

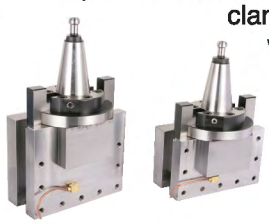
Heavily ribbed structure of the column and the base minimizes thermal distortion and dampens vibration.

◀ *Section view of Column Casting*

Tool Changer

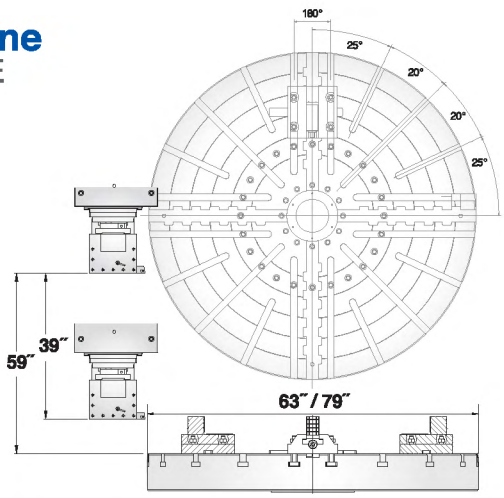
Automatic Tool Changer (ATC) provides fast and efficient tool changing. The ATC magazine is located on the right side of the cross rail, and is protected by an automatic guard door. Magazine holds a total of 18 tools (9 milling tools / 9 turning tools).

Heavy-duty design OD and ID tool holders direct turning force to headstock instead of spindle bearings. The ram head tool pocket accepts wide contact 50 taper tool holders, which securely clamp with a powerful wedge locking system, yielding high accuracy and repeatability.

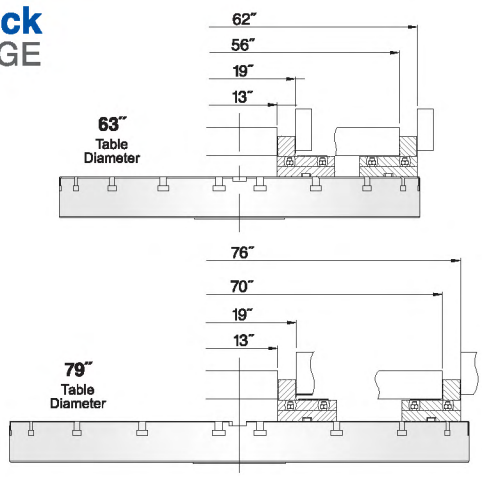


50-taper tool holders with wide contact.

Machine RANGE



Chuck RANGE



VTL-2734M

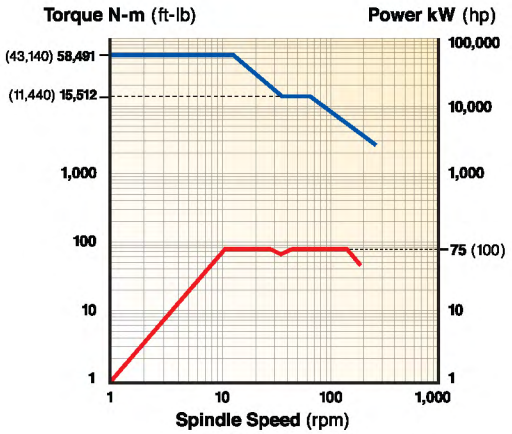


Table Motor
α60/4500i

Motor Output
100 hp

Speed (High)
38 ~ 100 rpm

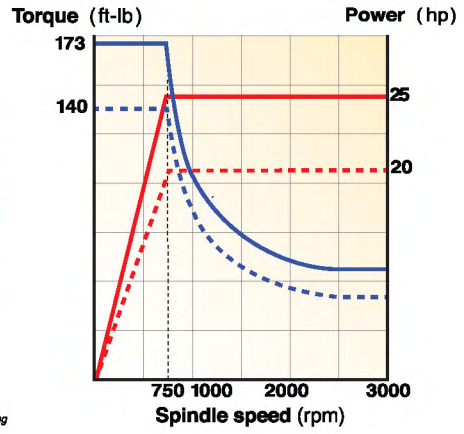
Speed (Low)
1 ~ 37 rpm

Legend
Torque (30 Minute Rating)
Power (30 Minute Rating)

