SMEC

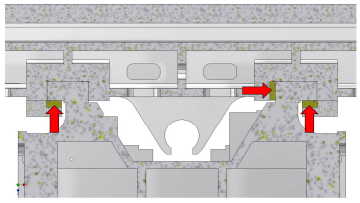
PL 800VM(RH,LH)

VERTICAL TURNING CENTER

MACHINE CONSTRUCTION / FEATURES

BED

- ***The main spindle body of PL800V 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

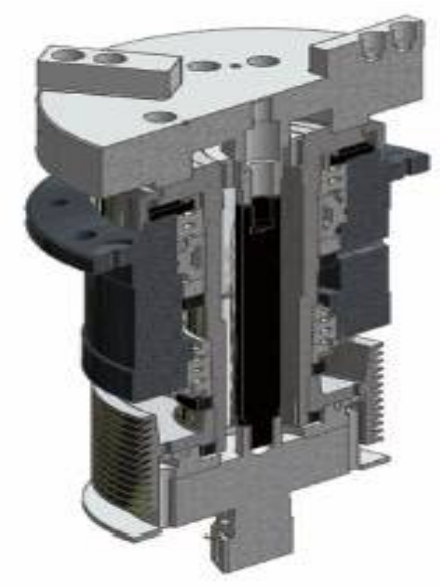
The machine headstock utilizes a precision ground spindle that is machined in a temperature-controlled environment and clean room assembled.

- **Spindle Nose** ASA A2-11
- **Spindle Bore Dia.** Ø 104
- **Spindle Speed (18” Chuck)** Max 2,000 rpm
- **Spindle Drive Method** Belt (*Gear)
- **Spindle Bearings I.D. (Front)** Ø160

Front: Double Row Taper Roller Bearing
(NN3032MBKRCC0P4 (NSK))

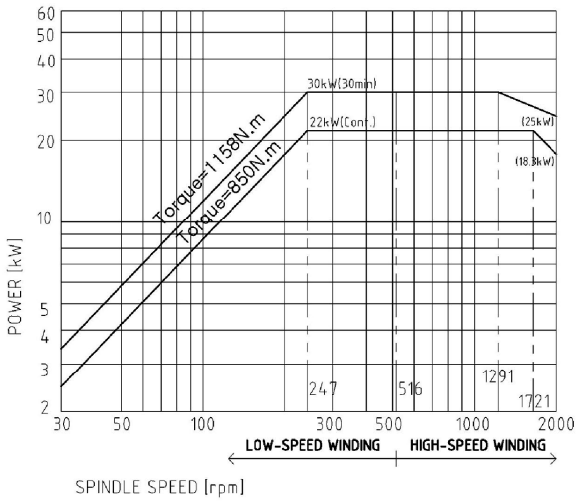
Front: Double Thrust Angular Ball Bearing
(160TAC20XPN7+LC6 (NSK))

Rear: Double Row Taper Roller Bearing
(NN3028MBKRCCPP4 (NSK))

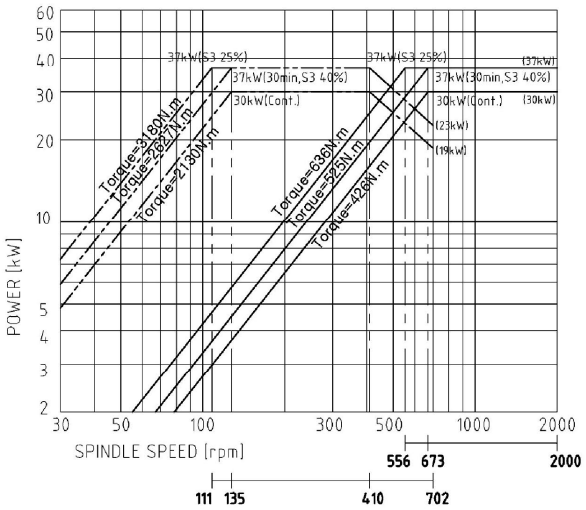


SPINDLE POWER-TORQUE DIAGRAM

■ Main spindle (Std.)



■ Main spindle with 2step Gear box



The powerful Fanuc aiIP50/6000 (30/22kW) [*aiI30/6000 (37/30kW) + Gear box] spindle motor system will ensure heavy duty machining within a wide spindle speed range.

