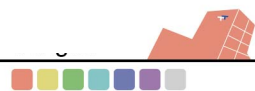


## THE ACME OF HIGH SPEED MACHINING

Wide machine bed structure with highly rigid column design provides stability during machining. With various spindle choices, TMV-850/1050 series will satisfy the needs of high speed, high precision machining. Furthermore, Spindle thermal distortion compensation is available. It not only monitors the temperature change in machine structure and feeding axis, but also engages the compensation in spindle for enhancing the machining stability.

- ▶ TMV-850/1050 series machines are designed for high speed machining. High speed BT-40 spindle with high torque motor, plus spindle cooler system (optional) integrated with coolant through spindle (optional) allows long-term accurate machining.
- ▶ TMV-850Q/QII and TMV-1050Q/QII are the upgraded versions that allow the rapid traverse up to 48 m/min. The rapid automatic tool changer shortens the T to T time to 2 seconds. These will provide the best investment return to the customers.
- ▶ Excellent C type mechanical structure design provides high machine rigidity. It also assures excellent positioning accuracy during high speed and precision machining.
- ▶ The integrated ergonomic working table design and friendly operating panel improves operator efficiency.





## Machine structure

### Stroke (X/Y/Z axis) :

TMV-850A/Q [TMV-1050A/Q] 850[1050]/500/530 mm

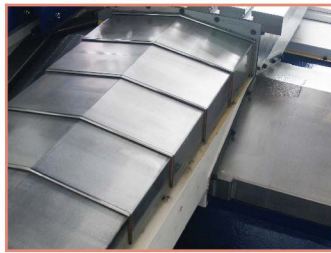
TMV-850AII/QII [TMV-1050AII/QII] 850[1050]/600/530 mm

### Rapid traverse (X/Y/Z axis) :

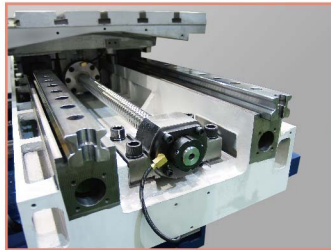
TMV-850A/850AII/1050A/1050AII 36/36/30 m/min

TMV-850Q/850QII/1050Q/1050QII 48/48/48 m/min

#### Chip-proof telescopic cover



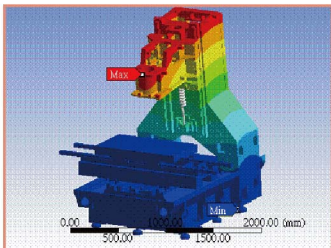
#### Ball screw & rigid linear guide way



