



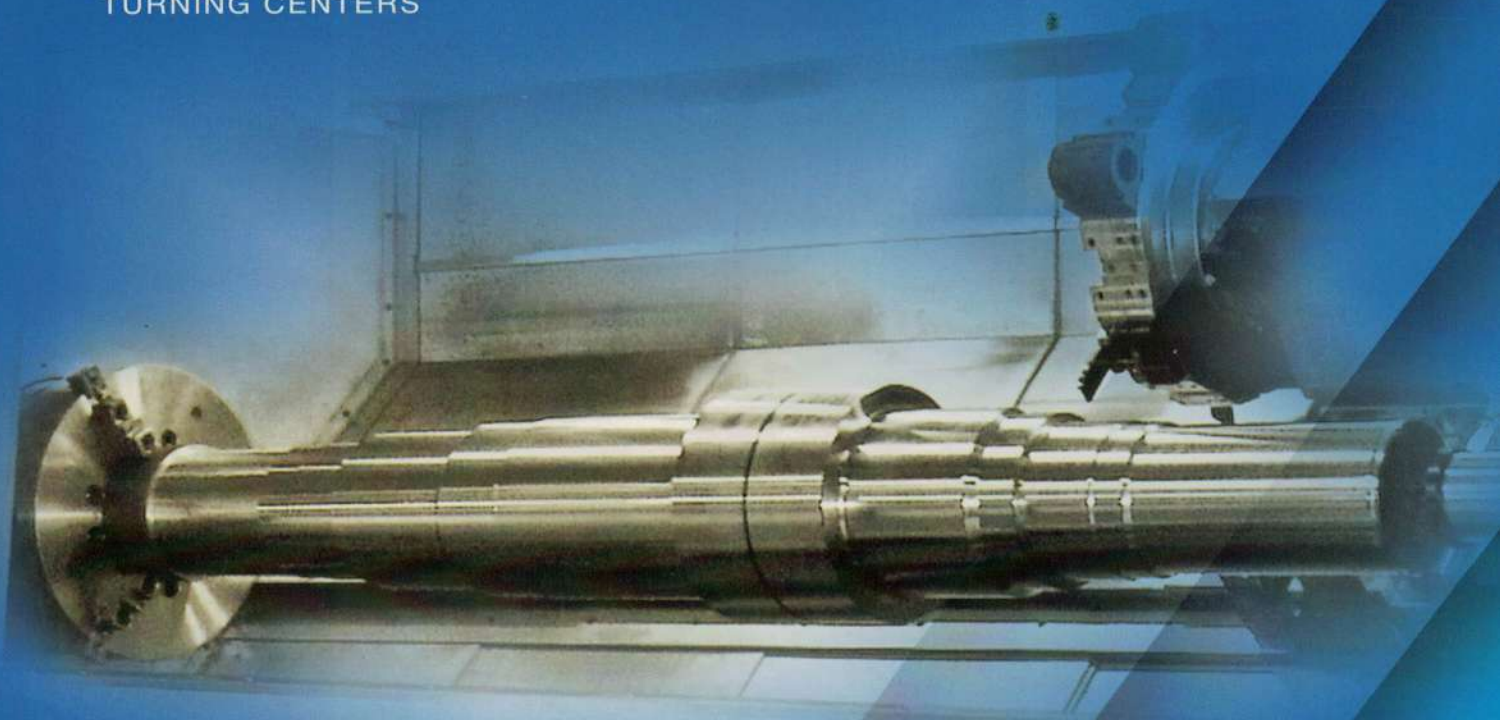
VIPER

Turning Solutions

VERTICAL TURNING LATHES

HORIZONTAL MACHINING CENTERS

TURNING CENTERS





Machining Solutions



Vertical
TURNING LATHE



Y-Axis Milling
TURNING CENTER



Big Bore
LARGE DIAMETER TURNING

TOTAL SOLUTIONS FOR A WORLD OF **Turning Applications**

ALEX-TECH has a wide-range of Viper turning centers that are able to satisfy the most demanding standards for precision metal cutting applications. Whether you are milling, boring or fine surface cutting, Alex-Tech has a machine to get the job done; machines that give year-after-year operation and result in a high return-on-investment.



Built with premium materials and high-tech components

innovative options. Viper machining centers are available in several machine configurations:

- Vertical Turning Lathe
- Mill Turn
- Turning Centers
- Gang Style
- Teaching Assistant Lathe
- Horizontal Machining



VTL-Series turning a Drive Roll workpiece from 43,000 lbs. stock cylinder blank – L-Type tool holder.

Whatever industry you work in, Viper machines can help you manufacture precision parts and clean-cut products. Experience higher levels of performance with machine tools designed to generate greater production volume. Find out how Viper can increase your production method, and contribute to the success of your shop.

Aerospace and Defense • Machine structurally complex parts according to precision industry requirements. Vipers are able to meet precision standards; complete tough jobs easily on Titanium, alloy steel, Inconel and stainless steel raw stock.

Energy and Oil Field • Top oil well parts manufacturers rely on the VT-series turning centers to produce long

Alex-Tech prides in a truly complete line of turning centers that offer manufacturing solutions to a world of machining applications. Viper meets the demanding needs of the machining industry by building modern machine tools made of premium materials and components. Integrate premium materials with high-tech design features and the result is a reliable high performance machine tool called Viper from Alex-Tech.

Viper machines are on the job 24/7 filling the needs of machine shops and manufacturers from a wide range of global industries. Viper line offers a wide selection of choices, sizes, center distances, specifications and

WORLD-CLASS MACHINE TOOLS



Mill Turn
DEDICATED MILLING



Gang Style
PRODUCTION LATHE



Horizontal
MACHINING CENTER

and heavy parts. Viper users are among the leading fabrication and machining shops serving the oil field industry. The heavy-duty VT-50Ax4000 has thrilled owners with high performance and reliable operation.

Automotive Parts •

Machine heavy parts, automotive shafts, engine components and wheels for automotive machining, Alex-Tech offers the speed and power to perform heavy and fine surface cutting requirements.



Viper turning centers are well suited for automotive machining.

Medical and Small Electronics • Alex-Tech offers machining that is virtually vibration free, enabling the production of small plastic parts for medical components. Cut hard plastic material with fast spindle speeds and high feedrates.

