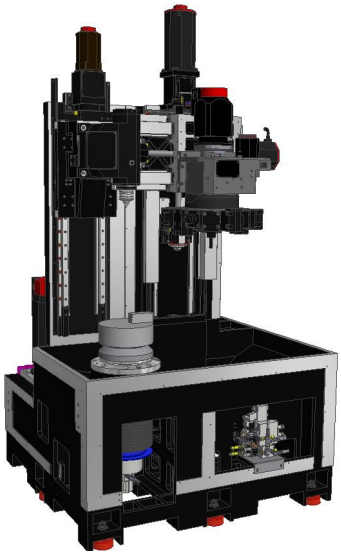
SMEC

SLV450_M

VERTICAL TURNING CENTER

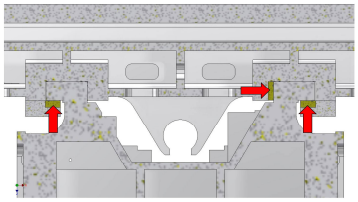
SMEC Smart One, Global One

MACHINE CONSTRUCTION / FEATURES



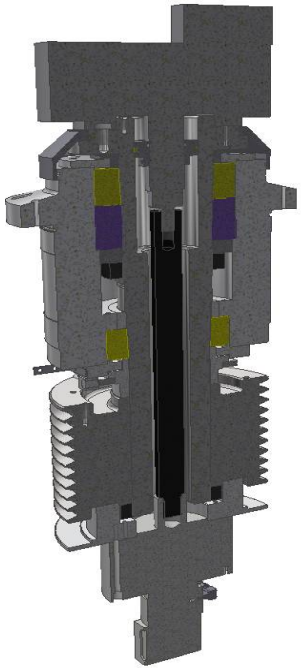
BED

- ***The main spindle body of SLV450_M is consisted of one piece meehanite cast Iron bed, wide column, anti –heat displacement spindle and head stock.***
- ***Box way construction with anti-friction motion way surface that ensure unsurpassed long Term rigidity and superior accuracy.***
- ***Maximum rigidity and minimal deformation under heavy machining.***
- ***Three adjustable Gibs on X and Z axis provide easier maintenance as well as long term rigidity and accuracy.***



SPINDLE & HEADSTOCK

The machine headstock utilizes a precision ground spindle that is machined in a temperature-controlled environment and clean room assembled.



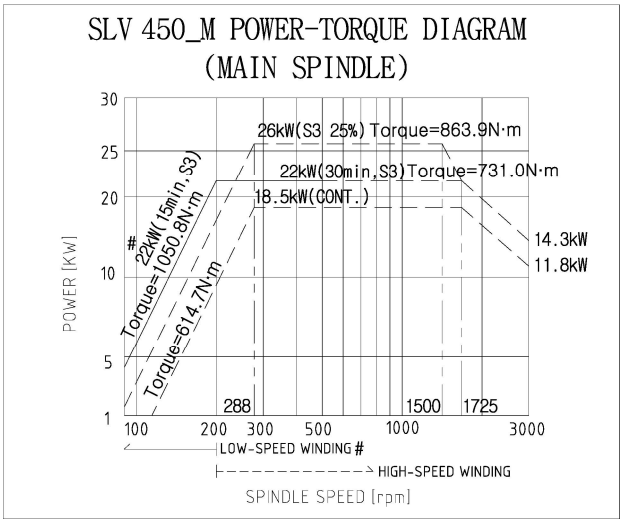
- **Spindle Nose** ASA A2-8
- **Spindle Bore Dia.** Ø 60 mm
- **Spindle Speed (12” Chuck)** Max 3,000 rpm
- **Spindle Drive Method** Belt
- **Spindle Bearings I.D. (Front)** Ø130mm

Front: Double Row Taper Roller Bearing
(NN3026MBKRCC9P4 (NSK))

Front: Angular Contact Ball Bearing
(130BAR10STYNDBLP4A (NSK))

Rear: Double Row Taper Roller Bearing
(NN3024MBKRCC9P4 (NSK))

SPINDLE POWER-TORQUE DIAGRAM



The powerful Fanuc aiIP40/6000 (22/18.5kW) spindle motor system will ensure heavy duty machining within a wide spindle speed range.