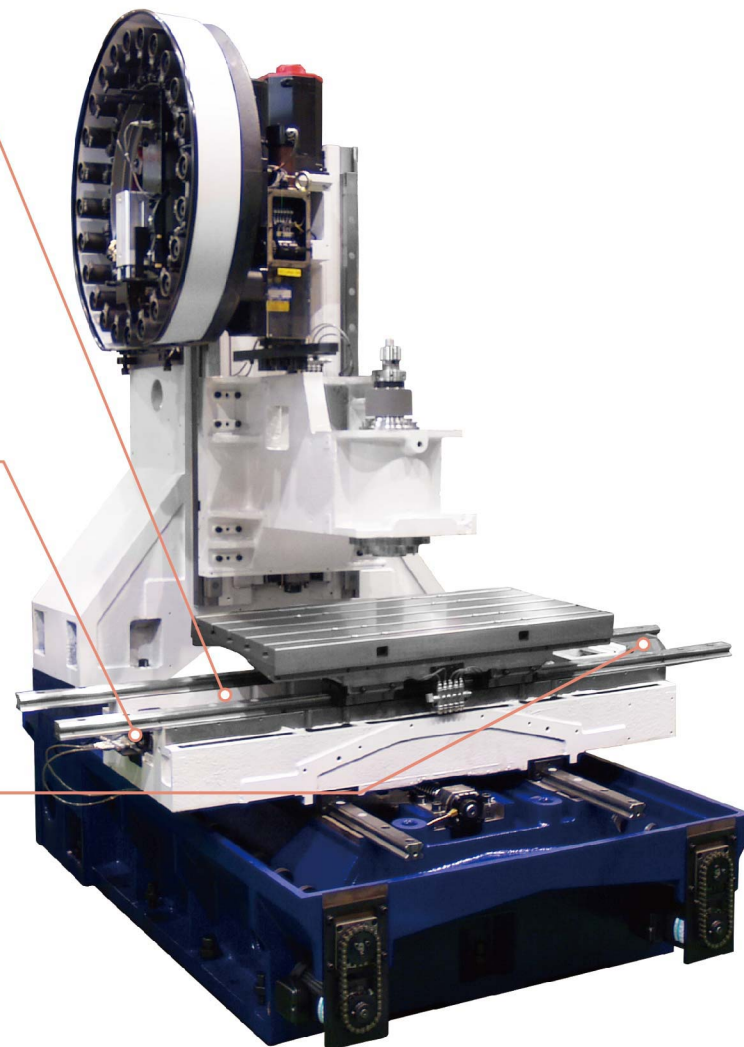
#### Servo motor



#### Finite Element Analysis – FEA



FEA is employed in the machine design to ensure structural integrity. The result is high rigidity, high accuracy, and excellent machine productivity

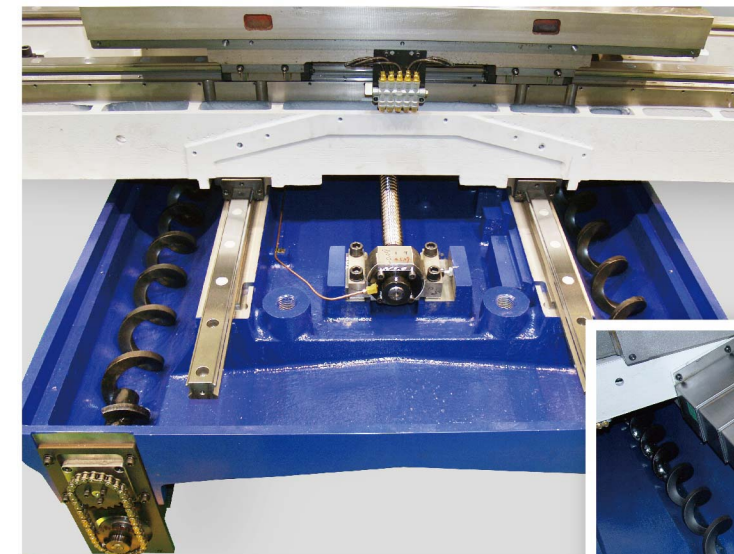


## Preloaded Ball Screws

All ball screws of X/Y/Z axis are preloaded to reduce thermal distortion and ensure the machine's continuous performance and accuracy. Axis thrust bearings are automatic lubricated for long life.



## Chips removal design



Dual chip augers are standard, and the flushing system is optional for increasing the ability of chip disposal and decreasing the cleaning time.



## Ergonomic design

The ergonomic design facilitates the operator in monitoring the production process during program editing. It reduces mistakes and improves the working efficiency.





# Spindle

## Belt type spindle

Standard

Belt-type : **8,000** rpm

Optional

Belt-type : **10,000** rpm

- Spindle is connected with motor by belt
- Coolant through spindle is available
- Spindle cooler is available



