

TC Series

CNC Lathe



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TC-2000 . 2013.12/17

TC Series



- High rigidity structure
- High efficiency turning performance

Tongtai's CNC lathes have been widely popular to worldwide customers because its high reliability and high cost-performance rate. But we are not self-satisfied and devoted to improve product quality to fit to customers' demand. Now, Tongtai launches new CNC lathe-TC series. With finite element analysis, structure rigidity is reinforced. Non-cutting time is decreased because of quick tool changing on servo driven turret. Furthermore, chip evacuation and ergonomic are also improved. TC series is your best choice of CNC lathe for high rigidity, high efficiency and high cost-performance rate.

	Bar capacity	Spindle diameter	Z axis stroke	Turning	Turning & Milling
Chuck size 6"	Ø44 mm	Ø80 mm	400 mm	TC-1500	TC-1500M
Chuck size 8"	Ø51 mm	Ø100 mm	400 mm	TC-2000	TC-2000M
			600 mm	TC-2000L	TC-2000LM
Chuck size 10"	Ø64 mm	Ø120 mm	400 mm	TC-2500	TC-2500M
			600 mm	TC-2500L	TC-2500LM

CONTENTS

- 03 Machining ability
- 04 Machining accuracy
- 05 Machining accuracy
- 07 Operation
- 08 Peripheral accessories
- 09 Tool interference
- 10 Working area
- 11 Spindle output and torque chart
- 12 Standard/Optional accessories
- 13 Machine dimensions/Specification



Machining ability

Turning Material : S45C

O.D. turning	
Material removal rate	330 cm ³ /min
Cutting depth	5 mm
Spindle speed	763 rpm
Feedrate	0.5 mm/rev
Cutting speed	120 m/min

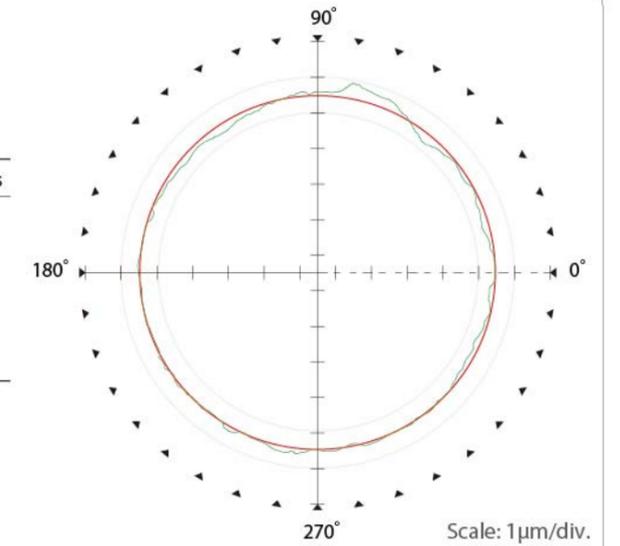
I.D. turning	
Material removal rate	270 cm ³ /min
Cutting depth	5 mm
Spindle speed	637 rpm
Feedrate	0.5 mm/rev
Cutting speed	120 m/min

Grooving	
Cutting width	8 mm
Spindle speed	637 rpm
Feedrate	0.1 mm/rev
Cutting speed	120 m/min

Machining accuracy

Turning accuracy

		Roundness	Cylindricity	Roughness
Material	Brass	0.9 μm	5 μm	0.3 μm Ra
Tool	Diamond cutting tool			
Turning diameter	60 mm			
Spindle speed	3000 rpm			
Feedrate	0.05 mm/rev			



Milling Material : S45C

End milling	
Material removal rate	38 cm ³ /min
Tool	end mill Ø20 mm (4 teeth)
Spindle speed	500 rpm
Feedrate	0.1 mm/rev
Cutting speed	200 m/min
Cutting width	12 mm
Cutting depth	16 mm

End milling	
Material removal rate	38 cm ³ /min
Tool	end mill Ø20 mm (4 teeth)
Spindle speed	500 rpm
Feedrate	0.1 mm/rev
Cutting speed	200 m/min
Cutting width	12 mm
Cutting depth	16 mm

Drilling	
Material removal rate	25 cm ³ /min
Tool	drill Ø20 mm
Spindle speed	398 rpm
Feedrate	0.2 mm/rev
Cutting speed	25 m/min

Drilling	
Material removal rate	25 cm ³ /min
Tool	drill Ø20 mm
Spindle speed	398 rpm
Feedrate	0.2 mm/rev
Cutting speed	25 m/min

Turning stability

		The variation of O.D. of long-term machining
Material	Brass	0.015 mm
Tool	Diamond cutting tool	
Turning diameter	60 mm	
Spindle speed	3000 rpm	
Feedrate	0.05 mm/rev	

