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ISO 9001



ISO 14001



AGENT



# AT-510 SERIES

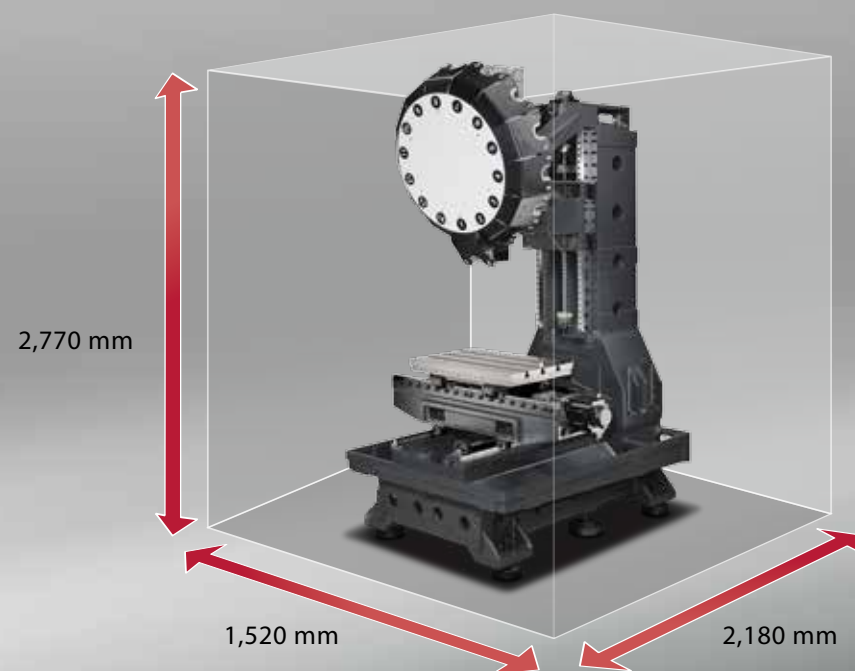
High Speed Drilling & Tapping Center

# AT-510 *Series*

## High Speed Drilling & Tapping Center

Based on the technical foundation of AWEA excellent quality vertical machining centers, AT-510 high speed drilling and tapping center is designed for automobile, electronic industry, and etc., providing with high speed, high precision, and high stability processing feature. AT-510 is having the best performance / cost ratio among the machining centers in the same range, which can meets your various needs for today and tomorrow.

- High speed, high accuracy, low vibration direct-driven spindle design, providing 12,000 / 15,000 / 20,000 rpm spindle speed to fulfill variety of precision processing requirements.
- 3 axes uses roller type linear guide ways to provide maximum feed rate up to 50 m/min. and with great control and movement.
- High performance ATC system with synchronous unclamping type tools changer provides fast and steady tool change capability.



- The compact machine size takes less footprint which gives the factory efficient space usage.