Spindle Motor
α15/7000i

Motor Output
25 hp

Spindle Speed
2,000 rpm



Torque Legend
S3-60% Rating
Continuous Rating

Power Legend
S3-60% Rating
Continuous Rating

VTL-2025M

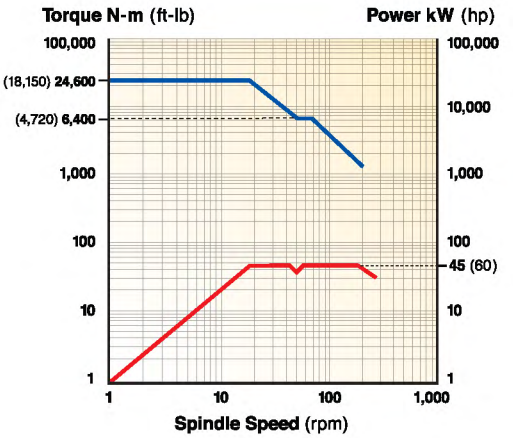


Table Motor
α40/6000i

Motor Output
60 hp

Speed (High)
65 ~ 200 rpm

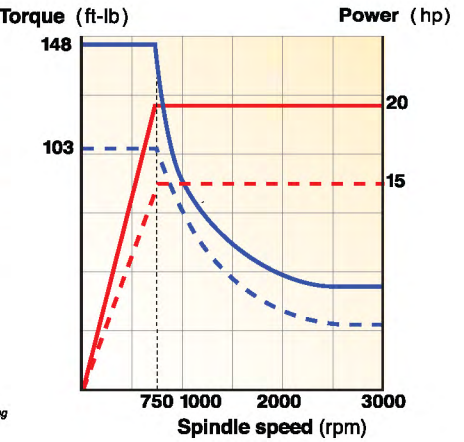
Speed (Low)
1 ~ 73 rpm

Legend
Torque (30 Minute Rating)
Power (30 Minute Rating)

Spindle Motor
α12/7000i

Motor Output
20 hp

Spindle Speed
2,000 rpm



Torque Legend
S3-60% Rating
Continuous Rating

Power Legend
S3-60% Rating
Continuous Rating

VTL-1620M

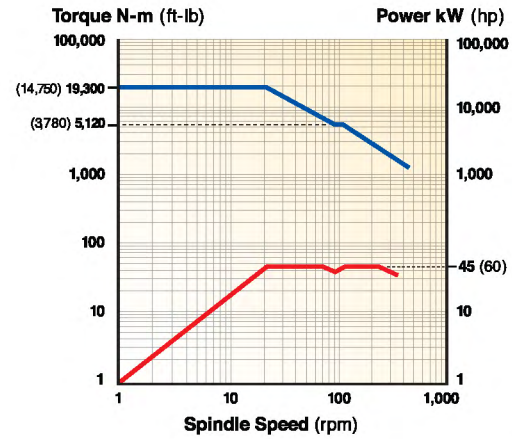


Table Motor
α40/6000i

Motor Output
60 hp

Speed (High)
85 ~ 250 rpm

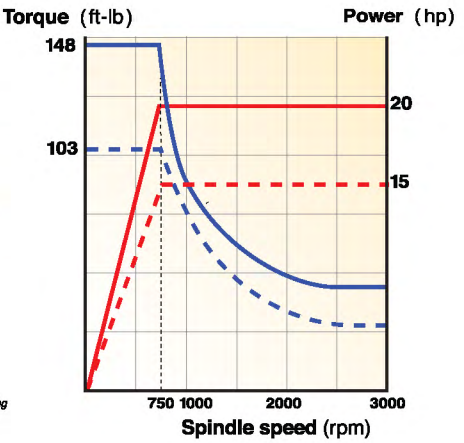
Speed (Low)
1 ~ 91 rpm

Legend
Torque (30 Minute Rating)
Power (30 Minute Rating)

Spindle Motor
α12/7000i

Motor Output
20 hp

Spindle Speed
2,000 rpm



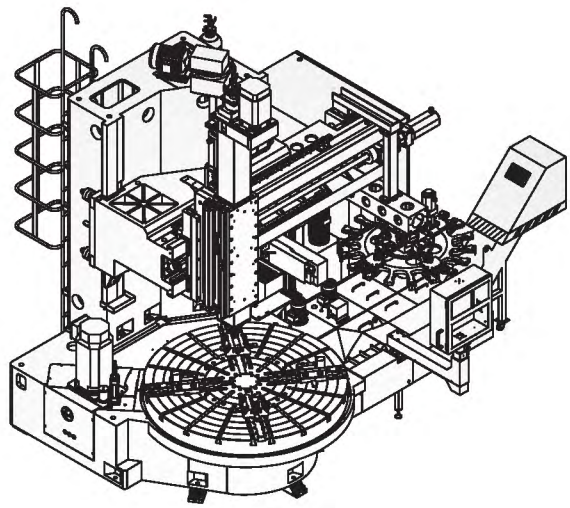
Torque Legend
S3-60% Rating
Continuous Rating

