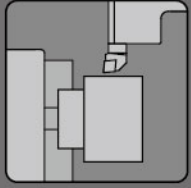




WERKZEUGMASCHINEN GMBH



iTC-2000 Series

CNC Lathe



iTC-2000 Series



- High rigidity structure
- High efficiency turning performance
- Q-1st piece output(Opt.)

Tongtai's CNC lathes have been widely popular to worldwide customers because its high reliability and high cost-performance rate. In the new era of intelligent machine tools, Tongtai launches iTC series to match market demand with lots of improvements. With finite element analysis, structure rigidity is reinforced. Non-cutting time is decreased because of quick tool changing on servo driven turret. IPC (industrial personal computer) is available with Q-1st piece output software to shorten programming time. iTC series is your best choice of CNC lathe for high rigidity, high efficiency and high cost-performance rate.

CONTENTS

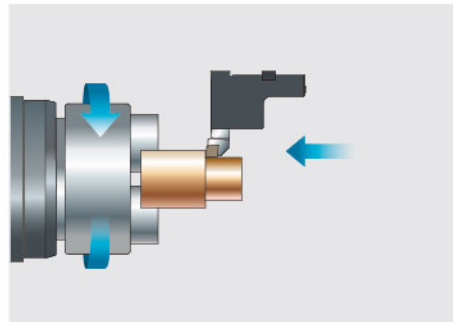
- 03. Machining ability
- 04. Machining accuracy
- 05. Main structure
- 07. Operation & Maintenance
- 08. Peripheral accessories
- 09. Q-1st piece output
- 12. Tongtai-Technical application center (T-TAC)
- 13. Diagrams
- 16. Standard/optional accessories
- 17. Specifications

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

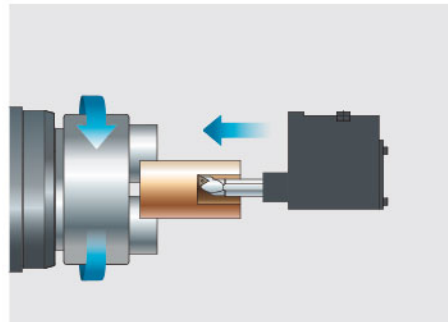


Machining ability

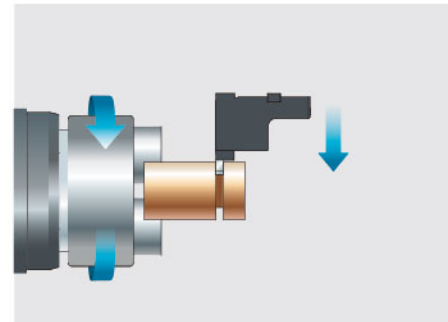
Turning Material : S45C



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

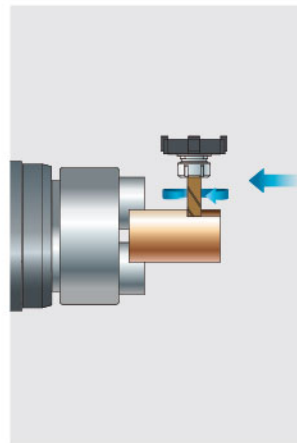


I.D. turning	
Material removal rate	270 cm ³ /min
Cutting depth	5 mm
Spindle speed	637 rpm
Feedrate	0.5 mm/rev
Cutting speed	120 m/min

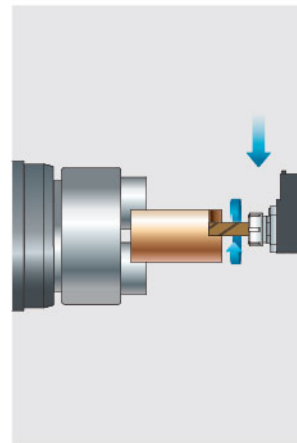


Grooving	
Cutting width	8 mm
Spindle speed	637 rpm
Feedrate	0.1 mm/rev
Cutting speed	120 m/min

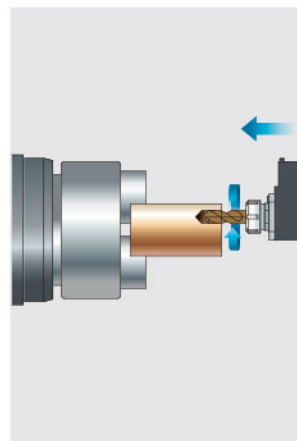
Milling Material : S45C



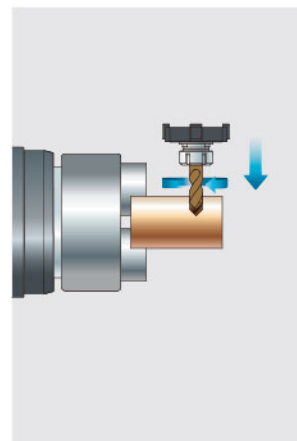
End milling	
Material removal rate	38 cm ³ /min
Tool	end mill Ø20 mm (4 teeth)
Spindle speed	500 rpm
Feedrate	0.1 mm/revx
Cutting speed	200 m/min
Cutting width	12 mm
Cutting depth	16 mm



End milling	
Material removal rate	38 cm ³ /min
Tool	Ø20 mm (4 teeth)
Spindle speed	500 rpm
Feedrate	0.1 mm/rev/revx
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 (2 teeth)
Spindle speed	398 rpm
Feedrate	0.2 mm/rev
Cutting speed	25 m/min

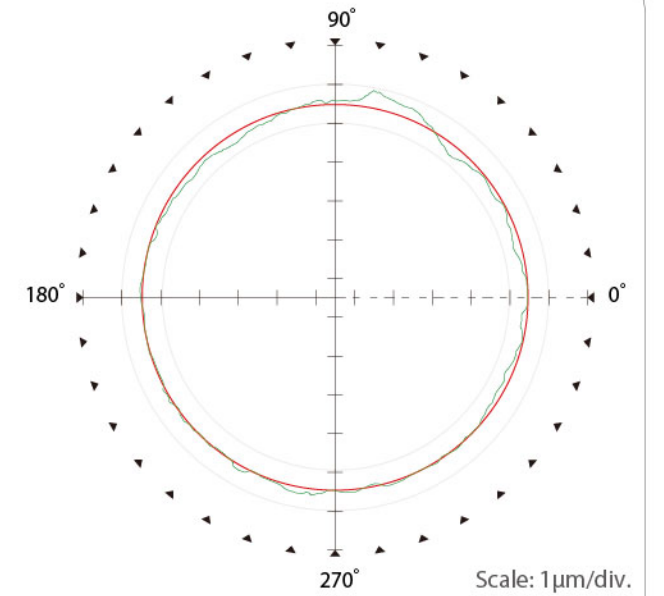


Drilling	
Material removal rate	25 cm ³ /min
Tool	Ø20 mm (2 teeth)
Spindle speed	398 rpm
Feedrate	0.2 mm/rev
Cutting speed	25 m/min

