



EFFICIENT MEDIUM AND LARGE
HORIZONTAL TURNING CENTER

TCK 600



DONGS SOLUTIONS

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FOR MORE DETAILS PLEASE CONTACT DONGS MACHINE TOOL

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DONGS SOLUTIONS
Design Patent : ZL202330553602.X

TCK600 machines are large horizontal turning centers ideal for machining pipes, valves and flanges used in oil and gas industry, hydraulic parts used in construction equipment, and also complex parts used in the aircraft and ship building industries. Maximum turning, diameters and lengths are $\phi 520\text{mm}$ and 2000mm respectively, which are the highest in their class. The slant bed design allows easy chip disposal.

Product Advantages



DONGS Machine Tool Serving The Globe



ONE-STEP FOR MACHINING LARGE COMPLEX PARTS

- Maximum productivity and versatile machining of large, complex parts through optional power turret and Y-axis capability.

THE LARGEST MACHINING AREA AND TOP PERFORMANCE IN ITS CLASS

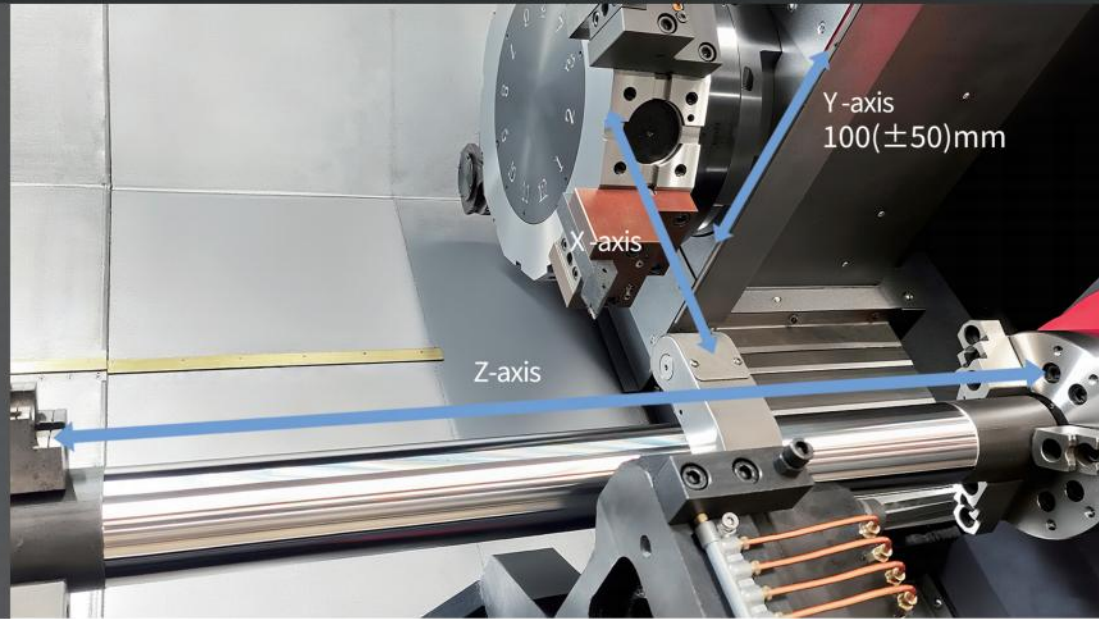
- With 2m maximum turning length, $\phi 520\text{mm}$ maximum turning diameter and 708N · m of Torque, the machines are ideal for the heavy-duty cutting of large parts

THE SOLUTION FOR MACHINING A WIDE RANGE OF PIPES

- $\phi 132\text{mm}$ maximum spindle through hole diameter makes the machines ideal for turning large diameter pipes.
- The machines take the machining of high-accuracy and performance-critical threads in their stride

BASIC STRUCTURE

Machine capabilities range from 2-axis to Y-axis, The 45° inclined bed structure, cast in one piece Various options available

