



Think Big

Deep Capacity Large Hole Boring



VT-SERIES

38
40
50
70

Accommodates
Heavy and Long
Workpieces

VIPER



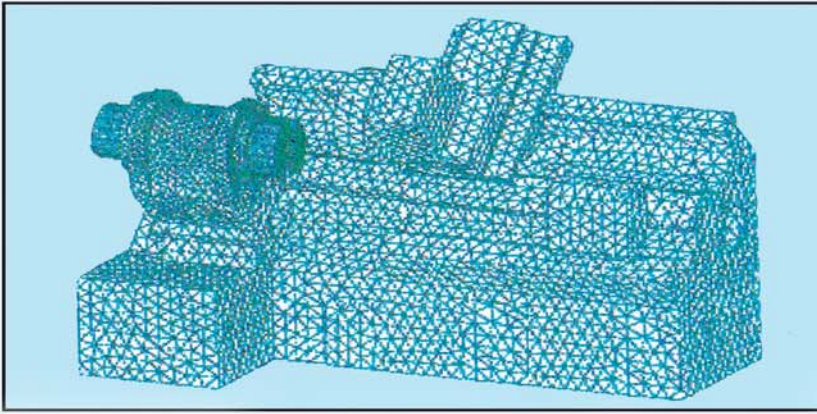
Viper VT-Series 38/40/50/70 Features

- Eight model variations
- Four lengths of 109.8" (2788 mm), 146.8" (3728 mm), 186.2" (4729 mm) and 225.6" (5730 mm)
- One-Piece Slant Bed design for outstanding rigidity, stability and heavy cutting requirements

VT-40B x4000
with VDI 60 Live Star-Style Turret



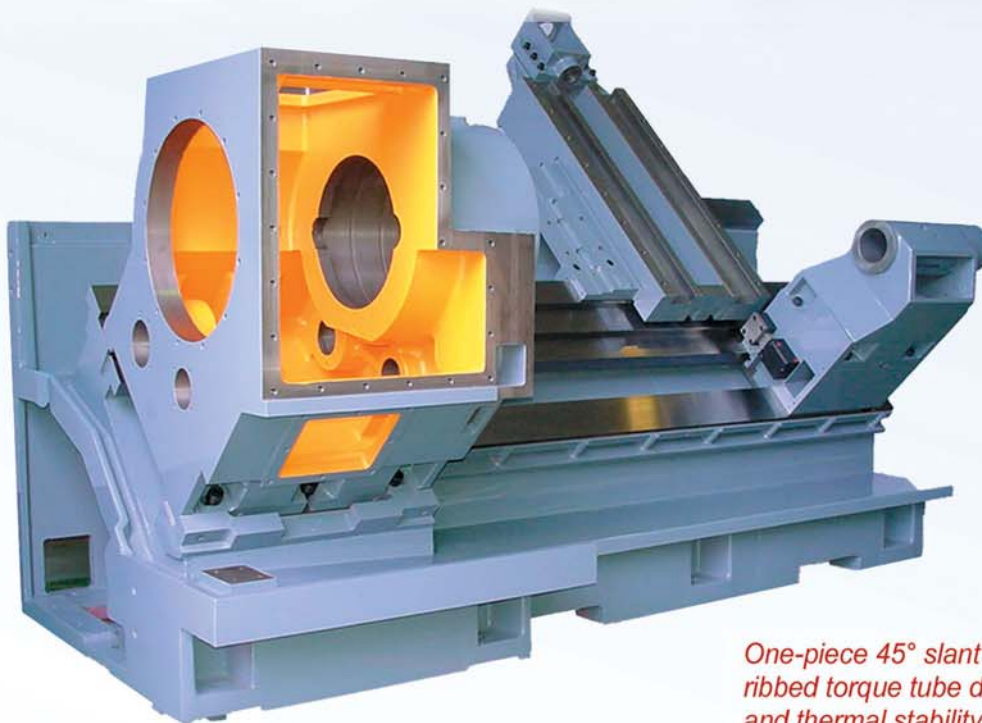
- A wide range of Spindle Bore and Chuck Sizes from A2-11, 5.15" (131 mm) Thru Hole to A2-20, 12.12" (308 mm) Thru Hole Headstock
- A design that accommodates heavy, large and long work pieces
- Either Static or 15 hp (30 min), 3200 rpm VDI 60 Heavy Milling Live Turrets



Finite Element Analysis (FEA)
for Ultimate Structure Design.

Viper's One Piece 45° Slant Bed
Heavy Ribbed Torque Tube
Design Maximizes Rigidity and
Thermal Stability.

Viper VT-38/40/50/70 turning centers are designed with CAD and FEA systems in cooperation with the Metal Industry Development Center (MIDC) for optimum structure design, analysis and modification.



*One-piece 45° slant bed design with heavily
ribbed torque tube design maximizes rigidity
and thermal stability.*

MACHINE CONSTRUCTION

Rigid Meehanite™ cast iron bed construction of heavy-duty VT 38/40/50/70 Viper turning centers provides centers ultimate accuracy and trustworthy reliability. Viper's heat treatment dispenses the release of residual stress and ensures longevity of operation.

These turning centers have spindle bores of 5.15" (131mm), 8.07" (205mm), 9.25" (235mm), 10.43" (265mm) and 12.12" (308mm) that allow heavy cutting on big parts.

Built and individualized for large parts production, this turning center series ranges from A2-11, 5.15" (131mm) through hole to A2-20, 12.12" (308mm) through hole headstock.

With one-piece Meehanite™ frames, bed lengths of our big-four series are 109.8" (2788mm), 146.8" (3728mm), 186.2" (4729mm) and 225.6" (5730mm). They're either static or 15 hp (30 min), 3200 rpm VDI 60, heavy milling live

Viper's 45° slant bed design with intergrated ribbed torque tube structure provides excptional heavy cutting stability and optimal chip removal. Z-axis travels available are 39.37" (1000mm), 78.74" (2000mm), 118.11" (3000mm), and 157.48" (4000mm).

Both X and Z axes are supported by oversized hardened box ways with rapid rates of 590 IPM (15M/MIN) on the X axis and 630 IPM (16M/MIN) on the Z axis.

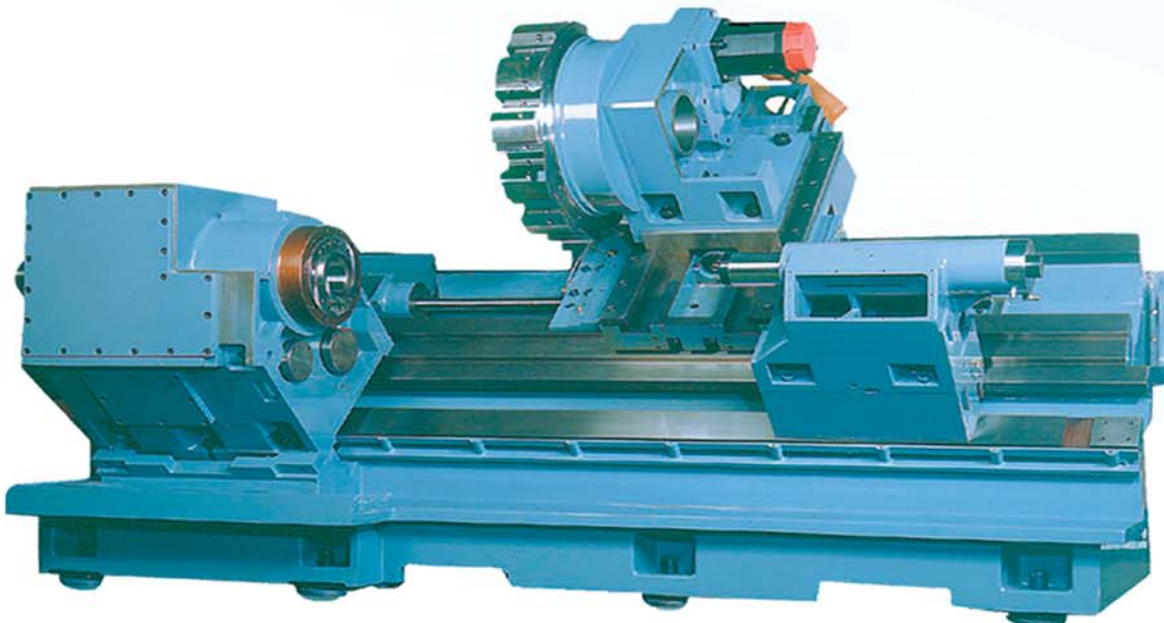
ONE PIECE SLANT-BED CONSTRUCTION

Viper's Torque tube construction stands up to the toughest cutting jobs. Meehanite™ castings ensure structure free distortion for all its components.

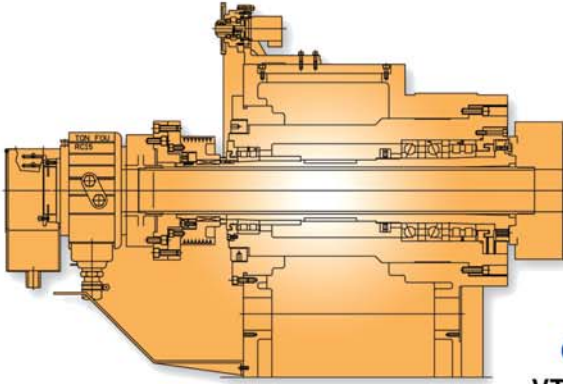


OPTIMUM MACHINE STIFFNESS

Optimum machine stiffness. It's required during heavy cuts for fine feed rates, high performance traverse rates and critical surface finishes. Viper VT-38/40/50/70 have implemented the use of Fluid Bearing Way Systems on the X and Z axes. FBWS enhances vibration dampening. Yet it's agile enough for high feed rates with extreme accuracy. Fluid Bearing is a film of fluid that separates the machine elements from each other and forms a structural tie between these elements. By doing so, Fluid Bearing becomes part of the machine structure carrying the entire machine load. The ability to control the constant thickness under varying loads, creates Viper's stiff turning system.