Machining accuracy

Turning accuracy

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

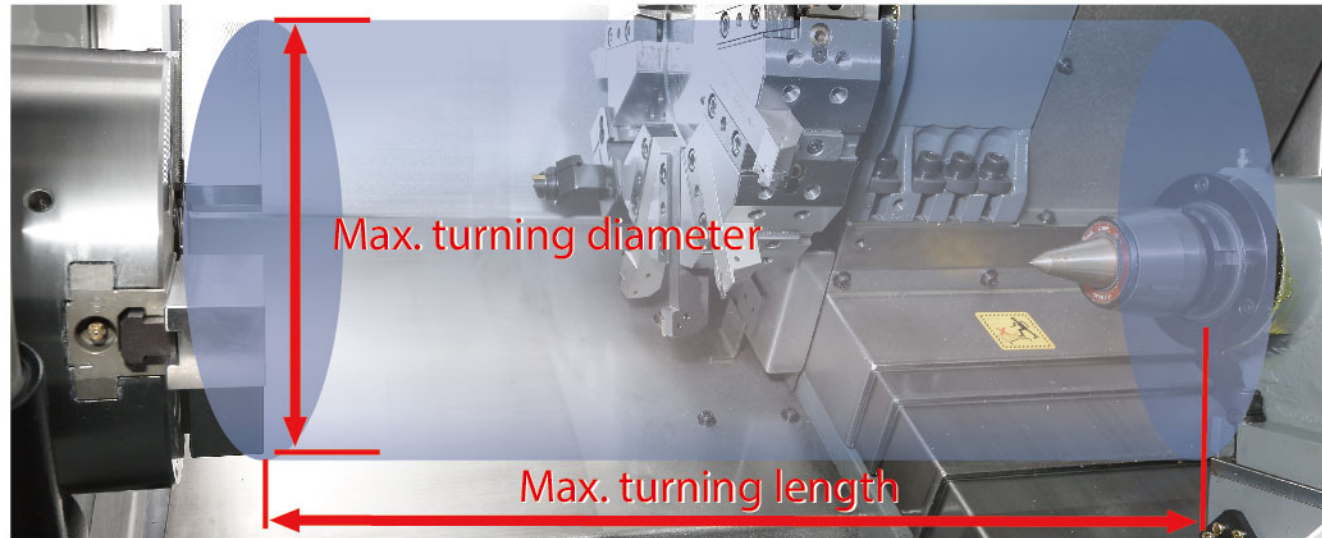


※ The above data is measured in-house. The test result may not be obtained due to different cutting conditions and environment conditions.



Main structure

Working area

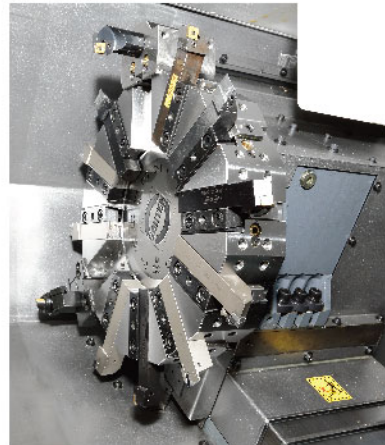


Model	iTC-2000	iTC-2000L	iTC-2000M	iTC-2000LM	iTC-2500	iTC-2500L	iTC-2500M	iTC-2500LM
Max. swing diameter	520							
Max. swing diameter over saddle	320							
Max. turning diameter	300(12V)/330(8V)		280		300(12V)/330(8V)		280	
Max. turning length	400	600	300	500	400	600	300	500

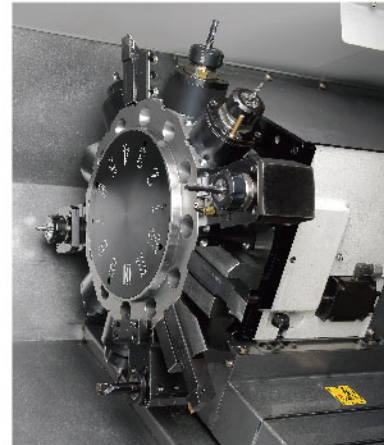
Unit:mm

Turret

Servo turret



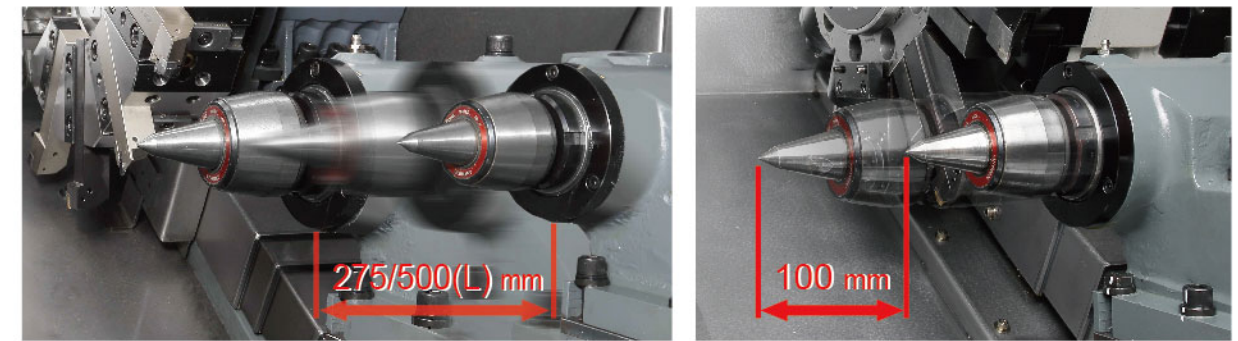
Power turret



	Servo turret	Power turret
Tool capacity	12/8(Opt.)	12
Indexing time(1-station)	0.23 sec	0.3 sec
Indexing time(6-station)	0.56 sec	1 sec
Max. speed of live tool	-	6000 rpm
Spindle output of live tool	-	5.5/3.7 kW

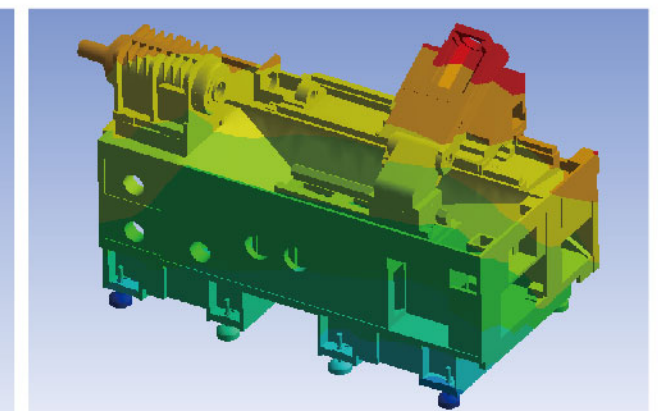
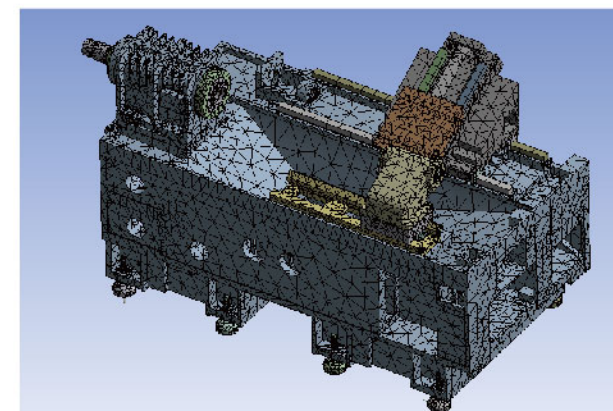
Tailstock

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

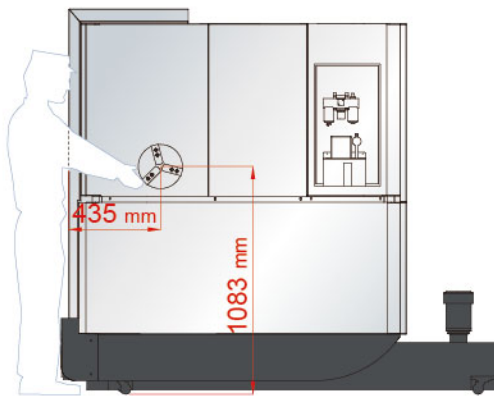
The swivel panel makes operator easy to operate and inspect during operation.



The lower keyboard is optional with IPC.

Accessibility

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

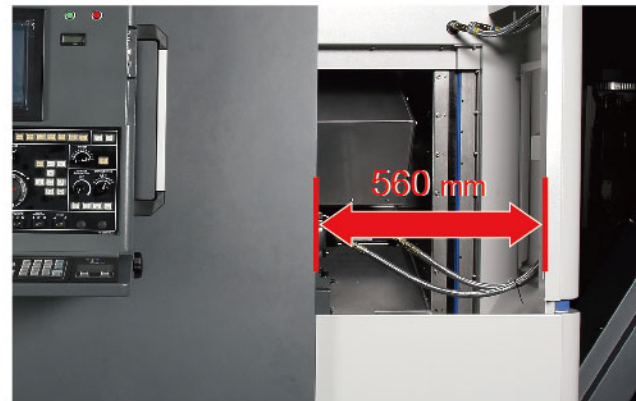


Door opening width



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.

