



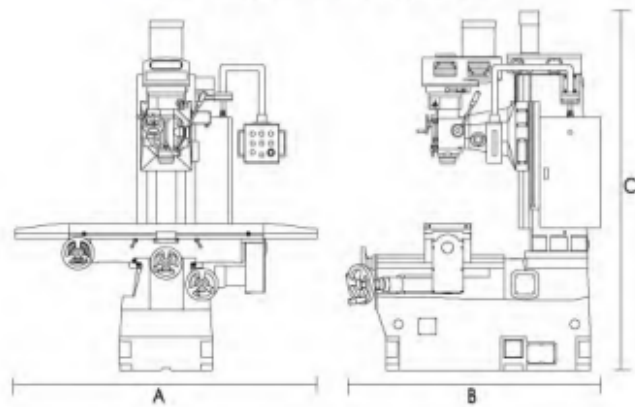
SPECIFICATION	MF-B180	MF-B180VS	MF-B185-SP	MF-B185VS-SP	MF-B410	B410VS-FP
TABLE						
Table size	1270×250mm(50"×10")		1270×305mm(50"×12") Option:1470×305mm(58"×12")		1270×380mm(50"×15") Option:1470×380mm(58"×15")	
T-Slot (Q'ty x Size)	3×16mm(3×0.63")					
Longitudinal travel	Manual	776mm×(30.55")	840mm×(33")Option:1000mm(40")		1000mm(40") Option:1200(47")	
	Auto feed	696mm×(27.4")	840mm×(33")Option:1000mm(40")		1000mm(40") Option:1200(47")	
Cross travel	540mm×(21.2")		500mm×(20")		500mm(20")	
Vertical travel	500mm×(20")		450mm×(17.7")		500mm(20")	
Spindle nose to table top(D)	75~575mm(3"~22.6")		45~495mm(1.7"~19.4")		85~585mm(3.3"~23")	
SPINDLE						
Taper of spindle	NST#40					
Spindle	Step Head	50Hz Low:66~270 Hi:550~2270	50Hz Low:54~330 Hi:475~2875		50Hz Low:62~416 Hi:458~3000	
		60Hz Low:80~325 Hi:660~2720	60Hz Low:65~400 Hi:570~3450		60Hz Low:75~500 Hi:550~3600	
Speed (rpm)	Variable speed head	50Hz Low:50~420 Hi:420~3900	50Hz Low:40~415 Hi:415~3600		50~3600	
		60Hz Low:60~500 Hi:500~4500	60Hz Low:60~500 Hi:500~4300			
Stroke of quill	127mm(5")				140mm(5.51")	
Quill feed rate	0.04mm~0.08mm~0.14mm(0.0015"~0.003"~0.006")				0.035mm~0.07mm~0.14mm (0.0013"~0.0027"~0.055")	
Swiveling angle of head(R&L)	45°					
Spindle center to column front surface(E)	565mm(18.3")				490mm(19.3")	
FEED RATES						
XYZaxes feed rates (per min)	Manual(power feed option)		25~1200mm(1~47")Adjustable Steplessly			
Rapid traverse X,Y axes (per min)	Manual(power feed option)		3600mm(141")		3600mm(141")	
Rapid traverse of Z axes (per min)	Lifting motor Option 900mm(35.4")		900mm(35.4")		1800mm(70.8")	
MOTOR						
Spinder drive motor	3HP(B180/B185) 5HP(B180VS/B185VS)			5HP(MF-B410) 5HP inverter motor(MF-B410VS)		
Drive on X axis	Manual(power feed option)		1HP servo motor		1HP servo motor for MF-B410(VS)-SP, 1/2HP reduction motor with inverter driver for MF-B410(VS)-FP	
Drive on Y axis	Manual(power feed option)		Servo motor by option			
Drive on Z axis	Manual(1/2HP Lifting motor by option)		1/2HP lifting motor			
Coolant pump	By option(1/8HP)		1/8HP		1/6HP	
Length X Width X Height(A X B X C)	1600mm X 1800mm X 2400mm		1750mm X 2230mm X 2400mm		2050mm X 2250mm X 2100mm	
Machine net weight	2000kgs(4480lbs)		2250kgs(5040lbs)		3100kgs(6944lbs)	

MANFORD, Your Best Partner

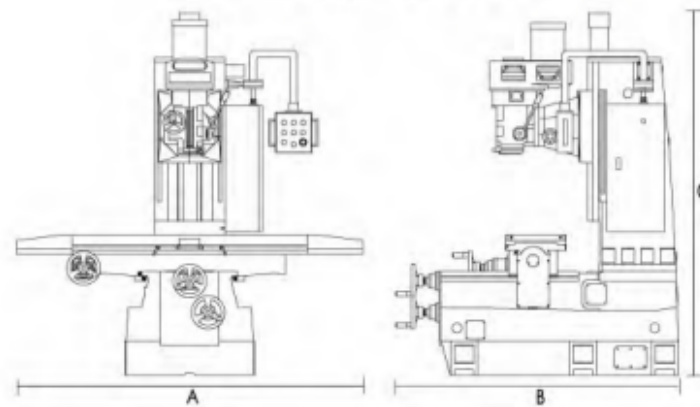
**VERTICAL TURRET MILLING MACHINE
SUPER PRECISION VERTICAL TURRET MILLING MACHINE
BED TYPE MILLING MACHINE**

We reserve the right to modify and improve the specification without notice, the specification shown above are for reference only.

**MF-B180 MF-B180VS
MF-B185-SP MF-B185VS-SP**



MF-B410 B410VS-FP



**ACCURACY
QUIET
STABLE**



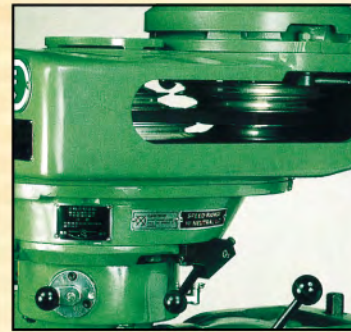
VERTICAL TURRET MILLING MACHINE

MF-2TM

(3HP, 8 speeds step head)
NST#30/R8(NST#40 optional)

MF-1-1/2VS

(3HP Variable speed head)
NST#30/R8(NST#40 optional)



UNIQUE DESIGN STEP HEAD



ADJUSTABLE BRAKE HANDLE INCREASES THE LIFE OF BREAK SHOE. (STEPHEAD)