PULLEY SPINDLE • VT-38

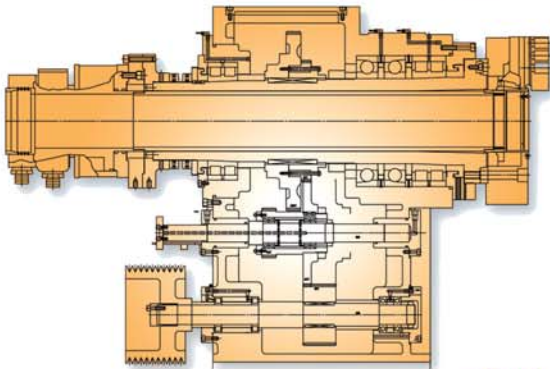


GEAR RATIO
VT-38 High = 2.14



PULLEY SPINDLE

GEAR SPINDLE • VT-40/50/70



GEAR RATIO
VT-40A High = 1.52 Low = 5.56
VT-40B High = 1.91 Low = 6.41
VT-50 High = 3.92 Low = 14.28



GEAR SPINDLE

PRECISION SPINDLES

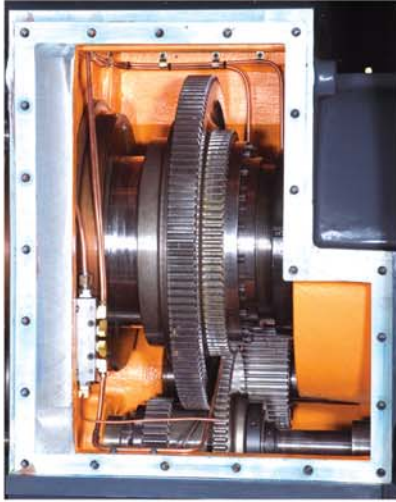
The **VT-38** headstock is fully ribbed on the outside for better thermal dissipation and higher accuracy. The VT-40/50/70 gear head spindles have an additional chiller circulating oil through the gear box.

The spindle cartridge comes with a drive capacity of 50 hp (60 hp option) that provides different feed rates and speeds needed when cutting a variety of materials.

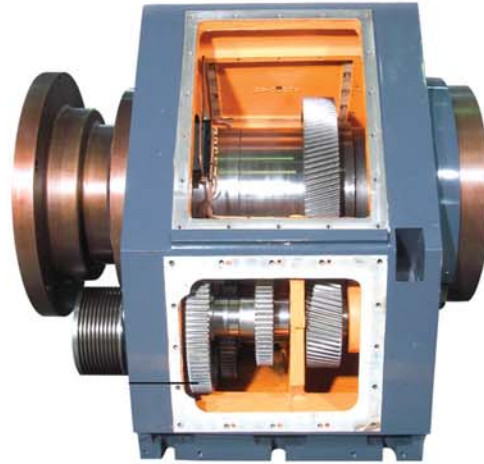
Made of SCM21 alloy steel, the spindle gives excellent speed for surface finishes and metal removal. The high accuracy P4 grade angular contact thrust bearings, combined with double rows of cylindrical roller bearings both front and rear end. Bearings from NSK, Torrington or FAG ensure precision and heavy turning during long term operations.

TEMPERATURE CONTROLLED GEAR BOX

Viper's separate spindle chiller on the **VT-40, VT-50 and VT-70** models constantly monitors the cooling lubricant temperature, which circulates through the gear box and bearings to eliminate thermal expansion and lengthen spindle life.



VT-40 Headstock features Temperature Controlled Lubrication System.



VT-50/70 (235 mm) Spindle Bore with Helical Gear Transmission helps meet customers' heavy cutting requirements.

TURRET



Static Block Tool Turret Standard



Rigid, High-Speed 12-Station Block Tool Turret

The turret is designed with 12 stations, 0.9 second station index time that allow 1.25"(32mm) square tooling and $\phi 60$ (2.5") diameter for boring tool with minimum tool interference. The hydraulic motor curvic coupling, hydraulic clamping, and position encoder enhance reliability and cutting capability of all models.



OPTION

1. Servo turret with Fanuc digital $\alpha 22$ servo motor to provide high-speed turret indexing.
2. Static VDI turret available for easy set up.
3. Alex-Tech patent pending design Static VDI 60 with tool turret to provide more tools, easy set-up and heavy cutting capable at the same time
4. VDI 60 live turret

VDI 60 Star-Style Live Turret



VDI 60 driving method: Milling motor ($\alpha 8$, 15HP)