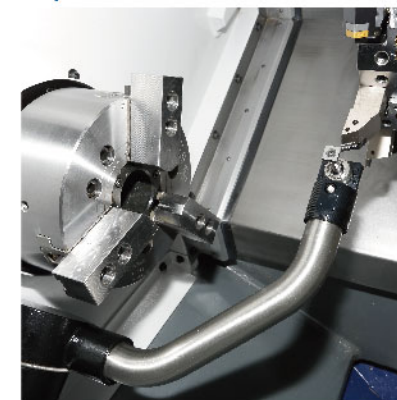


Coolant tank capacity 95 L (80% full)

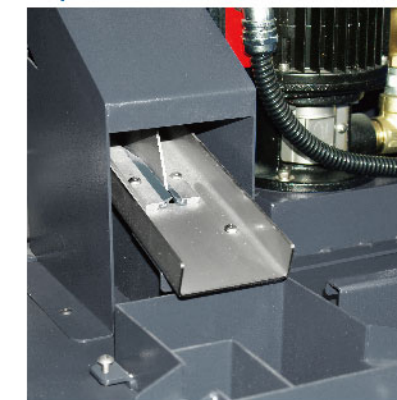
Specification	Steel		Cast iron		Aluminum/ Non-ferrous metal		
	Long/Curl chips	Short chips	Powder chips	Short chips	Long/Curl chips	Short chips	Powder chips
Hinge type	○	×	×	×	○	×	×
Scraper type	×	○	○	○	×	○	○
Magnetic scraper type	×	○	○	○	×	×	×

Short chips: Chips shorter than 60 mm or ball type chips smaller than Ø40 mm. ○ : Suitable × : Non-suitable
 Curl long chips: Chips' length is longer than short ones.

Manual tool presetter (optional)



Disc type oil skimmer (optional)



Oil mist collector (optional)

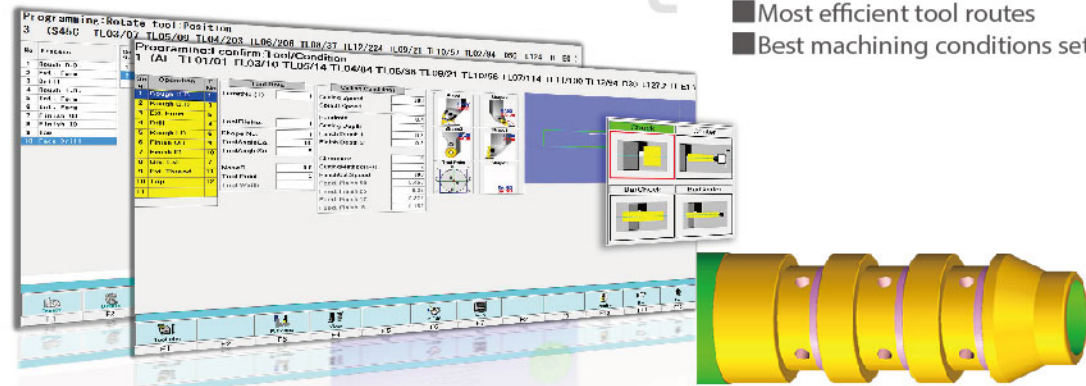


Q-1st Piece Output

Do you still worry that you don't have enough experienced engineers?
 Do you want to maintain quality, costs, and efficiency?
 The Q-1st piece output software is your best assistant!

Characteristics

- Machining condition database was embedded
- Only requirement is to input workpiece shape and material
- Finish 1st workpiece rapidly
- Decreasing the dependence of experienced programming engineers
- Most efficient tool routes
- Best machining conditions setting



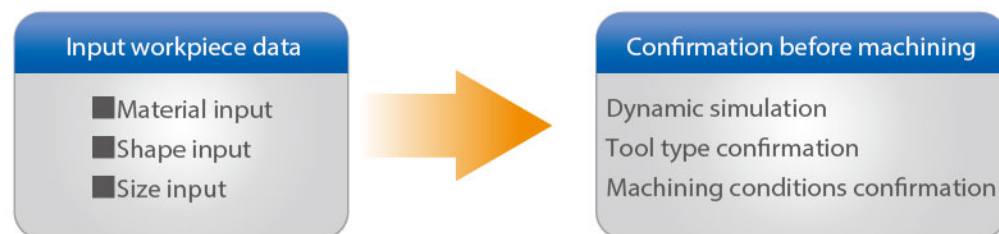
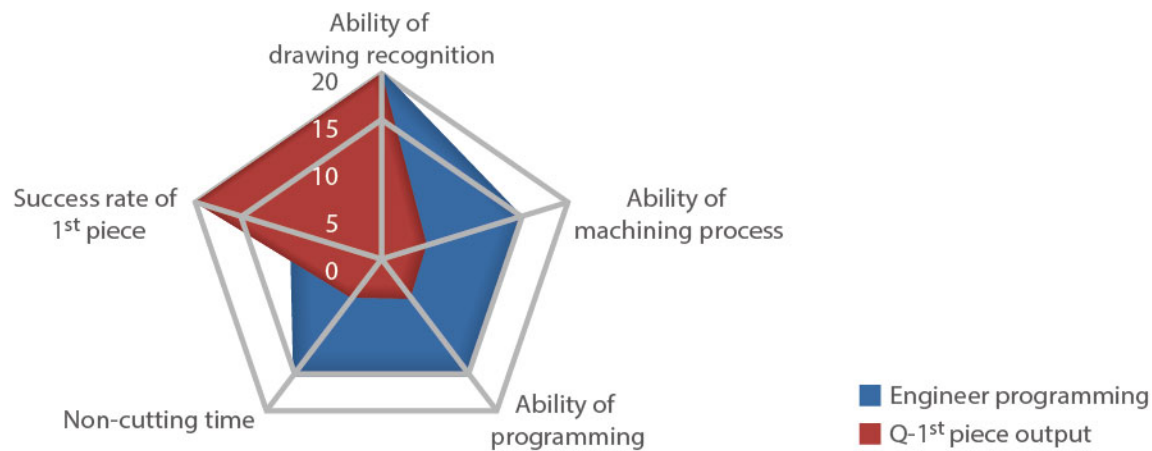
Absolutely automatic programming



1. Decide the machining methods automatically
2. Decide the best machining processes automatically
3. Decide machining tools automatically
4. Decide tool arrangement automatically
5. Decide machining conditions automatically
6. Decide tool routes automatically

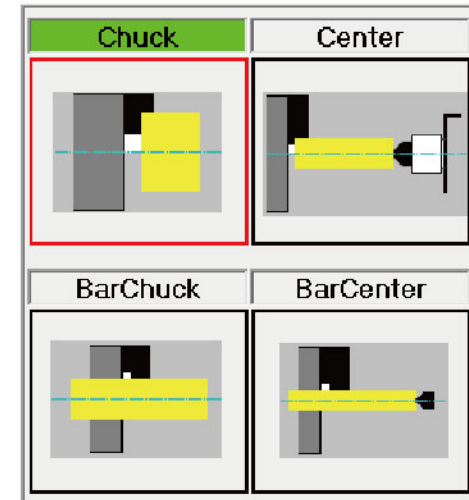
Easiest communication interface

By the assistance of Q-1st software, the operator only needs easy skill of drawing recognition for programming and machining.



Different machining types

Operator can set up different feeding and clamping methods, then the software generates relevant M codes and machining conditions automatically.