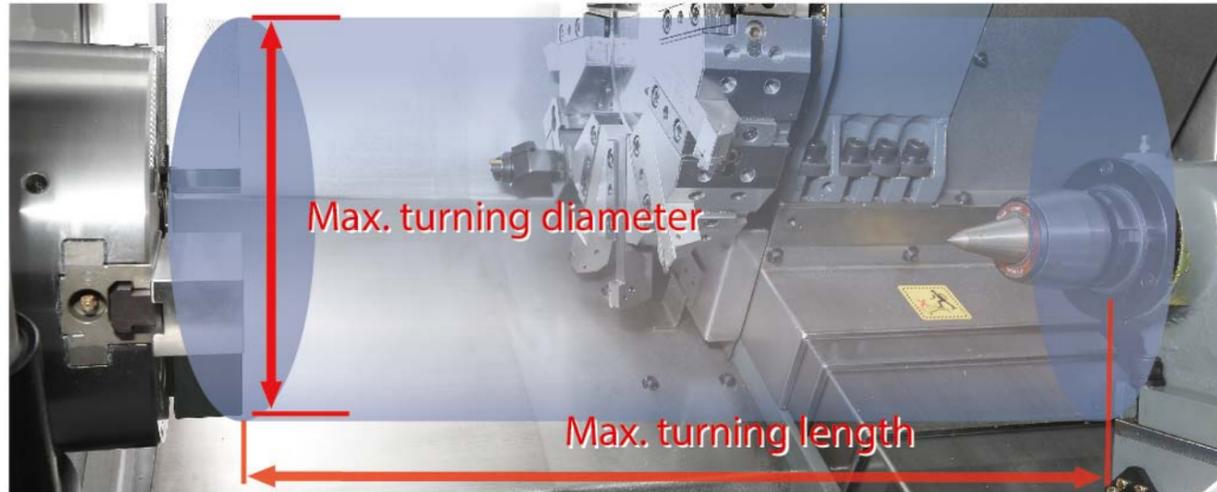


※ The above data is measured in-house. The test result may not be obtained due to different cutting conditions and environment conditions.



Machining accuracy

Working area

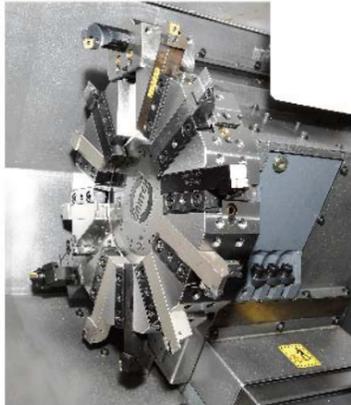


Model	TC-1500	TC-1500M	TC-2000	TC-2000L	TC-2000M	TC-2000LM	TC-2500	TC-2500L	TC-2500M	TC-2500LM
Max. swing diameter	520									
Max. swing diameter	320									
over saddle	300(12V)	280	300(12V)		280		300(12V)		280	
Max. turning diameter	330(8V)		330(8V)				330(8V)			
Max. turning length	400	300	400	600	300	500	400	600	300	500

Unit:mm

Turret

Servo turret



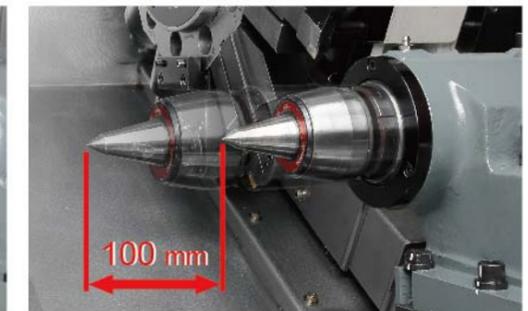
Power turret



	Servo turret	Power turret
Tool capacity	12/8(Opt.)	12
Indexing time(1-station)	0.2 sec	0.3 sec
Indexing time(6-station)	0.6 sec	1 sec
Max. speed of live tool	-	6000 rpm
Spindle output of live tool	-	5.5/3.7 kW