Index time: 0.9sec

Indexing accuracy: $\pm 0.0005^\circ$

Milling motor: Horse Power: 15HP

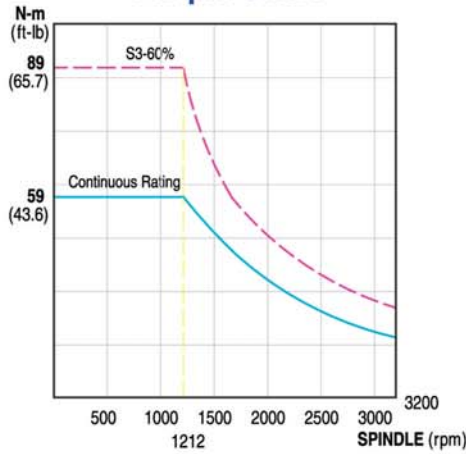
Speed: 3200 RPM

Max.torque: 66 ft.lb 1512 RPM

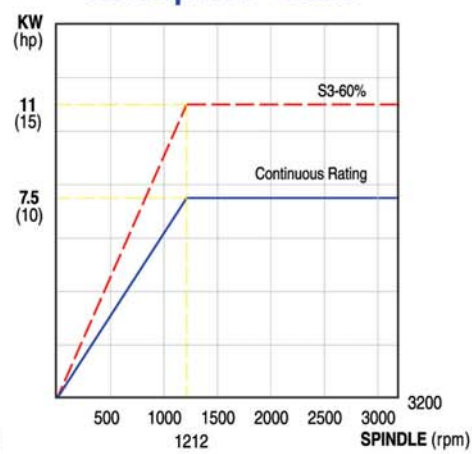
Axial tool disc

VDI-60 LIVE TURRET OPTION

Torque Chart



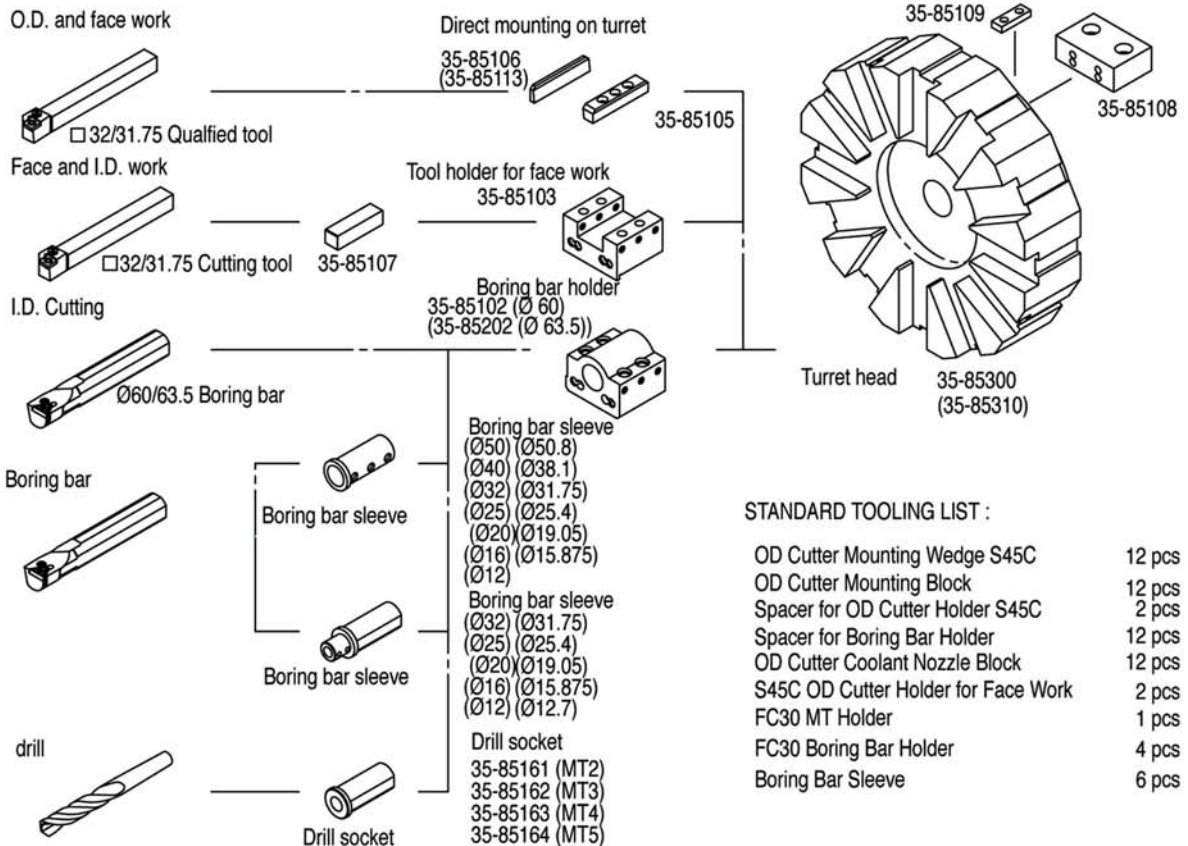
Horsepower Chart



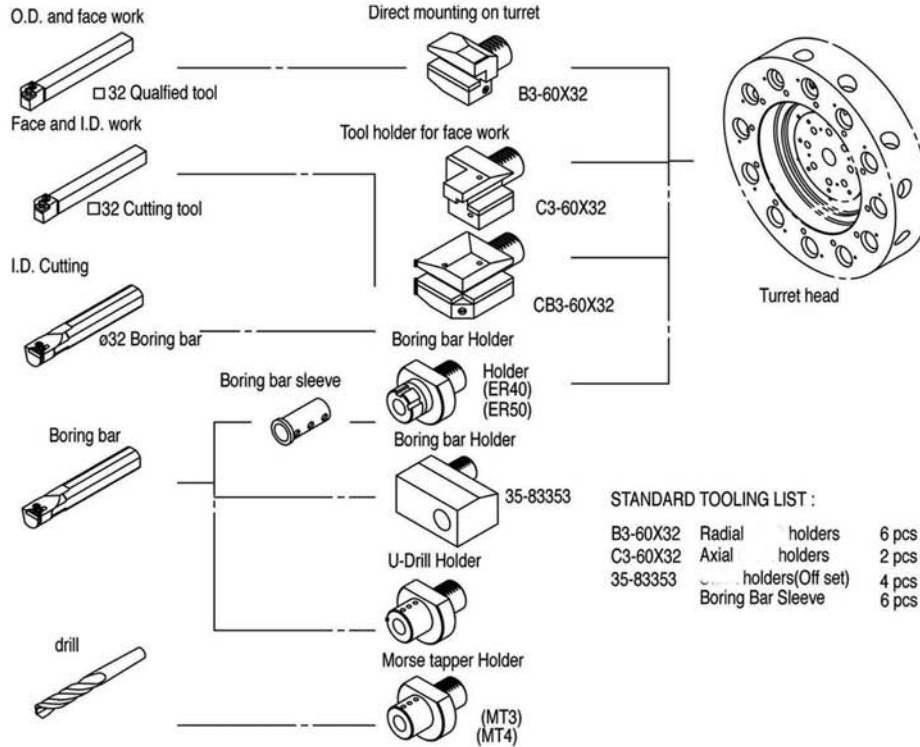
Torque / Horsepower Chart Data (Sauter)

Spindle Taper	ISO	—	Spindle Motor	FANUC α8/8000i
		—	Motor Output	7.5/11kw
		—	Gear Ratio	1/1.238
Spindle Speed	3200 rpm	—	Pulley Ratio	—

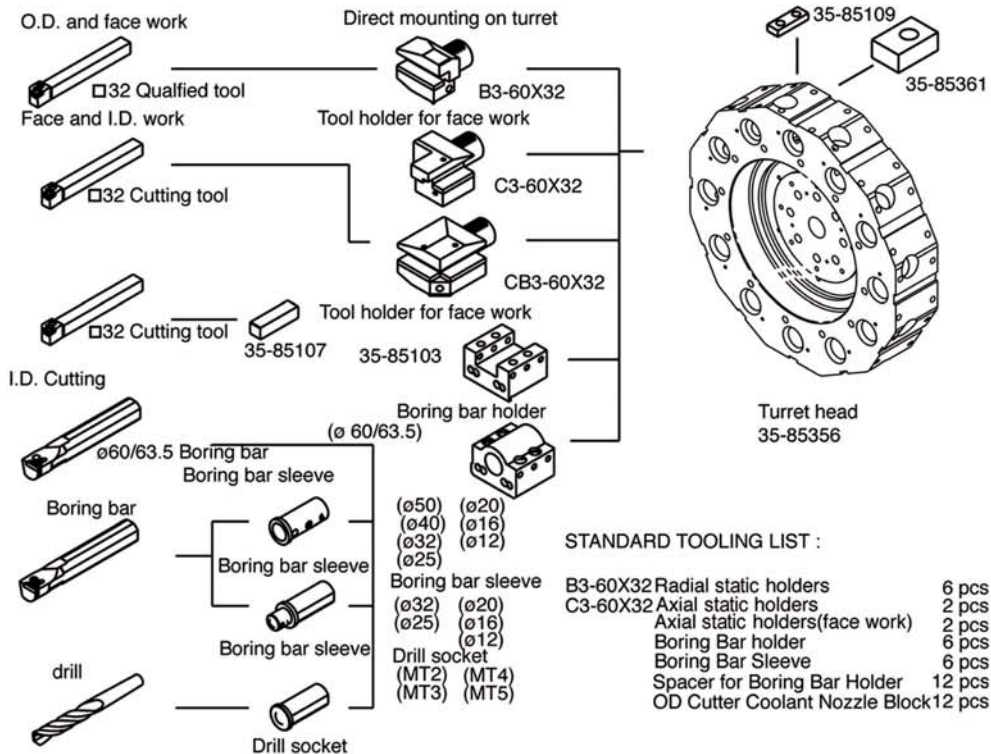
STATIC BLOCK TOOL TURRET TOOL CHART



STATIC VDI 60 TURRET TOOL CHART

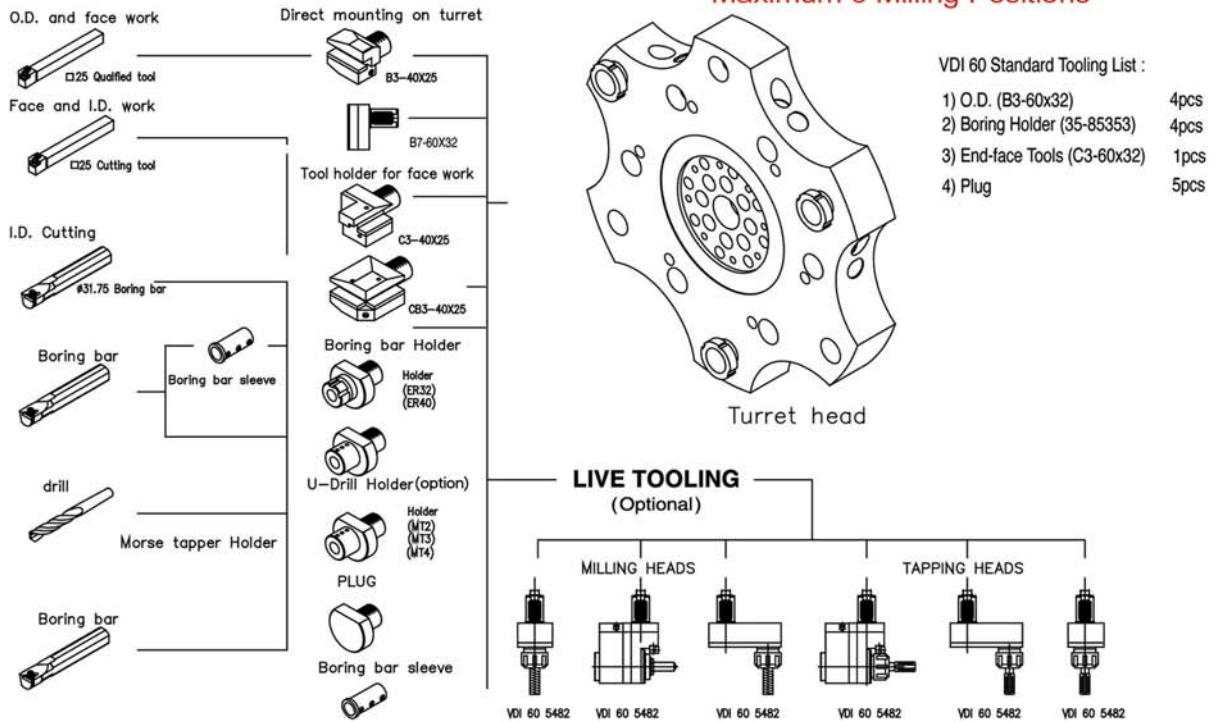


STATIC VDI 60 with BLOCK TOOL COMBINATION TOOLING TURRET CHART

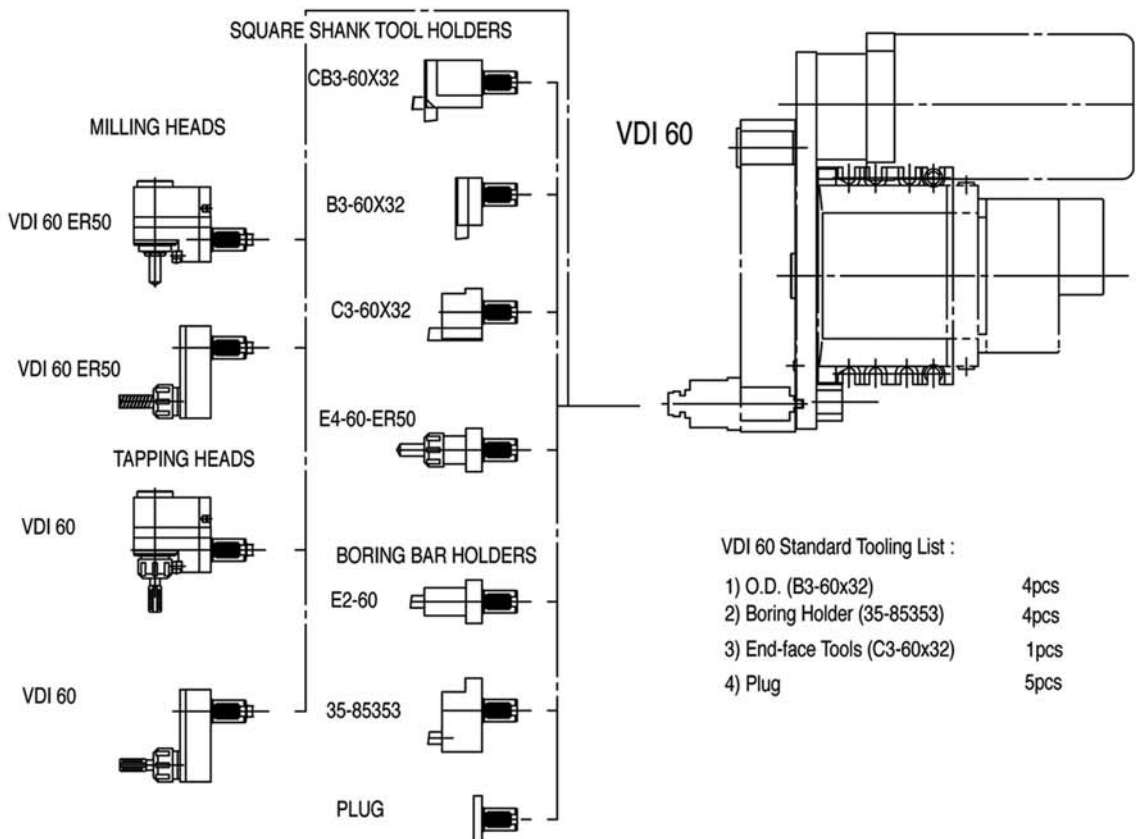


VDI 60 STAR-TYPE LIVE TOOLING TURRET CHART

Maximum 6 Milling Positions



VDI 60 LIVE TOOLING TURRET TOOL CHART



PROGRAMMABLE

Viper's highly-rigid tailstock is matched-ground to the headstock mounting surface which establishes absolute alignment between the two. With a two-piece modular design and center of gravity in the horizontal plane, the heavy-duty tailstock eliminates machine-induced taper into the workpiece.