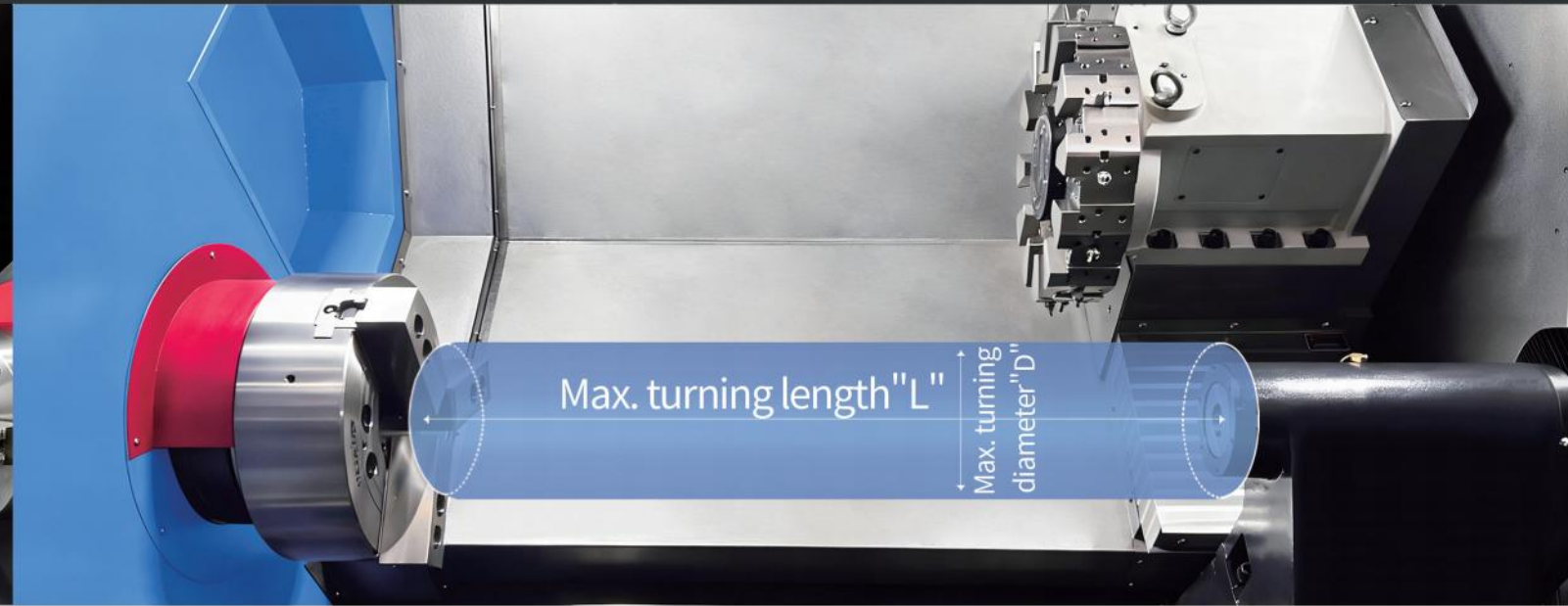


*Chucks and rotary cylinders are optional.
*S-axis sub-spindle is optional.

Centre distance	1100	1600	2100
Chuck Size (inch)	10/12		
X-axis travel (mm)	310		
Y-axis travel (mm)	100 (±50)		
Z-axis travel (mm)	1100	1600	2100

MACHINING AREA

The largest work envelope in their class with a maximum turning diameter of $\phi 520\text{mm}$ and maximum turning length of 2m.