Machine Automation • Alex-Tech provides total solutions that go beyond machine with robotic automation. Streamline your end forming operation, grow and gain momentum to successfully complete in a world-wide economy. Available VT-Series robotic systems include a slide-in parts loader, magnetic parts conveyor, robotic arm loader and a parts loader with rotary table.

Integrate an advanced robotic system onto your shop floor to increase your parts production and generate

greater business profits. Setting up an automatic machine system with loading and unloading systems can minimize loading time and increase work shift efficiency, resulting in a larger volume of per piece parts production.

Whatever metal or parts production you may seek, Alex-Tech offers a number of solutions to help you make the right decision. Tough materials and complex surfaces are easily cut by Viper machine tools. You could say, 'Viper is one brand that does-it-all.'

Experiencing higher levels of performance with Alex-Tech Viper machine tools. Call today and find out how Viper machine tools can meet your metal application needs and help you achieve your manufacturing goals.

Call Alex-Tech at **886-4-25626039**
Visit online at www.alex-tech.com

Drill casting machined on VT-25 Turning Center cut from 174 stainless steel, two halves are milled separately and then bolted together forming a seamless looking piece. Used for protecting fragile optical sensor during high-tech drilling.



A Full Line of Solutions

Alex-Tech is a solid source of turning solutions for a diverse field of tough materials and complex cutting surfaces.

The Viper line offers a wide selection of choices, sizes, center distances, specifications and innovation engineering design.

VTL VERTICAL TURNING LATHE

VTL-11/14
VTL-11/14 TT
VTL-12/16
VTL-16/20
VTL-20/24
VTL-27/32
VTL-30/40

TURNING CENTERS

VT-8P
VT-8TT
VT-10G
VT-10T
VT-10TM
VT-12
VT-15L
VT-17L
VT-21
VT-23
VT-27
VT-28
VT-30
VT-33
VT-36B
VT-36BL
VT-36CL

VT-38
VT-40A
VT-40B
VT-50A
VT-50B
VT-70A

MILL-TURN MULTIPLE FUNCTION

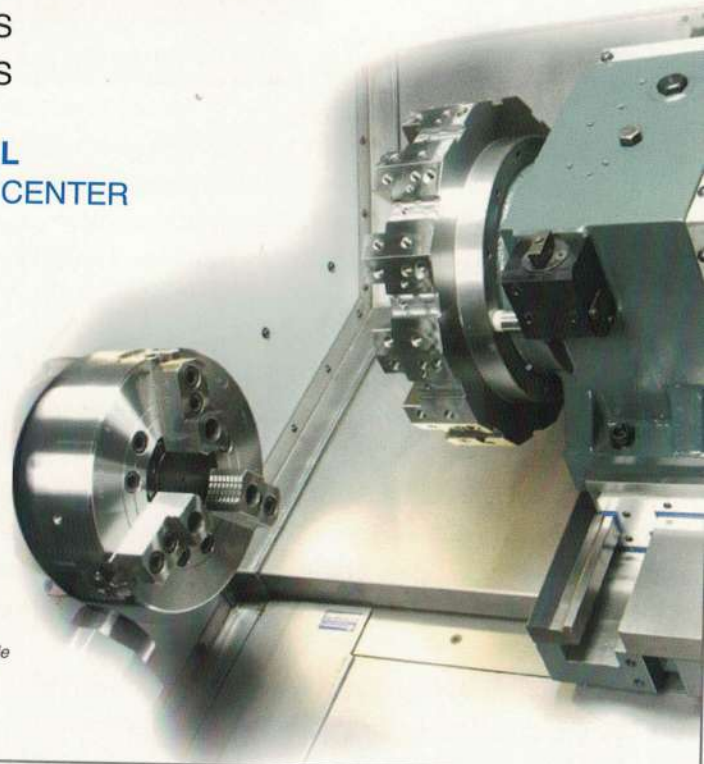
VT-21MS
VT-23MS
VT-2100YMS
VT-2300YMS
VT-2800YMS
VT-3000YMS
VT-3300YMS

HORIZONTAL MACHINING CENTER

HMC-400

GANG STYLE PRODUCTION LATHE

VT-8
VT-10
VT-12
DS-155
DS-175



The VT-Series was designed to perform a full-range of turning operations in a single setup on a wide variety of materials.

Design Features

Alex-Tech has reputation for being a world-class manufacturer of CNC machines, offering modern high-tech design features, built with premium materials and high quality components.

VIPER TOUGH

Viper machines are not only extremely durable and heavyweight, but mighty reasonably priced as well.

Scott Kramer
Melrose Metalwork
Melrose, MN USA

Powerful Spindle

The spindle cartridge is available with a drive capacity up to 60 hp on the 'Big Bore' turning centers. Powerful torque up to 6,535 ft-lb at 50 hp, easily perform heavy-duty cutting and high speed finish machining.

Made of SCM21 alloy steel, the spindle yields excellent speeds. Gear spindle speed up to 2,500 rpm. Pulley spindle speed up to 2,000 rpm.



PULLEY
Spindle Head

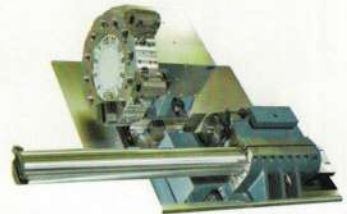


GEAR
Spindle Head

Innovative Design

Viper turning centers use innovative machine features that enhance the machining process. Experience superior cutting results with Viper Turn-Mill compound Y-slide design, or the 'Big Bore' Lathe travel boring tailstock.

30° compound Y-Axis sliding seat allows for turret vertical travel of ± 2.4 -inches. Travel boring tailstock (patent pending) increases boring bar cutting depth. The tailstock design allows for large hole boring and threading repair. Fits 4, 5 and 6-inch boring bars.



Travel boring tailstock is a fully functional tailstock, and has a travel distance of 3.93-inches.

Smooth Way System

Smooth motion control. Alex-Tech uses both box ways and linear guideways on Viper turning centers. Each way system implemented provides accurate XZ travel movement resulting in precision cutting.

Oversized hardened and ground box ways provide full support for more stability and less vibration, minimizing 'stick-slip' effect and vibration for heavy workpiece machining. The VT-12 lathe features linear guideways with recirculating roller balls for fast and accurate Z-axis movement.

