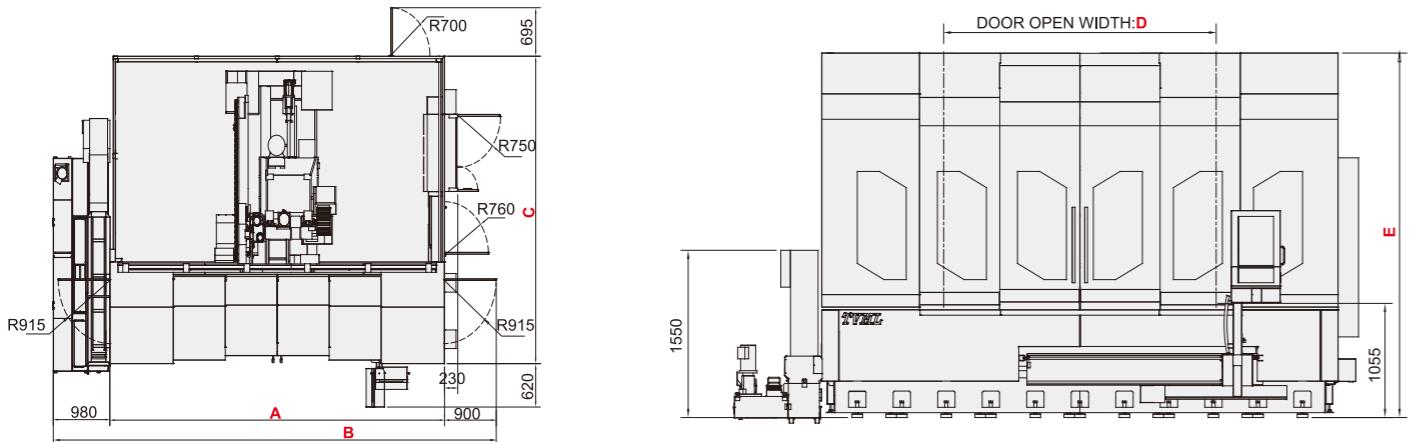




MACHINE DIMENSIONS



MODEL	A	B	C	D	E
TVML-308	5800	7680	4385	3060	3400
TVML-408	6800	8680	4385	4060	3400
TVML-508	7800	9680	4385	5060	3400
TVML-608	8800	10680	4385	6060	3400
TVML-708	9800	11680	4385	7060	3400
TVML-310	5800	7680	4700	3060	3600
TVML-410	6800	8680	4700	4060	3600
TVML-510	7800	9680	4700	5060	3600
TVML-610	8800	10680	4700	6060	3600
TVML-710	9800	11680	4700	7060	3600

5-AXIS TRAVELING COLUMN MACHINE CENTER



HEAKE MACHINERY CO., LTD.

Taiwan Head Office:

No. 44-8, Shuimen Rd., Houli Dist., Taichung City 421017, Taiwan

TEL: +886-4-2557-8080 FAX: +886-4-2557-9090

E-mail: sales@heake.com.tw

www.heake.com.tw



Web



FB

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TVML series

TRAVELING COLUMN

The column moves along the X-axis and the table is fixed. Therefore, the workpiece weight does not affect the axis transmission system and dynamic machining accuracy. Moreover, higher machining efficiency is obtained.

EXTRA LARGE Y-AXIS TRAVEL

The specially designed extra large Y-axis travel provides increased machining range.

REINFORCED COLUMN STRUCTURE

The thickness and Box-in-Box type structure designed of **HEAKE'S TVML** series have been reinforced to effectively avoid a pull-down force caused by the throat depth when the spindle is performing cutting.

FOUR BLOCK DEPLOYMENT

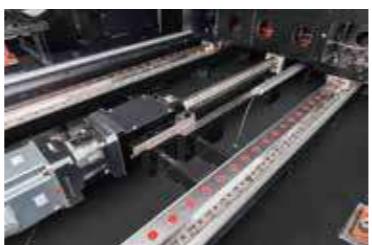
Each linear guideway on the y-axis is equipped with four blocks (total of 8 blocks) to enhance rigidity.