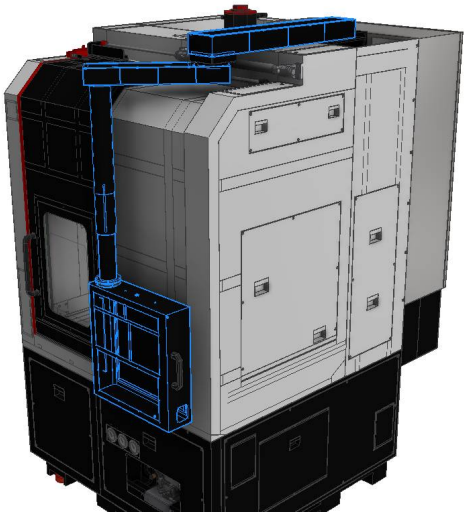
MACHINE SPECIFICATIONS

Classification		Unit	SLV450	SLV450M
Capacity	Swing over the bed	mm	Ø620	
	Swing over Cross slide	mm	Ø450	
	Max. turning diameter	mm	Ø496	
	Max. turning length	mm	465	
Main Spindle	Max. spindle speed	rpm	3,000	
	Spindle nose	ASA	A2-8	
	Spindle bearing hole diameter (Front)	mm	130	
	Bearing type (Front)	-	Taper Roller Angular Contact ball	
	Bearing type (Rear)	-	Taper Roller	
	Draw tube ID	mm	-	
	Spindle bore diameter	mm	60	
	Maximum spindle torque	N.m	1,051	
	Standard chuck size[Opt.]	inch	12” [15"]	
Motor	Main Spindle Motor Model [Opt.] & Capacity (Cont./30min)	spec	aiIP40/6000	
		kW	22/18.5	
	X axis Servo Motor Model & Capacity	spec	aiF12/4000	
		kW	3	
	Z axis Servo Motor Model	spec	αiF30/4000B	

	& Capacity	kW	7	
	Mill Spindle Model & Capacity (Cont./30min)	spec	-	BiI3/12000
		kW	-	3.7/5.5
	Turret Index Motor Model & Capacity	spec	BiS8/3000	
		kW	1.2	
	Servo Tailstock Motor Model & Capacitiy [Opt.]	spec	αiF8/3000B	
		kW	1.6	
Feed system	X axis travel	mm	315	
	Z axis travel	mm	495	
	Angle of slant bed	deg	Vertical	
	X axis guideway span	mm	360	
	Z axis guideway span	mm	500	
	Tailstock(B axis) guideway span[Opt.]	mm	268	
	X axis rapid traverse rate	m/min	20	
	Z axis rapid traverse rate	m/min	20	
	Maximum X axis feed thrust	N	19,792	
	Maximum Z axis feed thrust	N	56,549	
	X axis diameter	mm	36	
	X axis lead	mm	10	
	Z axis diameter	mm	40	
	Z axis lead	mm	8	
Turret	Max. number of tool [Opt.]	st.	12[BMT65]	
	Turning tool shank size	mm	25	
	Boring bar diameter	Ø	50	
	Turret index time	sec	0.2	
	Rotary tool spindle speed	rpm	-	5,000
	Tool selection	-	Random	
	Curvic coupling diameter	mm	160	
	Turret clamping force (at 40bar)	N	44,326	
	Turret driving	-	Servo motor	
Tail Stock	Tail stock travel	mm	450	
	Tail stock Diameter	Ø	110	
	T/S taper type	-	MT-05	
	Quill travel	mm	80	
Coolant	Coolant pump pressure	bar	4.5	
	Coolant pump motor	kW	0.9	
	Coolant tank capacity	ℓ	350	
Hydraulic	Hydraulic tank capacity	ℓ	14	

	Max. hydraulic pressure	bar	40	
Lubrication tank capacity		ℓ	3	
Machine Weight		kgf	7,100	
Floor Space (length x width)		mm	1670x2025	
Height		mm	2951	
Voltage Required		V	220	
Power Requirement		KVA	40	45
NC		-	FANUC 0i-TF	

CONTROLLER - *Fanuc 0i-TF*



- High-Speed and High Quality Machining Excellent Control Functions

- Focusing on Minimizing Downtime High Reliability and Easy Maintenance

-Considering the workspace and ensuring ease of turning operator pendant-type operate-box.