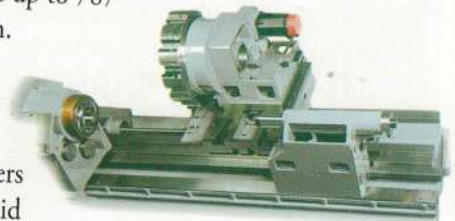


Fast Feed Rates

Experience extraordinary metal removal and excellent surface finishes. Outstanding box way system provides virtually vibration free cutting. Both X and Z axes facilitate fast traverse rates up to 787 and 944 ipm.

VT-Series 'Big Bore' turning centers employ a Fluid Bearing Way System on the

X and Z axes. Fluid bearing enhances vibration dampening, yet is agile enough for high feed rates with extreme cutting accuracy.



Fluid bearing way system is agile enough for high feed rates, and enhances vibration dampening.

VTL

16/20 20/24 27/32 30/40

series

model numbers



Large part heavy-duty vertical turning.

- 50-taper spindle
- Up to 66,000 lbs. table load
- Box ways

16/20 ~ 30/40 VTL-Series is designed for large parts turning and features an optional milling function. Teared table drive generates a table torque of up to 614,780 lbs-ft.[†] Rapid feed rates of 472.5 and 393.7 ipm.

Performance Specifications

Table Diameter	63 ~ 118 (1600 ~ 3000)
Turning Diameter Max.	78.75 ~ 157 (2000 ~ 4000)
Swing Max.	78.75 ~ 157 (2000 ~ 4000)
Table Load Max.	15,000 ~ 66,000 lbs
XZ-Axis Stroke	64.37 x 39.37 ~ 161.4 x 59 (1035 x 1000 ~ 4100 x 1500)
Table Speed (2-Step)	1 ~ 120, 85 ~ 300 rpm
Crossrail Stroke	31.5 ~ 59.06 (800 ~ 1500)
Crossrail Step	7.87 x 4 (200 x 4) ~ 9.84 x 6 (250 x 6)
Main Table Motor**	50 ~ 100 / 40* ~ 80* hp
Live Spindle Motor**	15 / 20* / 25* hp
ATC Tools	18

Units = inch (mm) *Optional accessory **30 min. rating
† = For VTL-30/40 Table torque lbs-ft call Alex-Tech.

Alex-Tech Vertical Turning Advantage

Super-heavy parts cutting

Large vertical parts turning is mighty easier with the Alex-Tech vertical turning lathe (VTL). The VTL-Series is available in a wide selection of sizes and performance options. A heavy-duty spindle and high torque 2-speed gear drive allows you to confidently mill large tonnage material blanks with precision control. A geared table drive generates powerful table torque for easily turning table loads up to 30,000 lbs. Lathe table has a wide work surface measuring up to 118-inches in diameter.

All VTL-Series machine structures are manufactured from high quality Meehanite cast iron, specially treated to relieve stress and ensure that the structure remains free of distortion for life.

- 51,280 ft.-lbs. of torque power
- 2000 rpm C-axis live spindle
- 1500-inch cross rail stroke
- 9-inch ram, carbon steel
- Coolant through ram
- 7 to 5-position sliding cross rail
- 4-Jaw chuck table
- 2-speed variable table
- Easy gear box access

Alex-Tech VTL-Series is your answer to precision and heavy-duty vertical turning. There is a Mighty machining solution that can help you.

VTL

12/16

series

model numbers

VTL-12/16 is designed for heavy-duty large parts vertical turning. Geared table drive generates a table torque of 6,334 lbs-ft. Rapid feed rates of 472.5 and 393.7 ipm.

Performance Specifications

Table Diameter	49.2 (1250)
Turning Diameter Max.	57 (1450)
Swing Max.	62.99 (1600)
Table Load Max.	13,000 lbs
XZ-Axis Stroke	41 x 39.37 (1135 x 1000)
Table Speed (2-Step)	1~111, 100~300 rpm
Crossrail Stroke	31.5 (800)
Crossrail Step	7.87x4 (200x4)
Main Table Motor**	50 / 40* hp
Live Spindle Motor**	10 / 15* hp
ATC Tools	18

Units = inch (mm) *Optional accessory **30 min. rating



Large part heavy-duty vertical turning.

- 50-taper spindle
- 13,000 lbs. table load
- Box ways

VTL

11/14 11/14TT

series

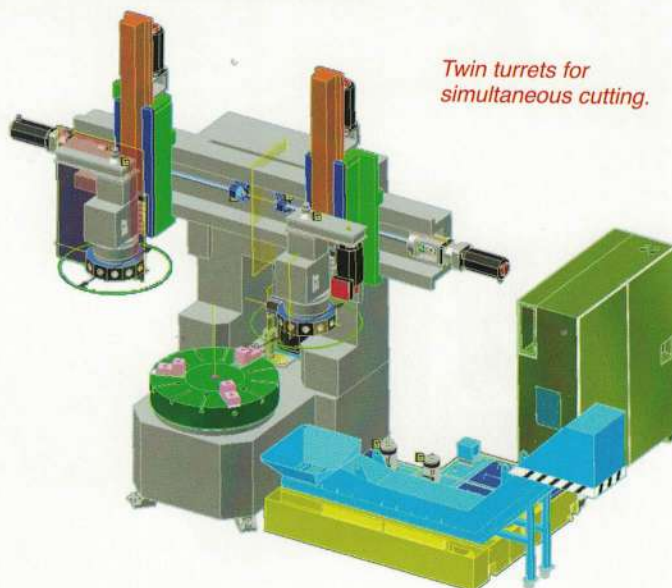
model numbers

VTL-11/14 is designed for large parts turning and features an optional twin turrets (TT) for simultaneous O.D. and I.D. cutting. Geared table drive generates a table torque of 6,173 lbs-ft.

Performance Specifications

Table Diameter	43.3 (1100)
Turning Diameter Max.	51.18 (1300)
Swing Max.	55.10 (1400)
Table Load Max.	9,900 lbs.
XZ-Axis Stroke	47.2 x 27.56 (1135 x 1000)
Table Speed (2-Step)	1~120, 120~600 rpm
Crossrail Stroke	31.5 (800)
Crossrail Step	—
Main Table Motor**	50 / 40* hp
Live Spindle Motor**	10 / 15* hp
ATC Tools	12

Units = inch (mm) *Optional accessory **30 min. rating



Twin turrets for simultaneous cutting.

