

Next-generation Mode of Production Realized with the Inverted Vertical Lathe



Inverted Vertical CNC Lathe

XV-3

NEW

Integration of Diverse Processes

- Three spindles are installed in one machine. They enable a variety of machining from turning to drilling with power tools and flexible process configuration, such as 1-1-1, 1-1-2, 1-2-2 or 1-2-3 pattern.

Labor Savings at Setup Changes

- A self-loading configuration is adopted to move the spindle directly to a traverse-type transfer device for workpiece transfer. The transfer device has a workpiece turnover function, eliminating the turnover device between processes. The number of transfers between chucks is reduced, which also decreases the possibility of momentary stops, the number of setup changes, and setup man-hours.

Pursuing Ease of Maintenance and Space Savings

- The inverted spindle is provided at the front of the machine. The major mechanical parts, such as the turret, slides, and transfer device are also placed at the front of the machine to ensure ease of maintenance and space savings. In addition, oil mist lubrication is adopted for the spindle, simultaneously achieving high spindle speeds and long service life.

Proposal for Total Cost Reduction

- Three spindles and a turret are integrated into one machining chamber. The machine handles the processes equivalent to three machines, only with one coolant tank, oil controller, chip conveyor, mist collector, etc.

Machine Specifications

	Item	Unit	XV-3(3unit)
Capacity	Optimum turning diameter	mm	φ30
	Max. turning diameter	mm	φ50
	Max. turning length	mm	50
	Chuck size	inch	Collet,3,4
Spindle	Spindle nose	JIS	A2-3
	Spindle bearing I.D.	mm	φ60
	Through-hole on spindle	mm	φ25
	Spindle speed	min ⁻¹	Max.10,000
Tool post	Type		Gang type
	Tool shank	mm	□16
	Boring holder I.D.	mm	φ25
	Max. stroke	mm	X : 160 Z : 200 Y : 265
Motors	Rapid traverse rate	m/min	X : 12 Z : 24 Y : 24
	Spindle motor	kW	AC 5.5/3.7
	Feed motor	kW	X : AC 0.75 Z : AC1.2 Y : AC 2.2
	Coolant motor (Hydraulic motor)	kW	AC 0.25 —
Size	L×W×H	mm	1,600(2,075)×2,130×2,230
	Machine weight	kg	8,300
	Total electric capacity	KVA	38

Power tool type

	Item	Unit	XV-3(3unit)
Power tools	Tool storage capacity	pcs.	3
	Rotation speed	min ⁻¹	Max.8,000
	Drill	mm	φ5
	Capacity Endmill	mm	φ5
	Tap	mm	M5
	Power tools motor	kW	AC 0.75
Cs-axis	Rapid traverse rate	deg./min	18,000
	Split indexing angle	deg.	0.001

Standard Accessories

- ☐ Tool holder6sets
- ☐ Collet flange3sets
- ☐ Air chucking cylinder3sets
- ☐ Chuck clamp detector3sets
- ☐ TAKAMAZ loader system1unit
- ☐ Spindle cooling device(radiator)1set
- ☐ Thread cutting unit
(Including constant surface speed control).....3sets
- ☐ Front air blower3sets
- ☐ Coolant unit(225 lit.).....3sets
- ☐ Work light3sets
- ☐ Service tool kit1set
- ☐ TAKAMAZ Instruction manual1set

Optional Accessories

- ☐ Tool holders
- ☐ Collet chucks
- ☐ Spindle Cs-axis indexing device
- ☐ Power tools drive unit
- ☐ Spindle cooling device(Oil temperature type)
- ☐ Rear chip conveyor
(Floor type/Spiral type)
- ☐ Rear coolant unit
- ☐ Special coolant unit
- ☐ Signal light(1-tier/2-tier/3-tier)
- ☐ Automatic fire extinguisher
- ☐ Automatic power shut-off device
- ☐ Special color
- ☐ Others※

*For more information on attachments,consult our sales representative.

Controller Specifications

Item	TAKAMAZ & MITSUBISHI M80
Controlled axes	3 axes (X,Z,Y)
Simultaneously controllable axes	Simultaneous 3 axes
Least input increment	0.0001mm (X in diameter)
Least command increment	X: 0.00005mm Z: 0.0001mm Y: 0.0001mm
Auxiliary function	M3 digit
Spindle function	S5 digit
Tool function	T2 digit
Tape code	EIA(RS232C)/ISO(840) automatic recognition
Cutting feedrate	1~5,000mm/min
Command system	Incremental/Absolute
Linear interpolation	G01
Circular interpolation	G02, G03
Cutting feedrate override	0~150%
Rapid traverse override	F0,100%
Program file name	32 characters
Backlash compensation	0~9,999μm
Program memory capacity	500Kbyte(1,280m)(Each unit)
Tool offsets	99 sets (Each unit)
Registered programs	1,000 pcs. (Each unit)
Tool geometry/Wear offset	Standard
Canned cycle	G90,G92,G94
Background editing	Standard
Direct drawing dimension programming	Standard
Custom macro	Standard
Nose R compensation	G40,G41,G42
Inch/Metric conversion	G20/G21
Programmable data input	G10
Multiple repetitive cycle	G70~G76
Multiple repetitive cycle II	Pocket-shaped
Canned drilling cycle	Standard
Constant surface speed control	G96,G97
Variable lead thread cutting	G34
Clock function	Standard
Alarm history display	512 pcs.
Sub-program call	Up to 8 loops
Decimal point input	Standard
2nd reference point return	G30
Work coordinate system setting	G50,G54~G59
Stored stroke check	Standard
Input/Output interface	USB Flash Memory, Memory card, Ethernet
Graphic trace	Standard
Graphic check	Standard
Tool life management	Standard
Multiple M codes in one block	Max. 3
Set of Instruction Manuals for Control Device	CD-ROM

Optional Specifications

Spindle orientation

TAKAMAZ

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