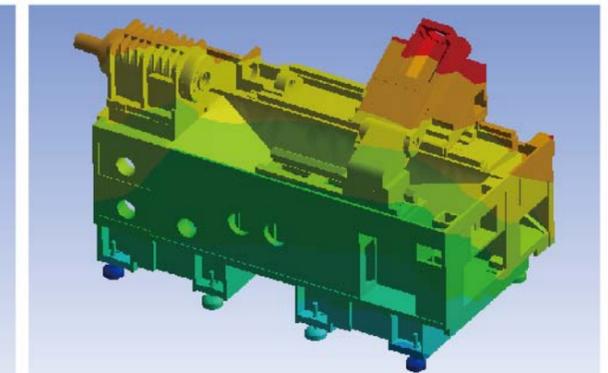
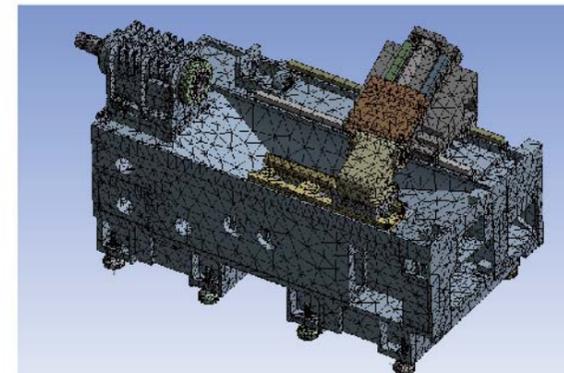
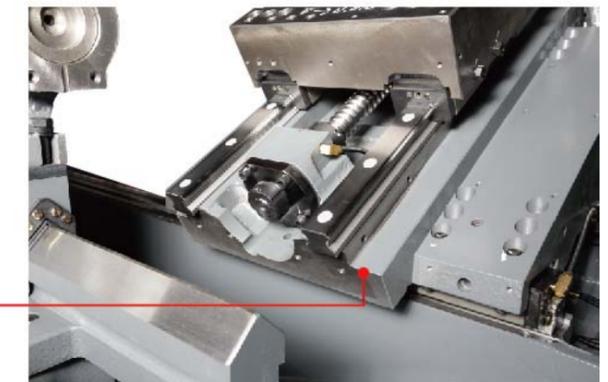
Tailstock

Manual travel	275/500(L) mm
Quill travel	100 mm
Center taper	TC-1500 / TC-2000 : MT4 TC-2500 : MT5
Max. thrust	TC-1500 / TC-2000 : 500 kgf TC-2500 : 700 kgf



X axis saddle

X axis saddle has optimized structure with stable static and dynamic rigidity due to finite element analysis.



Operation

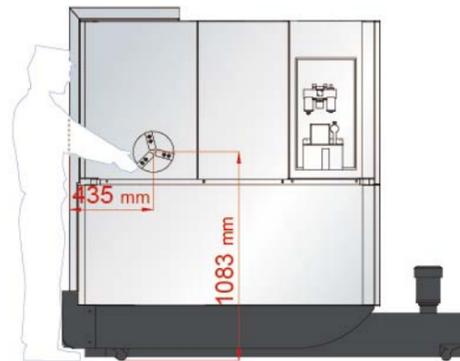
Swivel-type operation panel

The swivel panel makes operator easy to operate and inspect during operation.



Accessibility

The access to spindles or turrets is short and comfortable to operator.



Door opening width



The wide door opening makes machine operation and maintenance more convenient.

Tailstock area



Spacious tailstock working area.

Peripheral accessories

Chip conveyor

According to different materials and chip size, Tongtai provide various chip conveyors for the best chip disposal.



Coolant tank capacity 95 L (80% full)

Specification	Steel		Cast iron		Aluminum/ Non-ferrous metal		
	Long/Curl chips	Short chips	Powder chips	Short chips	Long/Curl chips	Short chips	Powder chips
Hinge type	○	×	×	×	○	×	×
Scraper type	×	○	○	○	×	○	○
Magnetic scraper type	×	○	○	○	×	×	×

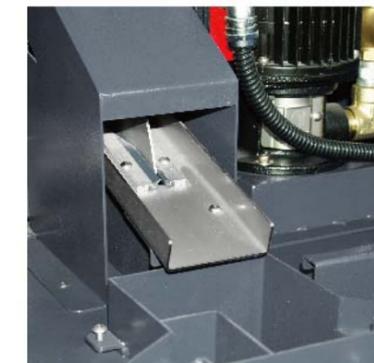
○ : Suitable × : Non-suitable

Short chips: Chips shorter than 60 mm or ball type chips smaller than Ø40 mm.
 Curl long chips: Chips' length is longer than short ones.

Manual tool presetter (optional)



Disc type oil skimmer (optional)