- 50-taper spindle
- 9,900 lbs. table load
- Box ways

HORIZONTAL / GANG STYLE

HMC

400

series

model numbers

*High speed 10,000 rpm,
coolant thru spindle.*



- 40-taper spindle
- Auto pallet changer
- Linear guideways

HMC-Series is a precision CNC horizontal machining center. Rigid spindle provides accurate cutting. Rapid feed system reduces cutting cycle time. Automatic rotary index table reduces idle time for greater work efficiency.

Performance Specifications

X-Travel	21.7 (550)
Y-Travel	15.7 (400)
Z-Travel	23.6 (600)
Number of Pallets	2
Spindle Motor	10 / 15 hp
Spindle Speed Range	up to 10,000 rpm

Units = inch (mm) * Optional accessory **30 min. rating

VT

8

Production Lathe

series

model numbers

*Increase productivity
of small parts machining.*



- 5-inch chuck
- Static dynamic turret
- Box ways

VT-8 is a precision turret production turning center. Choice of static or static/dynamic turret, and a heavy duty tailstock for between centers operation.

Performance Specifications

Swing (Slide) Max.	4.72 (120)
Swing (Z-Axis Cover) Max.	12.60 (320)
Turning Diameter Max.	4.72 (120)
Turning Length Max.	3.54 (90)
X-Axis Stroke	7.87 (200)
Z-Axis Stroke	7.09 (180)
Spindle Motor**	5 hp
Spindle Nose	A2-4
Spindle Thru Hole	1.38 (35)
Spindle Speed Range	6000 rpm
Boring Bar Shank Dia.	0.79 (20)

Units = inch (mm) • * Optional accessory **30 min. rating P= Gang tools
TT=Turret plus tailstock

■ Design and specifications on all machine models is subject to change without prior notice.

High Capacity Viper Turning

Enhanced features increase productivity

Alex-Tech uses high quality stress-relieved Mechanite Cast Iron to ensure the Viper machine structure is free of distortion, for all of our lathe components, such as beds, carriages, cross slides, headstocks and tailstocks. Meehanite Cast Iron has a superior material strength to weight ratio and excellent vibration dampening characteristics. With our experience and techniques, implementing the latest Finite Element Analysis and coupled with Failure Mode Effect Analysis, Alex-Tech has produced the optimum static and dynamic stiffness for all our VT lathes.

The double wall *Torque Tube* bed design ensures thermal and torsional stability. All the components are internally, strategically ribbed with symmetrically enlarged cross sections

providing increased dynamic stability and greater secondary moment rigidity. This prevents localized deformation of slideways and structures, maintaining alignments under maximum loads and extreme cutting conditions, increasing the productive capabilities of the Viper VT lathe.

- Gang tools
- Gang tools plus turret
- Turret plus tailstock
- Torque tube construction
- Meehanite cast iron
- Box ways

Alex-Tech VT-Series offers a one-setup turning solution for greater profitability.

VT

10G 10T 10TM

Production Lathe

series

model numbers

10~10TM VT-Series. Performs fast and accurate small parts turning. Choice of gang tooling, turret tooling or BMT-55 live turret.

Fast set-up and accurate small parts cutting.

Performance Specifications

Machine Model	10G	10T / 10TM
Swing Over Z Way	13.78 (350)	
Turning Diameter Max.	4.72 (120)	7.87 (190)
Swing Over Cross Slide	4.72 (120)	
Turning Length Max.	5.91 (120)	8.26 (210)
XZ-Axis Travel	9.84 x 9.84 (250 x 250)	6.89 x 9.25 (175 x 235)
Spindle Nose Type	A2-5	
Spindle Speed Range	5,000 rpm	
Spindle Drive Motor**	7.5 kw (10hp)	
Static Tooling Station	8	
CNC Control	Fanuc / Mitsubishi	

Units = inch (mm) *Optional accessory **30 min. rating



- 6-inch chuck
- BMT-55 live turret*
- Box ways

VT

12

Production Lathe

series

model numbers

Greater tooling for increased parts production.

VT-12 combines the productivity of gang tools with increased tooling of a static or static/dynamic. Z-Axis linear guideways with recirculating balls, achieves endless linear motion.



- 8-inch chuck
- 8-Station turret
- Box ways

Performance Specifications

Swing (Slide) Max.	4.72 (120)
Swing (Z-Axis Cover) Max.	15.75 (400)
Turning Diameter Max.	7.09 (180)
Turning Length Max.	5.91 (150)
X-Axis Stroke	12.01 (305)
Z-Axis Stroke	11.42 (290)
Spindle Motor**	15 hp
Spindle Nose	A2-6
Spindle Thru Hole	2.44 (62)
Spindle Speed Range	5000 rpm
Boring Bar Shank Dia.	1.0 (25)

Units = inch (mm) • *Optional accessory **30 min. rating

VT

15L and 17L

Production Lathe

series

model numbers

Perform micro-finishing and hard-turning.

15L~17L VT-Series can handle a wide-range of turning, milling or center work. Has a 12-tool turret with a tool change speed of 0.5 seconds.


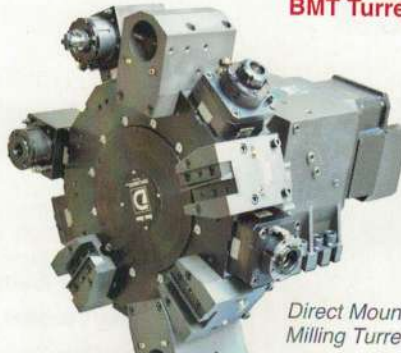
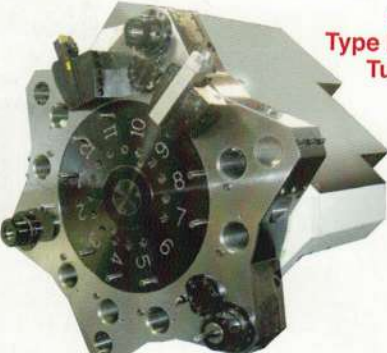