MACHINE SPECIFICATIONS

Classification		Unit	PL800VM(RH,LH)
Capacity	Swing over the bed	Ø	890
	Swing over Cross slide	Ø	740
	Max. turning diameter	Ø	810
	Max. milling diameter	Ø	624
	Max. turning length	Ø	775
Main Spindle	Max. spindle speed	rpm	2,000
	Spindle nose	ASA	A2-11
	Spindle bearing hole diameter (Front)	mm	160
	Bearing type (Front)	-	Taper Roller Thrust Angular ball
	Bearing type (Rear)	-	Taper Roller
	Draw tube ID	mm	-
	Spindle bore diameter	mm	104
	Maximum spindle torque [Opt.]	N.m	1,158 [3,180]
	Standard chuck size[Opt.]	inch	18” [15",21",24"]

Motor	Main Spindle Motor Model [Opt.] & Capacity (Cont./30min)	spec	aiIP50/6000 [aiI30/6000]
		kW	30/22 [37/30]
	X axis Servo Motor Model & Capacity	spec	aiF22/3000
		kW	4
	Z axis Servo Motor Model & Capacity	spec	aiF40/3000B
		kW	9
	Mill Spindle Model & Capacity (Cont./30min)	spec	aiI6/10000
		kW	5.5/7.5
	Turret Index Motor Model & Capacity	spec	βis12/3000
		kW	1.8
Feed system	X axis travel	mm	430
	Z axis travel	mm	800
	Angle of slant bed	deg	Vertical
	X axis guideway span	mm	430
	Z axis guideway span	mm	650
	Tailstock(B axis) guideway span[Opt.]	mm	-
	X axis rapid traverse rate	m/min	20
	Z axis rapid traverse rate	m/min	20
	Maximum X axis feed thrust	N	36,191
	Maximum Z axis feed thrust	N	73,513
	X axis diameter	mm	40
	X axis lead	mm	10
	Z axis diameter	mm	50
	Z axis lead	mm	10
Turret	Max. number of tool [Opt.]	st.	12[BMT75]
	Turning tool shank size	mm	32
	Boring bar diameter	Ø	63
	Turret index time	s	0.15
	Rotary tool spindle speed	rpm	4,000
	Tool selection	-	Random
	Curvic coupling diameter	mm	200
	Turret clamping force (at 35bar)	N	56,077
	Turret driving	-	Servo motor
Coolant	Coolant pump pressure	bar	4.5
	Coolant pump motor	kW	0.9
	Coolant tank capacity	ℓ	300
Hydraulic	Hydraulic tank capacity	ℓ	50
	Max. hydraulic pressure	bar	50

Lubrication tank capacity	ℓ	3
Machine Weight	kgf	11,200
Floor Space (length x width) [with Chip Conveyor & Coolant tank]	mm	2,050x2,822 [SIDE : 3,311 x 2,822] [REAR : 2,050 x 3,539]
Height	mm	3,491
Voltage Required	V	220
Power Requirement	Kva	53(*61)
NC	-	F 0i-TD

CONTROLLER - *Fanuc Oi-TD*

- High-Speed and High Quality Machining Excellent Control Functions

- 实现高速、高质量的加工强大的控制功能

- Focusing on Minimizing Downtime High Reliability and Easy Maintenance

- 追求更便于使用丰富的 CNC 功能和优异的操作性

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

RIGID TURRET DESIGN <Servo motor Driven>

■ PL 800VM (Mill Turret)

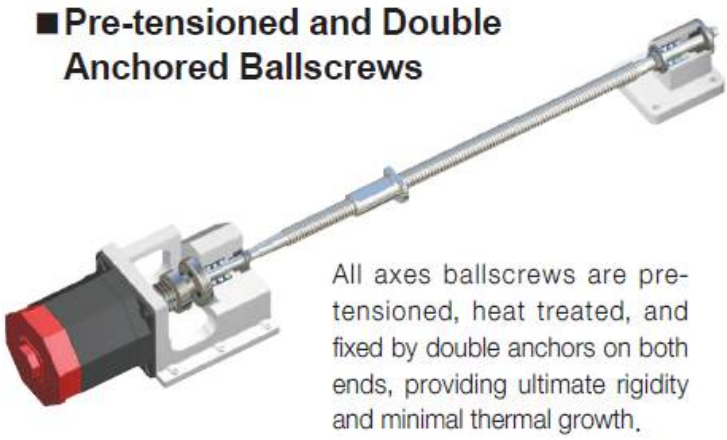
- The 12-station turret accepts any combination of I.D. or O.D. tool holders. Turret rotation is bi-directional and non-stop from station to station.
- The design incorporates a high accuracy coupling, with random selection and shortest path indexing. This reduces idle time, contributing to increased productivity