COOLING THROUGH BALL SCREWS (OIL / AIR)

With the use of cooling through the X, Y, Z-axis, the thermal expansion of the ball screws is reduced to a minimum, therefore ensuring high machining accuracy and stability of axial movement. (NEW type patent no, M.502117 in R.O.C)

BALL SCREW SUPPORT ON X-AXIS FOR 3M~4M TRAVEL

- X-axis feed is transmitted through the ball screw with support which eliminates the overhang problem for outstanding transmission efficiency.
- X-axis is equipped with linear scales (standard accessories), ensuring high positioning and repeatability accuracy.



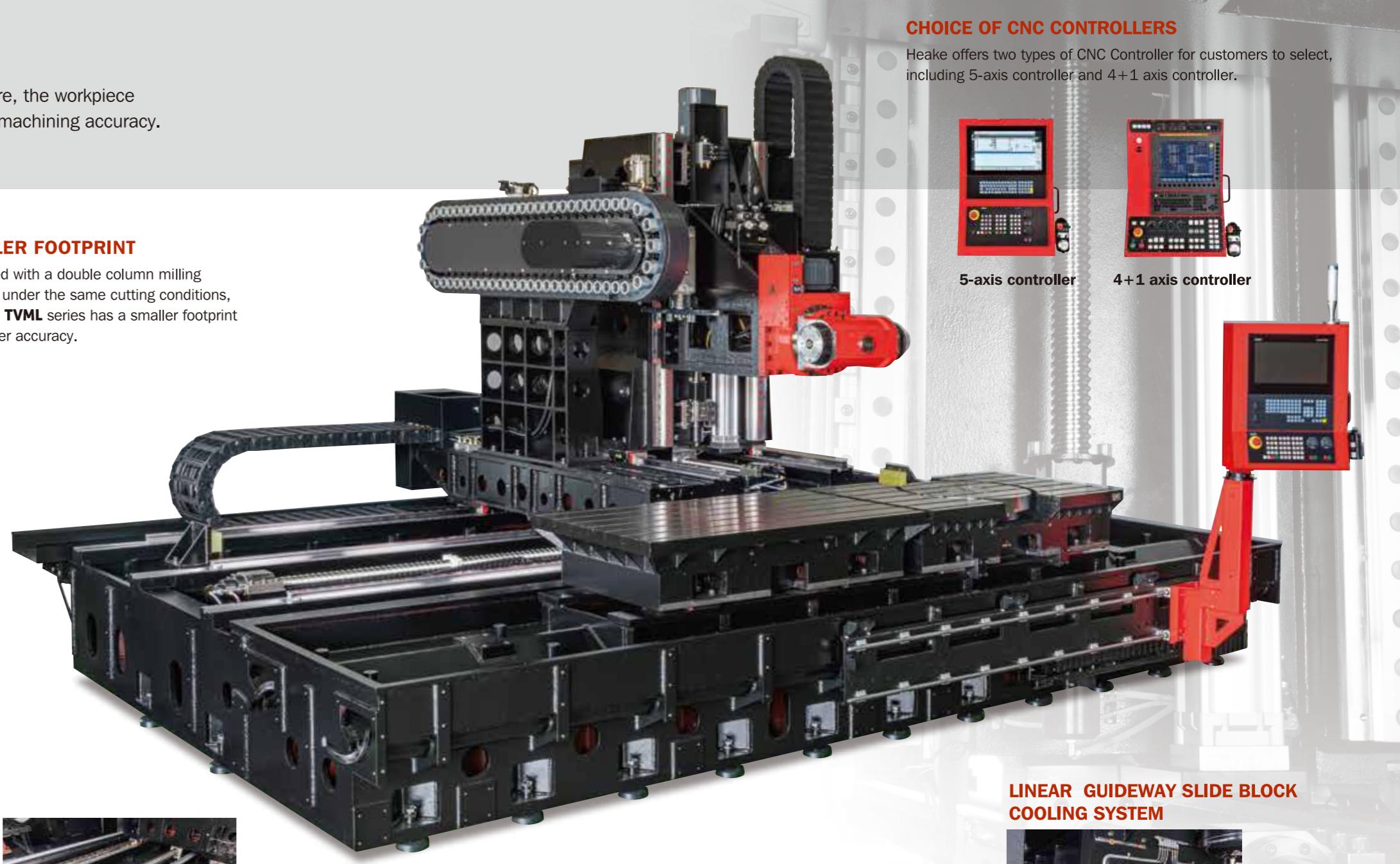
RACK TRANSMISSION ON X-AXIS FOR 4M~7M TRAVEL

- X-Axis power is transmitting through the German racks, which feature outstanding transmission efficiency of axis feed. Additionally, X axis is equipped with linear scales (standard accessories), which ensures positioning and repeatability accuracy is not affected by thermal expansion.