- 6 and 8-inch chuck
- VDI-30 static turret
- Box guide ways

Performance Specifications

Swing Over Bed	18.9 (480)
Max. Turning Diameter	11.02 / 16.54 (280 / 420)
Max. Turning Length	14.6 (370)
X-Travel	6.3+0.6 (160 + 15)
	8.8+0.4 (225 + 10)
Z-Travel	18.5 (470)
Type of Spindle Nose	A2-5 / A2-6
Spindle Thru Hole	2.0 / 2.4 (51 / 61)
Bar Capacity	1.7 / 2.0 (43 / 51)
Spindle Speed Range	6000 / 5000 rpm
Spindle Drive Motor**	15 / 20* hp
Tool Number	10 (L) / 12 (LM-VDI 30)

Units = inch (mm) *Optional accessory **30 min. rating

<p>VT</p>	<p>TURRETS</p> <p>Choice of turrets and tailstock accessory.</p>	
 <p>VDI + Block Turret</p>	 <p>BMT Turret</p> <p>Direct Mount Milling Turret</p>	 <p>Star Type Live Turret</p>
<p>INNOVATIVE boring tailstock design for large hole boring and threading repair. Increase boring bar cutting to full capacity. Heavy-duty tailstock eliminates machine-induced taper into the workpiece.</p>	<p>Travel Boring Tailstock</p> <p>Boring tailstock provides deep hole boring, fits 4, 5 and 6-inch boring bars.</p> 	

<p>VT</p>	<p>21 23</p> <p>Production Lathe</p>	
<p>series</p>	<p>model numbers</p>	
<p><i>21 ~ 23 VT-Series. Easier set-up for shorter more productive cycle times. Features a 24-inch swing. Fast rapid rates of 787 ipm and 945 ipm.</i></p>		
<p>Performance Specifications</p>		
<p>Swing Over Bed</p>	<p>24.4 (620)</p>	
<p>Turning Diameter Max.</p>	<p>15.3 (388)</p>	
<p>Turning Length Max.</p>	<p>24 (609)</p>	
<p>X-Travel</p>	<p>7.3+1.6 (185+40)</p>	
<p>Z-Travel</p>	<p>24 (620)</p>	
<p>Type of Spindle Nose</p>	<p>A2-6/A2-8</p>	
<p>Spindle Thru Hole</p>	<p>2.4/3.2 (61/81)</p>	
<p>Bar Capacity</p>	<p>2.0/2.6 (51/65)</p>	
<p>Spindle Speed Range</p>	<p>5000/4500 rpm</p>	
<p>Spindle Drive Motor**</p>	<p>20hp / 35*hp</p>	
<p>Tool Number</p>	<p>12</p>	
<p>Units = inch (mm) *Optional accessory **30 min. rating</p>		
<p><i>Fast set-up and high precision cutting.</i></p>		 <ul style="list-style-type: none"> • 8 or 10-inch chuck • BMT-65 live turret* • Box ways

VT

2100 2300 2800 3000 3300 YMS / YM

series

model numbers

Live tooling. Y-Axis and two C-Axes in a super-compact design.



- Up to 18-inch main chuck
- BMT-65 live turret
- Box ways

2300~3300YMS/YM VT-Series. Turret is seated on a cross travel (X-axis) 30° compound Y-slide. Provides either single or two axis travel.

Performance Specifications

Swing Over Z Way Cover	23.6 (600)
Turning Diameter Max.	15.4 (390)
Swing Over Cross Slide	18.9 (480)
Distance Between Centers	19.8 / 39.4 (503 / 1000)
Slideway Slant Angle	30°+30°
X-Axis Travel	7.7+4.3 (195+110)
Y-Axis Travel	±2.1 (±55)
Z-Axis Travel	22 ~ 98 (550 ~ 2490)
W-Axis Travel	43.3 (1100)
Main Spindle Motor	20 / 35 hp
Spindle Nose Type	A2-6 ~ A2-11
Main Spindle thru Bar Capacity	2 ~ 3.5 (52~89)

Units = inch (mm) *Optional accessory **30 min. rating

Alex-Tech Turning-Milling Advantage

Less setup with multi-tasking machine

Machine precision parts faster with less setup time. The YMS-series can machine from bar stock to finished part, make parts more economically, give your shop a competitive advantage. One turn-mill machine can complete the process of several machines, making a job more profitable.

Once setup, the YMS can start producing parts immediately. The YMS turn-mill reduces multiple operators and stations yielding a more accurate part. With one machine there will be less accumulated loss of accuracy that comes from multiple fixture placing. The YMS saves shop space with its compact size and use of less tables and carts for parts waiting to be machined.

- Y-axis vertical movement 4.73-inch
- Up to 7 axes (x, y, z, w, c1, c2 and c3)
- Live tooling
- 12-Station milling turret
- XY axis slide
- 43-inch W-axis
- Up to 8-inch sub-spindle
- Programmable tailstock

Alex-Tech YMS-Series offers a one-setup turning solution for greater profitability. Call today and find out how the Viper YMS turn-mill machine can help you.

■ Design and specifications on all machine models subject to change without prior notice. □ All pictures are for reference only, actual model and options may vary.

VT

27

series

model numbers

VT-27 has powerful torque provided by a 2-step gear spindle. Spindle bar capacity is 3.03-inches. Variable speed range of 1~600 / 600~3500 rpm. Dynamic turret with C-axis (option).

Ideal for the toughest hard-turning jobs.

Performance Specifications

Swing Over Z-Cover	26.8 (680)
Turning Diameter Max.	18.5 (470)
Turning Length Max.	21.7~120 (550~3050)
X-Travel	9.44 +1.57 (240+40)
Z-Travel	22.8 ~ 121.25 (580~3080)
Spindle Nose	A2-8
Spindle Thru Hole	3.43 (87)
Bar Capacity	3.03 (77)
Spindle Motor**	35 / 50* hp
Spindle Speed Range	100 ~ 600 / 600 ~ 3500 rpm

Units = inch (mm) *Optional accessory **30 min. rating



- 12-inch chuck
- BMT-65 live turret
- Gear headstock
- Box ways

VT

28 30 33

series

model numbers

28~33 VT-Series performs extraordinary metal removal and provides excellent surface finishes. Live turret and a programmable sub-spindle.

Ideal for big diameter and long turning jobs.