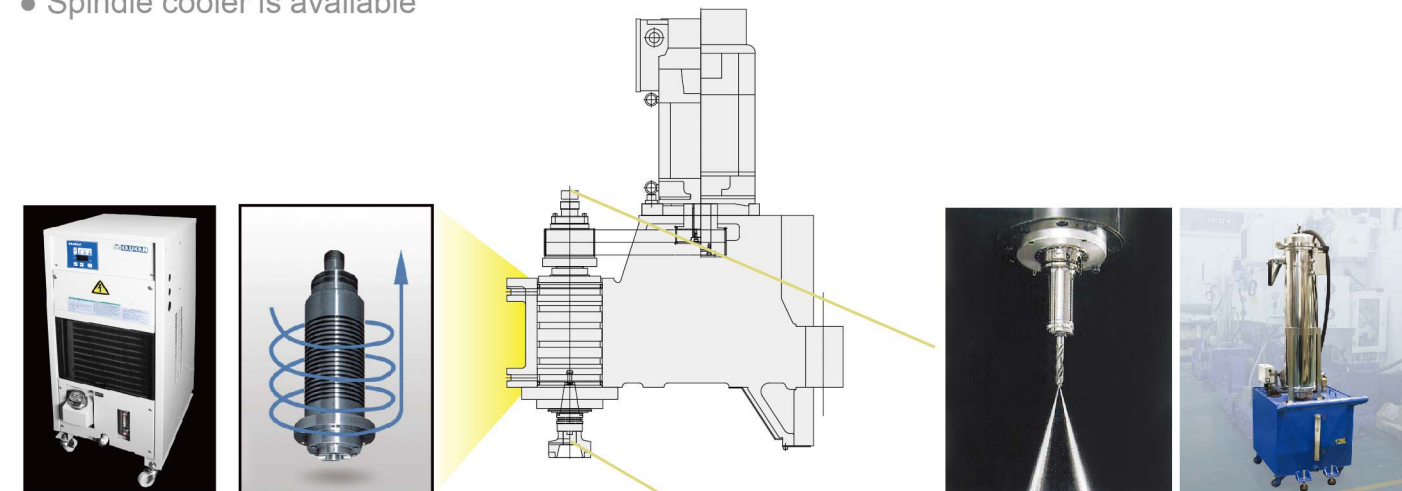
## Direct-drive type (All and QII series machine models)

Optional Direct-drive type

**10,000** rpm

**12,000** rpm

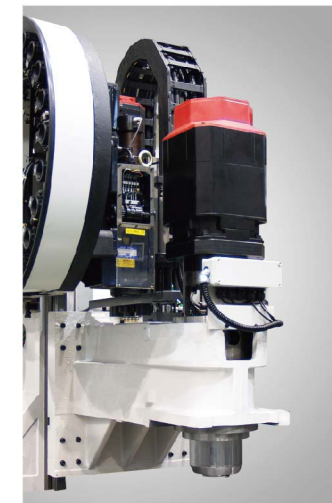
- Spindle is connected with motor by coupling
- Spindle cooler is available
- Coolant through spindle is available (αT8 motor only)



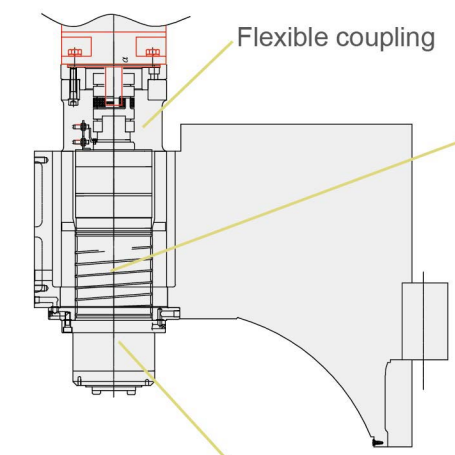
Spindle cooler (optional) is used to control the spindle temperature to match the machine temperature. This prevents the spindle from overheat, thus minimizing thermal distortion.

Spindle with air purge blow and labyrinth design avoids the coolant and the metal chips into the spindle.

The coolant through spindle is available. It improves machining speed and extends the tool life. Moreover, it allows efficient metal chip removal during deep hole machining and improves the workpieces' precision.



Direct-drive motor



Spindle with air purge blow and labyrinth design avoids the coolant and the metal chips into the spindle.

Spindle cooler - optional



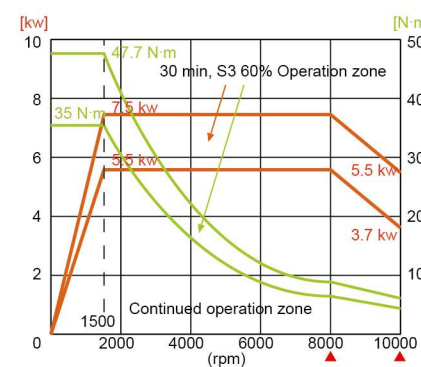
Coolant through spindle (C.T.S) - optional (αT8 motor only)