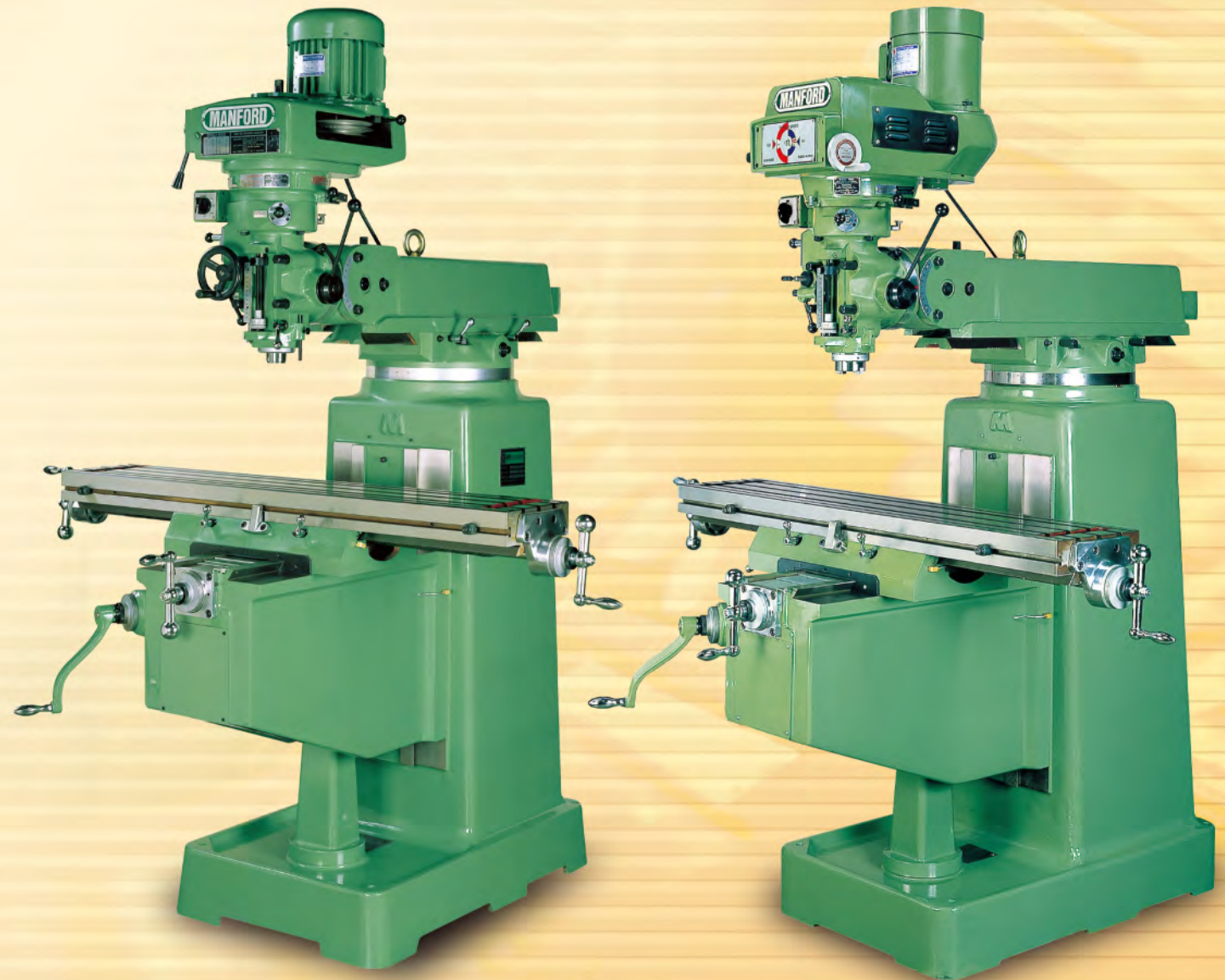
VERTICAL TURRET MILLING MACHINE

4KS

(3HP, 8 speeds step head)
NST#30/R8(NST#40 optional)

4KV

(3HP, Variable speed head)
NST#30/R8(NST#40 optional)



VERTICAL TURRET MILLING MACHINE

Features

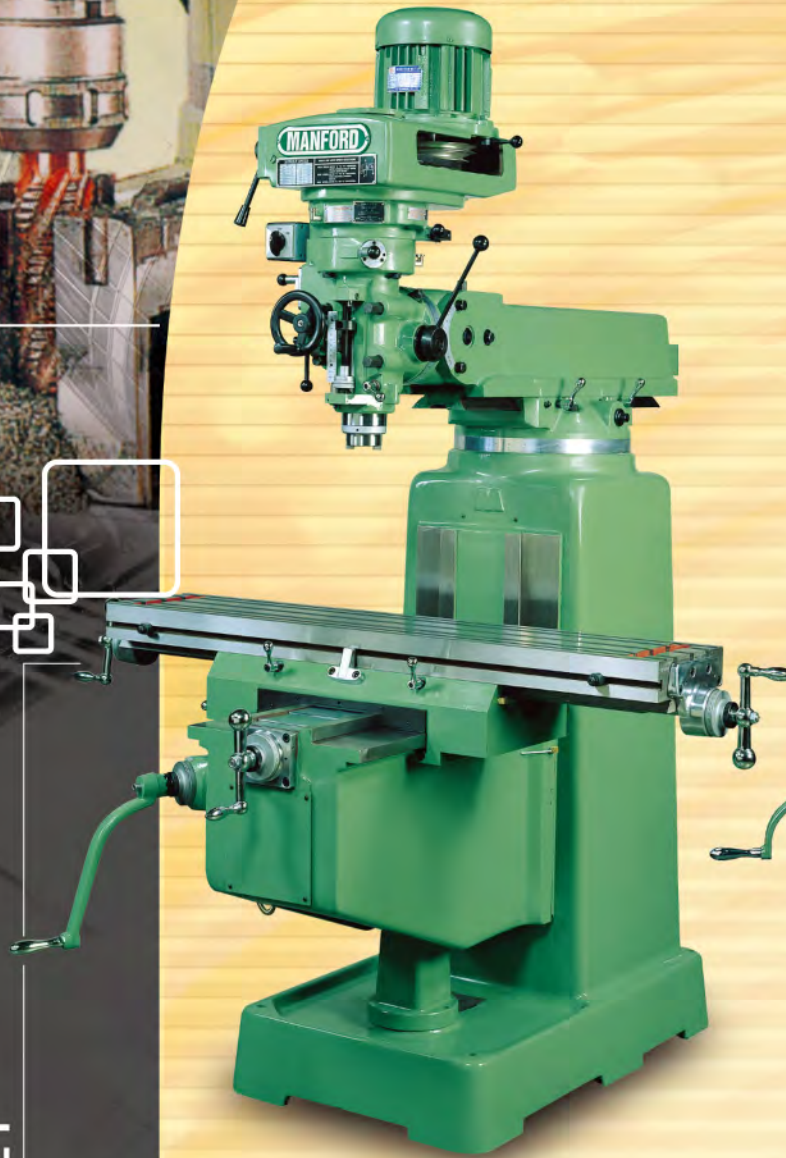
	2TM	1-1/2VS	4KS	4KV
Spindle motor	3HP	3HP	3HP	3HP
Spindle material made from SCM440 Cr-Mo alloy steel with Heat Treatment	○	○	○	○
Centralized one shot lubrication system for ways, nuts, and leadscrews of Axes	○	○	○	○
Precision angular contact spindle bearing	○	○	○	○
8 speeds step-pulley drive (16 speeds is optional)	○	—	○	—
Infinite variable speed drive up to 4500 rpm/60Hz 3800 rpm/50Hz	—	○	—	○
Unique designed on hi-low gear speed commutation, bearings support on both side of spindle pulley	○	—	○	—
Adjustable brake handle to increase the life of brake shoe	○	—	○	—
Patented special copper alloy SAM214 for Vari-Disc keys, Precision ground with grease lubrication system	—	○	—	○
Bearing support at the end of motor shaft	—	○	—	○
Double sided Vari-Disc belt provides lower noise level	—	○	—	○
Motor shaft material made from SCM425 Cr-Mo alloy steel, dia. 28mm	—	○	—	○

○ Standard —Not available ☆Optional

VERTICAL TURRET MILLING MACHINE

MF-450TM

(3HP, 8 speeds step head)
NST#30/R8(NST#40 optional)



MF-450VS

(3HP, Variable speed head)
NST#30/R8(NST#40 optional)



Features

	MF-450TM	MF-450VS
Spindle motor	3HP	3HP
Spindle material made from SCM440 Cr-Mo alloy steel with tempering treatment	○	○
Centralized one shot lubrication system for ways, nuts, and leadscrews	○	○
Precision angular contact spindle bearing	○	○
8 speeds step-pulley drive (16 speeds is optional)	○	—
Infinite variable speed drive up to 4500 rpm/60Hz 3800rpm/50Hz	—	○
Unique designed on hi-lo gear speed, bearings support on both side of spindle pulley	○	○
Adjustable brake handle for increase the life of brake shoe	○	—
Patented special copper alloy SAM214 for Vari-Disc keys, Precision ground with grease lubrication groove designed to prevent overheating	—	○
Bearing support to the end of motor shaft	—	○
Double sided Vari-Disc belt to give lower noise level	—	○
Motor shaft material made from SCM425 Cr-Mo alloy steel, dia. 28mm	—	○
Lifting screw dia. 38mm	○	○
Extra long saddle (650mm) support to the table provides high accuracy & rigid machining	○	○
Turcite-B coated on XY ways	○	○
Square way designed on Y	○	○
Lifting motor for knee is optional	☆	☆