Abundant tool database

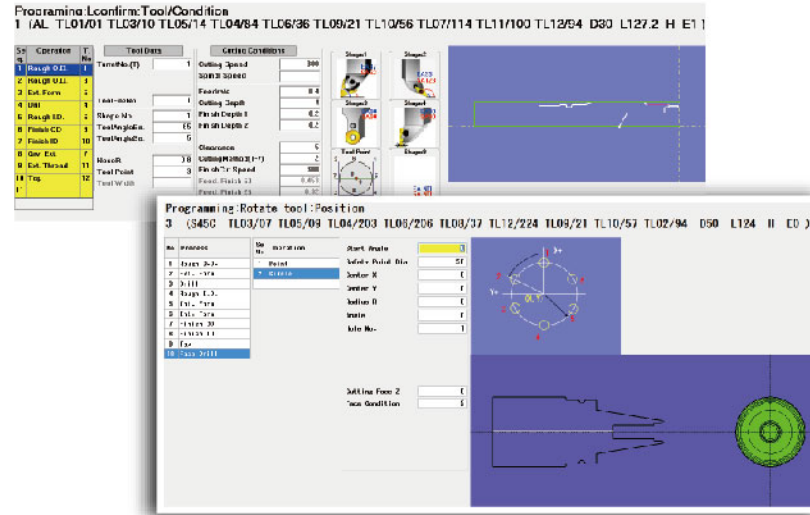
Abundant tool types in market were embedded in the software for operator's choices.

Grp	File	Sha	EA	SA	Tool	Tool	Bar	Min.	Nose	Tool	Mol
up	Nr	pe	Angl	Angl	Width	Din	Din	Brnre	ϕ	PT	PT
1	31	1	-87	-27	0	32	40	0.0	2	4	
1	32	1	87	27	0	25	32	0.8	2	4	
1	33	1	-87	-27	0	28	26	0.8	2	4	
1	34	1	87	27	0	16	22	0.4	2	4	
1	35	1	-87	-27	0	12	16	0.1	2	4	
1	36	1	87	27	0	19	12	0.4	2	4	
1	37	1	-87	-27	0	8	10	0.2	2	4	
1	38	1	-87	-27	0	32	50	0.4	2	4	
2	39	2	-85	-175	0	32	50	0.8	1	4	
2	40	2	-93	-128	0	40	50	0.0	1	4	
2	41	2	93	128	0	32	40	0.8	1	4	
2	42	2	-87	-128	0	25	32	0.0	1	4	
2	43	2	93	128	0	20	25	0.8	1	4	
2	44	2	-83	-128	0	16	20	0.4	1	4	
2	45	2	93	128	0	12	16	0.4	1	4	
3	46	3	-80	-50	0	32	50	0.1	2	4	
3	47	3	-90	-50	0	32	50	2.5	2	4	
4	48	4	-80	-50	1	32	50	0.2	2	4	
4	49	4	-90	-50	3	32	50	0.2	2	4	
5											

Q-1st Piece Output

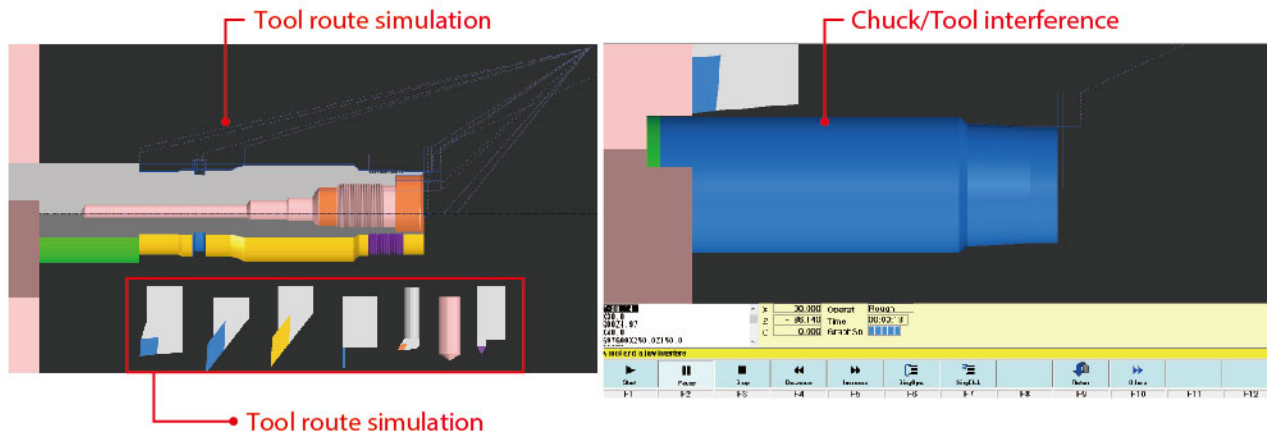
Machining conditions display

The operator can review the machining conditions, which are planned by the software, as well as to adjust parameters for satisfying special needs (ex. tool life and cycle time)



3D dynamic simulation

Through the 3D dynamic simulation, operator can confirm the correctness of programs and tool routes before machining. Furthermore, it can check the interference between tools and chuck.



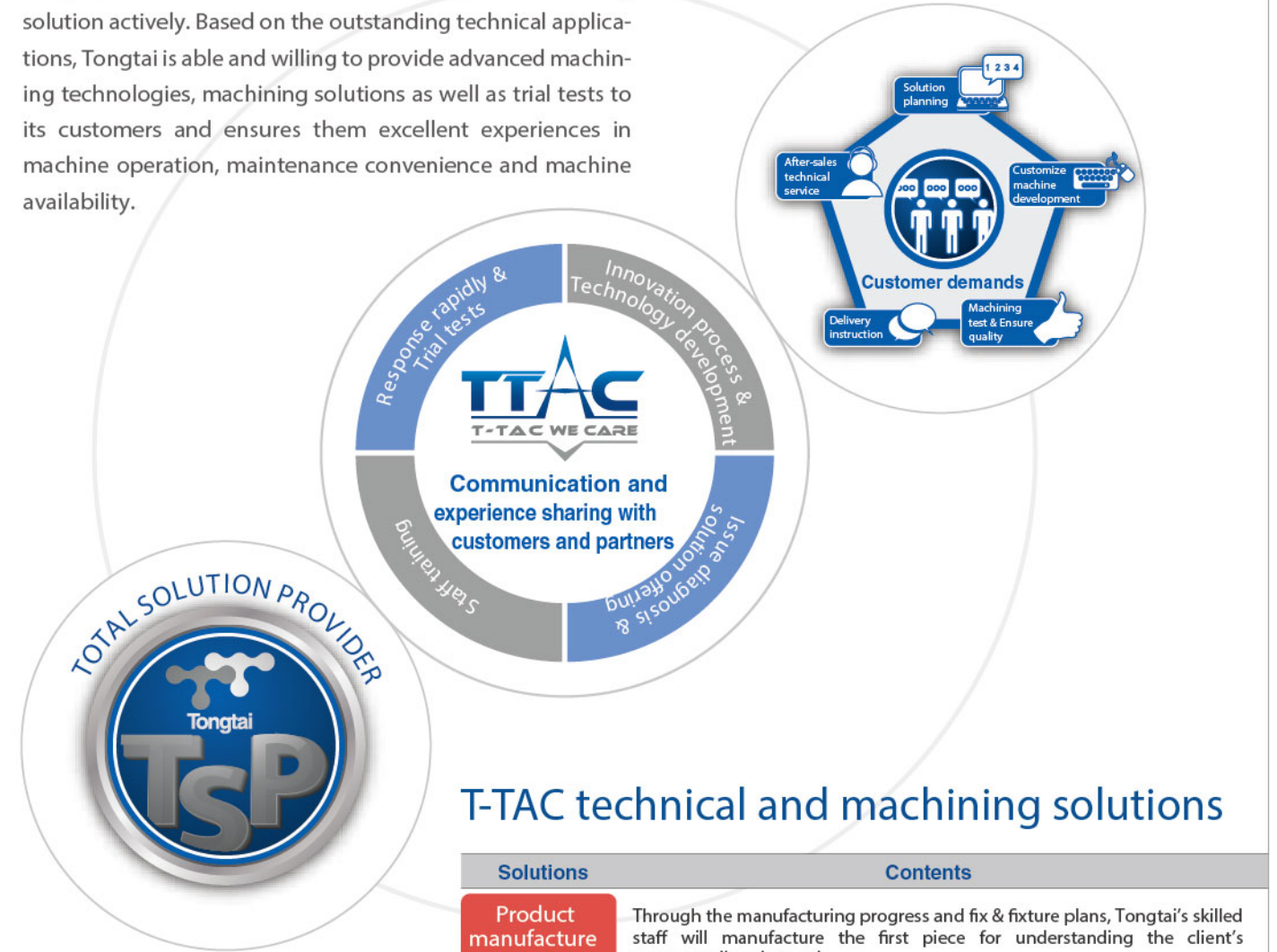
Time estimation

According to the machining processes, software can estimate machining time, rapid traveling time and total cycle time. Thus customer can do evaluations fast and exactly.