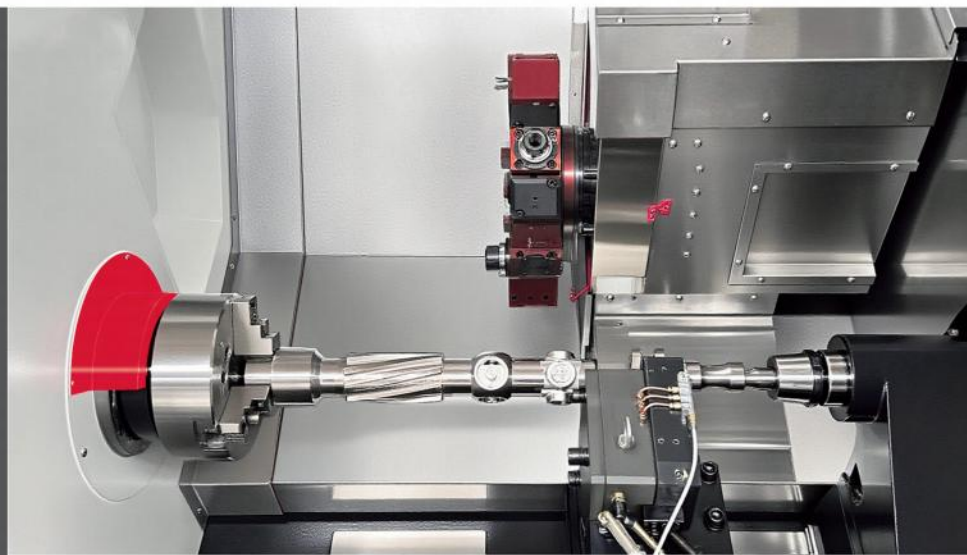
Max. turning diameter
 $\phi 520\text{ mm}$

Max. turning length
2000 mm

Spindle

The gearbox design allows the TCK700/TCK800 spindles to have unparalleled power and torque, which boosts productivity and delivers extreme heavy-duty cutting capability.

Max. spindle speed
2000-3000 r/min
Max. spindle power
22 kw
Max. spindle torque
708 N.M



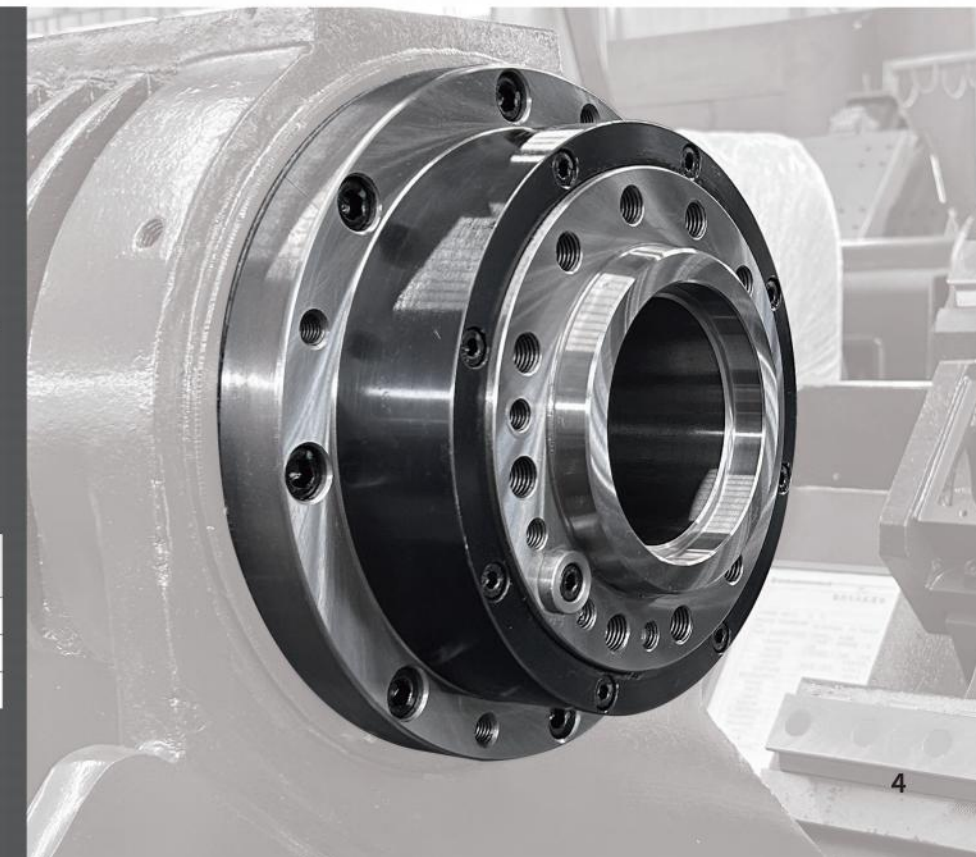
Spindle front taper	Spindle through hole (mm)	Max. Spindle speed (r/min)	Max. Spindle power (KW)	Max. spindle torque (N.M)
A2-8	$\phi 86$	3000	22	472
A2-11	$\phi 105$	2000	30	708
	$\phi 132$	1500	30	708

Machines are available with various spindle-through-hole sizes to provide the optimum machining solutions for different sized pipes.