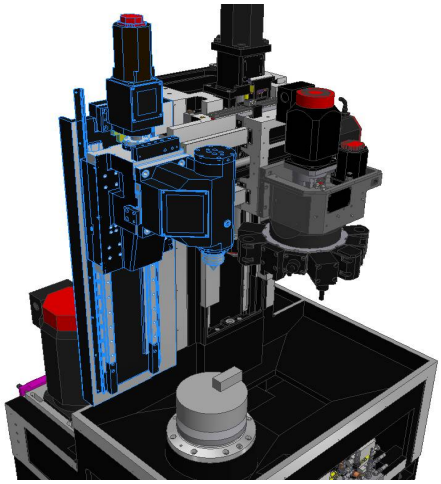
TOOL PRESETTER [Opt.]

- **MANUAL TOOL PRESETTER (Removable TYPE)**
  Manual Tool presetter serves as a monitoring system for tool wear compensation and tool-breakage detection

- **TOOL SETTING**
  Tool setting data is registered to the CNC by simply bringing the tool tip into contact with the tool sensor.

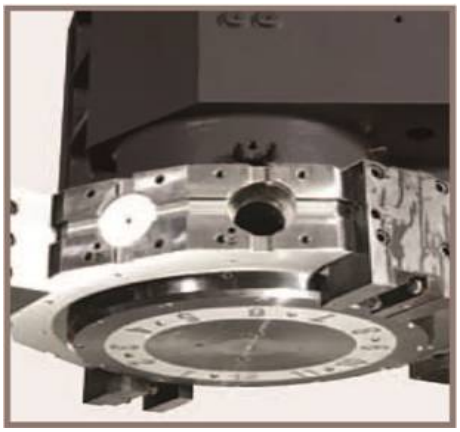
- **TOOL PRESETTER FOR PRODUCTIVITY**
  - Reduced set-up time
  - Reduced change over time from part to part
  - Reduced time due to worn inserts or broken tools

SERVO TAILSTOCK [Opt.]



- **Tailstock Drive Mechanism : Servo Motor (αiF8/3000B / 1.6kW)**
- **Tailstock travel : 450mm**
- **Tail stock Diameter : Ø110**
- **Tail stock taper type : MT-05**
- **Quill Drive Mechanism : Hydraulic**
- **Quill travel : 80mm**

RIGID TURRET DESIGN <Servo motor Driven>



The 12-station turret accepts any combination of I.D. or O.D. tool holders. Turret rotation is bi-directional and non-stop from station to station.

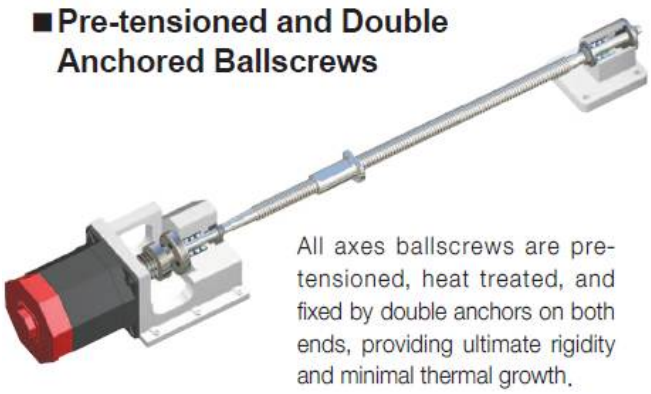
- The design incorporates a high accuracy coupling, with random selection and shortest path indexing. This reduces idle time, contributing to increased productivity

• **Turret Type**	12 Drum, 12 position turret
• **Turret Drive Method**	Servo Motor Bis 8/3000
• **Turret milling motor**	Bil3/10000 3.7/5.5 kw
Milling Spindle Speed	5,000 RPM
• **Tool Size**	
- Turning/Face holder (wedge clamp)	BMT65 - □25x25 mm
- Boring bar shank Dia.	BMT65 - Ø 50 mm
• **Index Coupling**	"Curvic" Coupling Ø 160mm 3-piece lifting type
• **Turret Clamp Force by Hydraulic**	4520 kgf (44,326 N)
• **Turret Index Time (1 step)**	0.2 s