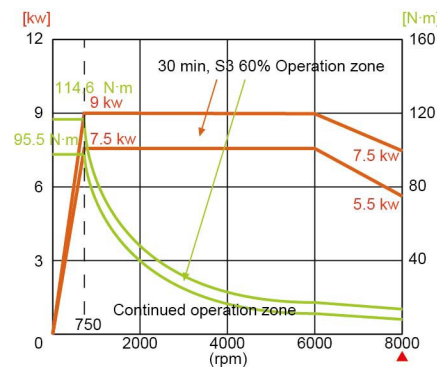
## Spindle output and torque chart

Belt type spindle

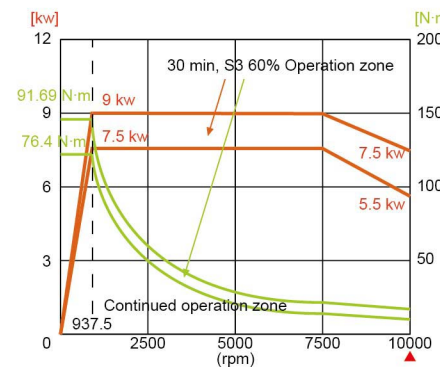
Std. α6 (7.5/5.5 kw) 8000 rpm (Opt. 10000 rpm)



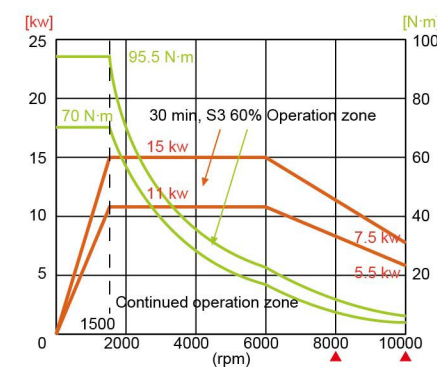
Opt. αP15 (9/7.5 kw) 8000 rpm



Opt. αP15 (9/7.5 kw) 10000 rpm

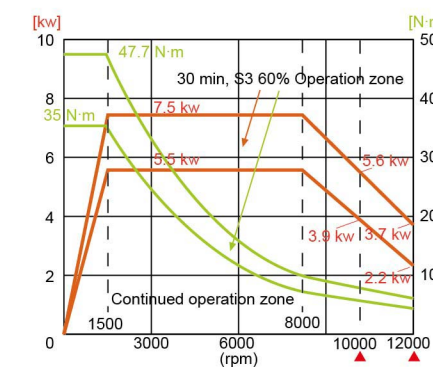


Opt. α12 (15/11 kw) 8000/10000 rpm

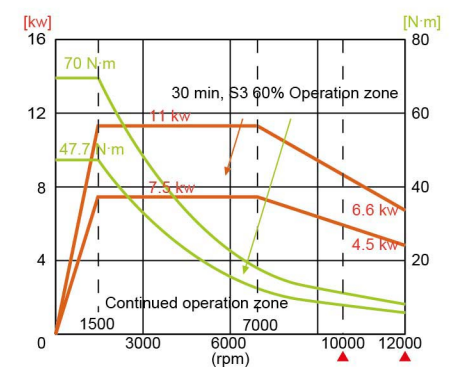


All series (Direct-drive type)

Opt. α6 (7.5/5.5 kw) 10000/12000 rpm



Opt. αT8 (11/7 kw) 10000/12000 rpm





## Automatic Tool Changer

Tool capacity **24** tools

TMV-850A/All TMV-1050A/All

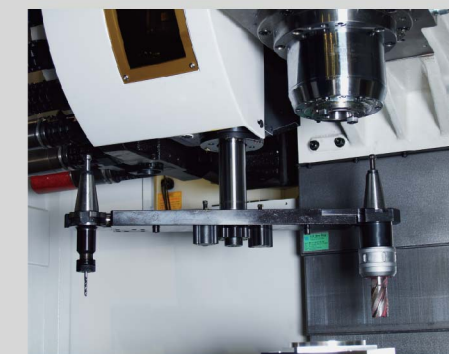
Tool changing time T to T : **3.0** sec

C to C : **4.7** sec

TMV-850Q/QII TMV-1050Q/QII

Tool changing time T to T : **2.0** sec

C to C : **3.0** sec



In TMV-850/1050 series, the standard capacity of the tool magazine is 24 pieces. It uses an arm type rapid tool changer to shorten idle time and achieves the goal of high efficiency machining.