SMALLER FOOTPRINT

Compared with a double column milling machine under the same cutting conditions, **HEAKE'S TVML** series has a smaller footprint and higher accuracy.



CHOICE OF CNC CONTROLLERS

Heake offers two types of CNC Controller for customers to select, including 5-axis controller and 4+1 axis controller.



5-axis controller



4+1 axis controller

LINEAR GUIDEWAY SLIDE BLOCK COOLING SYSTEM



ROLLER TYPE LINEAR WAYS ON THREE AXES

X, Y, Z-axis are fitted with SP class roller type linear guideways with outstanding features, such as high load resistance, high-rigidity, low friction co-efficient and excellent dampening capacity.



INDEPENDENT AIR ACCUMULATOR



ROLLER CAM DRIVE FEATURES ON B-AXIS

- **ZERO BACKLASH**

Roller contact between the roller and the cam eliminates the positive reversal backlash problem, thus greatly improving the ultra-precision characteristics of the cam.

• ULTRA-HIGH EFFICIENCY CONDUCTION

Roller cam type turret functions in rolling mode, providing ultra-high conduction efficiency of over 90% at high speed operation.

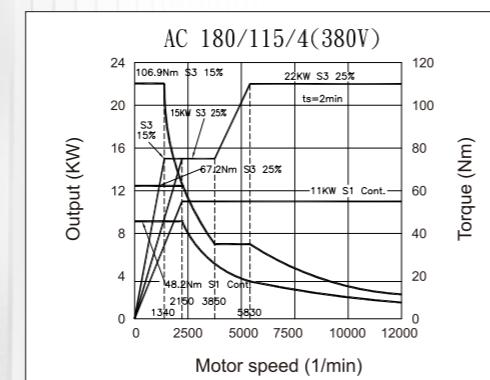
• NO THERMAL DISPLACEMENT

Roller cam drive dramatically reduces thermal displacement even at high speeds.

- Equip with a standard optical scale to enhance machining precision.

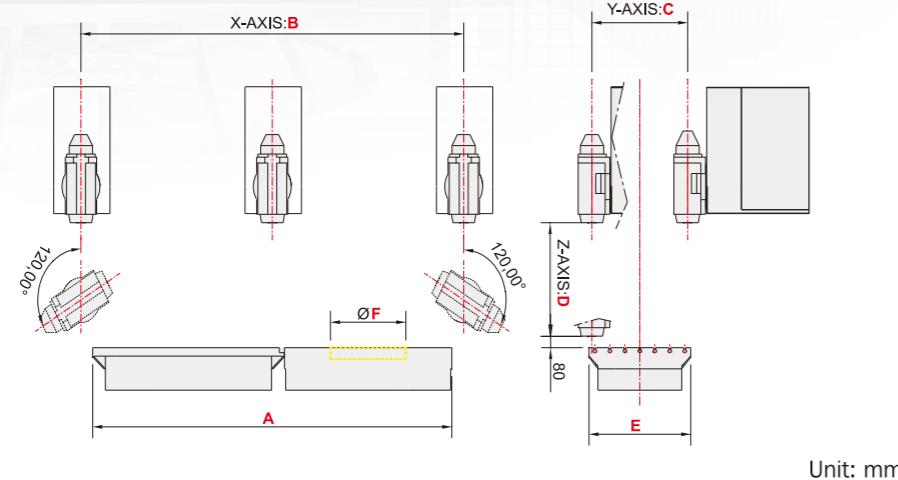
BUILT-IN TYPE SPINDLE

- The spindle features high precision, high-precision, high-speed, high-rigidity and low vibration.
- Excellent for high-speed, high-precision machining where a fine surface finish is required.
- Max. spindle speed: 12,000 rpm (Standard)
15,000 rpm (Optional)