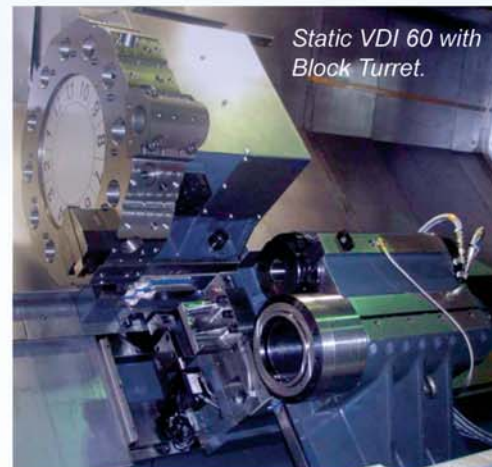
Viper's tailstock body is positioned by a drive bar which engages with the carriage. Drive bar and tailstock clamping are programmable and tow along. Which means quick setups.

Optional Servo Driven Tailstock.

TRAVEL BORING TAILSTOCK (Patented)

Provides high rigidity and stability, increase boring bar cutting to full-length capacity. Optional

- Deep Hole Boring: Fits 4", 5" and 6" Boring Bars
- Tailstock Boring Bar Traveling Distance: 3.93"
- Large Spindle Bore: 5.12", 7.28", 9.25" and 10.24". VT-50B: 12.11"



CNC CONTROL

Viper's Fanuc is an ultra-compact controller with network capability. It features a CNC printed circuit board integrated with a liquid crystal display and PCMCIA interface which enables Ethernet communication functions.

High Speed PMC • The PMC process sequence is two and one half times faster than Fanuc's previous controllers. Programming capacity has been greatly expanded for sequence control of peripheral equipment enabling monitoring and editing functions to be incorporated on the CNC unit.

High Speed Precision • Fanuc's 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 greater speed and high precision machining.

CRT Selection • 8.4" or 10.4" color LCD screen featuring high brightness.

Fault Diagnostics • Should failure occur, cause and recovery are displayed on the CNC display screen enabling a more rapid recovery.

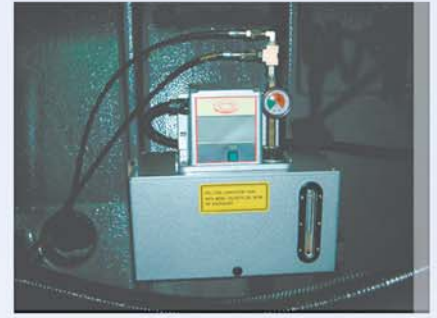
Optional Siemens and Mitsubishi Controls available.



Horizontal traversable control pendant for convenient operation

AUTOMATIC LUBRICATION

Automatic Lubrication System is evenly provided to all guideways, ball screws and the tailstock quill. Lubrication Monitoring System ensures complete lubrication by detecting any oil leakage and oil pressure loss to avoid potential downtime problems.



Hydrorauclic Lubricator

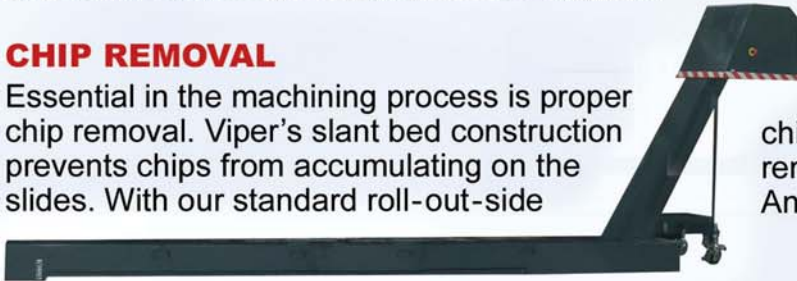
BALL SCREW AND AXIS DRIVE

Viper's precise, robust class C3 high precision ball screws generate slide-way movement in both axes. Using only the finest quality parts, both the X and Z-axes are driven by an ultra-precise ball screws that is pre-loaded, center-located between saddle ways, and double anchored for optimum drive conditions.



CHIP REMOVAL

Essential in the machining process is proper chip removal. Viper's slant bed construction prevents chips from accumulating on the slides. With our standard roll-out-side



chip pan, Viper chip removal is quick and easy. And requires less floor space.

HYDRAULIC UNIT

Heat dissipation is evenly and effectively controlled by Viper's Hydraulic unit. In addition, our standard chiller constantly monitors oil temperature, circulates through the gearbox, eliminates thermal expansion and increases bearing life. Hydraulic tank: 70 L (19.4 Gallon)



COOLANT SYSTEM

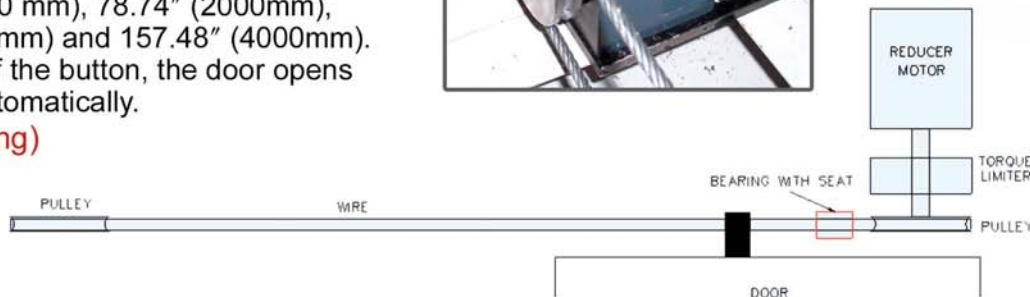
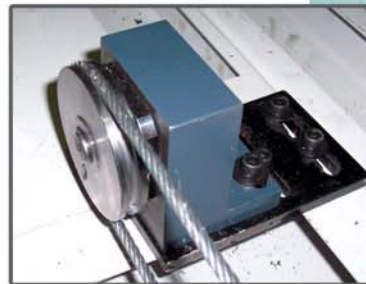
- Coolant tank: 460L (127.8 Gallon)
- Coolant pump:
 - Static Turret 1 hp, 50 psi, 9 gpm
 - VDI 60 Live Turret: 1.5 hp, 60 psi, 9 gpm
- High pressure coolant thru tool (option):
 - 3 hp, 300 psi, 9 gpm
 - 5 hp, 1200 psi, 8 gpm



AUTOMATIC DOOR OPTION

VT-38/40/50/70 may be equipped with auto door for models with extended Z axis travel of 39.37" (1000 mm), 78.74" (2000mm), 118.11" (3000mm) and 157.48" (4000mm). With a push of the button, the door opens and closes automatically.

(patent pending)





AIR CHUCK SMW AUTOBLOK OPTION →
 ø130MM ~ 450MM (5.11" ~ 17.1") hole capacity

← **HYDRAULIC CHUCK OPTION**

3-Jaw hydraulic chuck:

- 15" (380mm) w/ 4.52" (115mm) hole capacity
- 18" (450mm) w/ 4.52" (115mm) hole capacity
- 20" (500mm) w/ 6.1" (155mm) hole capacity
- 25" (630mm) w/ 7.08" (180mm) hole capacity
- 31.5" (800mm) w/ 7.08" (180mm) hole capacity



SELF-CENTERING STEADY REST OPTION - SMW AUTOBLOK

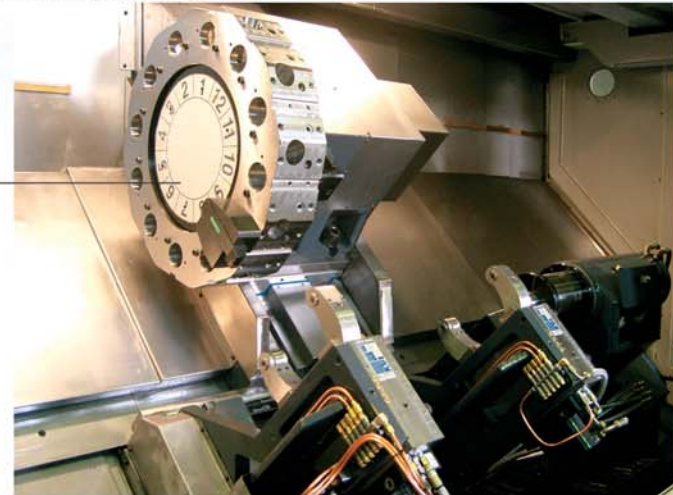
The mounting of the hydraulic Steady Rest is ensured by inserting two of the taper pins and four M16x120m/m bolts.

Centering range without chip guard (4 sizes available), larger size upon request.