Performance Specifications

Swing Over Bed	26.8 (680)
Turning Diameter Max.	18.5 (470)
Turning Length Max.	21.7 ~ 120 (550 ~ 3050)
X-Travel	10.5+1.57 (265+40)
Z-Travel	22.8 ~ 81.88 (580 ~ 3080)
Thru Bar Capacity	3.03/ 3.5 / 4.5 (77 / 90 / 115)
Boring Bar Diameter Max.	1.6 / 3 (40 / 76)
Spindle Thru Hole	3.4 / 4.3 / 5.16 (87 / 110 / 131)
Spindle Nose	A2-8 / A2-11
Spindle Speed Range	2400 ~ 3500 rpm
Spindle Motor**	35 / 50* hp
Tool Number	12 / 10

Units = inch (mm) *Optional accessory **30 min. rating



VT-28BL
with 78.74-inch bed length

- 15 or 12-inch chuck
- BMT-65 live turret*
- Box ways

VT

36B 36BL 36CL

series

model numbers

Perform a full-range of turning operations.

36B~36CL VT-Series provides a wide boring diameter, up to 7.28-inches. Rigid bed structure available up to 117-inches long.



- Up to 24-inch chuck
- BMT-75 live turret*
- Box ways

Performance Specifications

Swing Over Bed	31.5 (800)
Turning Diameter Max.	24.8 (630)
Turning Length Max.	39 ~ 117 (980 ~ 2980)
X-Travel	12 + 1.18 (305 + 30)
Z-Travel	39 ~ 117 (980 ~ 2980)
Spindle Motor	35 / 50* hp
Spindle Nose	A2-11 / A2-15
Spindle Thru Hole	5.16 / 7.28 (131 / 185)
Spindle Speed Range	2000 / 1000 rpm
Bar Capacity	4.5 / 6.3 (115 / 160)
Tool Number	12 / 10

Units = inch (mm) *Optional accessory **30 min. rating



TEST RESULTS

Material: INCONEL

Hardness: Rc 48

Cutting OD: 130 rpm
0.1 mm/rev.

Cutting ID: 330 rpm
0.15 mm/rev.

Cutting Time: 3.42 hours

Spindle Load: 12%

Servo Load: 11%

Chuck Size: 31" with
6" Through Hole

VT

38 40A 40B 50A 50B

series

model numbers

38 ~ 50B VT-Series accommodates long and heavy workpieces; provides deep hole boring capacity with a large diameter.

Easier turning for heavy and long work pieces.

Performance Specifications

Swing Over Bed	39.37 (1000)
Turning Diameter Max.	34.65 (880)
Turning Length Max.	35.4~153.54 (900~3900)
X-Travel	17.72 (450)
Z-Travel	35.4~153.54 (900~3900)
Thru Bar Capacity	4.52 (115)
Boring Bar Diameter Max.	2.5 / 4 (60/100)
Spindle Thru Hole	5.15 ~ 14 (131~360)
Spindle Nose	A2-11 ~ A2-20
Spindle Speed Range	600 ~ 2000 rpm
Spindle Motor**	50 / 60* hp
Tool Number	10/12



- Up to 24-inch chuck
- BMT-85 live turret*
- Box ways



VT-40YBM

- ±5.1-inch Y-axis travel
- BMT-85 live turret*

Units = inch (mm) *Optional accessory **30 min. rating

VT

70A

series

model numbers

VT-70A Series is specialized for large part production, 38.97-inch swing over cross slide; provides large diameter deep hole boring.

Larger workpiece swing for big parts heavy-duty turning.

Performance Specifications

Swing Over Bed	45.27 (1150)
Turning Diameter Max.	38.97 (990)
Turning Length Max.	35.4~153.54 (900~3900)
X-Travel	22 (559)
Z-Travel	35.4~153.54 (900~3900)
Thru Bar Capacity	4.5 (115)
Boring Bar Diameter Max.	2.5 / 4 (60/100)
Spindle Thru Hole	260
Spindle Nose	A2-15
Spindle Speed Range	1~230 / 1~750 rpm
Spindle Motor**	50 / 60* hp
Tool Number	10/12



- 18 or 24-inch chuck
- 10.24-inch spindle bore
- BMT-85 live turret*
- Box ways

Units = inch (mm) *Optional accessory **30 min. rating

■ Design and specifications on all machine models subject to change without prior notice.

BIG Parts Production

Long and heavy parts turning using the VT-50A with a 4000 mm bed length

Oil Field Industry

► Oil country parts machining with Viper **VT-50x4000** (157.48"). Drilling shaft component manufactured from 7500 lbs. stock weight material.



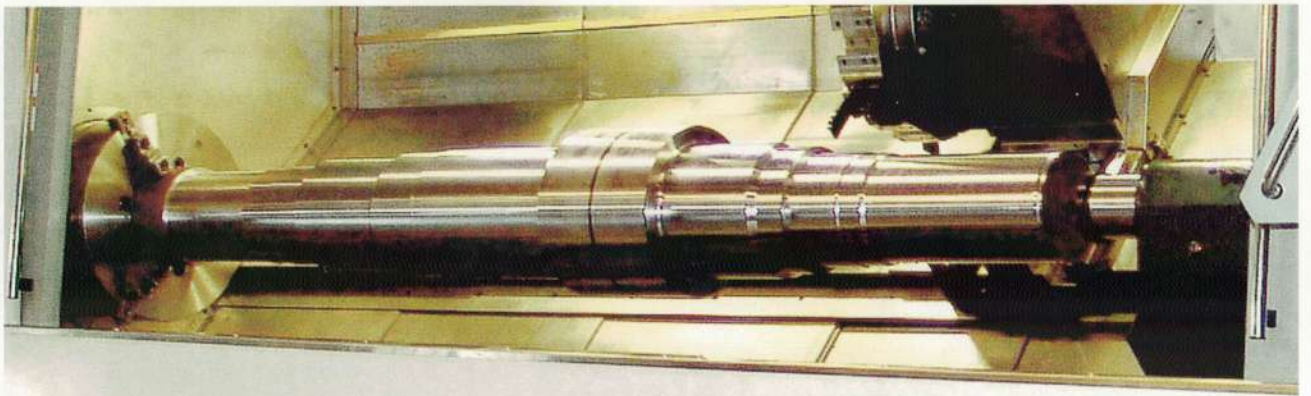
Live VDI 60
with Block Tool Turret.

