



SPM TOOLS

# *Safal Turn-4*

CNC TURNING CENTER



High Precision & Highly Productive  
High Speed & Competitive Price



# Safal Turn-4

## CNC TURNING CENTER



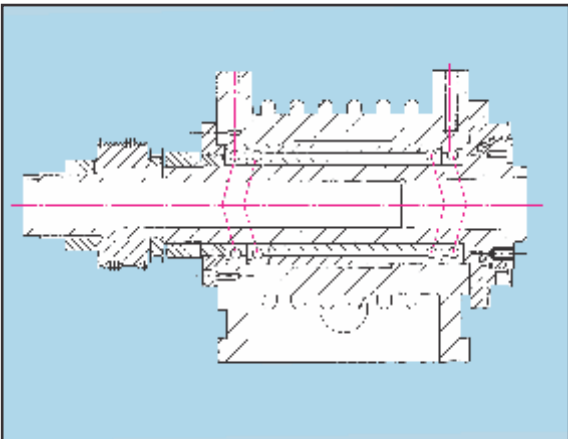
The Safal Turn - 4 is a high precision cost effective Slant Bed CNC Turning Center for machining small and medium size components. This machine has superior features like rigid spindle arrangement using precision pre-loaded angular contact ball bearings, programmable tailstock quill, 8-station bi-directional turret, linear motion guideways and absolute encoders for both axes.



### **Structure**

Rigid Slant Bed ergonomically designed for easy chip and coolant flow, It is logically ribbed to provide rigidity. Chip conveying facility is provided to the side of the machine.

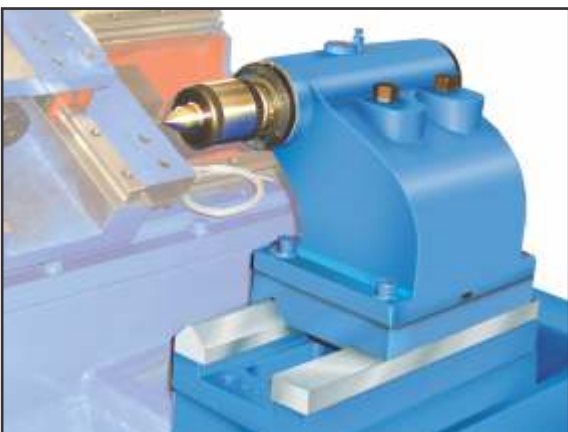
The saddle is well supported on 30 deg. slant bed instead of slant carriage, which ensures high rigidity as saddle guideways are closely spaced to bed guideways.



### **Headstock**

The Head stock is assembled in a clean room environment. Instead of cartridge, direct quick driven gearless headstock is designed for high speed and high stiffness.

The spindle is supported on precision pre-loaded angular contact ball bearings.



### **Tailstock**

Rigid Tailstock consists of hydraulically operated quill. The quill can be programmed by M-functions through the program or moved by foot pedal. The quill and the body are independently movable.

The tailstock is mounted on V and flat guideways. Widely spaced guideways and heavy duty design of the tailstock ensures rigidity.



## Turret

Totally enclosed robust bi-directional tool turret offers fast and accurate indexing.

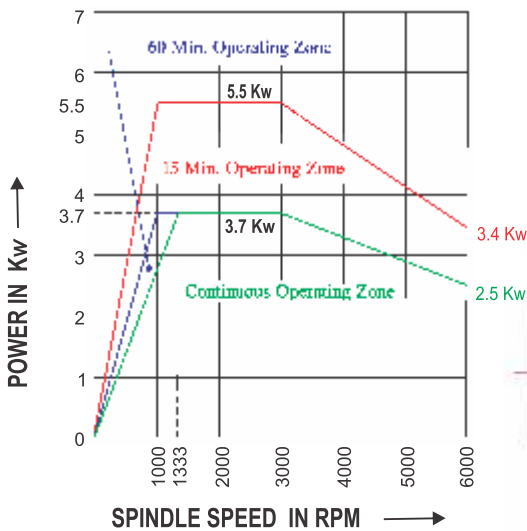
The disc also provides coolant to the tool point. Electrical elements are conveniently located in a separate area, free from oil and coolant.

## Axes

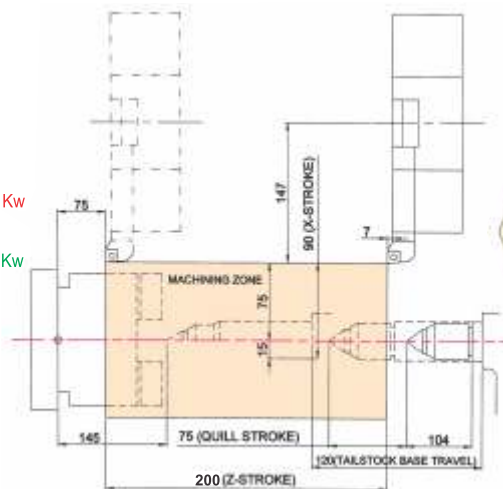
X and Z axis features high precision C1 & C3 class pre-loaded ball screws respectively supported by precision class ball screw support bearings. Widely spaced, precision class linear motion guideways for both axes. Ball screws are protected by steel covers.

Automatic centralized metered lubrication is provided to guideways and ball screws. Absolute encoder for both axes eliminates limit switches and setting dogs.