• **Turret Type**	12 Drum, 12 position turret
• **Turret Drive Method**	Servo Motor βis 12/3000
• **Turret milling motor**	ail6/10000 5.5/7.5 kw
Milling Spindle Speed	4,000 RPM
• **Tool Size**	
- Turning/Face holder (wedge clamp)	BMT75 - □32x32 mm
- Boring bar shank Dia.	BMT75 - Ø 63 mm
• **Index Coupling**	"Curvic" Coupling Ø 200mm 3-piece lifting type
• **Turret Clamp Force by Hydraulic**	5,722 kgf (56,077 N)
• **Turret Index Time (1 step)**	0.15 s

HYDRAULIC CHUCK & CYLINDER

- **Chuck Type** — HC18A11V-22T-SM (SAMCHUNLLY)
- **Matching Soft / Hard Jaw** — SB15N1/HB15N1
- **Jaw Stroke Diameter** — Ø16 mm
- **Max. Speed of Chuck** — 2,000 rpm
- **Spindle Nose** — A2-11
- **Chuck Cylinder Type** — YH-20135RE (SAMCHUNLLY)
- **Cylinder Ability**
  - **Max. Allowable Pressure** — 40.8 kg / cm^2 (40 bar)
  - ➢ **Thrust (Push / Pull)** — 11,573 kgf / 10,738 kgf (114 KN / 105 KN)

BALL SCREW



- **X Axis : YEF4010-R632-C3-963 (TIC)**
- **Z Axis : YEF5010-R1007-C3-1322 (TIC)**