HYDRAULIC CHUCK & CYLINDER

- **Chuck Type** — HC-12A08V-SM (SAMCHUNLLY)
- **Matching Soft / Hard Jaw** — SB12A1/HB12B1
- **Jaw Stroke Diameter** — Ø10.5 mm
- **Max. Speed of Chuck** — 3,000 rpm
- **Spindle Nose** — A2-8
- **Chuck Cylinder Type** — YH-15130RE-00 (SAMCHUNLLY)
- **Cylinder Ability**
  - **Max. Allowable Pressure** — 40.8 kg / cm^2 (40 bar)
  - ➢ **Thrust (Push / Pull)** — 6,375 kgf / 5,843 kgf (63 KN / 57 KN)

BALL SCREW



- **X Axis : YEF3610-R452-C3-750 (TIC)**
- **Z Axis : YEF4008-R749-C3-1010 (TIC)**

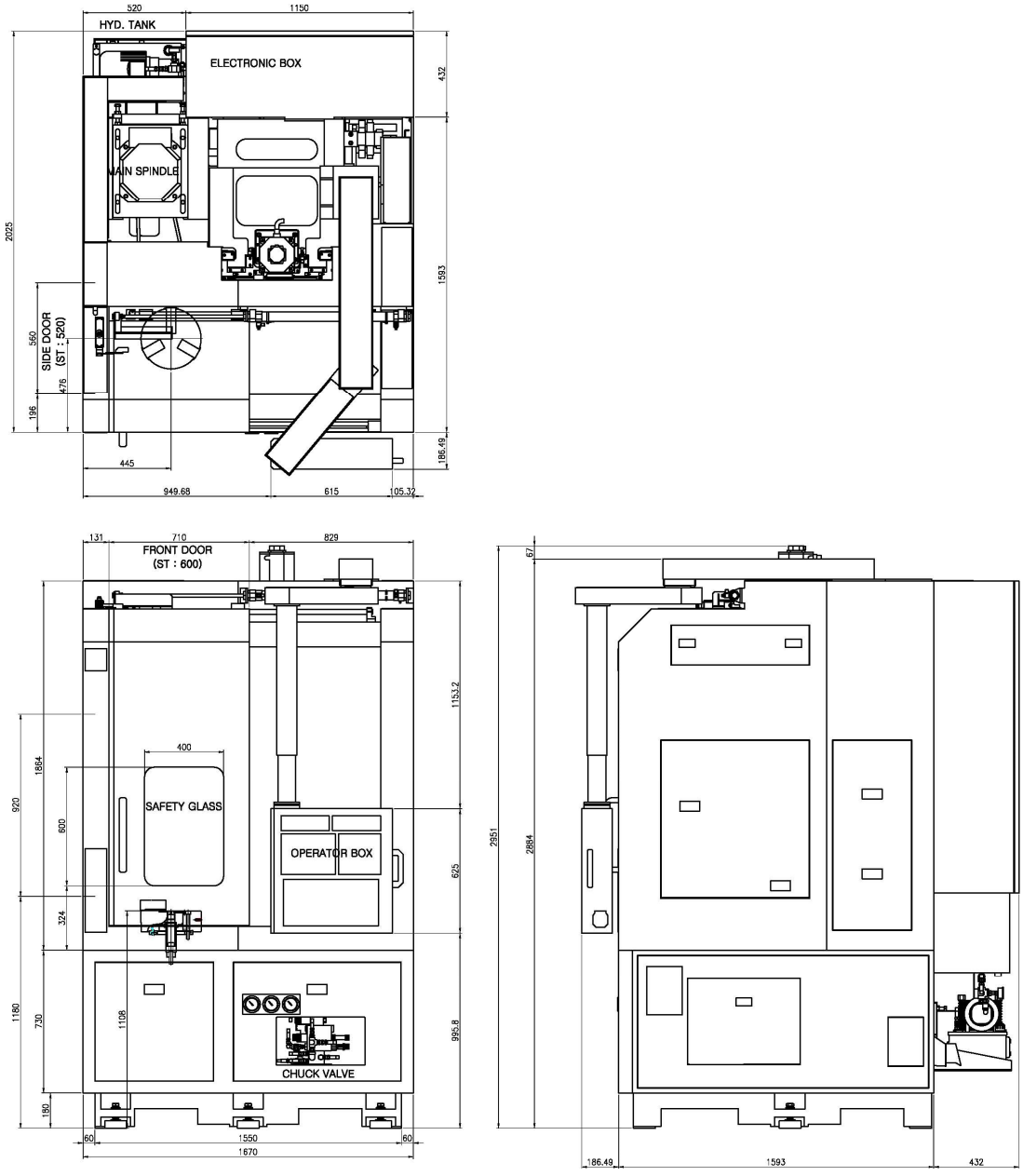
LUBRICATION

- **Pump unit** — AMZ-III-1-3 (LUBE)
- **Motor** — 19W AC100V x 50 / 60 Hz
- **Discharge flow rate** — 0.09 / 0.11 L/min
- **Discharge pressure** — 15 kgf/㎠
- **Tank capacity** — 3 Liters

COOLANT AND CHIP PAN

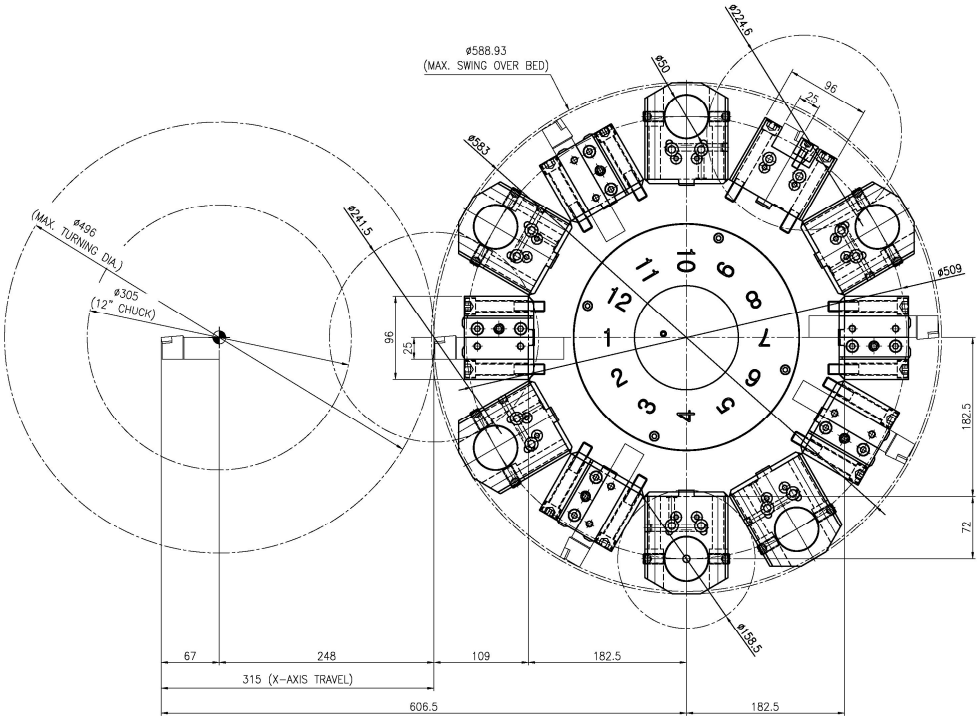
- **Type** — Removable / Independent
- **Discharge & Pressure** — 350 L/min, 4.5 kg/cm^2 at 60 Hz