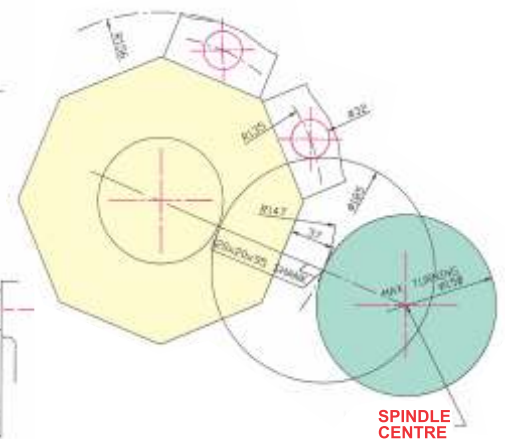
### SPINDLE POWER-SPEED DIAGRAM



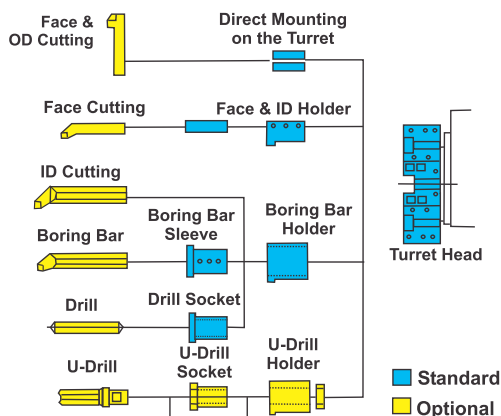
### MACHINING ZONE



### TURNING CAPACITY

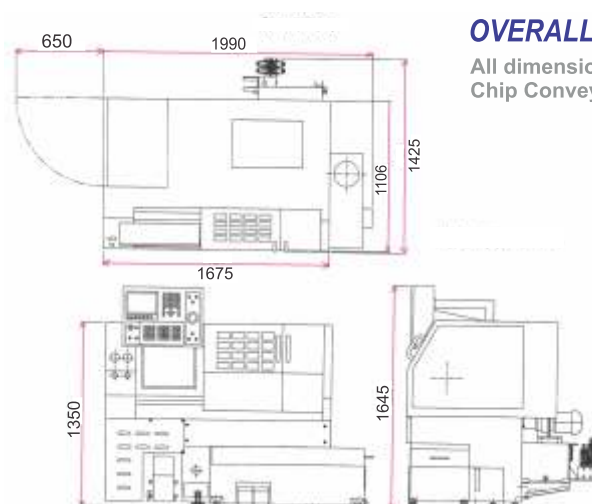


### TOOLING DIAGRAM



### OVERALL VIEWS

All dimensions are in mm  
Chip Conveyor (Optional)



# Specifications (Safal Turn 4)

## Capacity

Swing over bed	mm	290
Admit between centres	mm	235
Max. turning dia.	mm	150
Max. turning length	mm	200

## Main Spindle

Spindle nose		A2-4
Bore through spindle	mm	36
Bar capacity through spindle	mm	25
Chuck size	mm	135
Front bearing bore	mm	65
Spindle motor rated power (Continuous rating/15 min rating)	KW	3.7/5.5
Speed range	rpm	50-6000
Full power range (15 min rating)	rpm	1000-3000

## Axes Slides

X-axis stroke	mm	90
Z-axis stroke	mm	200
Feed rate	mm/min	0-10,000
Rapid traverse rate X & Z axes	m/min	25
Ball screw dia. x pitch X & Z axes	mm	25x10
Rated torque X & Z axes	Nm	3.5

## Tailstock

Quill diameter	mm	50
Quill stroke	mm	75
Taper in quill		MT3
Tailstock base travel	mm	120

## Turret

No. of stations	Nos.	8
Max. boring bar dia.	mm	32
Tool cross section	mm	20x20

## Accuracy

Positioning	mm	0.010
Repeatability	mm	± 0.003

## Installation Data

Basic M/c weight (approx.)	Kg	2500
Basic M/c Dimensions (approx.)	mm	1990x1425x1645
Power Requirement	KVA	12

Due to continuous improvement of the product, SPM reserves all rights to change the above specifications without any prior notice.

## CNC System : FANUC OiMATE TD

### Features

- 7.2" LCD monochrome display
- Direct drawing dimension programming including angles and insertion of chamfers and radius
- Tool nose radius and length compensation
- Absolute / Incremental programming
- Linear and circular interpolation
- Background editing
- Multiprogram storage with program identification
- Self-diagnostics and alarm display
- Constant surface speed
- Rigid tapping cycles
- Thread cutting cycles
- Face grooving cycles
- Multiple repetitive cycles
- Backlash compensation
- Metric/Inch programming
- Program memory of 640 meters (256 K)
- External interface PCMCIA card, RS232 port
- Simultaneously controlled 2 axes
- Manual data input
- Hardware and software locking for program protection
- Servo HRV2 control

### Standard Machine Features

- Rigid direct spindle assembly without cartridge
- AC spindle and axes drives
- Linear motion guideways for both axes
- Programmable tailstock quill
- High speed bi-directional 8-station tool turret
- Automatic centralized lubrication system
- Coolant system
- Machine lighting system
- Turning tool holders (8 Nos.)
- Boring bar holders (3 Nos.)
- Axial tool holder (1 No.)
- Set of sleeves
- Service tool kit

### Optional Machine Features

- Hollow cylinder for Bar work
- Chip conveyor
- Panel cooler
- Patolight for programme end and alarms
- Bar feeder
- Program simulation & graphics



**SPM TOOLS**

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