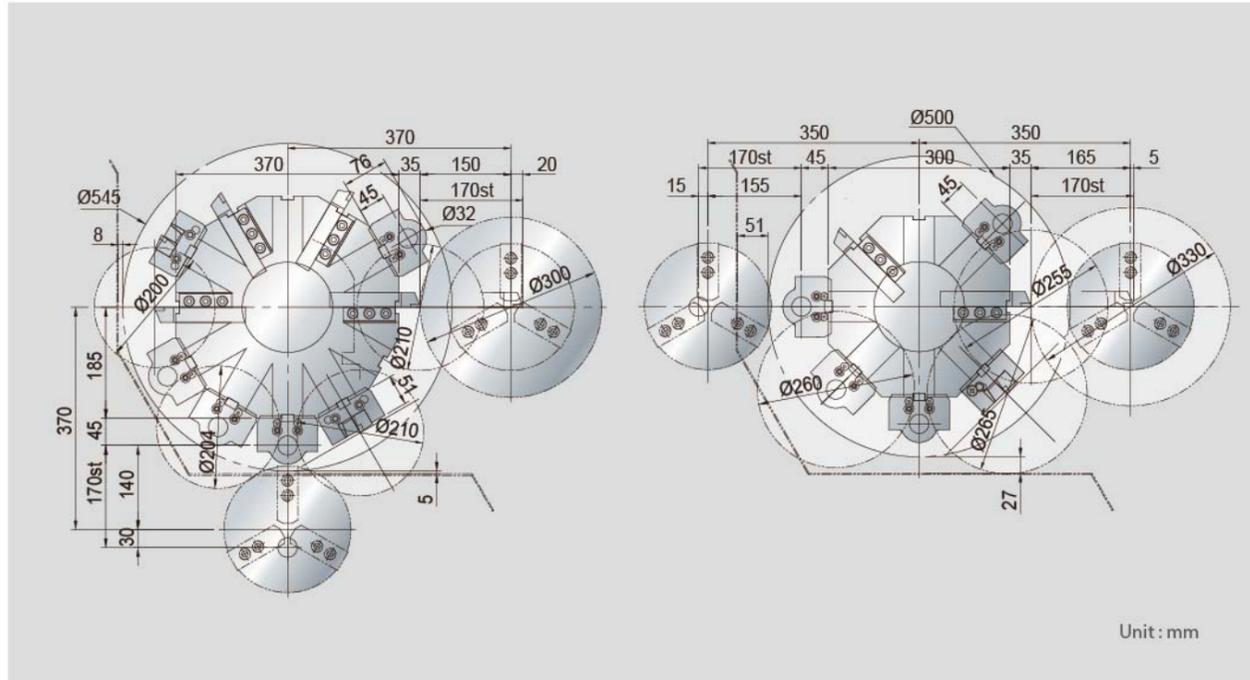


Oil mist collector (optional)