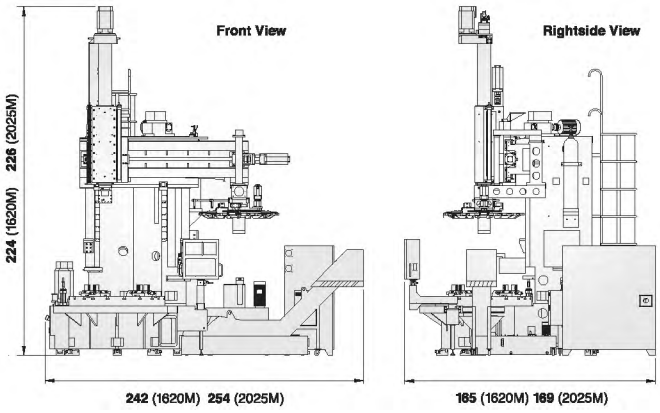
Power Legend
S3-60% Rating
Continuous Rating

Machine Dimensions

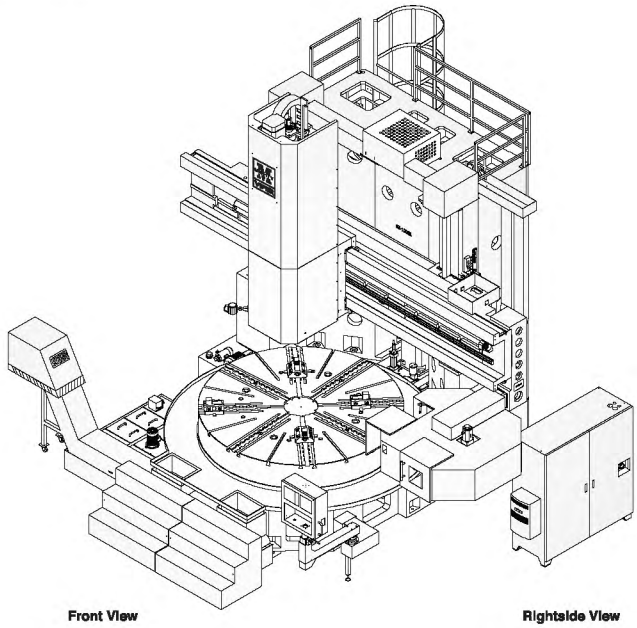
Units = Inch

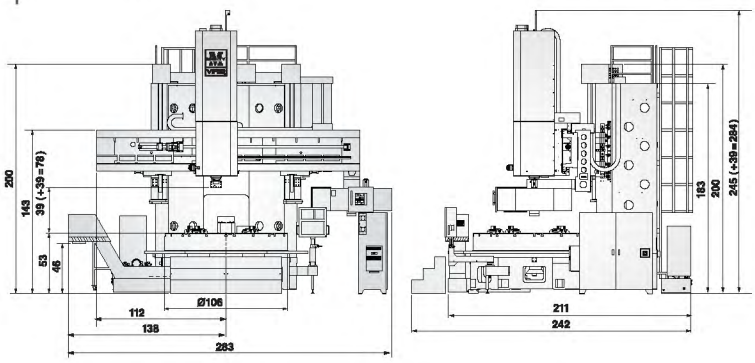
VTL	1620 (M) 2025 (M)





VTL	2734 (M)





STANDARD FEATURES

- Table chuck, independent 4-jaw manual: Ø63.0″ for VTL-1620 and Ø78.7″ for VTL-2025
- 2-Speed gear system
- 60 hp (30 min.) table motor
- Carbon steel 9″ square ram with a Z-travel of 39.4″
- Adjustable cross rail: Five cross rail positions
- High quality cast iron construction
- FANUC 0i-TD controller
- Auto tool changer system: 12 tools
- 2 turning tools (OD and ID)
- Coolant system and coolant through the ram
- Oil chiller for gearbox
- Oil chiller for spindle and table
- Hydraulic unit
- Air conditioner for electrical cabinet
- Chip conveyor system
- Splash guarding with sliding doors
- Automatic forced lubrication system
- Oil skimmer
- Crossrail telescopic steel covers
- Foot pedal
- Machine warranty for 1 year
- Control warranty for 2 years
- Operation manual
- Leveling pads