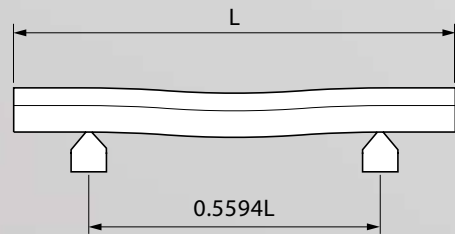


# AT-510 Series

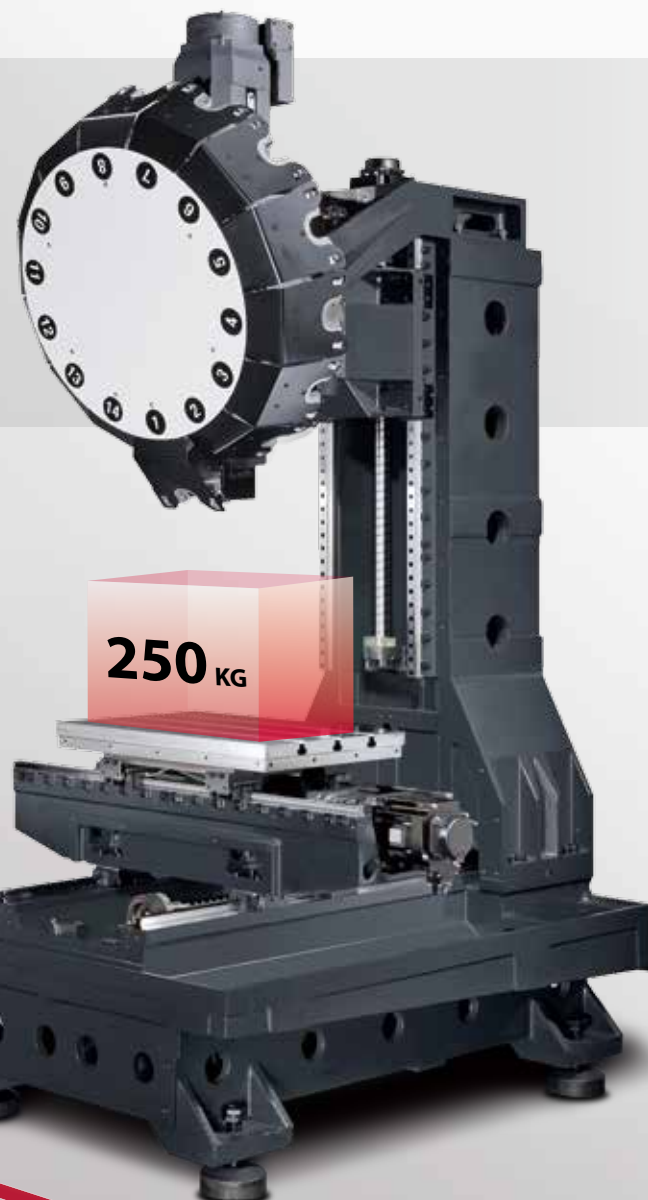
## High Speed Drilling & Tapping Center

- The Finite Element Method ( FEM ) provides optimal machine designing and light-weighted structure advantages while ensuring high machine rigidity.
- The one-piece MEEHANITE casting bed and Y-shaped column provides a solid support to ensure ultimate dynamic accuracy.
- The contact surface of the column and bed are all hand scraped to ensure precision assembly, strong structure and balanced load.

Optimal positions – BESSEL POINTS



- With the concept of the BESSEL POINTS, The Y-axis saddle are firmly supported to ensure minimum deformation which increases the dynamic accuracy of the working table.



810 mm



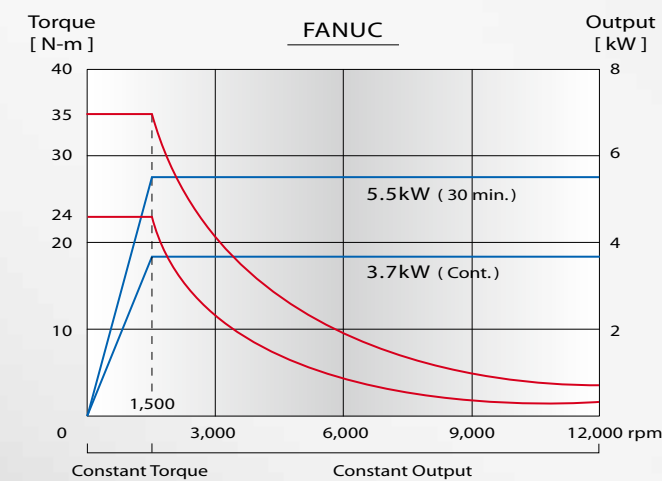
## High Performance Spindle

- The direct-driven system efficiently blocks the heat that are generated from the motor which reduces thermal deformation while increasing working accuracy during long hours.
- The high precision beveled ball bearings adopted with optimal span and two-support points design increases rigidity and durability for the spindle.
- The motors and spindles use high rigidity coupling to reduce vibration caused by the lateral force from the spindle which ensures working stability and accuracy.