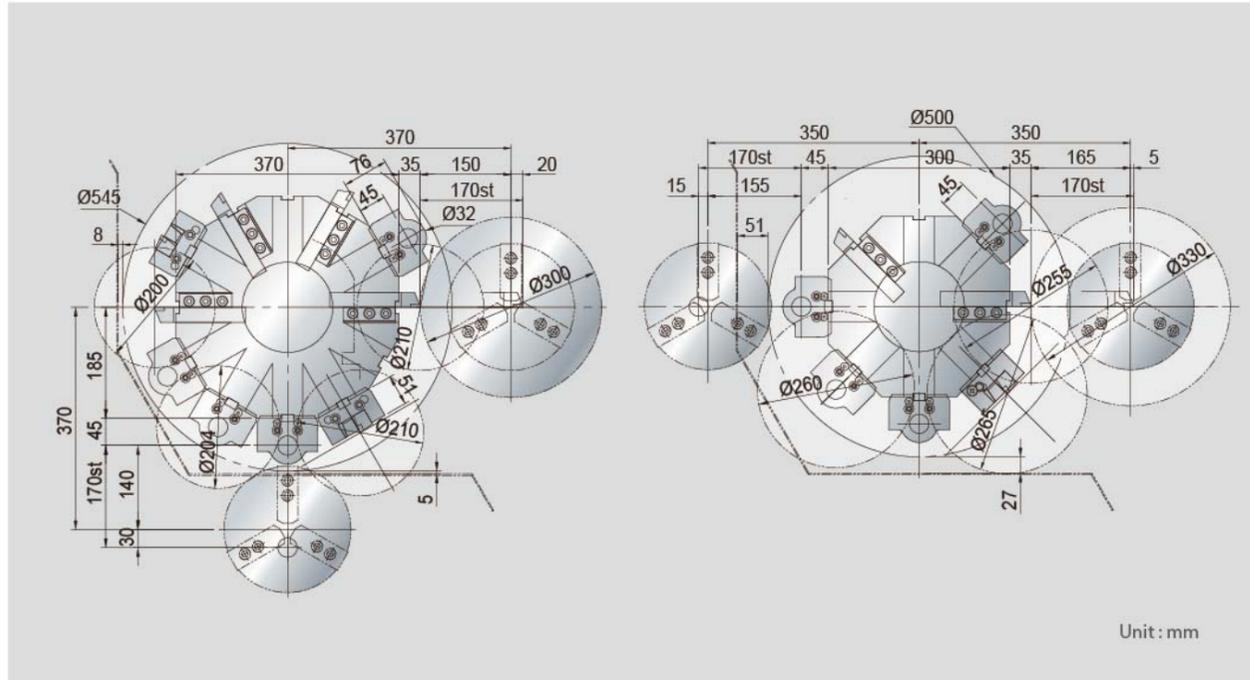


Tool interference

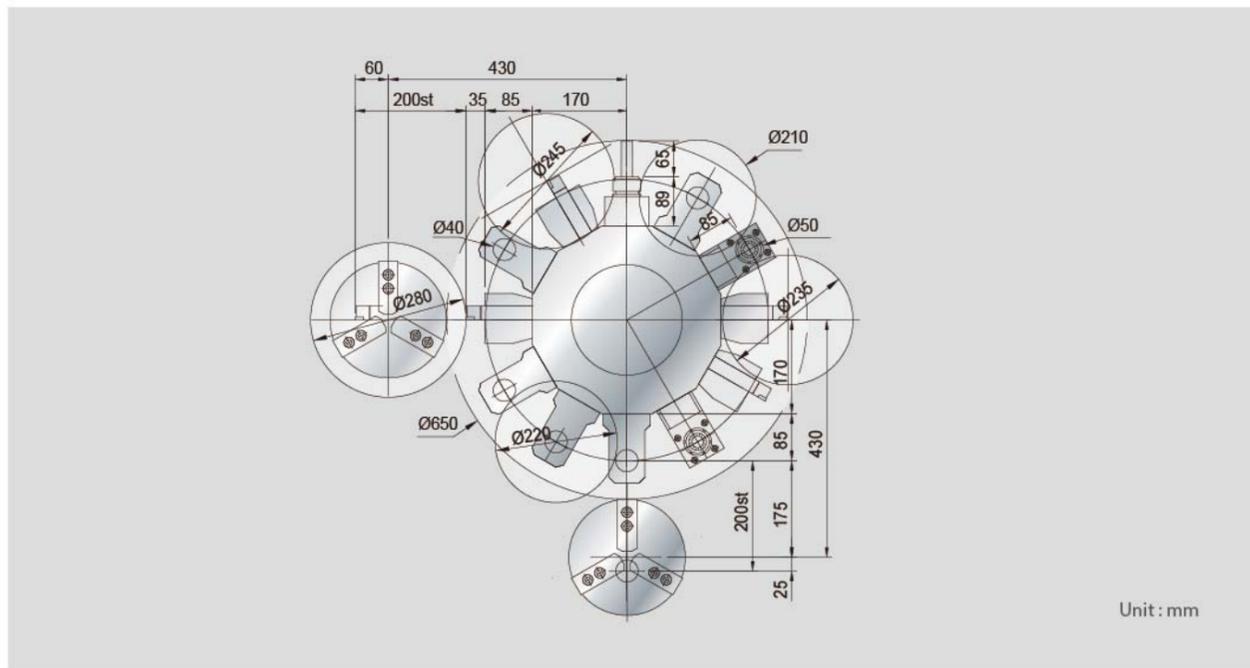
12V servo turret



8V servo turret

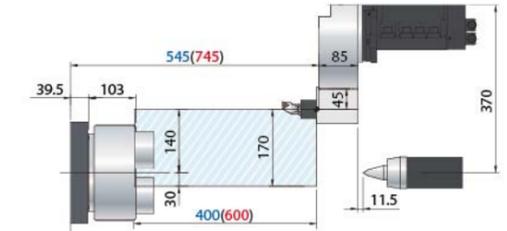
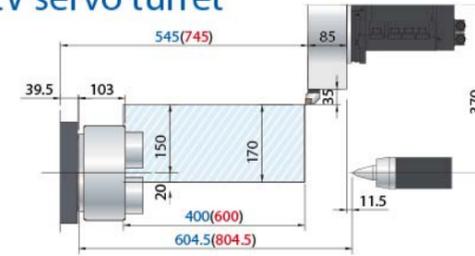


12V power turret(VDI40)



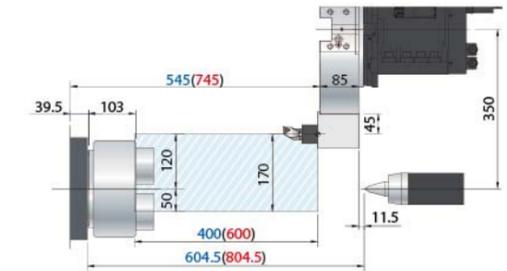
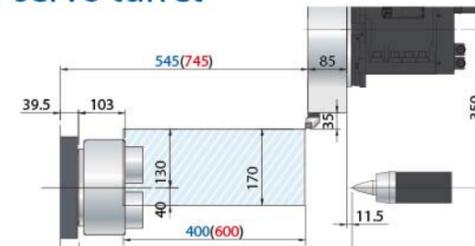
Working area