T.No	Plan Tl. No	Tool Geometry	Pl. Angle FA Angle SA Angle	Tl. Width Tl. Dia. Bar Dia.	Use-P	T. PT	Feed (mm/min) Feed (mm/rev)	1st Time Rapid Time
1	T 1	Rough O.D. L 1	85 5		0.4	3	300 0.15	00:00:04 00:00:07 00:00:12
2	T 3	Rough O.D. L 10	87 52		0.4	3	300 0.258	00:00:02 00:00:07 00:00:09
3	T 4	Drill L 84	118	15	0		1167 0.225	00:00:10 00:00:07 00:00:16
4	T 6	Rough I.D. L 35	87 -22	10	0.4	2	300 0.225	00:00:03 00:00:07 00:00:10
5	T 5	Rough O.D. L 21	87 52		0.4	3	300 0.111	00:00:12 00:00:07 00:00:19
6	T 10	Finish ID L 56	87 -22	10	0.4	2	600 0.111	00:00:05 00:00:07 00:00:12
7	T 7	Chk. Excl. L 114		2	0.2	3	300 0.126	00:00:05 00:00:07 00:00:12
T 11							1000	00:00:01 00:00:07

Tongtai-Technical Application Center

The purpose of T-TAC is to take care of customer's machining solution actively. Based on the outstanding technical applications, Tongtai is able and willing to provide advanced machining technologies, machining solutions as well as trial tests to its customers and ensures them excellent experiences in machine operation, maintenance convenience and machine availability.

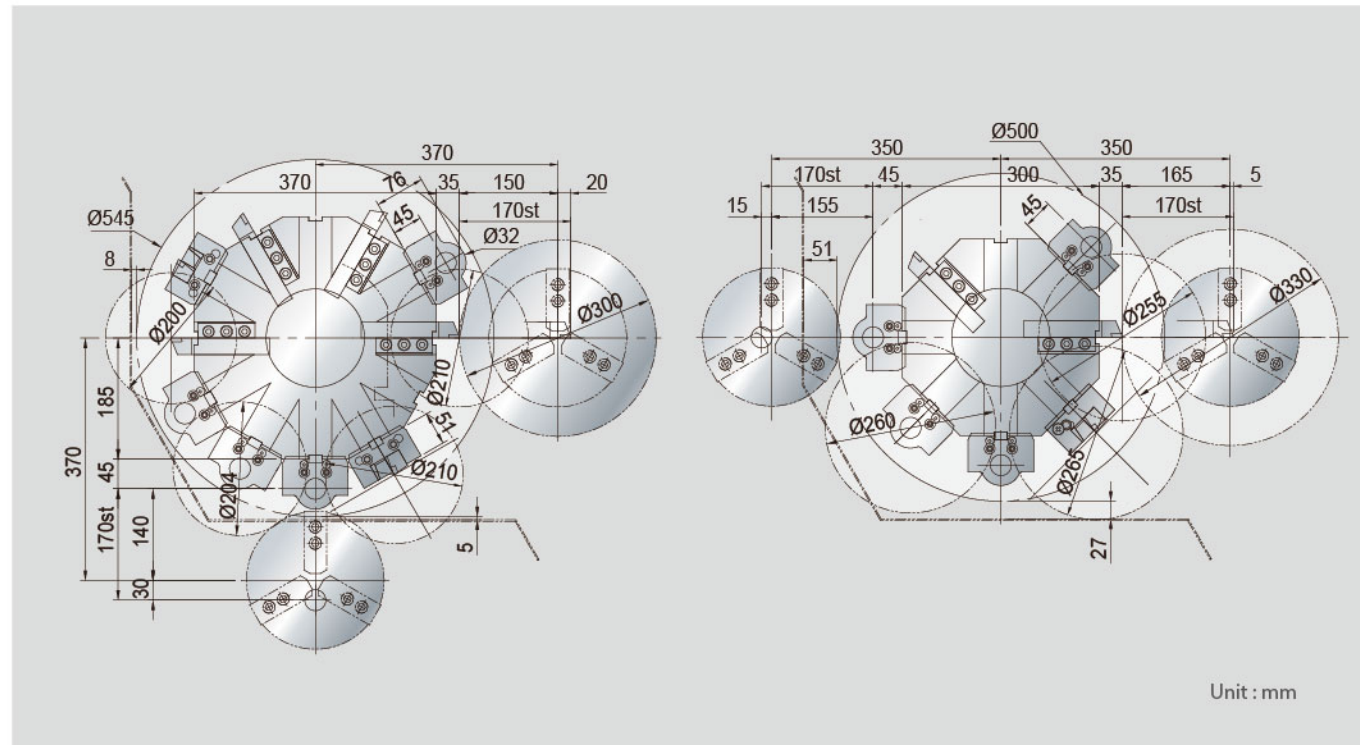


T-TAC technical and machining solutions

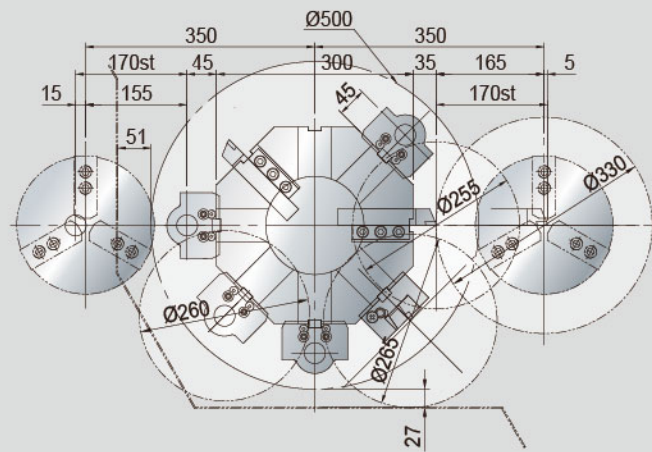
Solutions	Contents
Product manufacture test	Through the manufacturing progress and fix & fixture plans, Tongtai's skilled staff will manufacture the first piece for understanding the client's corresponding demands.
Machining technologies	By introducing innovative technologies and adding the extra functions, T-TAC is available to provide the brand-new solutions.
Machine technology	Our technical staff will test current problems, which clients have, in the same machine model for processing problem diagnosis and providing possible solutions. Furthermore, our skilled staff is able to provide the services at the client's factory.
Training	T-TAC is open to train current clients, potential customers, agents, teachers / students, and employees and to strengthen their abilities.
Technology exhibits	T-TAC is also an excellent platform to launch new products/technologies by cooperation with software/hardware suppliers. With presentation of highly reliable products/technologies, it's possible to provide higher efficiency and availability solutions than existing ones.