- | | | |
|----------|----------|---------------|
| 1)SLU3 | Ø12~Ø152 | (0.47"~5.98") |
| 2)SLU3.1 | Ø20~Ø165 | (0.79"~6.49") |
| 3)SLU3.2 | Ø50~Ø200 | (1.96"~7.87") |
| 4)SLUB4 | Ø30~Ø245 | (1.38"~9.64") |

Standard Equipment on Steady Rest:

- Safety valve
- Stroke control (without proximity switch)
- Swarf guard 3-piece
- Connection for compressed air
- * Manual Steady Rest Upon Request



VDI-60 and Block Tool Combination Turret
 (Patent pending)

REAR MANUAL SPINDLE MOUNTED CHUCK OPTION
REAR CHUCK FLANGE OPTION
REAR CHUCK ADAPTOR OPTION

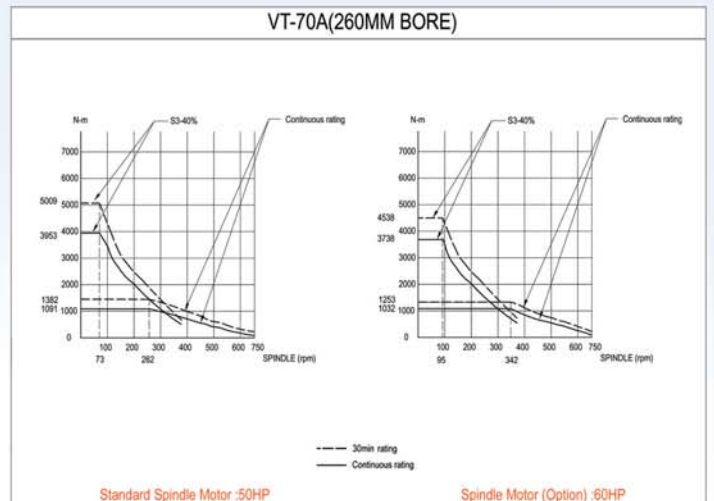
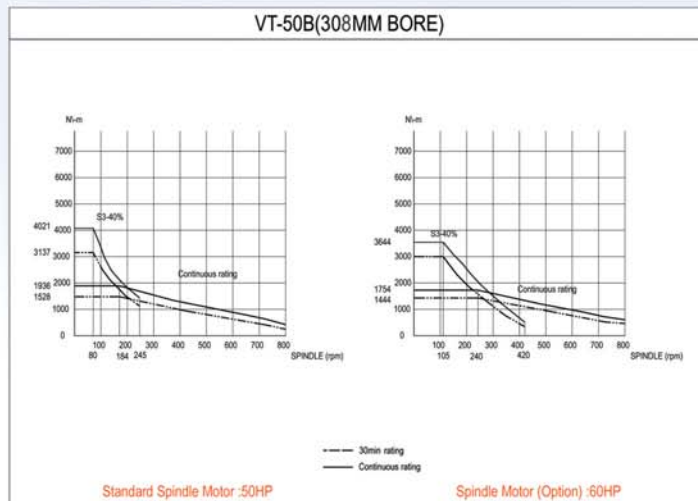
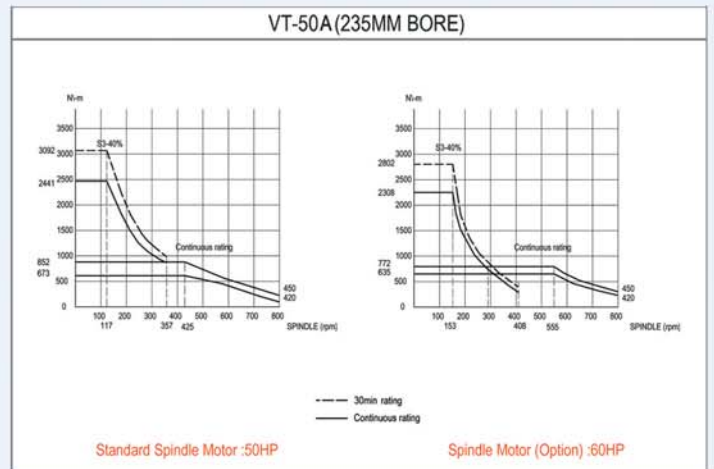
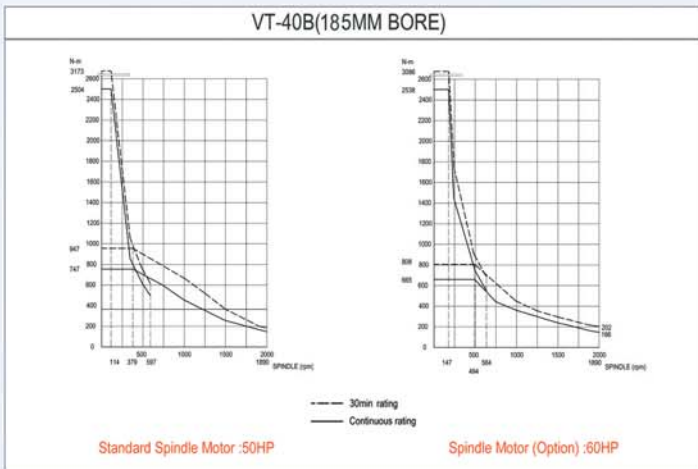
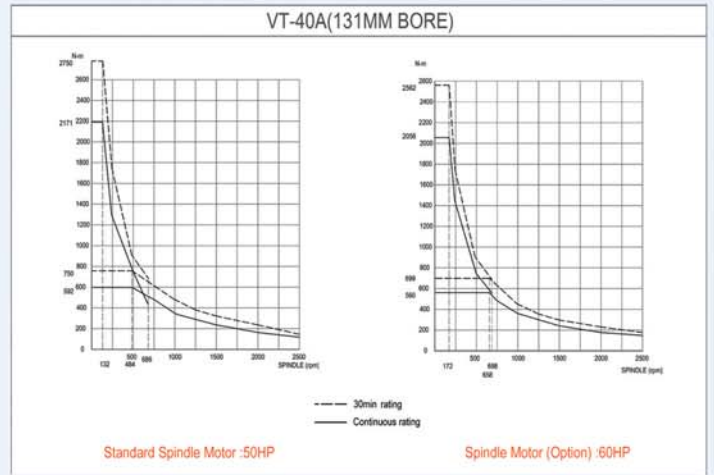
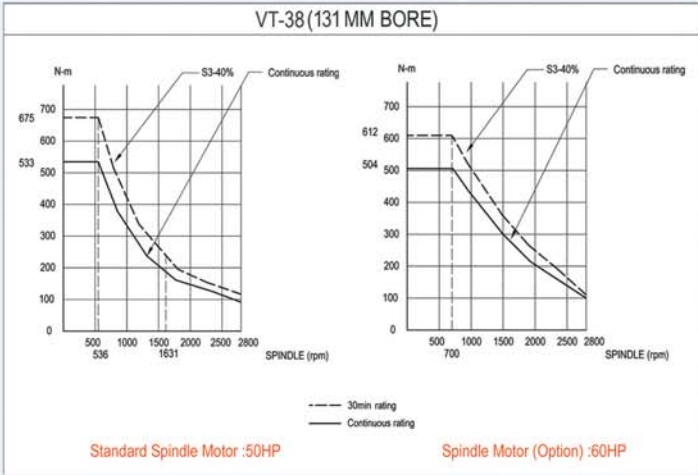
TOOL PRESETTER OPTION

With its manual tool pre-setter system, Viper is an ideal machine for both short-run and high production environments. It's tool presetting system assists in reducing set-up time, changing tools and ensures accurate measurement of tool offsets. The tool pre-setter allows for various checkpoints throughout the program to obtain optimal part accuracy and finish. These tool offsets are quickly and accurately measured by the tool pre-setter probe system.



SPINDLE CHARTS

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



VT-38/40/50/70 STATIC BLOCK TOOL TURRET INTERFERENCE

VT-38 / 40 / 50

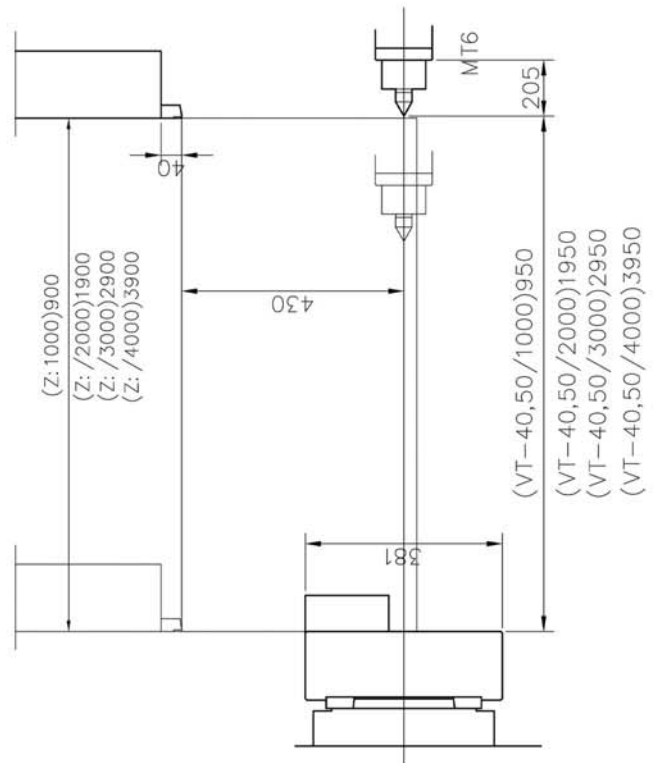
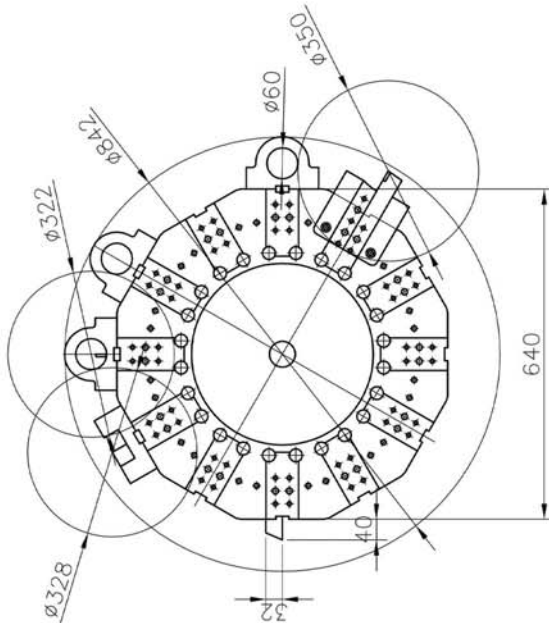
VT-38
ISO A2-11
15"