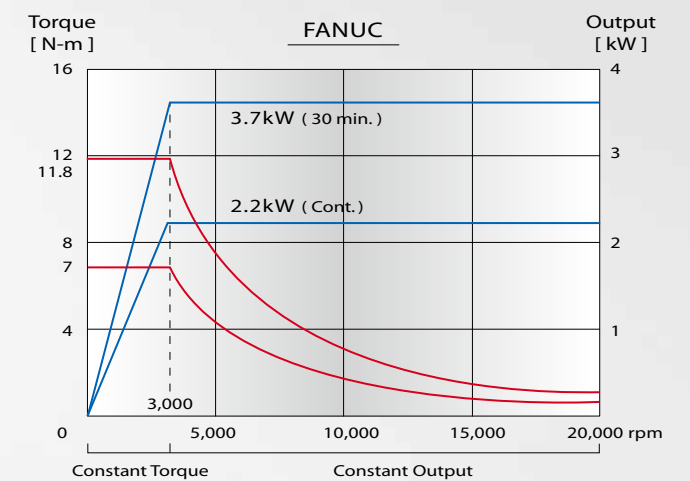


- Offers 12,000 / 15,000 / 20,000 rpm to meet various working requirements.

12,000 rpm Direct-driven Spindle



20,000 rpm Direct-driven Spindle







## High Axial Feed Rate System

**60** m/min.  
( Opt. )

- 3 axes feeding system use absolute servo direct-driven motor to provide powerful thrust and fast acceleration and deceleration. This can efficiently lower motor load and reduce heat while ensuring maximum performance and accuracy.
- The motor mount and casting are of one-piece design which can distribute the cutting stress evenly and increase axial overall rigidity.
- X / Y axes fastest feed rate can reach up to 50 m/min. 60 m/min. is also available ( Opt. ).

## High Efficiency Chip Disposal System

- The high pressure water jet chip removal system can quickly remove the chips out of the working zone. Then the large hatchback chip trough transports the chips to the chip collector at the back of the machine.
- The chip collector and cooling liquid tank are detachable which is easy to maintain.
- The chips flush coolant system is also available ( Opt. ), which effectively removes chips and keeps the working zone clean.





## High Speed ATC System



- 14T ATC system and synchronous unclamping type tool changer design, that can calculate the shortest tool change path to reduce tool change time and increase working efficiency.



## Variety of Control Systems



### MITSUBISHI M70V

- 8.4-inch color LCD unit
- 64-bit CPU
- NANO interpolation
- Compact flash card interface in the CNC main unit
- Machining program capacity is to the standard of 512 KB ( 1,280 m )
- Lock ahead block up to 168 blocks
- USB port for data transfer
- Fast Ethernet



### SIEMENS SINUMERIK 828D

- 8.4-inch color LCD unit
- 80-bit NANO accuracy
- Perfect work-piece surface with advanced surface
- Lock ahead block up to 50 blocks
- NURBS interpolation
- Compact flash card interface in the CNC main unit
- USB port for data transfer
- Network disk drive

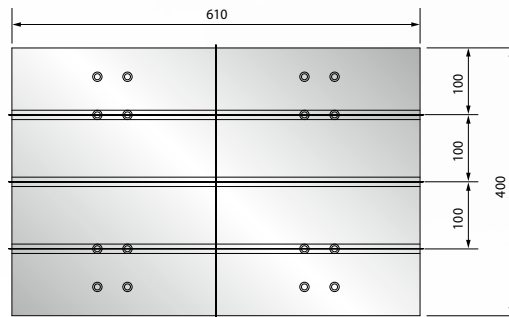


### FANUC Oi-MD

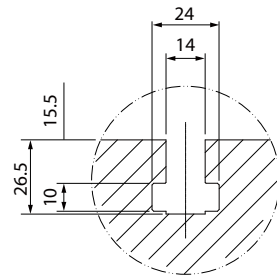
- 8.4-inch color LCD unit
- Spindle and servo HRV3 control
- NANO interpolation
- AI contour control, option AI contour control II
- Compact flash card interface in the CNC main unit
- USB port for data transfer
- Fast Ethernet