Tool interference

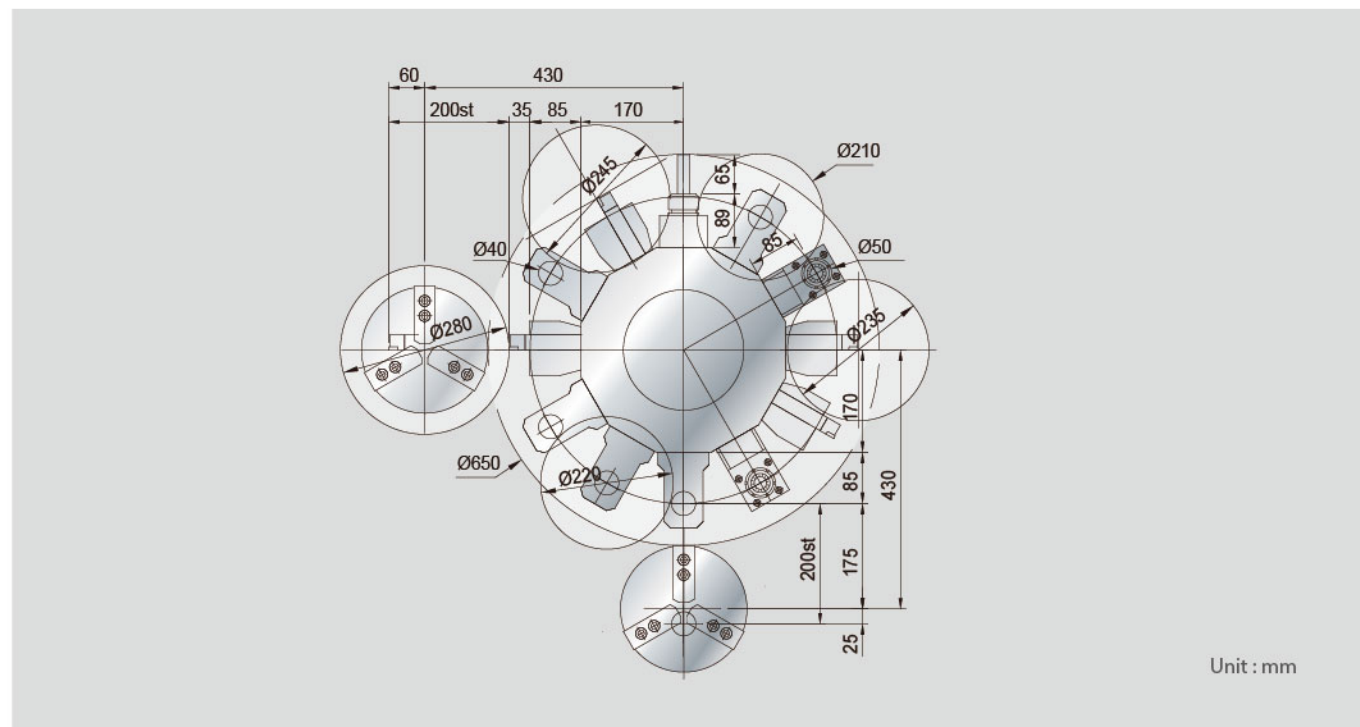
12V servo turret



8V servo turret

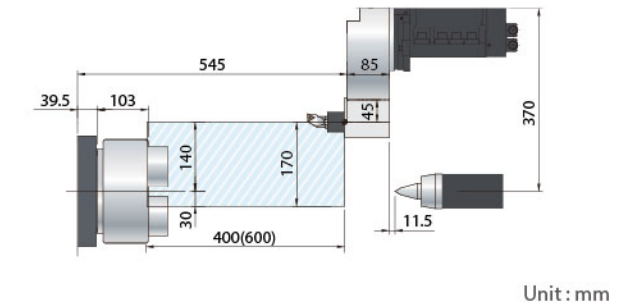
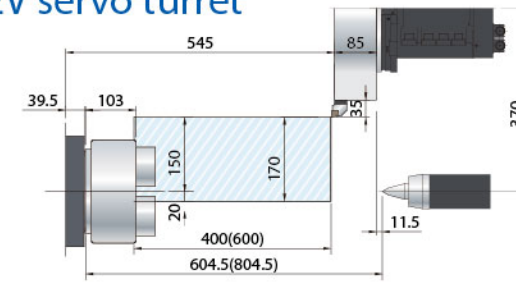


12V power turret(VDI40)

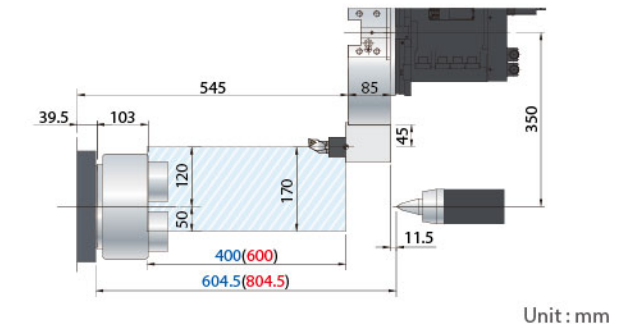
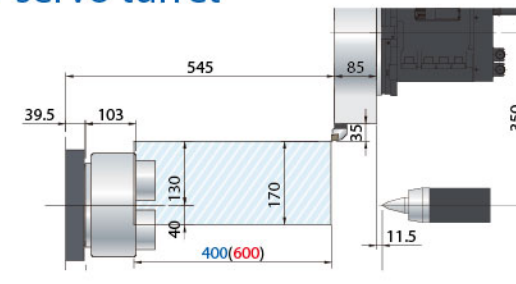


Working area

12V servo turret

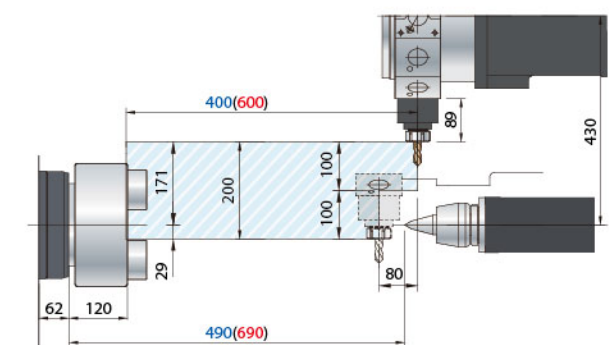
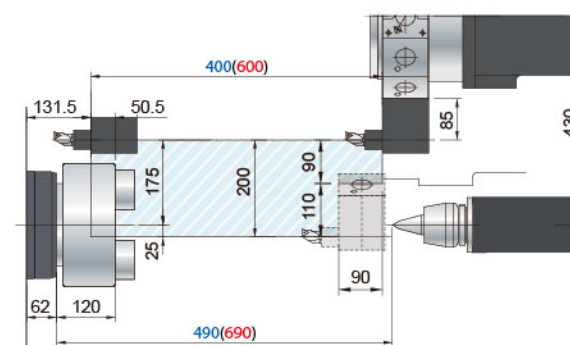
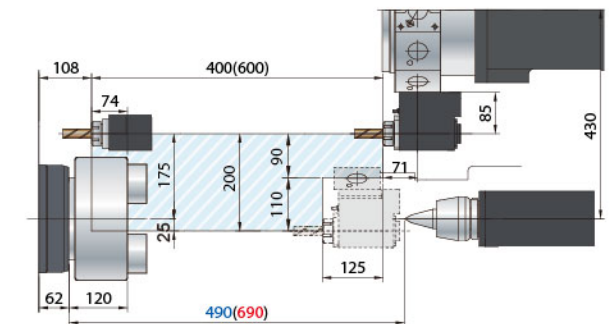
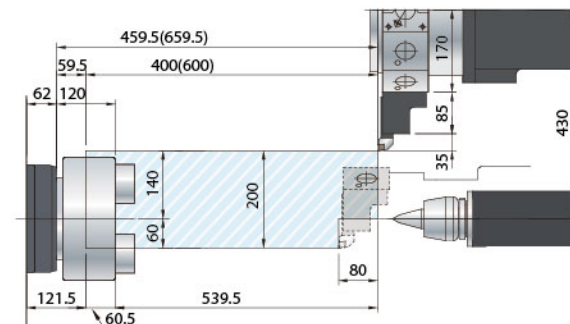