MACHINE LAYOUT

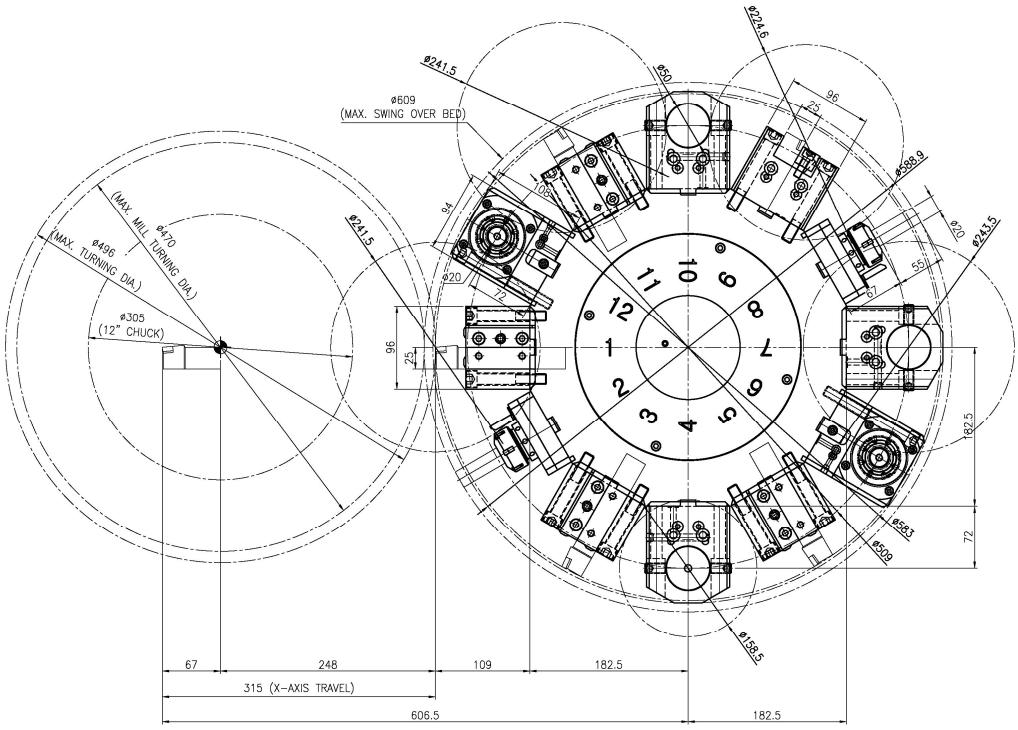


SLV450_M(RH)

TOOL INTERFERENCE



SLV450 (RH)



SLV450M(RH)

MACHINE SPECIFICATIONS

CAPACITY	
Maximum Swing (on the Bed)	Ø620mm
Turning Diameter (Max.)	Ø496mm
Maximum Turning Length	465mm
Chuck Size (*Opt.)	12 ” standard (*15”)
SPINDLE	
Spindle Nose	A2-8 (ASA)
Bore Diameter	Ø60
Main Spindle Motor	22 / 18.5 kW
Spindle Speed	3,000 rpm with 12” chuck
Spindle Torque	1,051 N.m
SLIDE & CARRIAGE	
"X" Axis Travel	315 mm
"Z" Axis Travel	495 mm
Rapid Traverse "X"	20 m/min
Rapid Traverse "Z"	20 m/min
Slide Ways (X / Z)	Box guide
TURRET	
Number of Tool Stations	12 Tools [BMT65]
Turret Indexing Speed	0.2 s
Tool Size (Turning and Facing)	□25x25
Tool Size (Boring Bar Max. Diameter)	Ø50 mm
Mill Spindle Motor	5.5 / 3.7 kW
Mill Spindle Speed	5,000 rpm
MACHINE SIZE	
Floor Space Requirements (L x W x H)	1,670 x 2,025 x 2,951
Machine Weight	7,100 kg
Power Consumption (SLV450 / SLV450M)	40kVA / 45kVA
Voltage	220V±10%, 60 Hz, 3 phase
CNC	
CNC Model	Fanuc 0i-TF
Display Unit	10.4” TFT LCD Color Monitor