# Dimensions

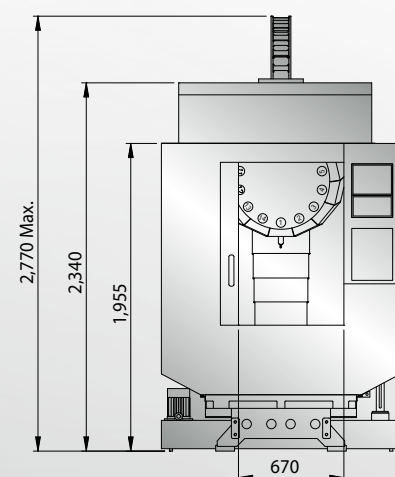
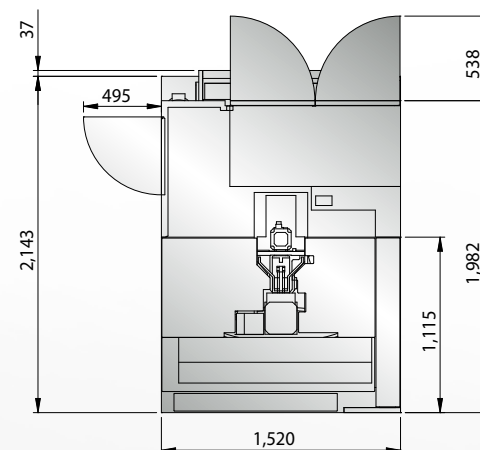
## Table Dimensions



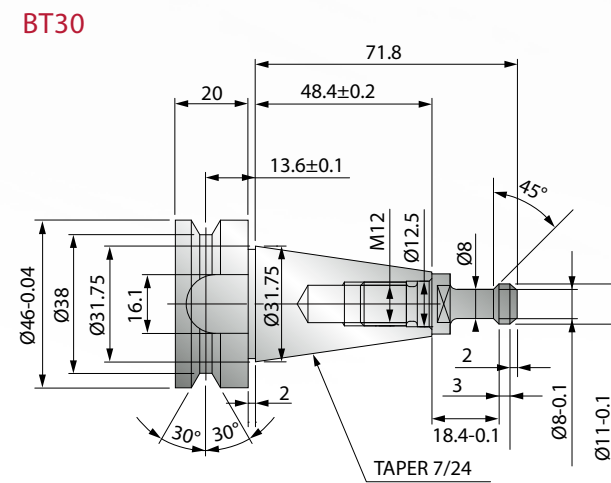
## T-slot Dimensions



## Machine Dimensions



## Tool Shank and Pull Stud Dimensions



( Unit : mm )

**AT-510**

### Specifications

X-axis travel	mm	510
Y-axis travel	mm	400
Z-axis travel	mm	350
Distance from spindle nose to table top	mm	100 ~ 450
Distance from spindle nose to column	mm	473

### Working Table

Table size ( X x Y )	mm	610 x 400
Table load capacity	kg	250

*Spindle*

Spindle taper		BT30
Spindle motor ( cont. / 30 min. )	kW	3.7 / 5.5
Spindle speed	rpm	12,000

## Feed rate

X / Y / Z axes rapid feed rate	m/min.	50 / 50 / 45 ( 60 / 60 / 45 Opt. )
Cutting feed rate	m/min.	20

*Tool Magazine*

Tool magazine capacity	T	14
Max. tool length ( from gauge line)	mm	200
Max. tool weight	kg	3
Max. tool diameter / adj. pocket empty	mm	Ø 90 / Ø 150

## Accuracy

Positioning accuracy ( JIS B 6338 )	mm	0.003 / 300
Positioning accuracy ( VDI 3441 )	mm	P = 0.01
Repeatability ( JIS B 6338 )	mm	± 0.002
Repeatability ( VDI 3441 )	mm	P <sub>s</sub> ≤ 0.008

## General

Control system	FANUC Oi-MD / MITSUBISHI M-70 / SIEMENS 828D	
Power requirement	kVA	15
Pneumatic pressure requirement	kg/cm <sup>2</sup>	6
Coolant tank capacity ( pump )	liter ( HP )	160 ( 1 )
Machine weight	kg	2,000
Machine dimensions ( L x W x H )	mm	1,520 x 2,180 x 2,770

Specifications are subject to change without notice.

## Standard Accessories

- Spindle air curtain
- Centralized automatic lubricating system
- Roof enclosure splash guard
- Coolant equipment system ( Pump & tank )
- Foundation bolt kit
- Heat exchanger for electrical cabinet
- Alarm light
- Air gun
- Automatic power off system
- Tool box

## Optional Accessories

- Direct-driven spindle  
BT30 15,000 / 20,000 rpm
- Caterpillar type chip conveyor and bucket
- Chips flush coolant system
- Oil skimmer
- Spindle oil cooler
- The 4<sup>th</sup> axis interface
- Spindle cooling system
- Coolant through spindle ( Form A )