8V servo turret



iTC-2000/2500 iTC-2000L/2500L

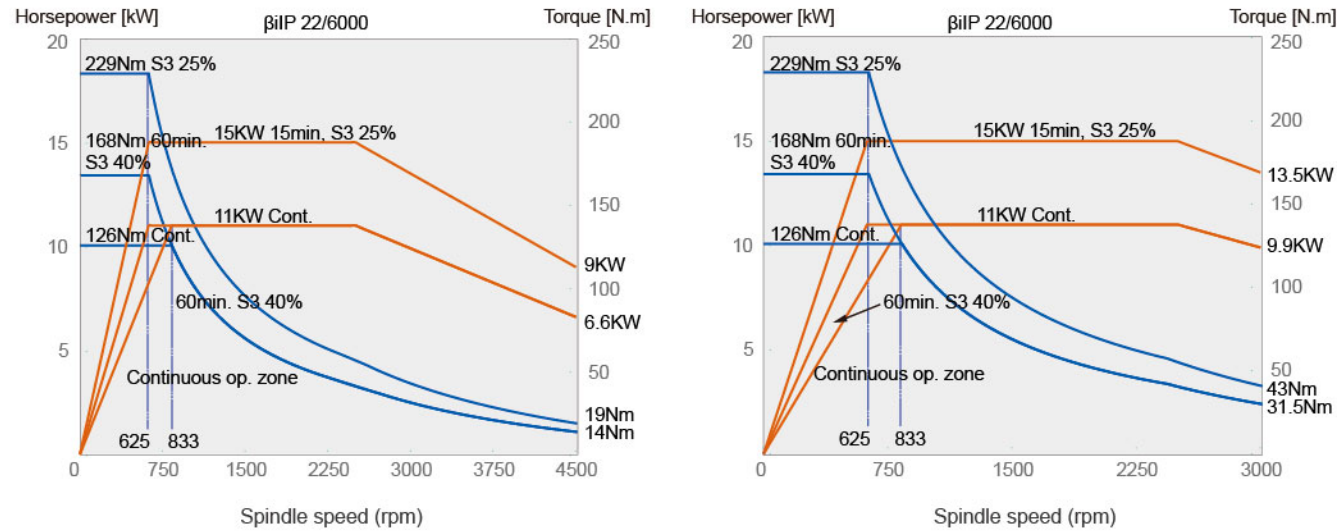
12V power turret(VDI40)



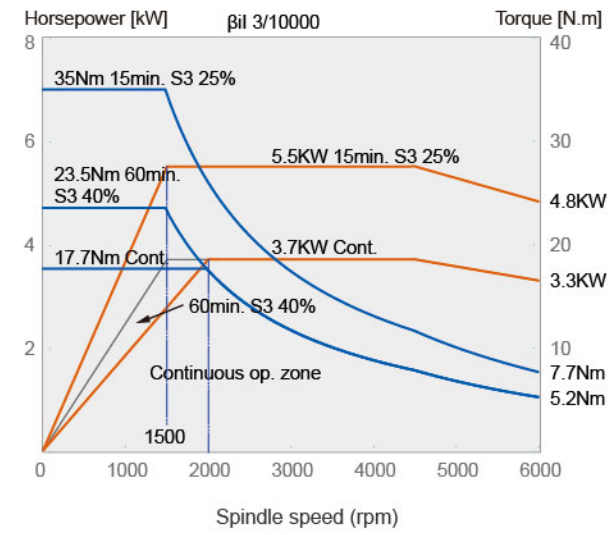
iTC-2000M/2500M iTC-2000LM/2500LM

Spindle output and torque chart

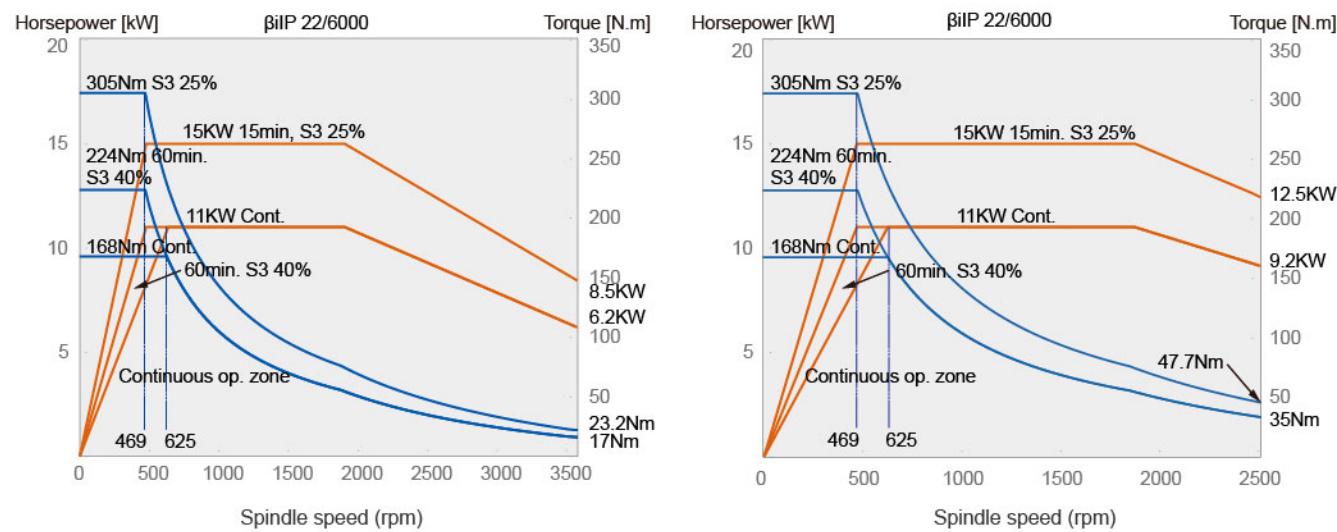
iTC-2000
Spindle bearing dia. Ø100 mm / Pulley ratio 1:1.2



Live tool motor



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



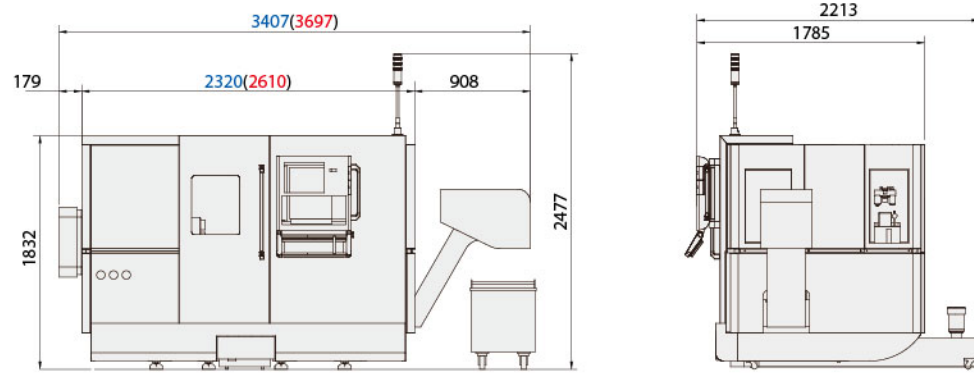
Standard/Optional accessories

		Standard	Optional
Chuck	Three jaws chuck	●	
	Collet chuck		○
Turret	Servo turret	●	
	Power turret		○
Live tool spec.	BMT-65		○
	VDI-40		○
Chip conveyor	Hinge type	●	
	Scraper type		○
	Magnetic scraper type		○
Linear scale	5µm resolution		○
	3µm resolution		○
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		○
Others	Oil skimmer		○
	Oil mist collector		○
	Air conditioner for electrical cabinet		○
	Manual tool presetter		○
	Air gun		○
	Coolant gun		○