VT-50A x4000 WORKPIECE PROFILE

Company: Micro Machine Mfg.
Client: National Oilwell (Varco)
Industry: Oil Field Drilling
Workpiece: Main Shaft

Stock Weight: 7500 lbs.
Material: 4045 High Strength Steel
Surface Feed Rate: 0.01"

Depth Of Cut: 0.75"
Spindle Load: 40~45%
RPM: 150~200



CUTTING TIMES

At Wasatch Tool & Die:

Precision Demanded... Precision Delivered

Companies that sell precision, likewise demand precision. This especially holds true for Wasatch Tool & Die, Salt Lake City, Utah. Located at the foot of the Wasatch mountain range, the company has been machining splines, gears and other parts for various manufacturers as well as the steel and mining industries.

In business for over thirty years, Wasatch Tool & Die has a work force of twenty. With forty machine tools, about a third of them are CNC. Recently, Wasatch acquired a Viper VT 50A+2000 turning center. According to Juergen Mueller, Owner and President, the company requires two main ingredients to be successful. First and foremost is top personnel, and secondly, cutting edge equipment. As Juergen states, "Basically you can't have one without the other in order to produce precision products. This new Viper will help us in our quest to produce high quality parts."

Viper Turning Center

Wasatch's VT 50A+2000 turning center was recently acquired and Juergen stated that the results have been excellent. One feature that impressed Juergen was the fluid bearing way system, which is virtually *Infinitely Stiff* with enhanced vibration dampening characteristics, yet is agile enough for high feed rates with extreme accuracy. The fluid bearing literally becomes part of the machine structure, carrying the entire machine load. The ability to control film thickness under varying loads, maintaining a constant film thickness creates virtually an *Infinitely Stiff* turning system.

Incorporating the torque tube concept in the frame ensures that the VT 50A+2000 will resist bending and twisting. All internal components are strengthened with symmetrically enlarge cross sections, providing increased dynamic stability and greater secondary

moment rigidity. The tube itself allows air flow through the casting, providing cooler operating temperatures. Further enhancing its rigidity, its slant bed design provides a stronger frame and a lower center of gravity.

FANUC Controller

Wasatch uses a FANUC 21i-T controller on its VT 50A+2000 turning center. This unit is an ultra compact controller with network capability. Featuring an integrated CNC printed circuit board integrated with a liquid crystal display enables Ethernet communication functions. Advanced preview control allows looking ahead at multiple parts of the part program and reduces machining errors in corners and arcs, which in turn results in high speed and high speed precision machining. Should failure occur, causes and recovery are displayed on the screen, in turn enabling a more rapid recovery.

In summary, Juergen Mueller stated, "We may be located at the foot of the mountain, but with our quality and using machines such as our VT 50A+2000, we are at the top!" ■



Parts machined by Wasatch Tool and Die using the Viper VT-50A x2000 turning center.



V&M's Plunge-Mill **LEARNING CURVE**

Sometimes what looks like a glitch in the works may actually turn out to be a blessing in disguise. Aerospace supplier V&M Precision Machining & Grinding (Brea, CA) was recently faced with a last-minute material substitution when the usual cylindrical 155 stainless it uses in the machining of a landing gear component became unavailable.

V&M found that it would instead have to machine rectangular-solid 300M stainless—a 7.5" (190.5-mm) square block with a length of 65" (1.7 m).

V&M is no stranger to the demands of the precision aerospace industry. Established in 1963, it serves OEMs and top-tier suppliers including Boeing, Northrop Grumman, and Goodrich Aerostructures, as well as Fuji Heavy Industries and Kawasaki Aerospace division in Japan.

The particular component in this case was an orifice tube that is designed to absorb the first impact of the landing gear as it hits the runway. It's being produced for customer General Electric (formerly Smith Aerospace) as part of a drone jet prototype program (see sidebar). The orifice tube is a cylinder with slots located in strategic locations. It is controlled with an air cylinder via a metering pin, and acts

Different material makes no material difference in landing gear component milling.



Landing gear component.



Rendering of the X-47B UCAS courtesy of Northrop Grumman Corp.

Aerospace **Collaboration**

Milling a landing gear component on a Mighty Viper Lathe with TP2500 CNMG 643W-MR7 chipbreaker insert at V&M.

as an air shock absorber to take the first impact at landing. After that, the hydraulic system takes over.

Early in 2005, V&M was purchased by Dal and Tom Rogers, who collectively have over 80 years experience in the aerospace industry. Dal has previously owned two other

machining companies: Hansen Engineering from 1962 to 1983 and High Tech West, which he sold in 2000 to Integrated Aerospace. However, Dal's previous companies specialized in airframe components, as opposed to the landing gear parts that V&M is well-known for.

Viper VT-40A at V&M Precision Machining and Grinding

Viper **VT-40A** Turning Center is featured in *Aerospace & Defense Manufacturing Supplement 2007*. The original three page article reveals how V&M Precision Machining and Grinding in Brea, CA employed the Viper turning center, to complete the machining of an orifice tube, used in the landing gear of the X-47B unmanned jet. The landing gear component is finished on the VT-40A from a 4-inch diameter cylinder, made of 300M stainless. This was a brand-new application for V&M, there was no

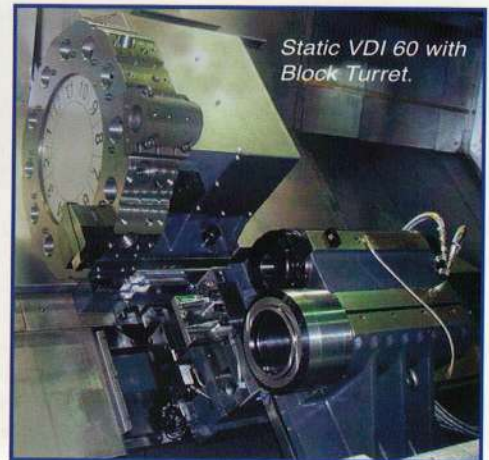
baseline established. V&M was able to test different speeds and feeds to achieve the right performance settings. The VT-40A has a Fluid Bearing Way System on the X and Z axes that yields optimum machine stiffness. This way system enhances vibration dampening, yet is agile enough for fast feed rates. The machine rigidity of the VT-40A enabled V&M to achieve fast and consistent cutting speeds — cutting speeds were consistent at 196 rpm and 400 fpm on both cutting passes. ■

Travel Boring Tailstock

VT-38/40/50
Turning Centers

INCREASE BORING BAR CUTTING TO FULL CAPACITY,
PROVIDES HIGH RIGIDITY AND STABILITY.