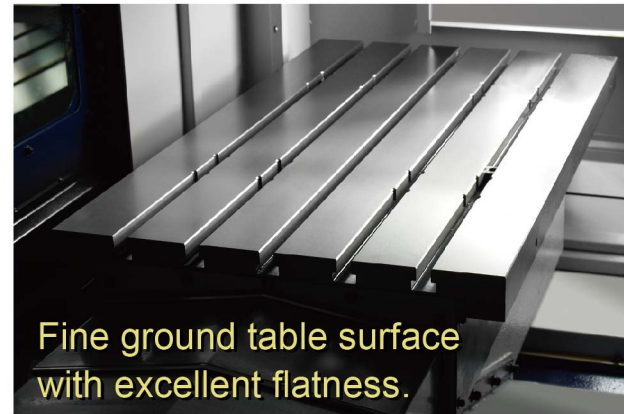
The TMV-850Q/QII and TMV-1050Q/QII have an upgraded tool changer. With the fast tool changing time, the machining efficiency is improved and obtains the highest cost-performance ratio.



## Table

Table size (L×W)		Unit : mm			
	850A/Q	850AII/QII	1050A/Q	1050AII/QII	
L	950	950	1100	1100	
W	500	600	500	600	

Working area (L×W×H)		Unit : mm			
	850A/Q	850AII/QII	1050A/Q	1050AII/QII	
L	850	850	1050	1050	
W	500	600	500	600	
H	530	530	530	530	



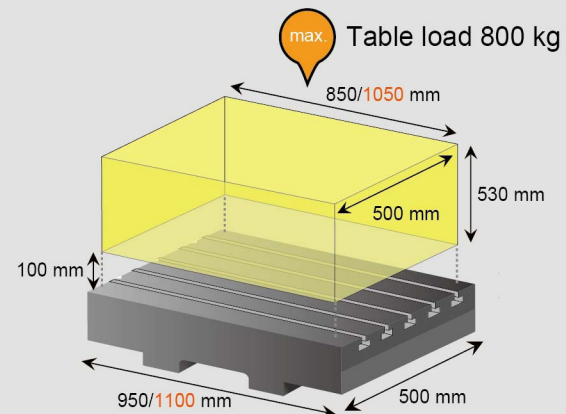
Maximum table load

800 kg

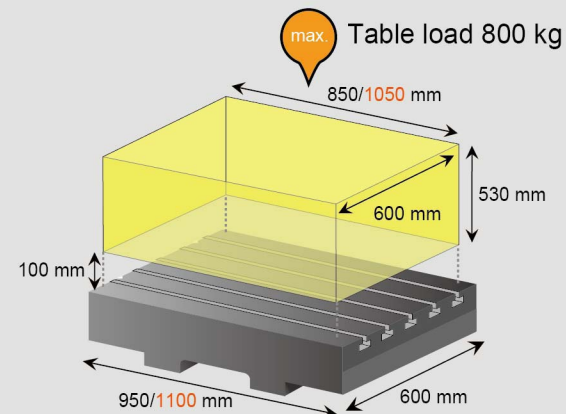
Table height from floor

900 mm

TMV-850A/Q, TMV-1050A/Q working area

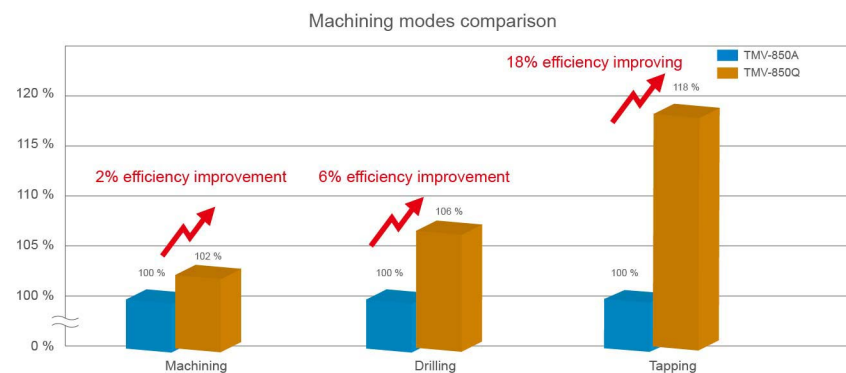
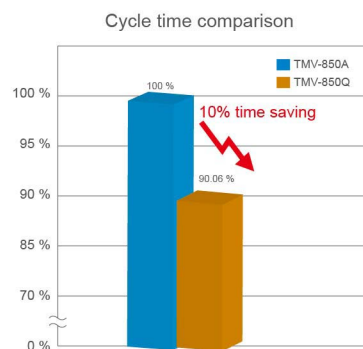