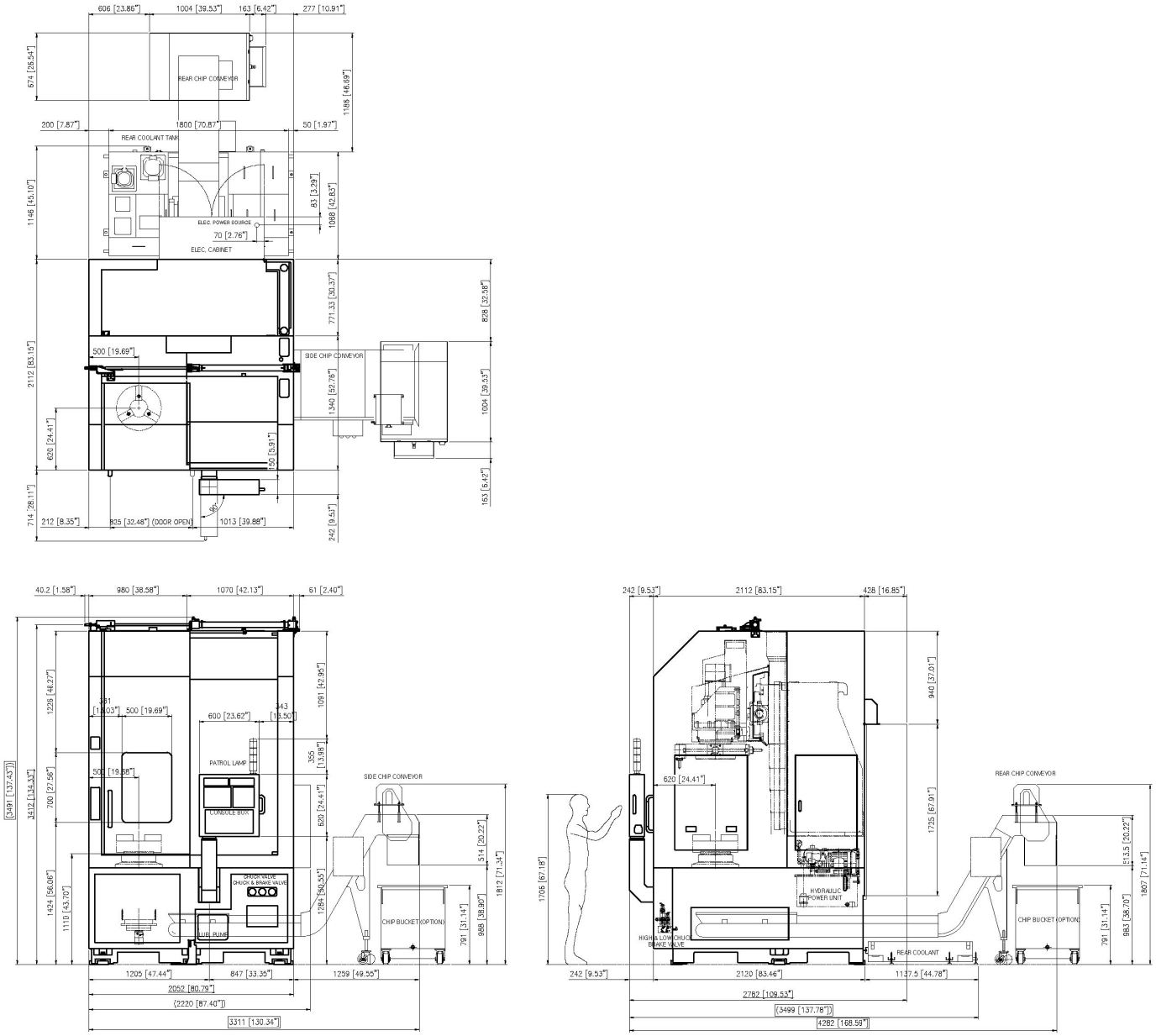
LUBRICATION

- **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

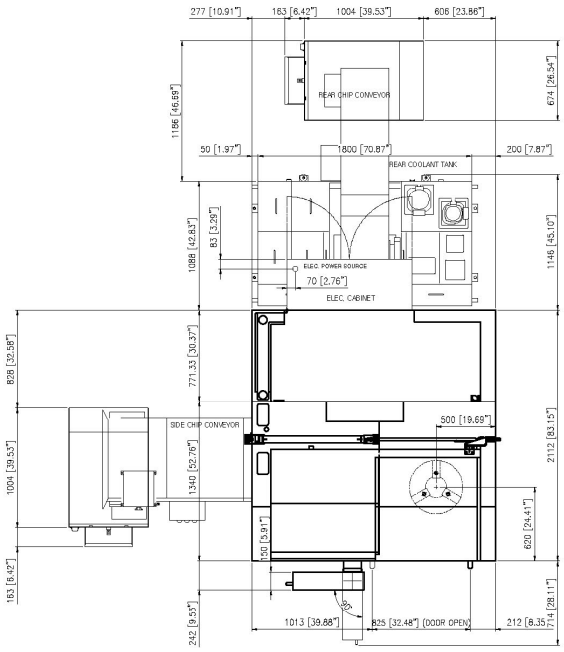
COOLANT AND CHIP PAN

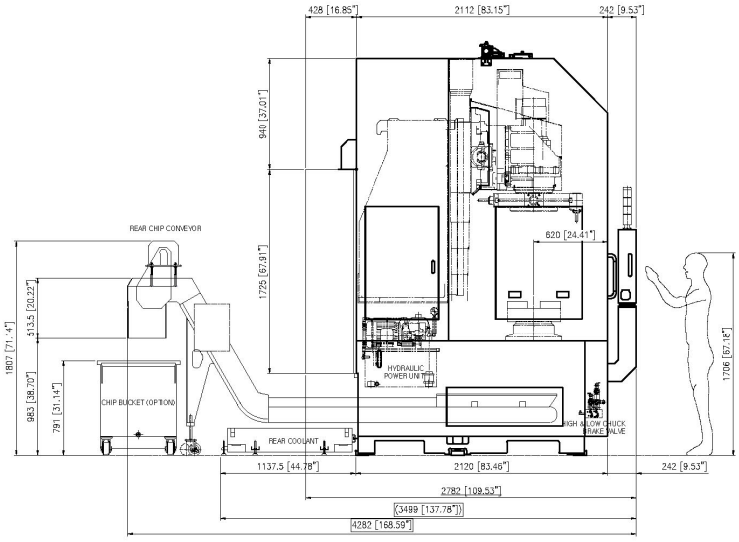
- **Type** — Removable / Independent
- **Discharge & Pressure** — 300 L/min
  4.5 kg/cm^2 at 60 Hz