12V servo turret



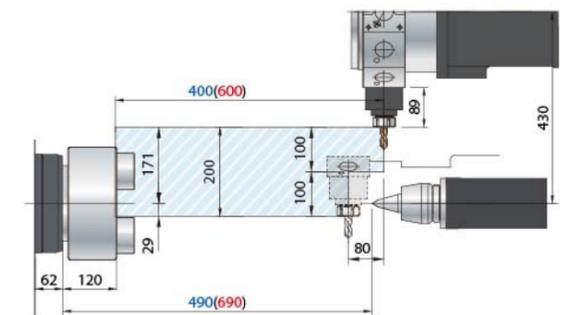
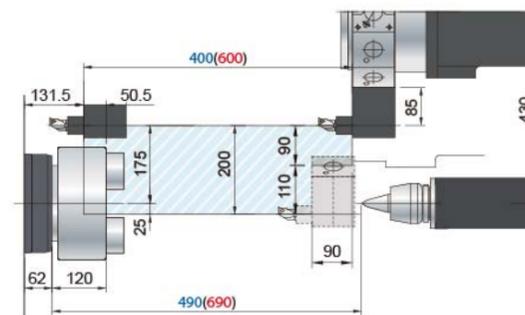
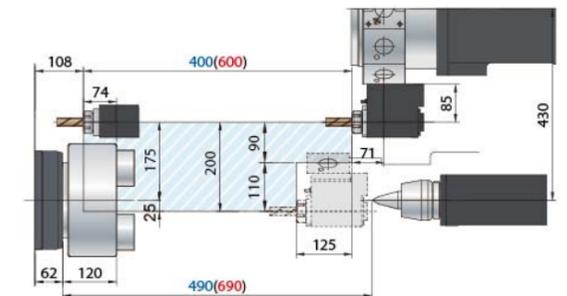
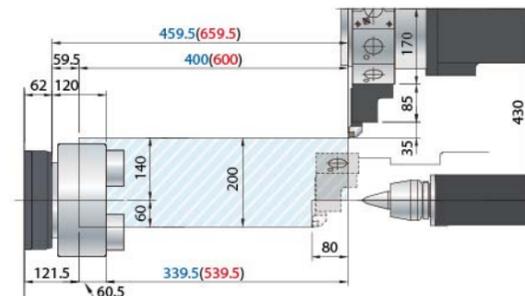
Unit: mm

8V servo turret



Unit: mm

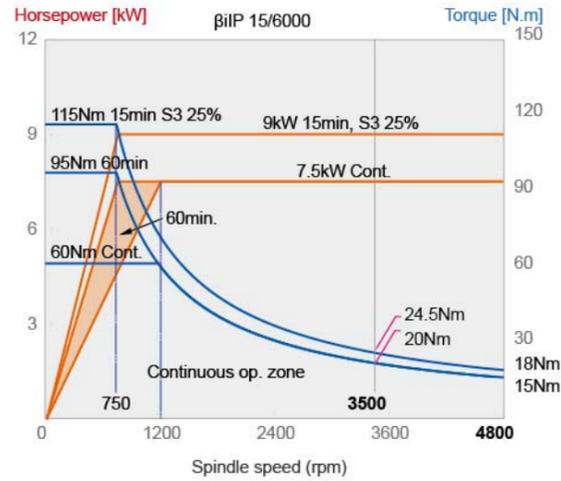
12V power turret(VDI40)



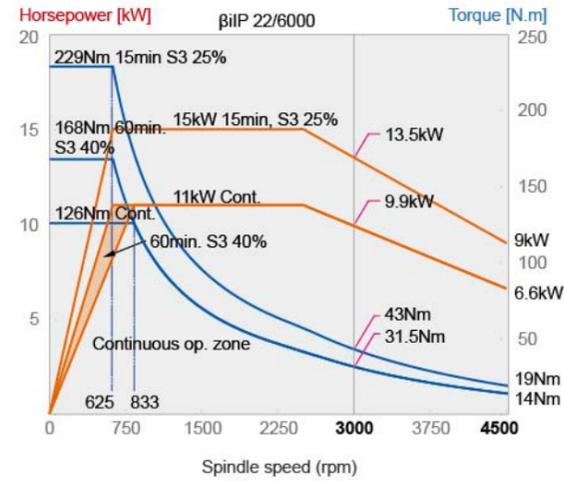
Unit: mm

Spindle output and torque chart

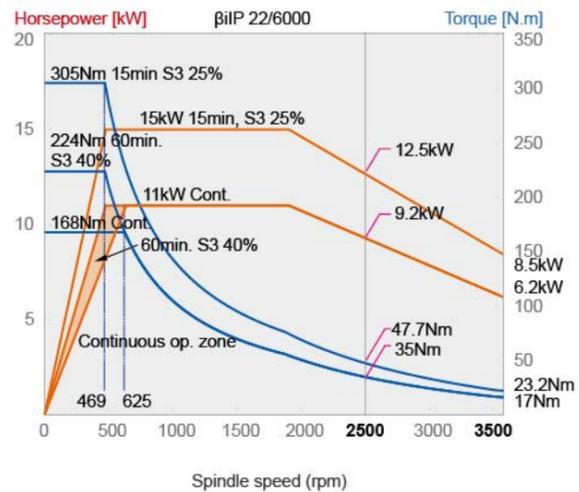
TC-1500 Spindle bearing dia. Ø80 mm
Pulley ratio 1:1