TMV-850AII/QII, TMV-1050AII/QII working area

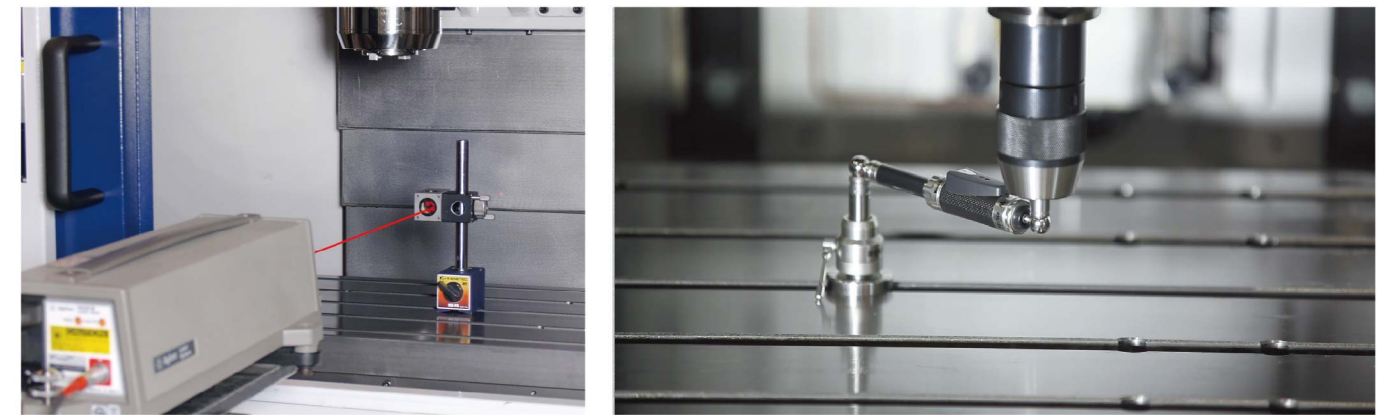


## Machining efficiency improvement test

The below graphs are the comparison between TMV-850A and TMV-850Q. In the practical applications, the TMV-850Q saves 10% more machining time than the TMV-850A. Furthermore, to compare the different machining modes, the TMV-850Q has better performance than TMV-850A, especially in tapping.



## Precision testing



For assuring assembly precision, Tongtai not only sets internal controls through standard operating procedures, but also has established self-checking lists for each machine assembly. Engineers can follow the lists to enforce setting and testing for approving the quality of products.

## Customization (optional)



With an excellent R&D team, Tongtai is able to offer customization with optional solutions.