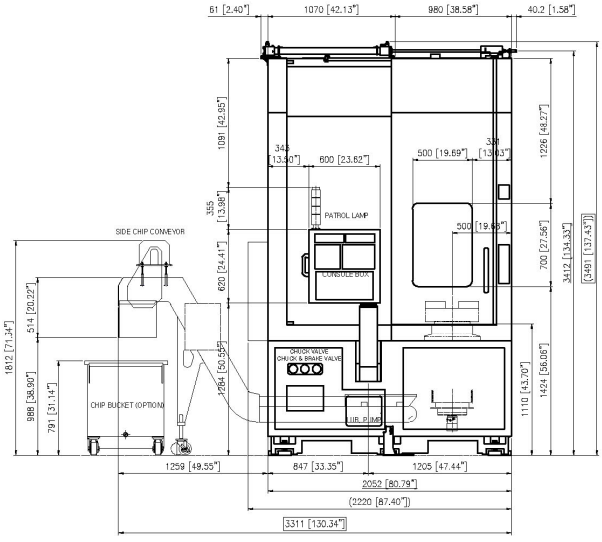
MACHINE LAYOUT



800VM(RH)


277 [10.91"]
163 [6.42"]
1004 [39.53"]
606 [23.86"]
REAR CHIP CONVEYOR
674 [26.54"]
1196 [46.69"]
50 [1.97"]
1800 [70.87"]
200 [7.87"]
REAR COOLANT TANK
85 [3.29"]
1088 [42.83"]
1146 [45.10"]
ELEC. POWER SOURCE
70 [2.76"]
ELEC. CABINET
828 [32.58"]
771.33 [30.37"]
SIDE CHIP CONVEYOR
500 [19.69"]
1091 [39.53"]
1340 [52.76"]
2112 [83.15"]
620 [24.41"]
155 [6.10"]
163 [6.42"]
242 [9.55"]
101.3 [39.88"]
825 [32.48"] (DOOR OPEN)
212 [8.35"]
1714 [28.11"]


428 [16.85"]
2112 [83.15"]
242 [9.53"]
940 [37.01"]
620 [24.41"]
REAR CHIP CONVEYOR
1725 [67.91"]
1807 [71.14"]
513.5 [20.22"]
983 [38.70"]
791 [31.14"]
CHIP BUCKET (OPTION)
HYDRAULIC POWER UNIT
REAR COOLANT
HIGH & LOW CHUCK BRAKE VALVE
1706 [67.16"]
1137.5 [44.78"]
2120 [83.46"]
242 [9.53"]
2782 [109.53"]
(3499 [137.78"])
4282 [168.59"]