VT-40A
ISO A2-11
15"

VT-40B
ISO A2-15
18"

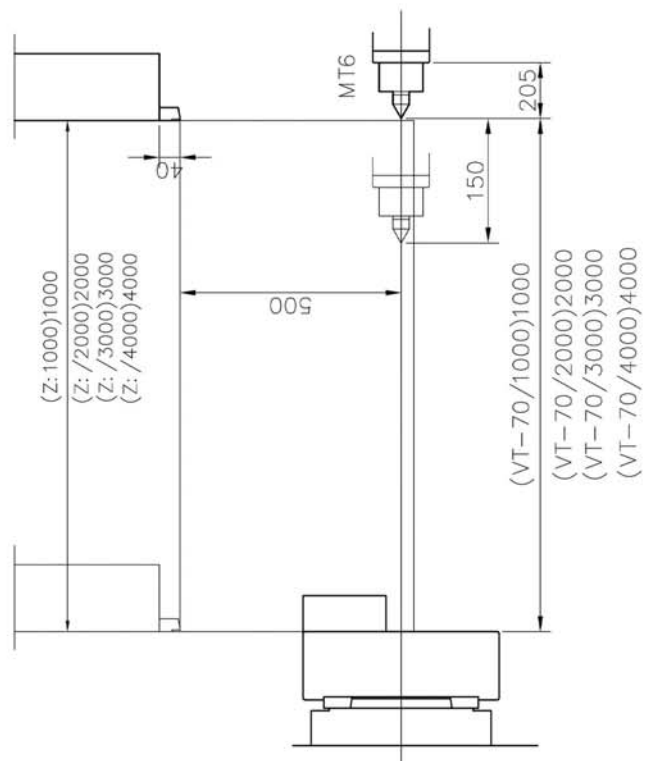
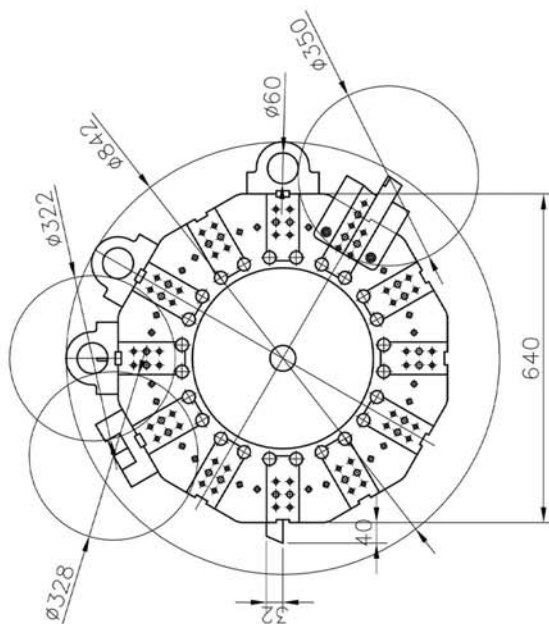
VT-50A
ISO A2-15
21"

VT-50B
ISO A2-20
24"



VT-70

VT-70A
ISO A2-15
21"



VT-38/40/50/70 STATIC VDI 60 TURRET INTERFERENCE

VT-38 / 40 / 50

SAUTER VDI60 AXIAL TURRET(NON LIVE)
COUPLING DIN 5482
FANUC α8
0.473.532/12

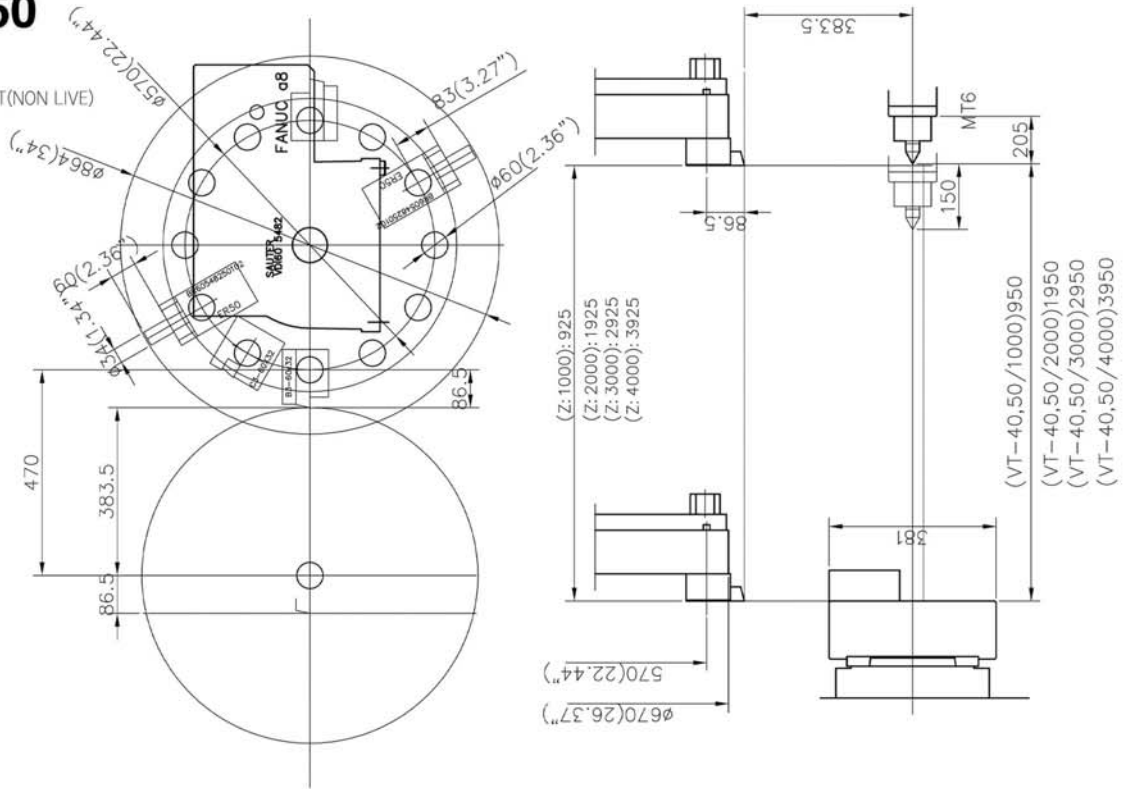
VT-38
ISO A2-11
15"

VT-40A
ISO A2-11
15"

VT-40B
ISO A2-15
18"

VT-50A
ISO A2-15
21"

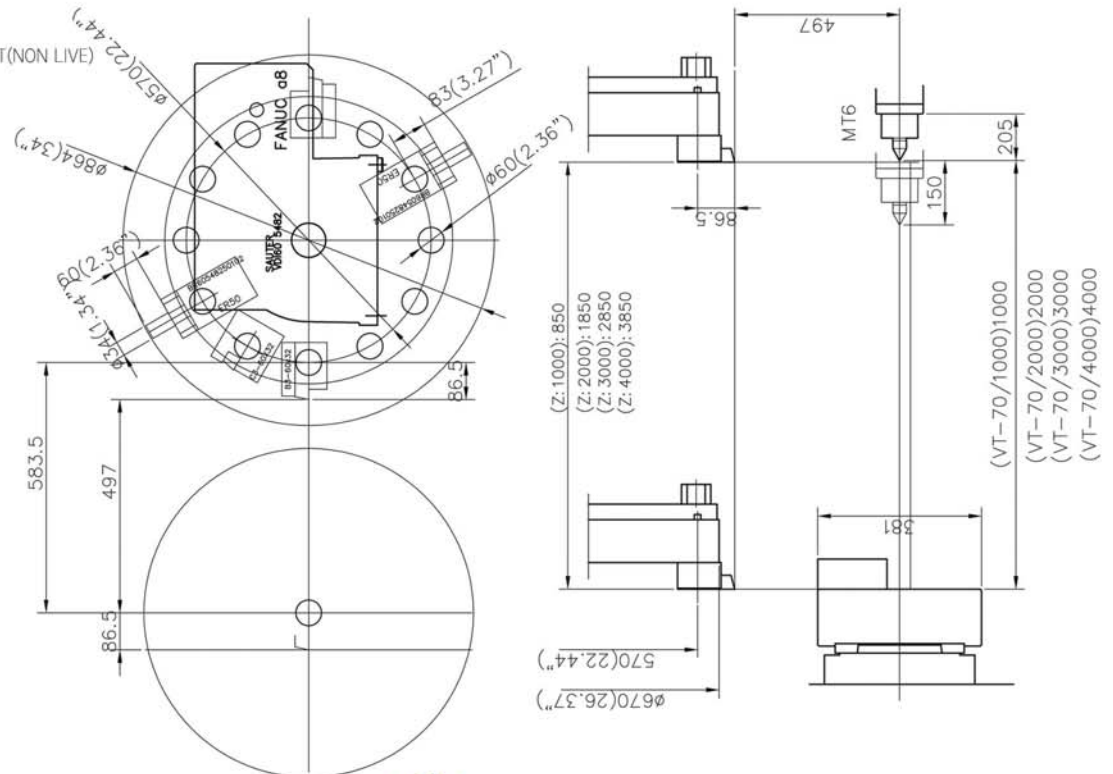
VT-50B
ISO A2-20
24"



VT-70A

SAUTER VDI60 AXIAL TURRET(NON LIVE)
COUPLING DIN 5482
FANUC α8
0.473.532/12

VT-70A
ISO A2-15
21"