## Examples of application





# Specification

# Optional accessories

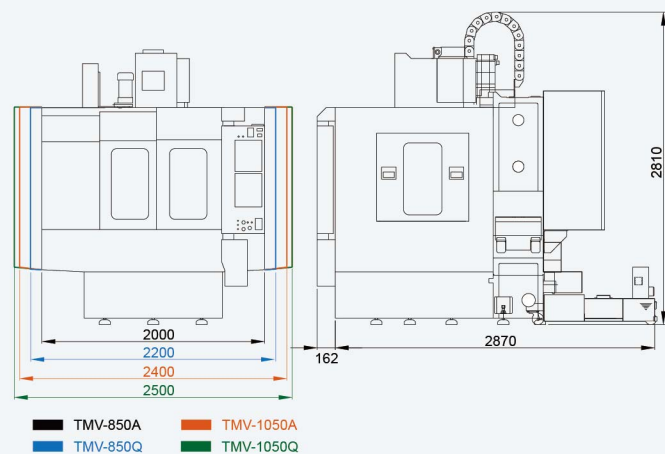


Item	Specification	Unit	TMV-850A [TMV-1050A]	TMV-850AII [TMV-1050AII]	TMV-850Q [TMV-1050Q]	TMV-850QII [TMV-1050QII]
Table	Table size (L×W)	mm	950 [1100]×500	950 [1100]×600	950 [1100]×500	950 [1100]×600
	Max. table load	kg	800			
	Table height from floor	mm	900			
	T-slot (size×No.)	mm	18×5			
Spindle	Spindle taper		7/24 Taper No.40			
	Spindle speed	rpm	Belt type 8000 (Opt. 10000) Direct drive type (Opt.12000)			
	Stroke	X/Y/Z axis stroke	mm	850 [1050]/500/530	850 [1050]/600/530	850 [1050]/500/530
Feed	Spindle nose to table	mm	100-630			
	X/Y/Z axis rapid traverse	m/min	36/36/30		48/48/48	
ATC	Cutting feedrate	mm/min	1-10000		1-12000	
	Tool shank		BT-40			
	Tool capacity	pc	24			
	Max. tool diameter	mm	Ø89			
	Max. tool diameter (w/o adjacent tool)	mm	Ø125			
	Max. tool length	mm	250			
	Max. tool weight	kg	7			
Motors	Spindle motor (50% ED)	kw	7.5/5.5 (Opt. 9.0/7.5, 15/11)			
	X/Y/Z axis servo motor	kw	3.0/3.0/4.0		4.0/4.0/5.5	
	Coolant motor	kw	0.37			
Controller		FANUC 0i-M (Opt. 31i)				
Machine size	L×W×H	mm	2870×2000×2810 [2870×2400×2810]	3000×2000×2810 [3000×2400×2810]	2870×2200×2810 [2780×2500×2810]	2870×2200×2810 [2780×2500×2810]
	Weight	kg	6300 [6800]	6500 [7000]	6300 [7100]	6300 [7100]

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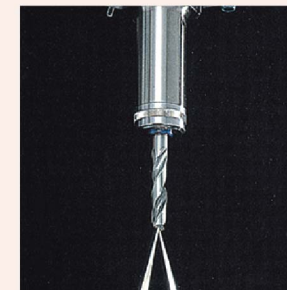
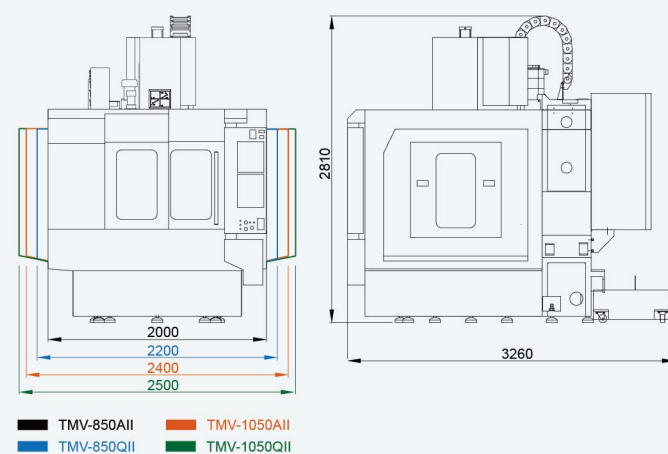
• TMV-850A [TMV-850Q] [TMV-1050A][TMV-1050Q]

Front view Side view



• TMV-850AII [TMV-850QII] [TMV-1050AII] [TMV-1050QII]

Front view Side view Unit: mm



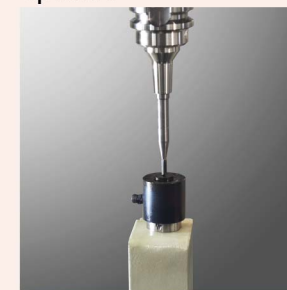
Coolant through spindle



Spindle cooler



4th axis



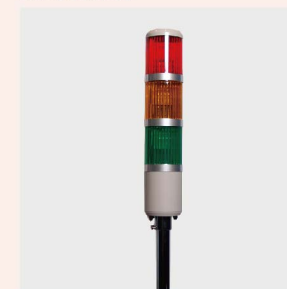
Tool breakage detector



Oil skimmer



Chip conveyor



Tri-color warning light



Oil mist collector



Coolant gun



A/C for electrical cabinet



Transformer



Sub-operation box