61 [2.40"]
1070 [42.13"]
980 [38.58"]
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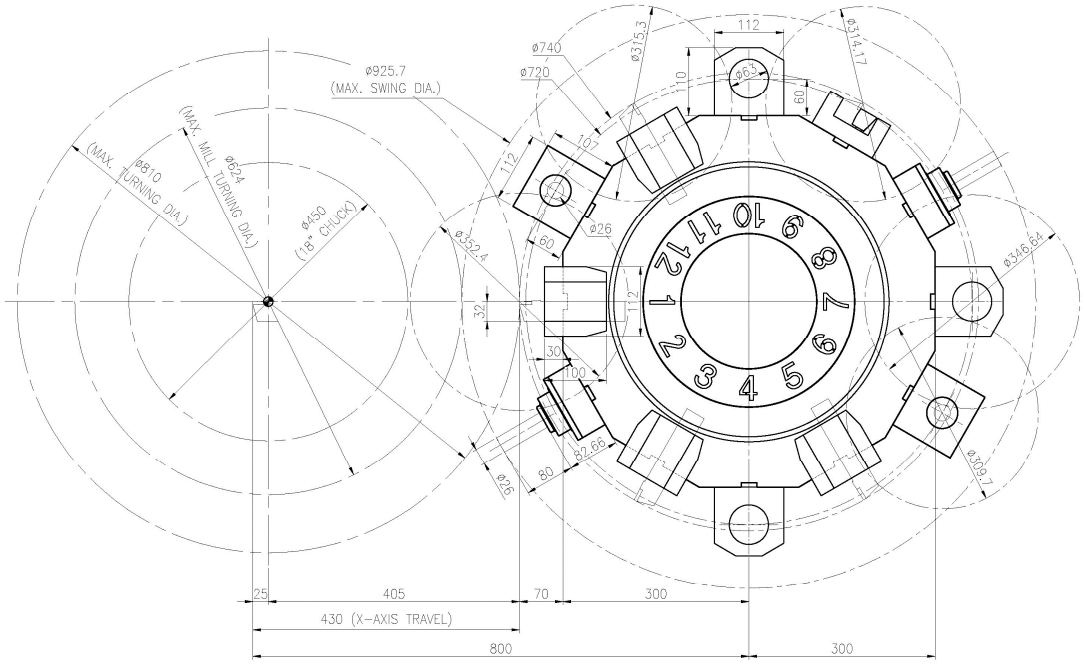
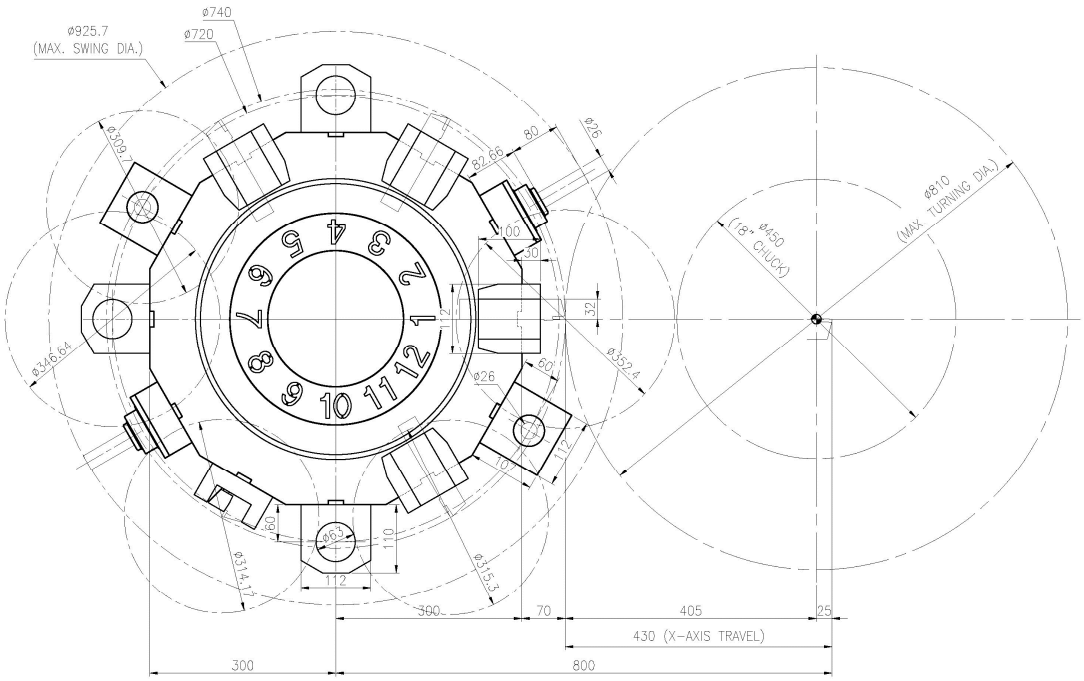
1091 [42.95"]
342 [13.50"]
600 [23.62"]
500 [19.69"]
1226 [48.27"]
355 [13.98"]
PATROL LAMP
620 [24.41"]
SIDE CHIP CONVEYOR
700 [27.56"]
3412 [134.33"]
(3491 [137.43"])
CONSOLE BOX
1812 [71.34"]
514 [20.22"]
CHECK VALVE
CHECK & BRAKE VALVE
1264 [50.55"]
1110 [43.70"]
1424 [56.06"]
988 [38.90"]
791 [31.14"]
CHIP BUCKET (OPTION)
AIR PUMP
1259 [49.55"]
847 [33.35"]
1205 [47.44"]
2052 [80.79"]
(2220 [87.40"])
3311 [130.34"]