VT-38/40/50/70 VDI 60 LIVE TURRET INTERFERENCE

VT-38 / 40 / 50

SAUTER VDI60 AXIAL LIVE TURRET
COUPLING DIN 5482
FANUC α8
0.473.532/12

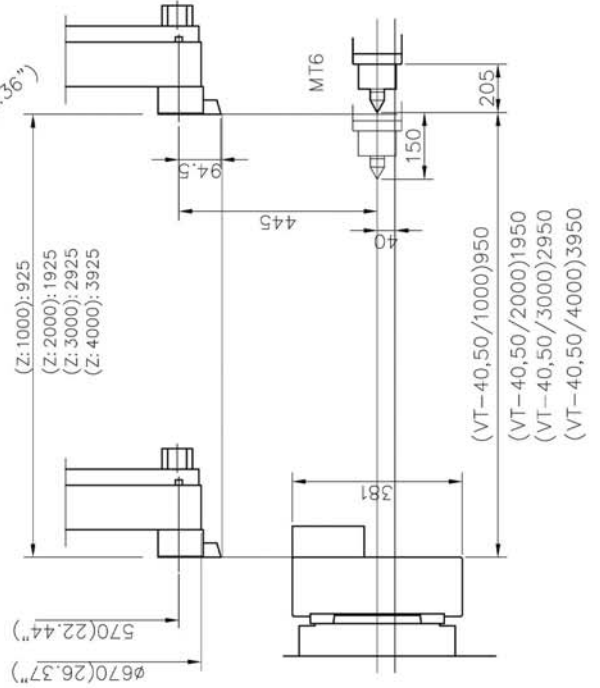
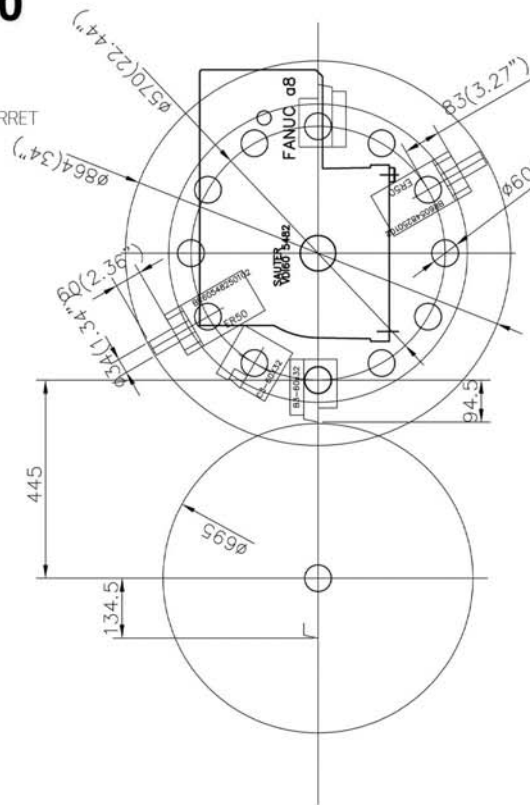
VT-38
ISO A2-11
15"

VT-40A
ISO A2-11
15"

VT-40B
ISO A2-15
18"

VT-50A
ISO A2-15
21"

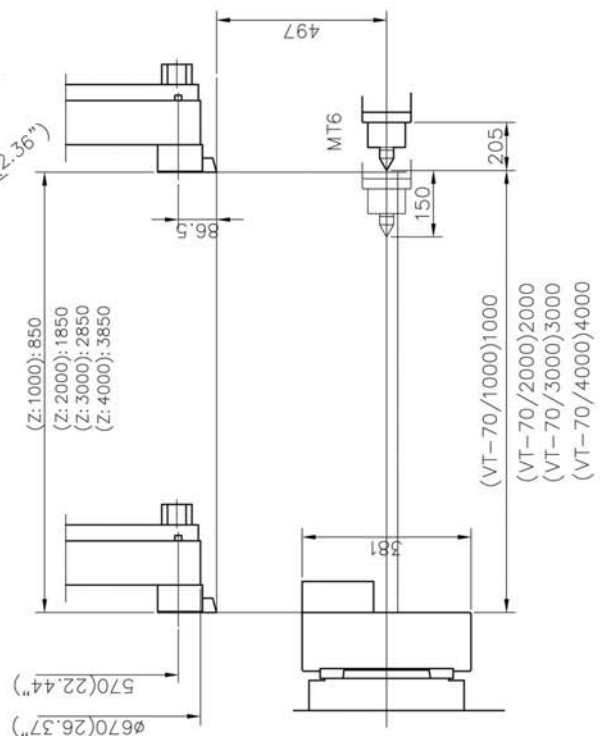
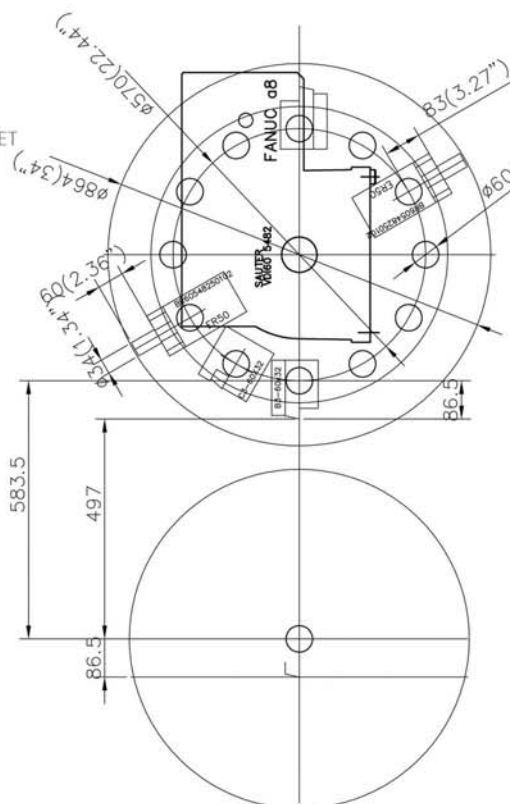
VT-50B
ISO A2-20
24"



VT-70

SAUTER VDI60 AXIAL LIVE TURRET
COUPLING DIN 5482
FANUC α8
0.473.532/12

VT-70A
ISO A2-15
21"