- ▶ **Deep Hole Boring:** Fits 4", 5" and 6" Boring Bars
- ▶ **Large Spindle Bore:** 5.12", 7.28", 9.25", 10.24", 14.17", 17.12" and 21.06"
- ▶ **Tailstock Boring Bar Traveling Distance:** 3.93"



TOTAL SOLUTIONS THAT GO Beyond Machine

Integrate automatic machines with loading and unloading systems can minimize loading time by increasing work shift efficiency, resulting in greater parts productivity.

Robot systems are able to move parts in and out of turning centers with ease and no fatigue.

Mighty introduces the new Automatic Robotic System for the VT-Series machines. An innovative design marking a milestone in full automation for CNC turning centers. Delivered to you from Mighty, the manufacturer that continues to advance machine tool design.

Automating machines with loading and unloading systems can minimize down-time, resulting in greater work shift efficiency.

Streamline your end forming operation, grow and gain momentum to successfully complete in a world-wide economy.

Integrate this advanced robotic system onto your shop floor to increase your business profits and parts productivity.

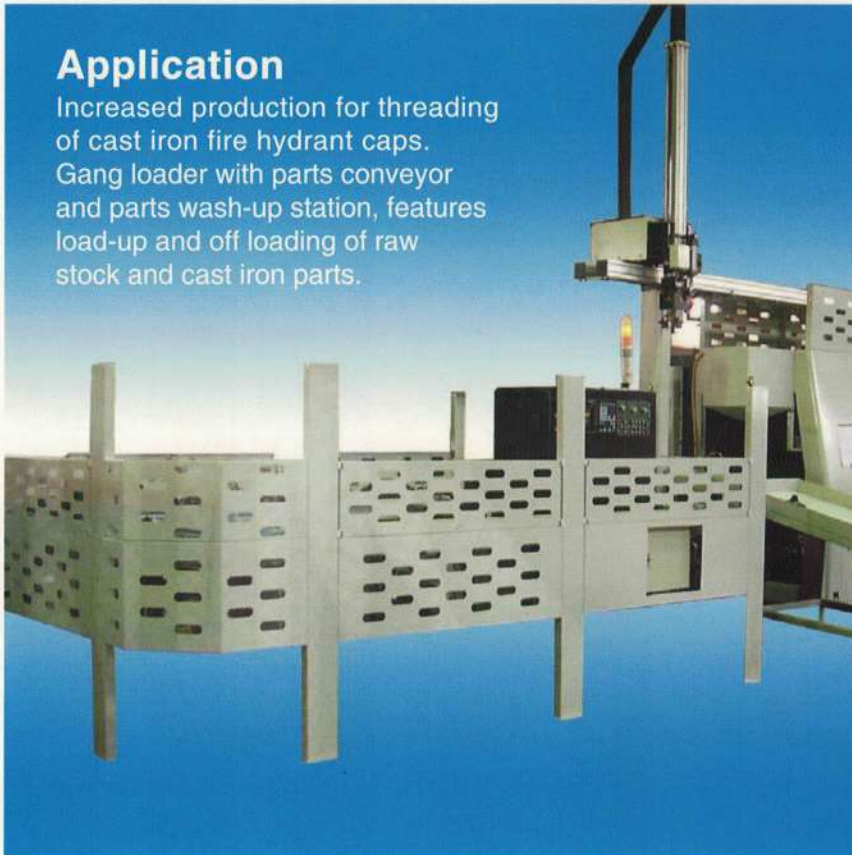
Parts Threading for Fire Hydrant Manufacturer

Application

Increased production for threading of cast iron fire hydrant caps. Gang loader with parts conveyor and parts wash-up station, features load-up and off loading of raw stock and cast iron parts.

TURN KEY

- ▶ Parts qualify station
- ▶ Parts conveyor
- ▶ Gentry loader
- ▶ VT-23S with Subspindle
- ▶ Parts wash-up station



Innovative Wheel Hub Production

Large 16-Inch Truck Wheel Hub

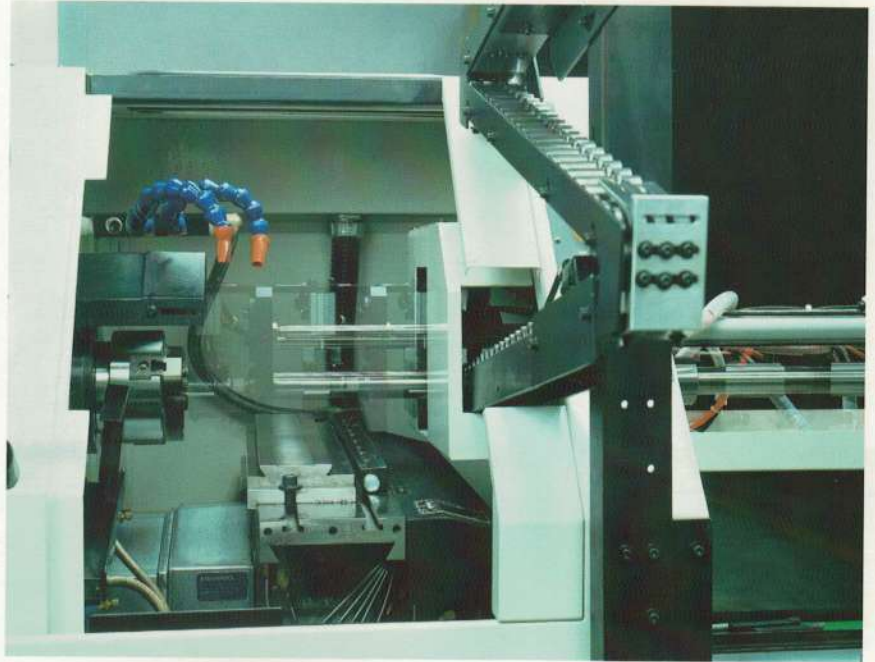
Truck wheel hub manufacturer increases production by integrating automated loading and unloading of parts stock. Faster set-up and removal of big parts results in more finished parts.



Application example: VT-36B with automated parts loading and unloading.

Slide-in Parts Loading - Economy

Slide-in parts loading system with parts catcher. Continuous small parts production can be realized by integrating this automation system.



Parts Loader and Rotary Table -

Simple solution

Gentry parts loader and parts rotary table. The unit can be shared between multiple machines with coordinated cycle times.





King-Pro Machinery & Equipments Co.,Ltd.

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