STANDARD EQUIPMENT

- **10.4"TFT LCD** Color Monitor
- **Machine Work Light**
- **Complete Coolant System(4.5bar-60Hz) :** Tank capacity 350 Liters
- **Shower Coolant unit (1.5bar-60Hz)**
- **Splash Guard with rear coolant tank (Full Coverage)**
- **12 Inch Dia. Hydraulic Solid Chuck Package:**
  - Samchully with One (1) set of hard jaws, Three (3) set of soft jaws
- **Hydraulic Unit:** 1.5 kW Pump, 14 liter Tank, 40 kg/cm^2 (40 bar)
- **12Drum - 12 Position Turret**
- **Lubrication System**
- **Front,Side Door Interlock**
- **Machine Arranged for 220V ± 10%, 60Hz**
- **One (1) set of Adjusting Tools**
- **Manuals: One (1) each** (Programming, Operating, Part List, Electric circuit diagrams)
- **12D 12P Turret Standard Tooling Pack.**
- **Safety precaution name plate**
- **Leveling Unit**
- **Chuck Clamp foot switch**
- **Chuck Clamp confirmation**
- **Chuck pressure switch**
- **Main spindle orientation**

CONTROL SPECIFICATIONS

	Item	F0i-TD
Controlled axis	Controlled axes	2(X,Z)
	Cs contouring control	1(C) (SLV 450M Only)
	Max. simultaneously controlled axis	4
	Least command increment	0.001mm / 0.0001"
	Chuck and tail stock barrier	O
	Stored stroke check 1	O
	Stored stroke check 2,3	O
Interpolation/Feed functions	Linear interpolation	G01
	Circular interpolation	G02, G03
	Dwell	G04
	Polar cordinate interpolation	G12.1, G13.1
	Cylindrical interpolation	G07.1
	Polygon machining with two spindles	G50.2, G51.2 (SL V450M Only)
	Variable lead thread cutting	G34
	Continuous threading	O
	Reference position return	G28
	Reference position return check	G27
	2nd/3rd/4th reference position return	G30
	Rapid traverse rate override	F0, 25%, 50%, 100%
	Feedrate override	0 ~ 150%
	Jog Override	O
	Pulse handle feed	X1, X10, X100
	Feedrate per minute	G98
	Feedrate per revolution	G99
Spindle function	Spindle orientation	M19
	Rigid tapping	M28
	Spindle override	50 ~ 150%
Tool functions	Tool number command	T4-Digt
	Tool nose radius compensation	G40 ~ G42
	Tool offset pairs	64
	Tool geometry/wear offset	O
	Tool life management	O
	Tool path graphic display	O
	Automatic tool offset	O
	Direct input of tool offset value measured	O

	Item	F0i-TD
	B	
Program input, Editing operation	Absolute/incremental programming	O
	Multiple repetitive cycle	G70 ~ G76
	Multiple repetitive cycle II	O
	Canned cycles	G90, G92, G94
	Decimal point programming	O
	Inch/metric conversion	G20 / G21
	Program restart	O
	Sub program call	O
	Max. programmable dimension	±99999.999mm/±9999.9999"
	M function	M3 digit
	Custom macro	O
	Canned cycle for drilling	O
	Direct drawing dimension programming	O
	Programmable data input	G10
	Tape code	ISO / EIA
	Single Block	O
	Dry Run	O
	Optional block skip	O
	Workpiece coordinate system	G52 ~ G59
	G code system	A/B/C
	Number of registerable programs	400EA
Interface function Data Input/Output	Embedded ethemet	O
	USB Interface	O
	RS-232C	O
	Memory card input/output	O
	USB memory input/output	O
	Part program storage size	512Kbyte(1280m)
Setting and display	Alarm & Operator history display	O
	Run hour and parts count display	O
	Display spindle & servo overload	O
	Self-diagnosis function	O
	Extended part program editing	O
	Display screen	10.4" color
	External message	O
	Multi-language display	O

OPTIONAL EQUIPMENT

- Auto Door
- External Work Counter
- Linear scale (X/Z axis)
- 3 Step Patrol Lamp
- High Pressure Coolant (7, 10, 14.5, 20 bar - 60Hz)
- Chip Conveyor (Rear)
- Chip Bucket
- Chuck Air Blower
- Tool Presetter(manual type)
- Spindle gear box(2 step)
- Air blower
- Special Chuck
- Air gun
- Oil skimmer
- Dual pressure chucking
- Chuck coolant
- Coolant gun
- Coolant chiller
- Coolant pressure switch
- Coolant level switch
- Mist collector
- Soft Jaw (1 set, 3 each)
- Hard Jaw (1 set, 3 each)
- Transformer