Specifications

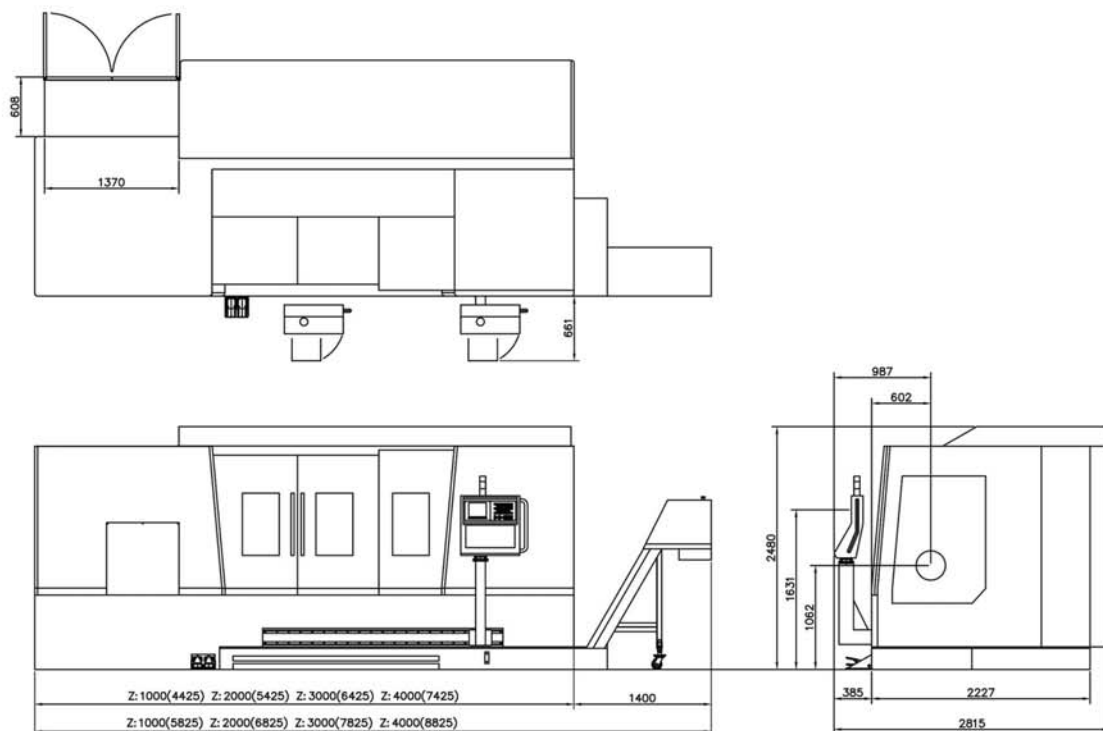
	VT-38	VT-40A	VT-40B	VT-50A	VT-50B	VT-70A
WORKING CAPACITY						
SWING OVER BED	1000 MM / 39.37" (excluded Z axis cover thickness)					1150 MM / 45.27" (Standard)
SWING OVER CROSS SLIDE	740 MM / 29.1" (Standard)					990 MM / 38.97" (Standard)
MAX. TURNING DIAMETER	860MM / 33.85" (Standard)					990 MM / 38.97" (Standard)
SLIDE WAY SLANT ANGLE	45°					45° + 15°
MAX. TURNING LENGTH (x1000)	950MM / 37.4"					900MM / 35.4"
(x2000)	1950MM / 76.8"					1900MM / 74.8"
(x3000)	2950MM / 116.2"					2900MM / 114.2"
(x4000)	3950MM / 155.5"					3900MM / 153.6"
TRAVEL						
X-AXIS	430+30MM / 16.93+1.18"					500+40MM / 19.68+1.57"
Z-AXIS (x1000)	900 MM / 35.4"					1000 MM / 39.37"
(x2000)	1900 MM / 74.8"					2000 MM / 78.74"
(x3000)	2900 MM / 114.1"					3000 MM / 118.11"
(x4000)	3900MM / 153.6"					4000 MM / 157.48"
BALL SCREW DIAMETER OF X AXIS	50 MM / 1.970"					50 MM / 1.970"
BALL SCREW DIAMETER OF Z AXIS	63 MM / 2.480"					63 MM / 2.480"
						300MM / 11.8" ; 320MM
SPINDLE						
	PULLEY	GEAR	GEAR	GEAR	GEAR	GEAR
TYPE OF SPINDLE NOSE	A2-11	A2-11	A2-15	A2-15	A2-20	A2-15
SPINDLE BEARING INNER DIAMETER	180 MM / 7.08"	180 MM / 7.08"	260 MM / 10.23"	320 MM / 12.59"	371 MM / 14.61"	320 MM / 12.6"
THROUGH SPINDLE HOLE DIAMETER	131 MM / 5.15"	131 MM / 5.15"	185 MM / 7.28"	235 MM / 9.25"	308 MM / 12.12"	265 MM / 10.43"
SPINDLE SPEED RANGE	1-2000RPM	1-660 / 1-2000RPM	1-574 / 483-1500 RPM	1-300 / 300-750 RPM	1-300 / 300-600 RPM	1-300 / 300-750RPM
THROUGH BAR CAPACITY*	115 MM / 4.52"	115 MM / 4.52"	160 MM / 6.30"	---	---	---
CHUCK DIAMETER & TYPE	15" (380mm) 3 JAW	15" (380mm) 3 JAW	18"(450mm) 3 JAW	20"(600mm) / 25"(630mm) 3 JAW OPT.	24"(600mm) / 32"(800mm) 3 JAW OPT.	18"(450mm) / 24"(600mm)
TURRET						
TOOL NUMBER	OPT 10/12 STATIONS					OPT 10/12 STATIONS
SHANK HEIGHT SQUARE TOOL	32 MM / 1.26"					32 MM / 1.26"
SHANK DIAMETER FOR BORING BAR	60 MM / Ø2.36"					60 MM Ø2.36"
TURRET INDEX TIME	1.2 SECOND					1.2 SECOND
FEED						
X-AXIS RAPID (MAX)	16M/MIN					16M/MIN
Z-AXIS RAPID (MAX)	16M/MIN(L=1000) / 11M/MIN(L=2000) / 9M/MIN(L=3000) / 7M/MIN(L=4000)					15M/MIN(L=1000) / 12M/MIN(L=2000) / 10M/MIN(L=3000) / 8M/MIN(L=4000)
MOTOR						
SPINDLE MOTOR	37KW / 50 HP (45KW / 60 HP OPTIONAL)					37KW / 50 HP (45KW / 60 HP OPTIONAL)
X-AXIS SERVO AC DIGITAL MOTOR	ø40 8HP					ø40 8HP
Z-AXIS SERVO AC DIGITAL MOTOR	ø40 8HP					ø40 8HP
TAILSTOCK						
TAILSTOCK TRAVEL (x1000)	950MM / 37.4"					1000MM / 39.4"
(x2000)	1950MM / 76.8"					2000MM / 78.7"
(x3000)	2950MM / 116.2"					3000MM / 118.1"
(x4000)	3950MM / 155.5"					4000MM / 157.5"
TAILSTOCK QULL TRAVEL	150 MM / 5.9"					150MM / 5.9"
TAILSTOCK QULL DIAMETER	150 MM / 5.9"					150MM / 5.9"
TAILSTOCK QULL TAPER	MT-6					MT-6
COOLANT PUMP						
COOLANT PUMP MOTOR	STATIC TURRET: 1.0HP, 50 PSI, 9 GPM VDI TURRET: 1.5HP, 60 PSI, 9 GPM					STATIC TURRET: 1.0HP, 50 PSI, 9 GPM VDI TURRET: 1.5HP, 60 PSI, 9 GPM
MAX LOAD BETWEEN CENTERS						
X 1000/2000/3000/4000 (X 2000) WITH ONE REST (X 3000) WITH ONE REST/ TWO RESTS (X 4000) WITH ONE REST/ TWO RESTS	3100 KGS (6820LBS) 4200 KGS (9240 LBS) 4200 KGS (9240LBS) / 5200 KGS (11440 LBS) 4200 KGS (9240LBS) / 5200 KGS (11440 LBS)					3100 KGS (6820LBS) 4200 KGS (9240 LBS) 4200 KGS (9240LBS) / 5200 KGS (11440 LBS) 4200 KGS (9240LBS) / 5200 KGS (11440 LBS)
OTHERS						
FLOOR SPACE (x1000)	5825MM (L) × 2815MM (W)					7750MM × 3070MM / 305.1" × 120.9"
(x2000)	6825MM (L) × 2815MM (W)					8750MM × 3070MM / 344.5" × 120.9"
(x3000)	7825MM (L) × 2815MM (W)					9750MM × 3070MM / 383.9" × 120.9"
(x4000)	8825MM (L) × 2815MM (W)					10750MM × 3070MM / 423.2" × 120.9"
MACHINE WEIGHT (x1000)	12800 KGS / 28160 LBS	13800KGS / 30360LBS	14100KGS / 31020LBS	14300KGS / 31460LBS	14400KGS / 31680LBS	15050KGS / 33110LBS
(x2000)	15800 KGS / 34760 LBS	16100KGS / 35420LBS	16400KGS / 36080LBS	16600KGS / 36520LBS	16700KGS / 36740LBS	17250KGS / 37950LBS
(x3000)	18800 KGS / 41360 LBS	18400KGS / 40480LBS	18700KGS / 41140LBS	18900KGS / 41580LBS	19000KGS / 41800LBS	19450KGS / 42790LBS
(x4000)	21800 KGS / 47960 LBS	20700KGS / 45540LBS	21000KGS / 46200LBS	21200KGS / 46640LBS	21300KGS / 46860LBS	21650KGS / 47630LBS
POWER REQUIREMENT	208-230V, 3 Phase, 50 KVA (Standard Turret) / 60 KVA (VDI 60 Turret)					

* Through Bar Capacity may change by chuck manufacturer.
Specifications are subject to change without prior notice.

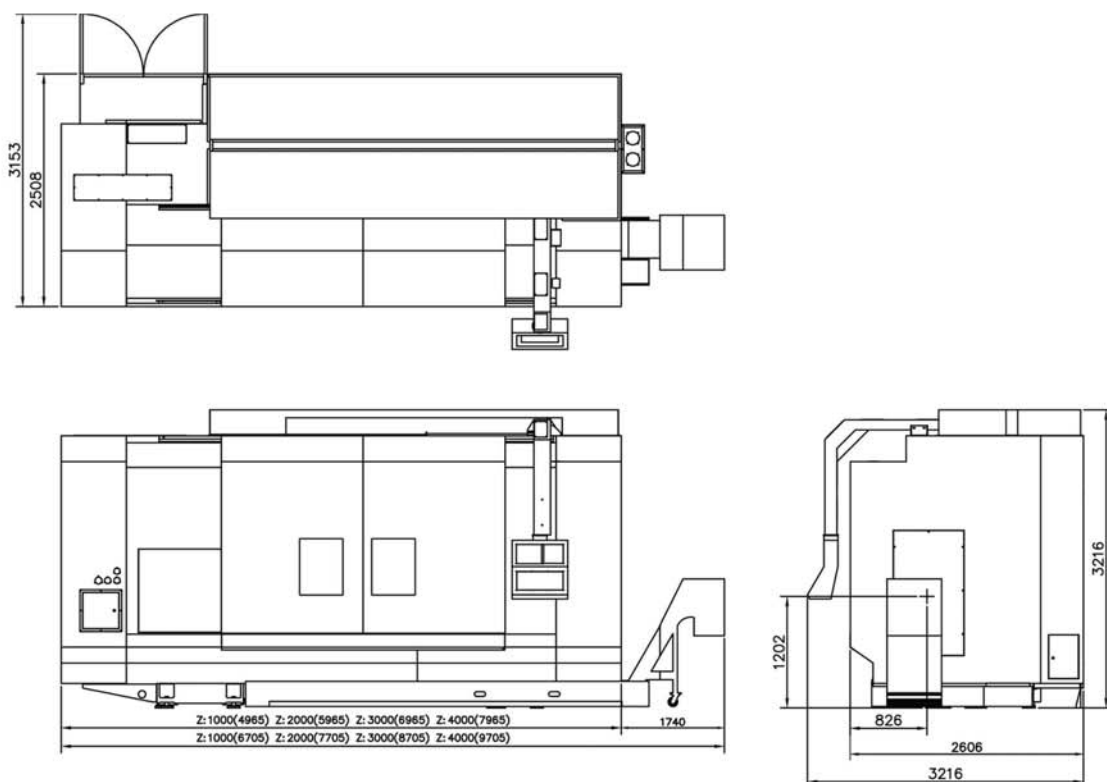
**depends on chuck and bore size

DIMENSIONS

VT-40/50



VT-70



STANDARD FEATURES

- Actuating cylinder (For VT-40A only)
- Heat Exchanger
- Automatic lubrication system
- Chip conveyor
- Coolant supply equipment
- Dual chucking pressure
- Foot switch (chuck + tailstock)
- Full enclosure chip and coolant shield
- Hand tool kit, including small hand tool
- Hydraulic power unit
- Leveling jack screws & plates
- Programmable tailstock
- Proximity switches for chuck clamp detection
- Proximity switches for quill position detection
- U drill holder & sleeves
- Work light

OPTIONAL FEATURES

- Air blast for chuck jaw cleaning
- Auto door
- Auto load / unload system
- Auto steady rest
- Automatic tool presetter
- Bar feeder
- Chip bucket
- Electric power transformers
- Hardened serrated jaws
- Manual hydraulic steady rest
- Patrol lamp
- Pressure switch for chucking pressure check
- Safety torque limiter clutches
- Special chucks
- Torque Limiter Clutches X and Z
- Mitsubishi Control



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