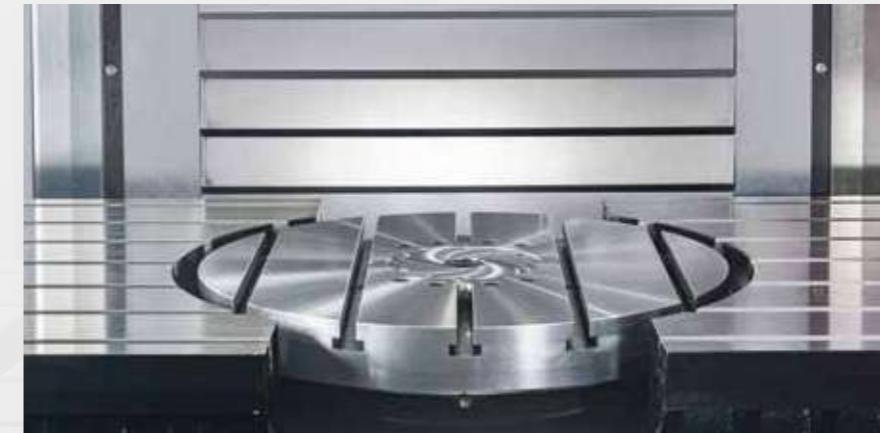
SPINDLE TORQUE DIAGRAM (Spindle nose taper #40)

PROCESSING RANGE



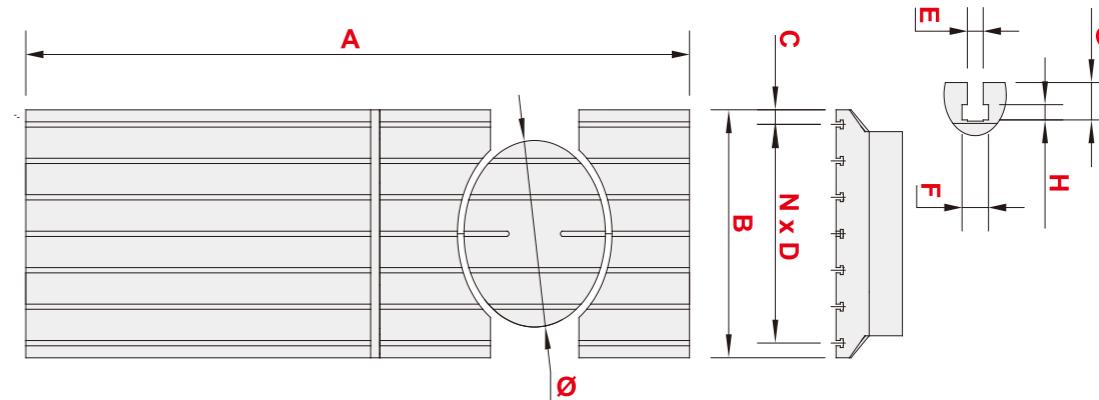
MODEL	A	B	C	D	E	F
TVML-308	3000	3200	800	800	850	630
TVML-408	4000	4200	800	800	850	630
TVML-508	5000	5200	800	800	850	630
TVML-608	6000	6200	800	800	850	630
TVML-708	7000	7200	800	800	850	630
TVML-310	3000	3200	1000	1000	1000	800
TVML-410	4000	4200	1000	1000	1000	800
TVML-510	5000	5200	1000	1000	1000	800
TVML-610	6000	6200	1000	1000	1000	800
TVML-710	7000	7200	1000	1000	1000	800

DIRECT DRIVE ROTARY TABLE ON C-AXIS



- The rotary table is embedded in the rectangular table.
- Direct drive features backlash-free transmission, ensuring outstanding machining accuracy and fine surface finish.
- Indexing accuracy: 10 sec.
Repeatability: 4 Sec.
- Equip with a standard optical scale to enhance machining precision.

TABLE



Unit: mm

MODEL	A	B	C	N	D	E	F	G	H	I
TVML-308	3000	850	50	6	125	18	30	30	12	630
TVML-408	4000	850	50	6	125	18	30	30	12	630
TVML-508	5000	850	50	6	125	18	30	30	12	630
TVML-608	6000	850	50	6	125	18	30	30	12	630
TVML-708	7000	850	50	6	125	18	30	30	12	630
TVML-310	3000	1000	50	6	150	18	30	30	12	800
TVML-410	4000	1000	50	6	150	18	30	30	12	800
TVML-510	5000	1000	50	6	150	18	30	30	12	800
TVML-610	6000	1000	50	6	150	18	30	30	12	800
TVML-710	7000	1000	50	6	150	18	30	30	12	800