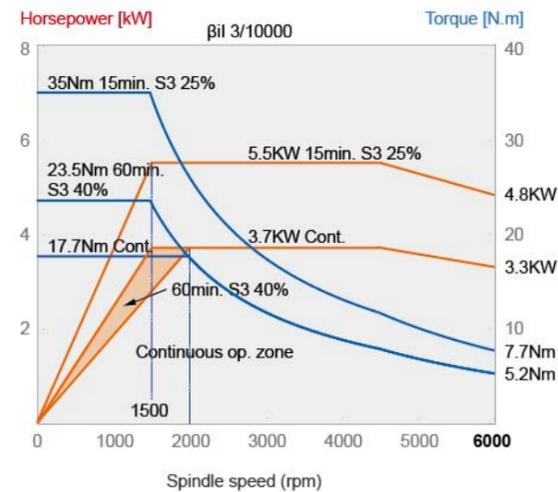
TC-2000 Spindle bearing dia. Ø100 mm
Pulley ratio 1:1.2



TC-2500 Spindle bearing dia. Ø120/Ø130 mm
Pulley ratio 1:1.6



Live tool motor



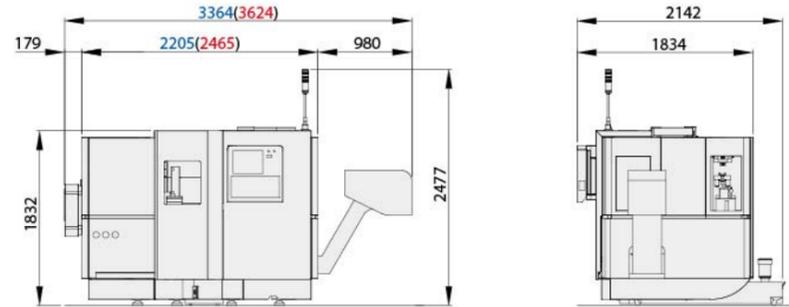
Standard/Optional accessories

Standard/Optional accessories

		Standard	Optional
Chuck	3 Jaws through hole chuck	●	
	Collet type through hole chuck		○
Turret	12V hydraulic turret	●	
	8V hydraulic turret		○
	Power turret		○
Spec. of live tool holder	BMT-65		○
	VDI-40		○
Chip conveyor	Hinge type	●	
	Scraper type		○
	Magnetic scraper type		○
Coolant & air blow	Coolant through spindle		○
	Air blow through spindle		○
	Coolant on spindle side		○
	Air blow on spindle side		○
Automation equipment	Bar feeder		○
	Part catcher		○
	Part conveyor		○
	Automatic door		○
Tool holder(Servo turret)	Face turning tool holder	2	
	I.D. tool holder	4	
	Gasket	8	
	Sleeve of I.D. tool Ø8, Ø10, Ø12, Ø16, Ø20, Ø2	one each size	
	Sleeve of drilling tool MT1, MT2, MT3"	one each size	
	Others		
	Oil skimmer		○
	Oil mist collector		○
	Air conditioner for electrical cabinet		○
	Manual tool presetter		○
	Air gun		○
	Coolant gun		○

Machine dimensions/Specification

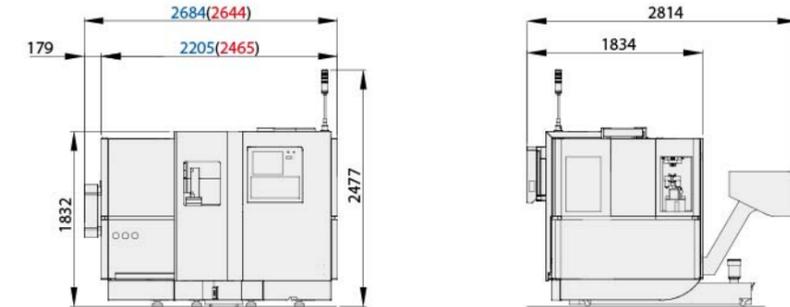
Dimension with sideward type chip conveyor