○ Standard —Not available ☆Optional

Features

	5KS	5KV
Spindle motor	3HP	5HP
Spindle material made from SCM415 (SAE4115) Cr-Mo alloy steel with tempering treatment, fully hardened & ground, spindle run out: 0.005mm	○	○
Quill dia. 105mm	○	○
Centralized one shot lubrication for ways, nuts, and leadscrews	○	○
Precision angular contact spindle bearing, P4 7210 for high accuracy and heavy duty cutting	○	○
10 speeds step-pulley drive	○	—
Infinitely variable speed drive up to 4300 rpm/60Hz 3600rpm/50Hz	—	○
Unique designed on hi-lo gear speed change, bearings support on both side of spindle pulley	○	—
Adjustable brake handle for increase the life of brake shoe	○	—
Patented special copper alloy SAM214 for Vari-Disc keys, Precision ground with grease lubrication groove designed to prevent overheating	—	○
Bearing support to the end of motor shaft	—	○
Double sided Vari-Disc belt to give lower noise level	—	○
Motor shaft material made from SCM425 Cr-Mo alloy steel, dia. 28mm	—	○
Lifting screw dia. 38mm	○	○
Extra long saddle (650mm) support to the table provides high accuracy & rigid machining	○	○
Turcite-B coated on XY ways	○	○
Square way designed on Y & column slideway	○	○
Lifting motor & for knee up-down, electric box & panel are optional	☆	☆

○ Standard —Not available ☆Optional

VERTICAL TURRET MILLING MACHINE

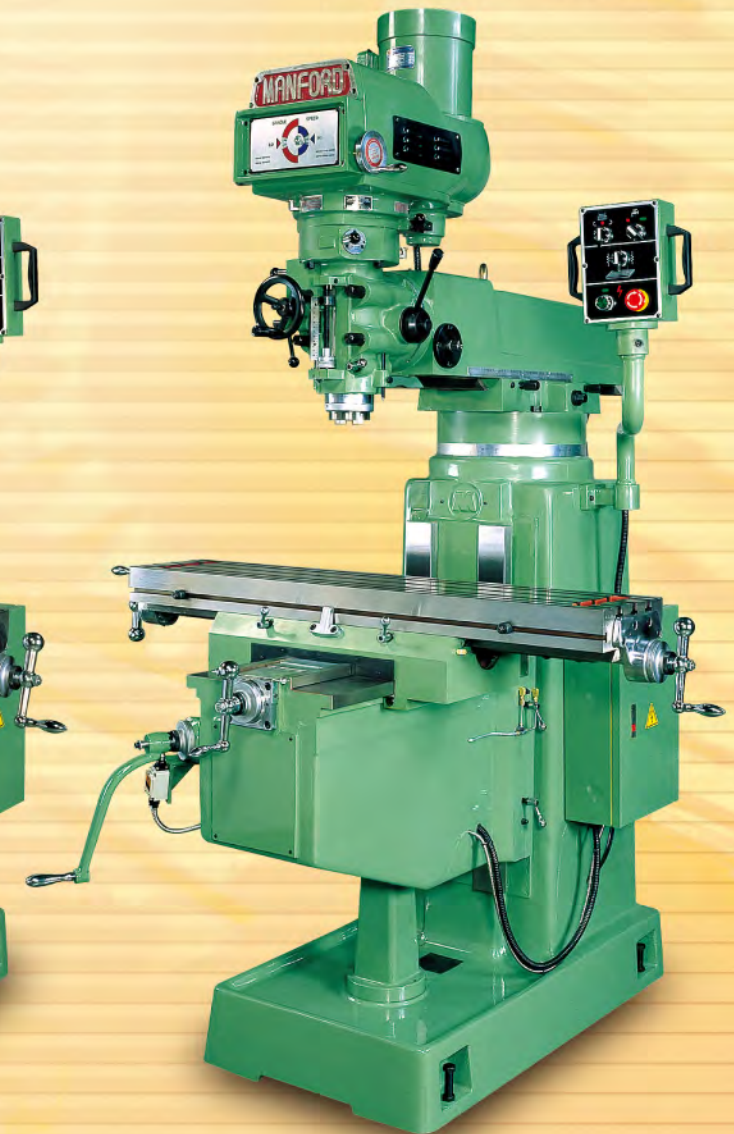
5KS

(3HP NST#40, 10 speeds step head)



5KV

(5HP NST#40, Variable speed head)



VERTICAL TURRET MILLING MACHINE

6KS-SP

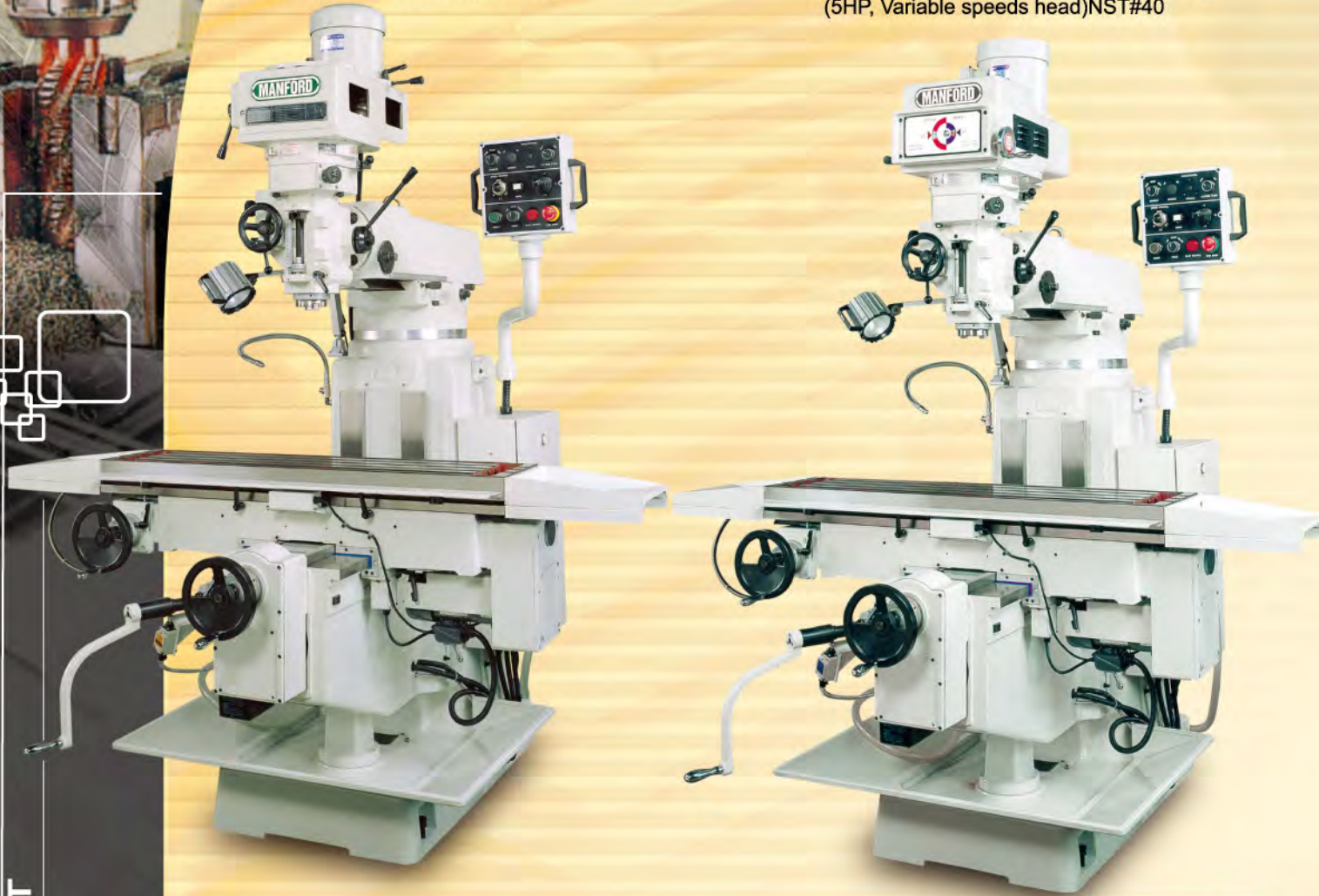
6KS-FP

6KS-FP(X axis table feed by inverter motor)
6KS-SP(X axis table feed by servo motor)
(5HP, 10 speeds step head)NST#40