Optional Accessories

- Coolant through spindle
- Extended Z-travel (48″ and 60″)
- Higher machine columns with higher clearances
- Glass scales on X and Z axes
- 90° Angular head
- Milling (M) Function:
  - AC 20 hp (30 min.) spindle motors
  - Live spindle speed 2,000 rpm
  - C-Axis
  - ATC 18 tools (9 milling/9 turning)
  - Tap drill diameter max. M30 x 3.5 (Tools: HSS; Work: S45C)
  - Drilling Ø2″ maximum tool cemented carbide work: S45C. Cutting speed: 394 fpm. Cutting feed rate: 0.006″/reverse.

Machine Specifications

ITEM	Unit		VTL-1620 (M)	VTL-2025 (M)	VTL-2734 (M)
CAPACITY					
Table Diameter	inch		63.0	78.75	106.3
Max. Turning Diameter	inch		78.75	96	133.8
Max. Swing	inch		78.75	98.4	133.8
Max. Turning Height	inch		59.0	59.0	78.75
Max. Mass of Workpiece	lbs		33,000	44,000	55,000
Max. Table Torque	ft-lb		14,750	18,150	43,140
Max. Cutting Force	lbf		5,620	5,520	9,740
TRAVEL					
X-Axis Stroke	inch		64.4	70.3	105.0
Z-Axis Stroke	inch		39.4	39.4	59.0
X-Axis Torque	ft-lb		83.9	83.9	83.9
Z-Axis Torque	ft-lb		83.9	83.9	83.9
X-Axis Ball Screw Diameter	inch		2.5xP0.5	2.5xP0.5	2.5xP0.5
Z-Axis Ball Screw Diameter	inch		2xP0.39	2xP0.39	2xP0.39
RAM					
Ram Size	inch		9.06x9.06	9.06x9.06	9.06x9.06
Min. ID for Ram Pass	inch		13	13	13
SPEED					
Table Speed (2-Steps)	rpm		1~91, 85~250	1~73, 65~200	1~37, 38~100
Rapid traverse (X-Axis)	ipm		472	472	472
Rapid traverse (Z-Axis)	ipm		393	393	393
Crossrail Stroke	inch		31.5	31.5	39.4
Crossrail Step	inch x step		7.87x4	7.87x4	7.87x5
MOTORS					
Table Main Motor (30 Min.)	hp		60	60	100
X axis Servo Motor	hp		8 (α40)	8 (α40)	8 (α40HVI)
Z axis Servo Motor	hp		8 (α40)	8 (α40)	8 (α40HVI)
ATC Servo Motor	hp		1 (α4)	1 (α4)	1 (α4HVI)
Hydraulic Motor	hp		2	2	5
Crossrail Motor	hp		7.5	10	20
Lubrication Motor	hp		1	1	5.5
ATC					
ATC Magazine Capacity	tool	std.	12	12	12
		op.	9 Live/9 Static	9 Live/9 Static	9 Live/9 Static
Max. Tool Length	inch		17.7	17.7	17.7
Max. Drill Diameter	inch		2†	2†	
Max. Tap Diameter	inch		1.2†	1.2†	2.5†
Max. Torque for Drilling	ft-lb		145	145	173
Live Spindle Speed*	rpm		2,000	2,000	2,000
Table Index Speed (C)	rpm		3	3	3
Live Spindle Motor* (30 Min.)	hp		20	20	25
Tool Shank Size	inch		1.26 x 1.26	1.26 x 1.26	1.26 x 1.26
Tool Taper	—		50	50	50
Pull Stud	—		P50T-1 (MAS403)	P50T-1 (MAS403)	P50T-1 (MAS403)
MISCELLANEOUS					
Total Power Capacity (208V)	kVA		60	100	150
Machine Weight	lb		66,000	73,700	165,000

Specifications are subject to change without prior notice.

* Optional / (M) = Milling Spindle / std. = Standard / op. = Optional / † = On Carbon Steel Workpiece

Catalog_VTL1620-0521.v1

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