MACHINE SPECIFICATIONS

MODEL	UNIT	TVML-308	TVML-408	TVML-508	TVML-608	TVML-708	TVML-310	TVML-410	TVML-510	TVML-610	TVML-710
ROTARY TABLE											
C-axis rotary table size	mm			Ø630					Ø630、Ø800 (OP)		
T-slot	mm			18					18		
Degree of C-axis	deg.			-360 ~ +360					-360 ~ +360		
Max. rotating speed of C-axis	min ⁻¹			50 / 200 (OP) / 600 (OP)					50 / 200 (OP) / 600 (OP)		
C-axis max. table loading	kg			500					500		
C-axis clamping method / pressure	Mpa			Hydraulic / 3 ~ 3.5					Hydraulic / 3 ~ 3.5		
Indexing accuracy / repeatability	sec.			10" / 4"					10" / 4"		
B-AXIS											
Degree of B-axis	deg.			±120					±120		
Max. rotating speed of B-axis	min ⁻¹			16.6					16.6		
B-axis clamping method / pressure	Mpa			Hydraulic / 2 ~ 2.4					Hydraulic / 2 ~ 2.4		
Indexing accuracy / repeatability	sec.			10" / 4"					10" / 4"		
TABLE											
Table size	mm	3000 x 850	4000 x 850	5000 x 850	6000 x 850	7000 x 850	3000 x 1000	4000 x 1000	5000 x 1000	6000 x 1000	7000 x 1000
T-slot / T x W x D	mm			5 x 18 x 125					7 x 18 x 150		
Max. table loading	kg	5000	6000	7000	8000	9000	5000	6000	7000	8000	9000
3-AXIS TRAVEL											
X-axis travel	mm	3200	4200	5200	6200	7200	3200	4200	5200	6200	7200
Y-axis travel	mm			800					1000		
Z-axis travel	mm			800 ~ 1000 (OP)					800 ~ 1000 (OP)		
SPINDLE											
Dist. from spindle to table surface (horizontal)	mm			80~880、80~1080 (OP)					80~880、80~1080 (OP)		
Spindle nose taper				#40、#50 (OP)					#40、#50 (OP)		
Pull stud of spindle				BBT、DIN (OP)、HSK (OP)、MAS BT (OP)、CAT (OP)					BBT、DIN (OP)、HSK (OP)、MAS BT (OP)、CAT (OP)		
Max. spindle speed	rpm			12000、15000 (OP)、20000 (OP)					12000、15000 (OP)、20000 (OP)		
SPINDLE - SERVO MOTORS											
Spindle motor	kw			Siemens / Heidenhain controller: 7.5 / 22 kw Fanuc controller 15 / 26 kw					Siemens / Heidenhain controller: 7.5 / 22 kw Fanuc controller 15 / 26 kw		
Spindle transmission				Built-in					Built-in		
3-axis (X/Y/Z) rapid traverse rates	M/min			20 / 30 / 30					20 / 30 / 30		
Max. feed rate cutting	mm/min			15000					15000		
3-AXIS SPECIFICATIONS											
3-axis (X/Y/Z) linear ways				55 / 55 / 55 (6 x Black)					55 / 55 / 55 (6 x Black)		
Linear ways type				Roller linear ways					Roller linear ways		
3-axis transmission (X/Y/Z)				X, Y, Z: Ball screws	X: Rack / Y: Ball screws / Z: Ball screws		X, Y, Z: Ball screws	X: Rack / Y: Ball screws / Z: Ball screws			
Ball screw cooling oil	L			G68 / 8L / Grease / 1L (OP)					G68 / 8L / Grease / 1L (OP)		
ATC (AUTO TOOL CHANGER)											
Tool loading capacity				40T / 60T (OP)					40T / 60T (OP)		
Max. tool diameter	mm			#40-Ø75、#50-Ø125 (OP)					#40-Ø75、#50-Ø125 (OP)		
Max. tool weight	kg			#40-7、#50-15 (OP)					#40-7、#50-15 (OP)		
Max. tool length	mm			#40-300、#50-400					#40-300、#50-400		
OTHERS											
Chip removal method				Dual V sharped chip augers					V sharp dual chip augers		
Positioning accuracy / repeatability	mm			0.015 / 0.008 / 0.016 / 0.01					0.015 / 0.008 / 0.016 / 0.01		
Power source required	KVA			55~70					55~70		
Air source required	Mpa			0.65±10%					0.65±10%		
Machine weight	kg	27	29	31	33	35	28	30	32	34	36

* As the machine manufacturer constantly conducts machine research and improvement, the machine specifications are subject to change without prior notice.