6KV-SP

6KV-FP

6KV-FP(X axis table feed by inverter motor)
6KV-SP(X axis table feed by servo motor)
(5HP, Variable speeds head)NST#40



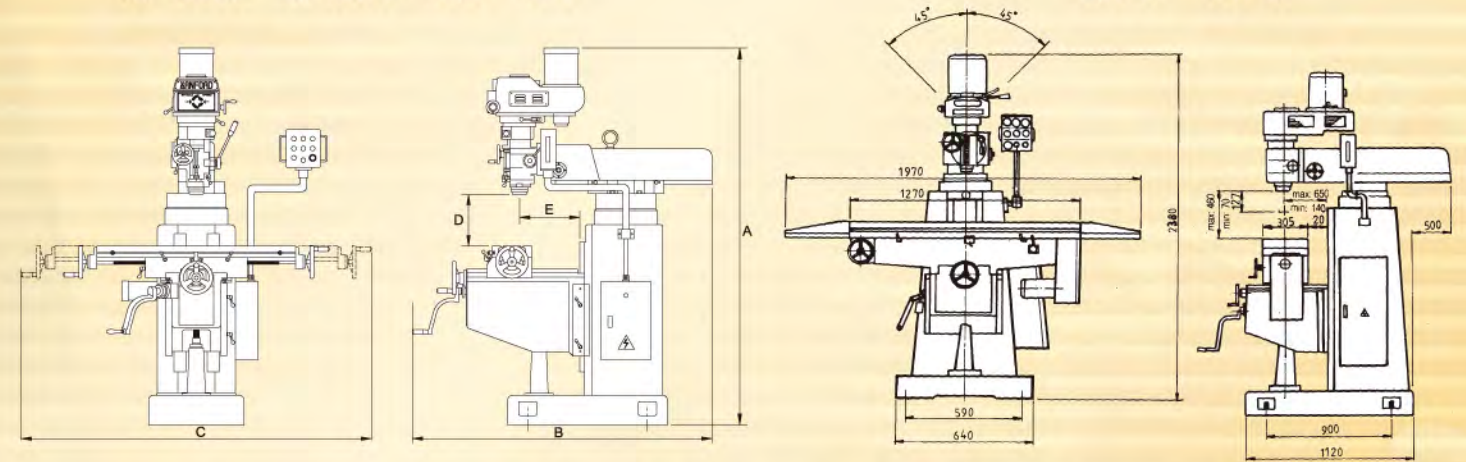
Features

	6KS	6KV
Spindle motor	5HP	5HP
Spindle material made from SCM415 (SAE4115) Cr-Mo alloy steel with tempering treatment, fully hardened & ground, spindle run out: 0.005mm	○	○
Quill dia. 10.5mm	○	○
Centralized one shot lubrication for ways, nuts, and leadscrews	○	○
Precision angular contact spindle bearing, P4 7210 for high accuracy and heavy duty cutting	○	○
10 speeds step-pulley drive	○	—
Infinitely variable speed drive up to 4300 rpm/60Hz 3600rpm/50Hz	—	○
Unique designed on hi-lo gear speed change, bearings support on both side of spindle pulley	○	—
Adjustable brake handle for increase the life of brake shoe	○	—
Patented special copper alloy SAM214 for Vari-Disc keys, Precision ground with grease lubrication groove designed to prevent overheating	—	○
Bearing support to the end of motor shaft	—	○
Double sided Vari-Disc belt to give lower noise level	—	○
Motor shaft material made from SCM425 Cr-Mo alloy steel, dia. 28mm	—	○
Precise ball screw on X & Y	○	○
Lifting screw dia. 38mm	○	○
Extra long saddle (1016mm) support to the table provides high accuracy & rigid machining	○	○
Turcite-B coated on XY ways	○	○
Square way designed on Y & column slideway	○	○
Lifting motor & for knee up-down, electric box & panel	☆	☆

○ Standard —Not available ☆Optional

MF-2TM MF-1-1/2VS 4KS 4KV
MF-450TM MF-450VS 5KS 5KV

6KS-FP 6KS-SP
6KV-FP 6KV-SP



SPECIFICATION	MF-2TM MF-1-1/2VS	4KS 4KV	MF-450TM MF-450VS	5KS 5KV	6KS-FP 6KV-FP	6KS-SP 6KV-SP
Table size	230×1067mm(9"×42")		254×1270mm(10"×50")			305×1270mm(12"×50")
T slots of table (Q'ty x size)			3×16mm(3×0.629")			
Longitudinal travel (X axis)	Manual	762mm(30")	890mm(35")	776mm(30.55")	776mm(30.55")	850mm(33.464")
	Auto	682mm(26.85")	810mm(31.9")	696mm(27.4")	696mm(27.4")	850mm(33.464")
Cross travel	305mm(12.007")		406mm(15.984")	410mm(16.141")	390mm(15.354")	
Vertical travel of knee (Z axis)		406mm(15.984")		450mm(17.716")	400mm(15.748")	
Ram travel	390mm(15.354")		560mm(10.236")		510mm(20")	
Quill travel			127mm(5")			
Spindle to table nose (D)	34~440mm(1.338"~17.322")		100~506mm(4"~20")	85~535mm(3.3"~21")	85~485mm(3.3"~19")	
Over swivel on turret			360°			
Head swivel (R&L)			+45°			
Head tilt (up & down)		+45°			Option	
Spindle to column (E)	154~544mm(6"~21.4")		159~719mm(6.25"~28.3")	178~738mm(7"~29")	140~650mm(5.5"~25.6")	
Spindle motor		3HP		3HP(Step)/5HP(Variable)	5HP(Step)/5HP(Variable)	
X axis motor		Option:Power feed (electric or gear type)			1/2HP Inverter motor	
Lifting motor	None		1/2HP (Option)		1HP gear type motor	
Spindle taper		NST#30(or R8 & NST#40)			NST#40	
Quill Feeds (mm/rpm)			0.04mm~0.08mm~0.14mm(0.0015"~0.003"~0.006")			
X axis rapid speed(mm/min)		Nil			2000	3750
Lifting speed		Nil		Option		430mm/rpm
Spindle speed (rpm)	Step head	50Hz Low:66~270 Hi:550~2270	60Hz Low:80~325 Hi:660~2720	50Hz Low:54~330 Hi:475~2875	60Hz Low:65~400 Hi:570~3450	
	Variable speed head	50Hz Low:50~420 Hi:420~3900	60Hz Low:60~500 Hi:500~4500	50Hz Low:40~415 Hi:415~3600	60Hz Low:60~500 Hi:500~4300	
Overall height (A)	2105mm(82.874")	2120mm(83.464")	2120mm(83.464")	2360mm(92.913")	2380mm(93.7")	
Overall depth (B)	1618mm(63.7")	1984mm(78.11")	2073mm(81.614")	2120mm(83.464")	2120mm(83.464")	
Overall width (C)	1497mm(58.937")	1666mm(65.59")	1680mm(66.141")	1790mm(70.472")	1790mm(70.472")	
Net weight	950kgs(2200lbs)	1200kgs(2625lbs)	1250kgs(2730lbs)	1600kgs(3500lbs)	1800kgs(3938lbs)	

Standard Accessories	For	Standard Accessories	For
Draw bar / Tools box / Rubber chip cover	All machines	Inverter motor for X axis Power feed	6KS-FP (6KV-FP) / 6KS-SP(6KV-SP)
Lifting motor & Electric box	6K	Ball screws on X & Y axis / Coolant / Automatic lubrication	6KS-FP (6KV-FP) / 6KS-SP(6KV-SP)

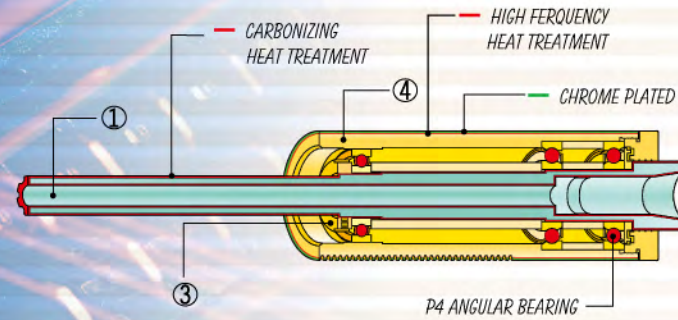
Option Accessories

Table power feed (electric or gear box type)	Electric box for 2TM/3KS/4K/450TM/5K	Clamping kit
Coolant system	Lifting motor for MF-450/5K	Milling Chuck (NST#30/ R8 / NST#40)
Base splash guard	Ball screw on X & Y axes.	Milling vise (Angle-lock / Hydraulic)
Quartz work light	Long table 49" or 54"	Horizontal milling attachment.
Automatic lubrication	Riser block 4" or 8"	D.R.O. System.
2/4P 16 speeds Motor (except 5K & 6K)	NST#40 spindle (2TM / 1-1/2VS / 4KS / 450TM / 450VS)	Power Draw bar (Air or Electric).