800VM(LH)

TOOL INTERFERENCE



PL800VM(RH)



PL800VM(LH)

MACHINE SPECIFICATIONS

CAPACITY	
Maximum Swing (on the Bed)	Ø890mm
Turning Diameter (Max.)	Ø810mm
Maximum Turning Length	800mm
Chuck Size	18 ” standard (*15, 21, 24”)
SPINDLE	
Spindle Nose	A2-11 (ASA)
Bore Diameter	Ø104
Main Spindle Motor (Opt.)	30 / 22 kW (*37/30 kW)
Spindle Speed	2,000 rpm with 18” chuck
Spindle Torque (Opt.)	1,158 N.m (*3,180 N.m)
SLIDE & CARRIAGE	
"X" Axis Travel	430 mm
"Z" Axis Travel	800 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 [BMT75]
Turret Indexing Speed (Full)	0.15 s
Tool Size (Turning and Facing)	□32x32
Tool Size (Boring Bar Max. Diameter)	Ø63 mm
MACHINE SIZE	
Floor Space Requirements (L x W)	2,050 x 2,822
Machine Weight	11,200 kg
Power Consumption	53kVA(*61kVA)
Voltage	220V±10%, 60 Hz, 3 phase
CNC	
CNC Model	Fanuc 0i-TD
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 300 Liters
- **Shower Coolant unit (1.5bar-60Hz)**
- **Splash Guard with rear coolant tank (Full Coverage)**
- **18 Inch Dia. Hydraulic Solid Chuck Package:**
  - Samchully with One (1) set of hard jaws, Three (3) set of soft jaws
- **Hydraulic Unit:** 3.7 kW Pump, 50 liter Tank, 50 kg/cm^2 (50 bar)
- **12Drum - 12 Position Turret**
- **Lubrication System**
- **Front 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**
- **Standard tool**
  - **Face holder** **1ea**
  - **O.D holder** **4ea**
  - **Boring bar holder** **2ea**
  - **Straight milling head tool holder** **2ea**
  - **Angular milling head tool holder** **2ea**
  - **U-drill holder** **1ea**
  - **Boring bar sleeve: Ø50** **1ea**
  - **Boring bar sleeve: Ø40** **1ea**
  - **Boring bar sleeve: Ø32** **1ea**
  - **Boring bar sleeve: Ø25** **1ea**
  - **Boring bar sleeve: Ø20** **1ea**
  - **Boring bar sleeve: Ø16** **1ea**
  - **Drill socket MT3,MT4,MT5** **1ea**
  -

CONTROL SPECIFICATIONS

	Item	F0i-TD
Controlled axis	Controlled axes	2(X,Z)
	Cs contouring control	1(C) (PL 800VM 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 (PL 800VM 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 B	O

	Item	F0i-TD
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, Side type)
- 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
- Face holder
- O.D holder
- Straight milling head tool holder
- Angular milling head tool holder
- U-drill holder
- Boring Bar Holder 63(2-1/2”)
- Boring Bar Sleeve 50(2”)
- Boring Bar Sleeve 45(1-1/2”)
- Boring Bar Sleeve 32(1-1/4”)
- Boring Bar Sleeve 25(1”)
- Boring Bar Sleeve 20(3/4”)
- Boring Bar Sleeve 16(5/8”)
- Drill Socket (MT#3, MT#4 MT#5,)

STANDARD TERMS AND CONDITIONS

Warranty

The machine is warranted against defects in parts, material and workmanship for a period of twelve months after the date of installation. The control, servomotors and main spindle motor are warranted against defects in parts, material and workmanship for a period of twenty-four months after the date of installation.

Installation

Installation of the machine/control system is supervised by SMEC factory trained servicemen without charge to customer. Initial training on machine/control operation and programming will also be done at the time of the machine installation. Additional training in N/C programming will be available on a scheduled basis.

Delivery

Free on Board, Port of Entry, Duty paid, approximately two to four months upon receipt of firm purchase order with down payment.

Payment Terms

L/C AT SIGHT from the date of shipment from port.

Thank you for the opportunity to quote your machining needs with the SMEC PL800VM Horizontal Turning Centers.

After an examination of this quotation, should you have any questions, or desire additional information, please do not hesitate to contact us.

Sincerely,