Machine dimensions/Specification

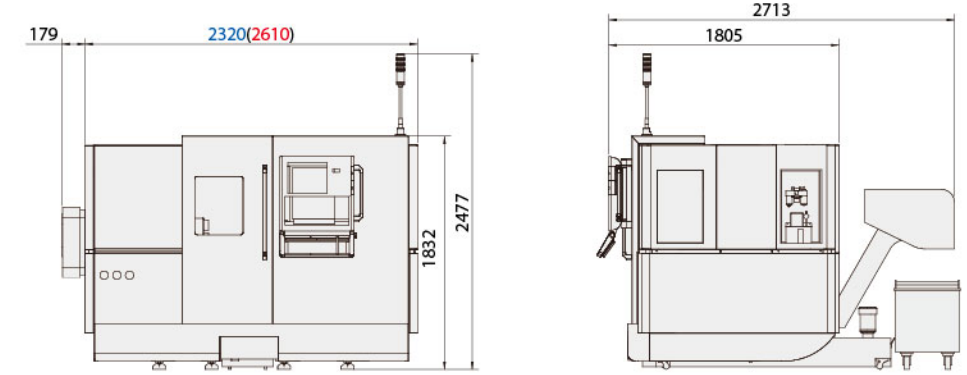
Dimension with sideward type chip conveyor

Unit: mm



Dimension with rearward type chip conveyor

Unit: mm



Specification

Item	Specification	Unit	iTC-2000(Ø100)	iTC-2500(Ø120)	iTC-2500(Ø130)	iTC-2000L(Ø100)	iTC-2500L(Ø120)	iTC-2500L(Ø130)
Capacity	Max. swing dia.	mm	Ø520	Ø520	Ø520	Ø520	Ø520	Ø520
	Max. swing dia. over saddle	mm	Ø320	Ø320	Ø320	Ø320	Ø320	Ø320
	Max. turning diameter	mm	Ø300 (12V) Ø330 (8V)	Ø300 (12V) Ø330 (8V)	Ø300 (12V) Ø330 (8V)	Ø300 (12V) Ø330 (8V)	Ø300 (12V) Ø330 (8V)	Ø300 (12V) Ø330 (8V)
	Max. turning length	mm	400	400	400	600	600	600
	Bar capacity	mm	Ø51	Ø64	Ø74	Ø51	Ø64	Ø74
	Chuck size	inch	8	10	10	8	10	10
	Spindle	Spindle speed	rpm	4500(opt.3000)	2500(Opt.3500)	2500(Opt.3500)	4500(opt.3000)	2500(Opt.3500)
Spindle nose			A2-6	A2-8	A2-8	A2-6	A2-8	A2-8
Spindle bearing dia.		mm	Ø100	Ø120	Ø130	Ø100	Ø120	Ø130
Turret	Tool capacity		12(opt.8)	12(opt.8)	12(opt.8)	12(opt.8)	12(opt.8)	12(opt.8)
	O.D. tool	mm	25x25	25x25	25x25	25x25	25x25	25x25
	I.D. tool	mm	Ø32/Ø40	Ø32/Ø40	Ø32/Ø40	Ø32/Ø40	Ø32/Ø40	Ø32/Ø40
	Driving system		Servo	Servo	Servo	Servo	Servo	Servo
Travel	X/Z axis travel	mm	150+20 / 400 (12V) 165+5 / 400 (8V)	150+20 / 400 (12V) 165+5 / 400 (8V)	150+20 / 400 (12V) 165+5 / 400 (8V)	150+20 / 600 (12V) 165+5 / 600 (8V)	150+20 / 600 (12V) 165+5 / 600 (8V)	150+20 / 600 (12V) 165+5 / 600 (8V)
	X/Z axis rapid traverse	m/min	30/30	30/30	30/30	30/30	30/30	30/30
Tailstock	Tailstock travel	mm	275	275	275	500	500	500
	Center Taper		MT4	MT5	MT5	MT4	MT5	MT5
	Max. thrust	kgf	500	500	500	500	700	700
	Driving system		Manual	Manual	Manual	Manual	Manual	Manual
	Quill travel	mm	100	100	100	100	100	100
Motor	Spindle motor	kW	15/11	15/11	15/11	15/11	15/11	15/11
	X/Z axis servo motor	kW	1.8/1.8	1.8/1.8	1.8/1.8	1.8/1.8	1.8/1.8	1.8/1.8
Coolant	Coolant motor	kW	0.55x1	0.55x1	0.55x1	0.55x1	0.55x1	0.55x1
	Coolant supply	l/min	90	90	90	90	90	90
	Coolant pressure	kg/cm ²	1.5	1.5	1.5	1.5	1.5	1.5
	Tank capacity	L	95	95	95	95	95	95
	Dimension (LxWxH)	mm	3407x2213x2477	3407x2213x2477	3407x2213x2477	3697x2213x2477	3697x2213x2477	3697x2213x2477

Specification

Item	Specification	Unit	iTC-2000M(Ø100)	iTC-2000LM(Ø100)	iTC-2500M(Ø120)	iTC-2500LM(Ø120)	iTC-2500M(Ø130)	iTC-2500LM(Ø130)
Capacity	Max. swing dia.	mm	Ø520	Ø520	Ø520	Ø520	Ø520	Ø520
	Max. swing dia. over saddle	mm	Ø320	Ø320	Ø320	Ø320	Ø320	Ø320
	Max. turning diameter	mm	Ø280	Ø280	Ø280	Ø280	Ø280	Ø280
	Max. turning length	mm	300	500	300	500	300	500
	Bar capacity	mm	Ø51	Ø51	Ø64	Ø64	Ø74	Ø74
	Chuck size	inch	8	8	10	10	10	10
Spindle	Spindle speed	rpm	4500(opt.3000)	4500(opt.3000)	2500(Opt.3500)	2500(Opt.3500)	2500(Opt.3500)	2500(Opt.3500)
	Spindle nose		A2-6	A2-6	A2-8	A2-8	A2-8	A2-8
	Spindle bearing dia.	mm	Ø100	Ø100	Ø120	Ø120	Ø130	Ø130
Turret	Tool capacity		12(VDI 40)	12(VDI 40)	12(VDI 40)	12(VDI 40)	12(VDI 40)	12(VDI 40)
	Max. speed	rpm	6000	6000	6000	6000	6000	6000
	Motor output	kW	5.5/3.7	5.5/3.7	5.5/3.7	5.5/3.7	5.5/3.7	5.5/3.7
	Driving system		Servo	Servo	Servo	Servo	Servo	Servo
Travel	X/Z axis travel	mm	140+60 / 400	140+60 / 600	140+60 / 400	140+60 / 600	140+60 / 400	140+60 / 600
	X/Z axis rapid traverse	m/min	30/30	30/30	30/30	30/30	30/30	30/30
Tailstock	Tailstock travel	mm	275	500	275	500	275	500
	Center Taper		MT4	MT4	MT5	MT5	MT5	MT5
	Max. thrust	kgf	500	500	700	700	700	700
	Driving system		Manual	Manual	Manual	Manual	Manual	Manual
Motor	Spindle motor	kW	15/11	15/11	15/11	15/11	15/11	15/11
	X/Z axis servo motor	kW	1.8/1.8	1.8/1.8	1.8/1.8	1.8/1.8	1.8/1.8	1.8/1.8
Coolant	Coolant motor	kW	0.55x1	0.55x1	0.55x1	0.55x1	0.55x1	0.55x1
	Coolant supply	l/min	90	90	90	90	90	90
	Coolant pressure	kg/cm ²	1.5	1.5	1.5	1.5	1.5	1.5
	Tank capacity	L	95	95	95	95	95	95
Dimension (LxWxH)	mm	3407x2213x2477	3697x2213x2477	3407x2213x2477	3697x2213x2477	3407x2213x2477	3697x2213x2477	

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