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VERTICAL TURRET MILLING MACHINE

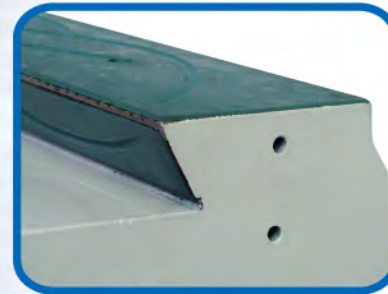
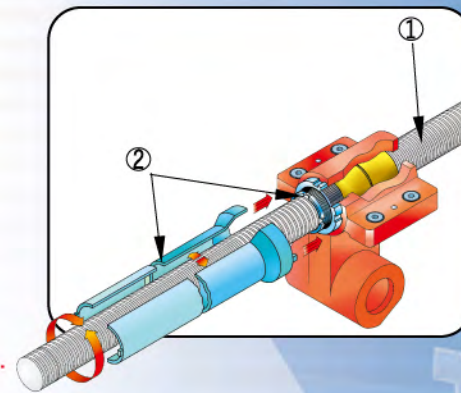
Super Precision Vertical Turret Milling Machine



1. SPINDLE MATERIAL IS SAE4115 (SCM415) FULL HARDENED THROUGH CARBONIZING HEAT TREATMENT.
- 2.SPINDLE THREAD IS GROUND.
- 3.INTERNAL THREAD OF SPINDLE NUT IS LEFT HARDENED AND GROUND.
- 4.QUILL MATERIAL IS S45C (SAE1045) STEEL BAT, INDUCTION HARDENED , CHROME PLATED AND THEM PRECISION GROUND.

SPECIAL BACKLASH ADJUSTMENT

- 1.DOUBLE NUTS MADE OF PBC 2 PHOSPHOR BRONZE
- 2.SPECIAL TOOL FOR NUT BACKLASH ADJUSTMENT



TURCITE-B COATED XY SIDEWAYS.



TURCITE-B COATED X & Y WAYS.



STRICT HAND SCRAPING
(16 POINT PER SQUARE INCH).
TURCITE-B COATED XY GIBE.



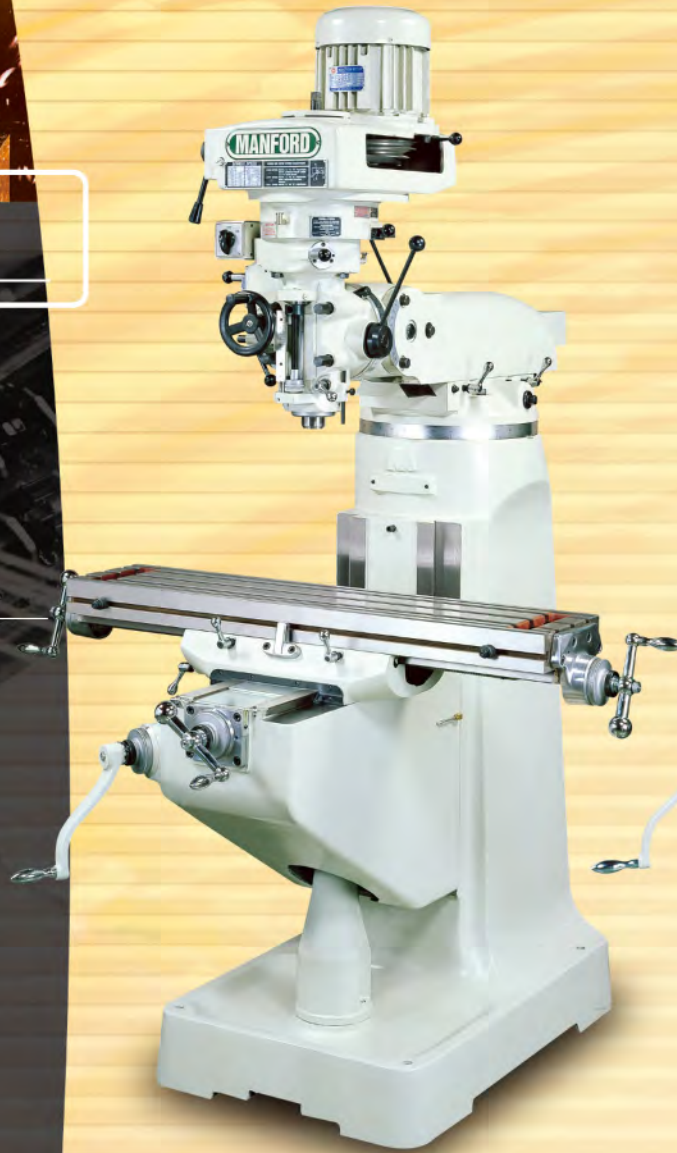
LEVELING SCREWS AND PADS PROVIDED.

**SUPER PRECISION VERTICAL
TURRET MILLING MACHINE**

SUPER PRECISION VERTICAL TURRET MILLING MACHINE

SP150TM

STEP HEAD(8 SPEEDS)
Spindle taper: R8 or NST#30
Spindle motor: 3HP



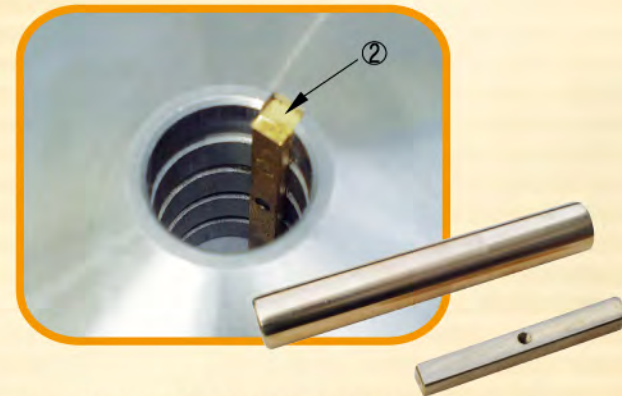
SP150VS

VARIABLE SPEED HEAD
Spindle taper: R8 or NST#30
Spindle motor: 3HP



SP150TM/SP150VS Features

- 9" X 49" Table.
- 3HP Spindle Motor.
- R8 (Nst#30) Spindle Material SCM415 (Sab4115) Hardened & Ground.
- Turcite-B On X&Y Ways, Slideways And Gibs.
- Hardened & Ground X&Y Slideways.
- Hardened & Ground Table With Ground T-Slots.
- Electro Less Nickel-Phosphorus Process On X&Y Lead Screws.
- Highly Improved Vari-Speed Head.
- 1-1/4" (32mm) Diameter Lifting Screw.
- Leveling Screws & Pads On Base.
- Strict Required Hand Scraping With High Precise Accuracy.



HIGH IMPROVED ON VARI-SPEED HEAD
1.ROLLER BEARING SUPPORT ON MOTOR SHAFT
2.VARI-DISC KEYS FA381 (PATENTED)

SP460TM/SP460VS Features

- 10" X 54" Table.
- 3HP Spindle Motor.
- R8 (Nst#30) Spindle Material SCM415 (Sab4115) Hardened & Ground.
- Turcite-B On X&Y Ways, Slideways And Gibs.
- Hardened & Ground X&Y Slideways.
- Hardened & Ground Table With Ground T-Slots.
- Electro Less Nickel-Phosphorus Process On X&Y Lead Screws.
- Highly Improved Vari-Speed Head.
- 1-1/2" (38mm) Diameter Lifting Screw.
- Leveling Screws & Pads On Base.
- Strict Required Hand Scraping With High Precise Accuracy.