— TC-1500M/TC-2000M/2500M
 — TC-2000LM/2500LM

Unit : mm

Dimension with rearward type chip conveyor



— TC-1500M/TC-2000M/2500M
 — TC-2000LM/2500LM

Unit : mm

Specification

Item	Specification	Unit	TC-1500	TC-1500M	TC-2000	TC-2000L	TC-2000M	TC-2000LM
Turning capacity	Spindle bearing dia.		Ø80		Ø100			
	Max. swing dia.	mm	Ø520		Ø520			
	Max. swing dia. over saddle	mm	Ø320		Ø320			
	Max. turning diameter	mm	Ø320(12V) Ø330(8V)	Ø280	Ø320(12V) Ø330(8V)	Ø280		
	Max. turning length	mm	400	300	400	600	300	500
Spindle	Spindle nose		A2-5		A2-6			
	Spindle speed	rpm	4,800(Opt.3,500)		4,500(Opt.3,000)			
	Chuck O.D.	inch	6"		8"			
	Through-spindle hole dia.	mm	Ø56		Ø62			
	Bar capacity	mm	Ø44		Ø51			
Turret	Tool capacity		12 (Opt.8)	-	12 (Opt.8)	-		
	O.D. tool	mm	25×25	-	25×25	-		
	I.D. tool	mm	Ø32/Ø40	-	Ø32/Ø40	-		
	Driving system		Servo	-	Servo	-		
Power turret	Tool capacity		-	12(VDI-40)	-	12(VDI-40)		
	Motor	kW	-	5.5/3.7	-	5.5/3.7		
	O.D. tool	mm	-	25×25	-	25×25		
	I.D. tool	mm	-	Ø40	-	Ø40		
	Max. speed	rpm	-	6,000	-	6,000		
Stroke	X/Z axis stroke	mm	170/400	200/400	170/400	170/600	200/400	200/600
	Feed	X/Z axis rapid traverse	m/min	30/30		30/30		
Tailstock	Cutting feerdate	mm/rev	0.001~5000		0.001~5000			
	Tailstock/Quill stroke	mm	275/100		275/100	500/100	275/100	500/100
	Center taper		MT#4		MT#4			
Motor	Driving system		Manual		Manual			
	Spindle motor	kW	9/7.5		15/11			
Coolant unit	X/Z axis servo motor	kW	1.8/1.8		1.8/1.8			
	Coolant tank capacity	L	95		95			
Hydraulic unit	Coolant motor	kW	0.55×1		0.55×1			
	Hydraulic tank capacity	L	30		30			
Machine size	Hydraulic motor	kW	1.5		1.5			
	LxWxH	mm	3364×2142×2477	3364×2142×2477	3364×2142×2477	3624×2142×2477	3364×2142×2477	3624×2142×2477
	Weight	kg	3250	3350	3300	3900	3400	4000

Specification

Item	Specification	Unit	TC-2500	TC-2500L	TC-2500M	TC-2500LM	TC-2500	TC-2500L	TC-2500M	TC-2500LM
Turning capacity	Spindle bearing dia.		Ø120		Ø130		Ø120		Ø130	
	Max. swing dia.	mm	Ø520		Ø520		Ø520		Ø520	
	Max. swing dia. over saddle	mm	V320		Ø320		Ø320		Ø320	
	Max. turning dia.	mm	Ø320(12V) Ø330(8V)	Ø280	Ø320(12V) Ø330(8V)	Ø280	Ø320(12V) Ø330(8V)	Ø280	Ø320(12V) Ø330(8V)	Ø280
	Max. turning length	mm	400	600	300	500	400	600	300	500
Spindle	Spindle nose		A2-8		A2-8		A2-8		A2-8	
	Spindle speed	rpm	2,500(Opt.3,500)		2,500(Opt.3,500)		2,500(Opt.3,500)		2,500(Opt.3,500)	
	Chuck O.D.	inch	10"		10"		10"		10"	
	Through-spindle hole dia.	mm	Ø76		Ø86		Ø76		Ø86	
	Bar capacity	mm	Ø64		Ø74		Ø64		Ø74	
	Turret	Tool capacity		12 (Opt.8)	-	12 (Opt.8)	-			
O.D. tool		mm	25×25	-	25×25	-				
I.D. tool		mm	Ø32/Ø40	-	Ø32/Ø40	-				
Driving system			Servo	-	Servo	-				
Power turret	Tool capacity		-	12(VDI-40)	-	12(VDI-40)				
	Motor	kW	-	5.5/3.7	-	5.5/3.7				
	O.D. tool	mm	-	25×25	-	25×25				
	I.D. tool	mm	-	Ø40	-	Ø40				
	Max. speed	rpm	-	6,000	-	6,000				
Stroke	X/Z axis stroke	mm	170/400	170/600	200/400	200/600	170/400	170/600	200/400	200/600
	Feed	X/Z axis rapid traverse	m/min	30/30		30/30				
Tailstock	Cutting feerdate	mm/rev	0.001~5000		0.001~5000					
	Tailstock/Quill stroke	mm	275/100	500/100	275/100	500/100	275/100	500/100	275/100	500/100
	Center taper		MT#5		MT#5					
Motor	Driving system		Manual		Manual					
	Spindle motor	kW	15/11		15/11					
Coolant unit	X/Z axis servo motor	kW	1.8/1.8		1.8/1.8					
	Coolant tank capacity	L	95		95					
Hydraulic unit	Coolant motor	kW	0.55×1		0.55×1					
	Hydraulic tank capacity	L	30		30					
Machine size	Hydraulic motor	kW	1.5		1.5					
	LxWxH	mm	3364×2142×2477	3624×2142×2477	3364×2142×2477	3624×2142×2477	3364×2142×2477	3624×2142×2477	3364×2142×2477	3624×2142×2477
	Weight	kg	3400	4000	3500	4100	3500	4100	3600	4200