RIGID DESIGNED ON SPINDLE AUTO-FEED.
1.ONE PIECE DESIGNED ON OVERLOAD CLUTCH
2.SPLINE SUPPORT ON PINION SHAFT & CLUTCH

SUPER PRECISION VERTICAL TURRET MILLING MACHINE

SP460TM

STEP HEAD(8 SPEEDS)
Spindle taper: R8 or NST#30
Spindle motor: 3HP



SP460VS

VARIABLE SPEED HEAD
Spindle taper: R8 or NST#30
Spindle motor: 3HP



SUPER PRECISION VERTICAL TURRET MILLING MACHINE

SP500TM

STEP HEAD(8 SPEEDS)
Spindle taper: R8 or NST#30
Spindle motor: 3HP

SP500VS

VARIABLE SPEED HEAD
Spindle taper: R8 or NST#30
Spindle motor: 3HP



FIX SCREWS ON THE REAR OF HEAD, MORE STABILITY ON THE CONNECTION OF HEAD AND RAM. (SP-520TM/VS)



LIFTING MOTOR ON KNEE UP-DOWN. (OPTION) AUTOMATIC LUBRICATION. (OPTION FOR ALL MODEL)

Option:(EVS Inverter motor)



5000R.P.M. EVS SPINDLE HEAD. (OPTION) 3HP INVERTER MOTOR WITH 3HP INVERTER DRIVE. FOR SP-150~SP-500. (NST#30 OR R8 SPINDLE).

5000R.P.M. EVS SPINDLE HEAD. (OPTION) 5HP INVERTER MOTOR WITH 5HP INVERTER DRIVE. FOR SP-520 (NST#40 SPINDLE).

SUPER PRECISION VERTICAL TURRET MILLING MACHINE

SP520TM

STEP HEAD(10 SPEEDS)
Spindle taper: NST#40
Spindle motor: 5HP

SP520VS

VARIABLE SPEED HEAD
Spindle taper: NST#40
Spindle motor: 5HP



SUPER PRECISION VERTICAL TURRET MILLING MACHINE

SP500TM/SP500VS Features

- 10" X 54" table
- 3HP spindle Motor
- R8 spindle material SAE4115(SCM415) Hardened & ground
- Turcite-B on X&Y ways, slideways, and gibs
- Hardened & ground X&Y slideways
- Hardened & ground table with ground T-slots
- Electroless nickel-phosphorus process on X&Y lead screws
- Square ways on Y & Column ways
- Highly improved on Vari-Speed head
- Dia.1-1/2"(38mm) lifting screw
- Leveling Screws & Pads On Base.
- Strict required hand scraping with high precise accuracy

SP520TM/SP520VS Features

- 10" X 54" table
- 5HP heavy duty strong head
- NST#40 spindle material SAE4115(SCM415)full piece by Hardened & ground
- Turcite-B on XY ways, slideways, XY gibs
- Hardened & ground on XYZ slideways & table
- Electroless nickel-phosphorus process on XY Lead screws
- Grinding on table T-slot
- Square ways on Y & Column
- Highly improved on Vari-Speed head
- Dia.1-1/2"(38mm) lifting screw
- Lifting motor & Electric box
- Leveling Screws & Pads On Base.
- Strict required hand scraping with high precise accuracy

**SUPER PRECISION VERTICAL
TURRET MILLING MACHINE**

V-200

STEP HEAD(16 SPEEDS)
Spindle taper: NST#40
Spindle motor: 5HP

V-200VS

VARIABLE SPEED HEAD BY
INVERTER MOTOR
Spindle taper: NST#40
Spindle motor: 5HP



SUPER PRECISION VERTICAL TURRET MILLING MACHINE



LARGE QUILL DIA. 110MM (4-21/64") MATERIAL S45C (SAE1045) WITH HIGH FREQUENCY HEAT TREATMENT & CHROME PLATED.

V200/V200VS Features

- NST#40 Spindle, Quill dia. 110mm.
- 5HP Heavy duty head, Hi-Lo speed change by gear transmission(with no timing belt).
- Spindle is made from SCM-415 (SAE4115) Cr-Mo Alloy steel, then carbonized heat treatment and Precise ground.
- Spindle bearing appliance with 7210(P4) Angular contact bearings.
- Meehanite casting GC275 with annealing & stress relieving treatment.
- Ram is moveable directly on extra heavy duty column without turret.
- XY axes use C5 pre-load double nut ball screws, no backlash and provide accurate positioning.
- Hardened & Ground on the XYZ slideways and T-slot of table.
- Turcite-B coated on the XY slideways and gibs.
- All the slideways(column, table, saddle, ram and knee) are installed with rubber wiper.



NST#40 SPINDLE MATERIAL SCM415 (SAE4115) FULL PIECE BY CARBONIZING & PRECISE GROUND.(V-200)



RIGID DESIGNED ON SPINDLE AUTO FEED (ONE PIECE DESIGNED OVERLOAD CLUTCH, SPINDLE SUPPORT ON PINION SHAFT & CLUTCH)



X & Y AXES PRECISE C5 DOUBLE NUT BALL SCREWS.



TABLE RIBS REINFORCED ENSURES MAXIMUM STABILITY DURING HEAVY DUTY MACHINING.(V-200)



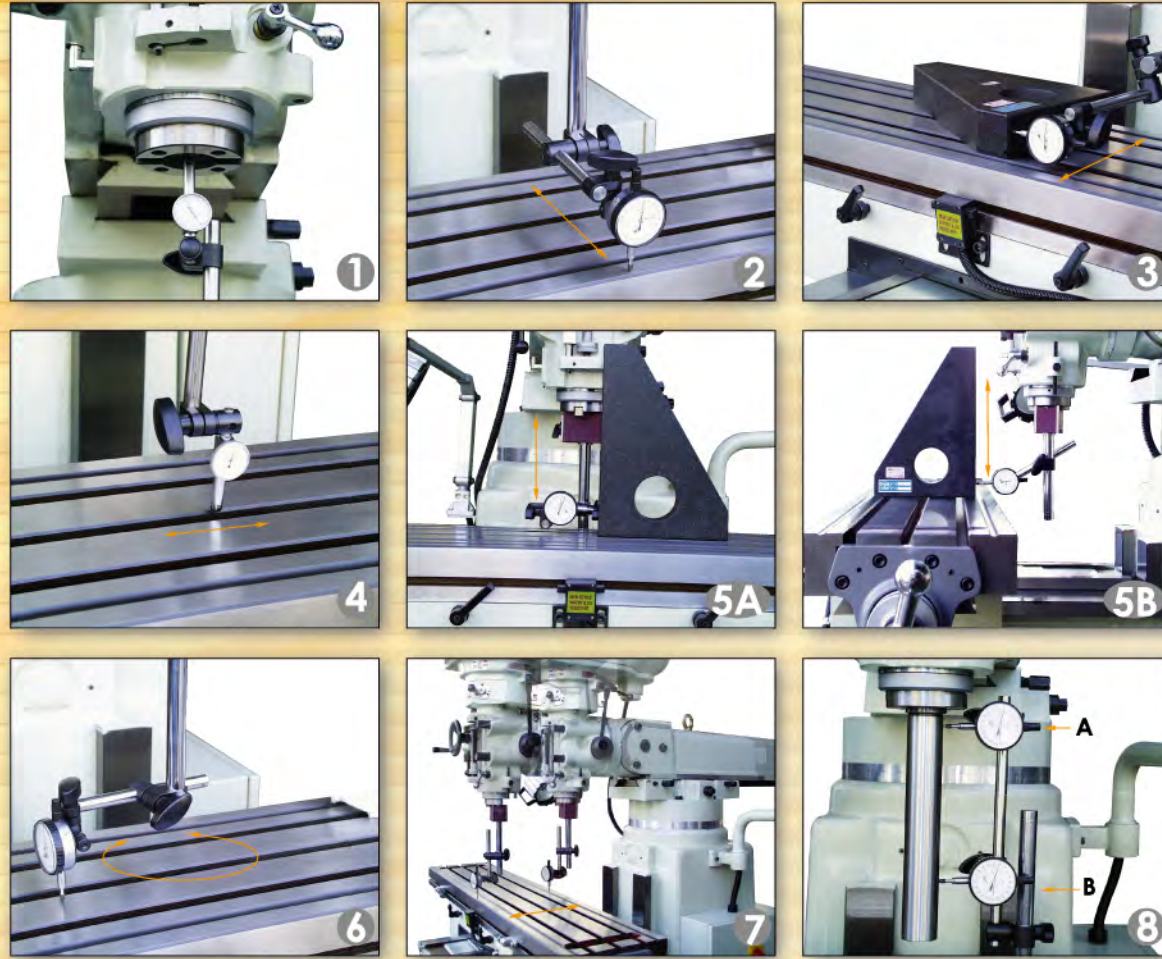
THRUST BEARINGS SUPPORT ON LEAD SCREWS
1. THRUST BEARINGS SUPPORT ON TABLE, SADDLE & KNEE TO PRE-LOAD THE FEED SCREWS (EXCEPT V-200)



RAM DIRECT MOVE ON WIDE SLIDEWAY OF COLUMN.(V-200)

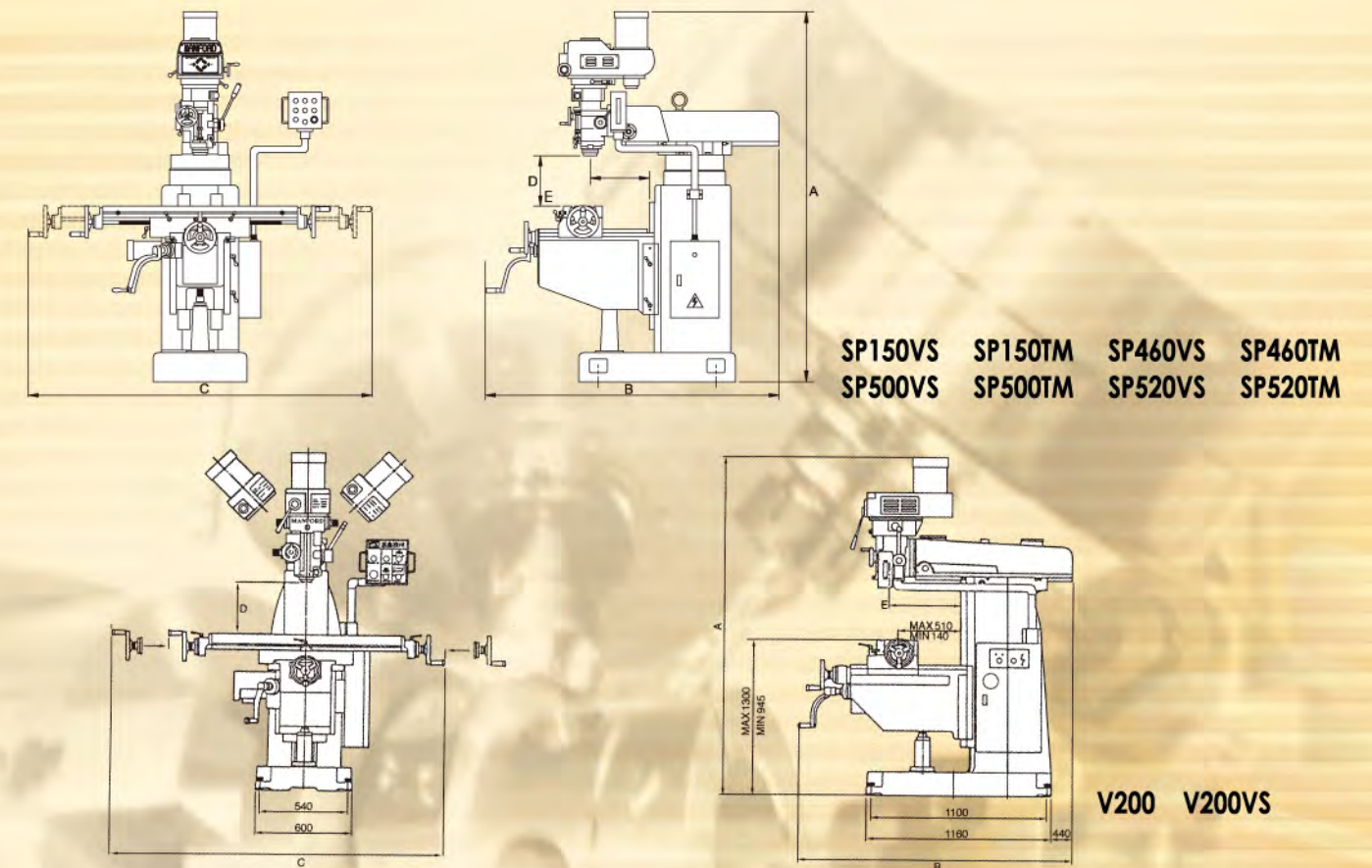


STRONG BACK GEAR TRANSMITTING INSTEAD OF TIMING BELT FOR HI-LO SPEED.(V-200)



SP SERIES ACCURACY REQUIREMENT:

NO	Inspection Items	Manford SP series requirement	Standard for knee type mills
1	Run-out of the spindle taper	0.003mm (0.00012")	0.005mm (0.0002")
2	Parallelism of the table top with (A) Transverse movement (B) Longitudinal movement	(A) 0.015mm in any 300mm (0.0006" in any 12" length) (B) 0.02mm in any 500mm (0.0008" in any length 20")	(A) 0.02mm in any 300mm (0.0008" in any 12" length) (B) 0.03mm in any 500mm (0.0012" in any length 20")
3	Perpendicularity of the table way to the saddle movement	0.01mm (0.0004") in any 300mm (12" length)	0.02mm (0.0008") in any 300mm (12" length)
4	Parallelism of the table central groove in the longitudinal direction	0.02mm (0.0008") in any 500mm (20" length)	0.03mm (0.0012") in any 500mm (20" length)
5	Traverse of the column, Perpendicularity in A and B planes	(A) 0.015mm (0.0006") (B) 0.015mm (0.0006") in any 300mm (12")	(A) 0.025mm (0.0009") (B) 0.025mm (0.0009") in any 300 (12")
6	Perpendicularity of the spindle with the table top (sweeping)	(A) 0.015mm (0.0006") (B) 0.015mm (0.0006") in any 300mm (12")	(A) 0.02mm (0.0008") (B) 0.02mm (0.0008") in any 300 (12")
7	Parallelism of the transverse movement of the ram with table top (the width of the table is within 300mm)	0.015mm (0.0005") in any 300mm (12") length	0.02mm (0.0008") in any 300mm (12") length
8	Rounout of the spindle (A) Next to spindle nose (B) 150mm (6") down from spindle nose	(A) 0.01mm (0.0004") (B) 0.02mm (0.0008")	(A) 0.01mm (0.0004") (B) 0.02mm (0.0008")



SPECIFICATION	SP150VS SP150TM	SP460VS SP460TM	SP500VS SP500TM	SP520VS SP520TM	V200 V200VS	
Table size	230 X 1245mm(9" X 49")		250 X 1370mm(10" X 54")		280 X 1320mm(11" X 52")	
T-Slot No.x Size	3 X 16mm(3 X 0.629")				3 X 16mm(3 X 0.629")	
Longitudinal travel	(w/o power feed)	930mm(36")			870mm(34")	920mm(36.7/32")
	(with power feed)	850mm(33.7")			775mm(30.5")	840mm(33")
Cross travel	305mm(12")	390mm(15-3/8")	410mm(16")	410mm(16")	380mm(15")	
Travel of knee	406mm(16")	390mm(15-3/8")	450mm(17")	450mm(17")	406mm(16")	
Ram travel	356mm(14")		560mm(22")		485mm(18.7/8")	
Quill travel	127mm(5")					
Table to spindle nose (D)	34~440mm(1.3/8"~17.3/8")	100~506mm(4"~20")	85~535mm(3.3"~21")		60~466mm(2.3"~18.3")	
Over swivel on turret	360°			Nil		
Head swivel (R & L)	±45°					
Head tilt (UP & DOWN)	45°			Option	Option	
Spindle to column (E)	154~544mm(6"~21.4")	159~719mm(6.25"~28.3")	170~730mm(6.6"~28.7")	178~738mm(7"~29")	190~675mm(7.5"~26.5")	
Spindle motor	3HP			5HP	5HP(5HP Inverter V200VS)	
Spindle taper	R8(or NST#30)			NST#40	NST#40	
Quill feeds	0.04mm~0.08mm~0.14mm(0.0015"~0.003"~0.006")					
Spindle speeds (r.p.m.)	Step head	50Hz Low:66~270 Hi:550~2270 60Hz Low:80~235 Hi:660~2720		50Hz Low:54~330 Hi:475~2875 60Hz Low:65~400 Hi:570~3450	50Hz Low:62~416 Hi:458~3000 60Hz Low:75~500 Hi:550~3600	
	Variable speed head	50Hz Low:50~420 Hi:420~3900 60Hz Low:60~500 Hi:500~4500		50Hz Low:40~415 Hi:415~3600 60Hz Low:60~500 Hi:500~4300	50~3600	
Overall height (A)	2140mm(84")	2211mm(87")	2262mm(90")	2375mm(93-1/2")	2245mm(88.385") / 2365(93.11")	
Overall depth (B)	1618mm(63~5/8")	2087mm(82")	2120mm(83-1/2")	2120mm(83-1/2")	2080mm(81.9")	
Overall width (C)	1670mm(65.7")			1840(72.4")		
Net weight (Approximately)	950kgs(2200lbs)	1300kgs(3000lbs)	1500kgs(3360lbs)	1600kgs(3500lbs)	1700kgs(3740lbs)	
STANDARD ACCESSORIES	Draw bar/Tool box & tools / Rubber chip cover(front & rear) /Leveling Screws & pads /Backlash adjustment tool Electroless Ni-Ph XY lead screws(V200 standard with ball screws)/Lifting motor & Electric box & panel (V200)					

OPTIONAL ACCESSORIES:

Power feed (X, Y or Z axes)	Clamping Kits(52 pcs)	R8 Collet set	Electric box & panel
Gear box type power feed	Right angle milling attachment	Milling Vise	Lifting motor (Except SP-150)
Coolant system	Base splash guard	Riser Block 4" or 6"	5000 r.p.m. EVS spindle head
Power drawbar	Quartz work light	D.R.O system	Auto lubrication

We reserve the right to modify and improve the specification without notice, the specification shown above are for reference only.

BED TYPE MILLING MACHINE

MF-B410VS-FP

MF-B410VS-SP

**Variable speed head
by inverter system
(NST#40)**



BED TYPE MILLING MACHINE

MF-B410-FP

MF-B410-SP

**STEP HEAD
(16 speeds NST#40)**

16 SPEEDS NST#40



SUPER EXTRA SIZE BED WAY WIDTH
600MM(23.62") WITH HARDENED
& GROUND.



STRONG BACK GEAR TRANSMITTING
INSTEAD OF TIMING BELT FOR HI-LO
SPEED



LARGE QUILL DIA. 110MM(4.33")
MATERIAL S45C(SAE1045) WITH
HIGH FREQUENCY HEAT
TREATMENT & CHROME PLATED



NST#40 SPINDLE MATERIAL
SCM415(SAE4115) FULLY
HARDENED & PRECISE GROUND.



XY AXES PRECISION BALL SCREWS

MF-B410VS-FP Features

- XYZ automatic feed variable speed by inverter motor system(servo motor system by option).
- 5HP strong head can be swivled 90 right or left for angular machining.
- Quill dia. 110mm(4.3"), NST#40 spindle.
- XY axes high precision ball screws, Z axis lead screw(Z axis ball screw by option).
- Heavy duty saddle length 1200mm(47.2") support to table.
- Rigid square ways on cross & column.
- Licensed Meehanite casting.
- Hardened & ground on X,Y,Z slideways & table.
- Turcite -B coated on X,Y & Z axes slideways & gibs.
- Counter-balance weight device for milling head.
- Telescopic steel cover to protect the slideway & ball screw from dust.

MODEL	Spindle	Spindle Speed	Auto Feed
MF-B410-FP	NST#40	16 Speed step head	XYZ Variable speed by inverter system
MF-B410VS-FP	NST#40	Inverter variable speed head	XYZ Variable speed by inverter system
MF-B410-SP	NST#40	16 Speed step head	XYZ Variable speed by servo moter
MF-B410VS-SP	NST#40	Inverter variable speed head	XYZ Variable speed by servo moter

MODEL	Spindle	Quill Dia.	Spindle speed	Auto Feed
MF-B180	NST#40	105mm(4.13")	10 Speeds Step head	Manual(Table power feed by option)
MF-B180VS	NST#40	105mm(4.13")	Variable speed head	Manual(Table power feed by option)
MF-B185-SP	NST#40	105mm(4.13")	10 Speeds Step head	X Variable speed auto feed by AC servo motor(Y by option)
MF-B185VS-SP	NST#40	105mm(4.13")	Variable speed head	X Variable speed auto feed by AC servo motor(Y by option)

BED TYPE MILLING MACHINE

MF-B180VS

(MACHANIC VARIABLE SPEED HEAD NST#40)



BED TYPE MILLING MACHINE

MF-B180

(10 SPEEDS NST#30)

BED TYPE MILLING MACHINE

MF-B185-SP

(10 SPEEDS NST#40)

BED TYPE MILLING MACHINE

MF-B185VS-SP

(MACHANIC VARIABLE SPEED HEAD NST#40)
X AUTO FEED BY SERVO SYSTEM.



MF-B180VS Features

- X,Y power feed by option
- XY axes double nut ACME lead screws
- Table size: 10" X 50" Saddle 650mm(25.6")
- Rigid Square ways on cross & column
- Licensed Meehanite casting
- Hardened & ground on X,Y,Z slideways and table
- Turcite-B coated on X,Y,Z axes slideways & gibs
- Head can be tilted 90 right & left for angular machining
- Counter-balance weight device for milling head

MF-B185VS-SP/MF-B185-SP Features

- X auto feed vari-speed by servo motor (Y auto feed vari-speed by AC servo motor by option)
- XY axes high precision ball screws
- Heavy duty widen saddle length 1016mm(40") full support to table
- Rigid Square ways on cross & column
- Licensed Meehanite casting
- Hardened & ground on X,Y,Z slideways and table
- Turcite-B coated on X,Y & Z axes slideways & gibs
- Head can be tilted 90 right & left for angular machining
- Counter-balance weight device for milling head
- Telescopic steel cover to protect the slideway & ball screw from dust(is by option)
- Counter-balance weight device for milling head

○ Standard — Not available ☆ Optional

ACCESSORIES	B180	B185-SP	B410	ACCESSORIES	B180	B185-SP	B410
Tools & tool box	○	○	○	Auto lubrication	☆	○	○
Leveling bolts & pads	○	○	○	Quartz work light	☆	○	○
Rubber chip cover(front & rear)	○	○	rear	Electric control box & panel	☆	○	○
Telescopic cover in front saddle	—	☆	○	Gear type table power feed on X or Y	☆	—	—
XY axes ball screws	☆	○	○	Table power feed on X or Y	☆	—	—
Z axis ball screw	☆	☆	☆	10"X54" table	☆	—	—
XYZ Auto feed by AC servo motor	—	—	☆	12"X58" Table & long saddle	—	☆	—
XYZ Auto feed by Inverter system	—	—	○	15"X58" Table & long saddle	—	—	☆
X Auto feed by AC servo motor	—	○	—	Height column	☆	☆	☆
Y Auto feed by AC servo motor	—	☆	—	Air power drawbar	☆	☆	☆
Z axis lifting motor	☆	○	—	3 Axes digital readout	☆	☆	☆
Coolant system & coolant tray	☆	○	○	5000 rpm EVS head by inverter system	☆	☆	—
Column guarding	☆	☆	☆				