Max. spindle through hole diameter
 $\phi 132\text{ mm}$

Unit : mm

Spindle front taper	Max. through hole diameter	Bar through diameter
A2-8	$\phi 86$	$\phi 74$
A2-11	$\phi 105$	$\phi 90$
	$\phi 132$	$\phi 120$



TAILSTOCK

The standard programmable tailstock is easy to position and adjust thereby helping to reduce set up times.



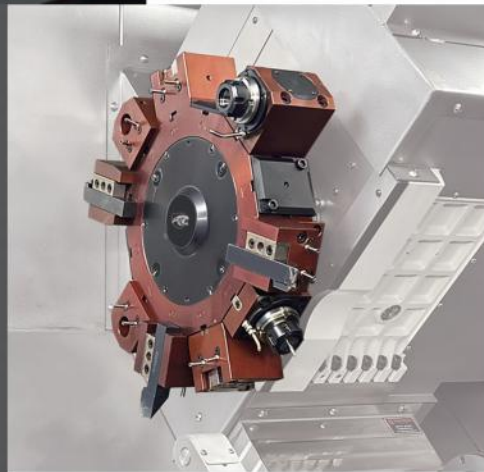
The tailstock body driven by the hydraulic motor through the gear rack. The tailstock sleeve is pushed by the hydraulic cylinder. The tailstock body is automatically locked by the hydraulic cylinder. All actions are controlled by M Code.

Unit : mm

Model	Tailstock sleeve	Travel of sleeve	Tail stock travel
TCK600-1000	100	150	1100
TCK600-1500			1600
TCK600-2000			2100

TURRET

The turret disk is driven by a highly efficient servo motor and hydraulically locked by the end gear disk, which is suitable for heavy-duty cutting, effectively shortening the non-cutting time and improving the machining efficiency.



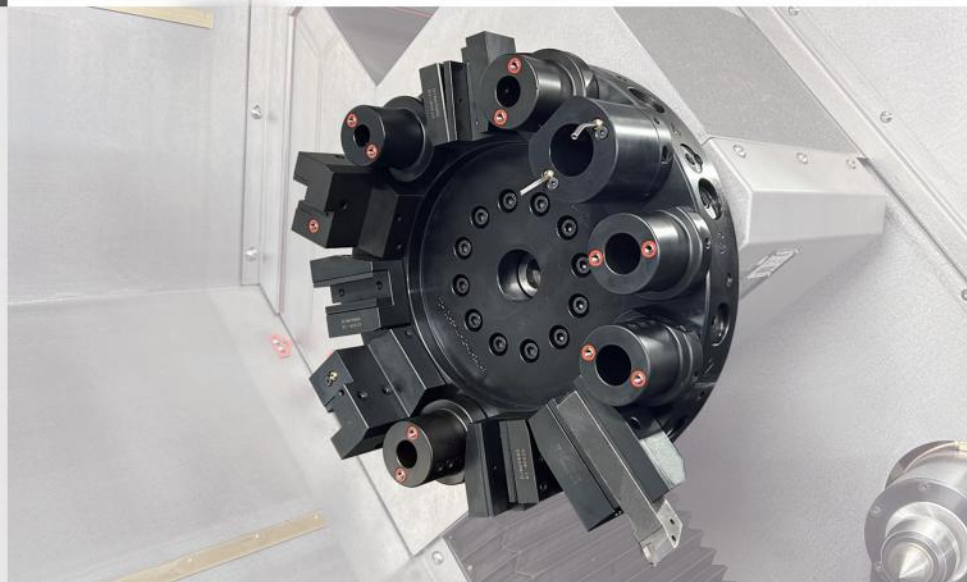
BMT 55 turret position 12位



Standard configuration 刀盘直径 420mm Turret position 12

VDI TURRET Optional

The VDI turret, with a single locking wedge that holds the holder in the turret, allows for quicker alignment and mounting of holders and tools.



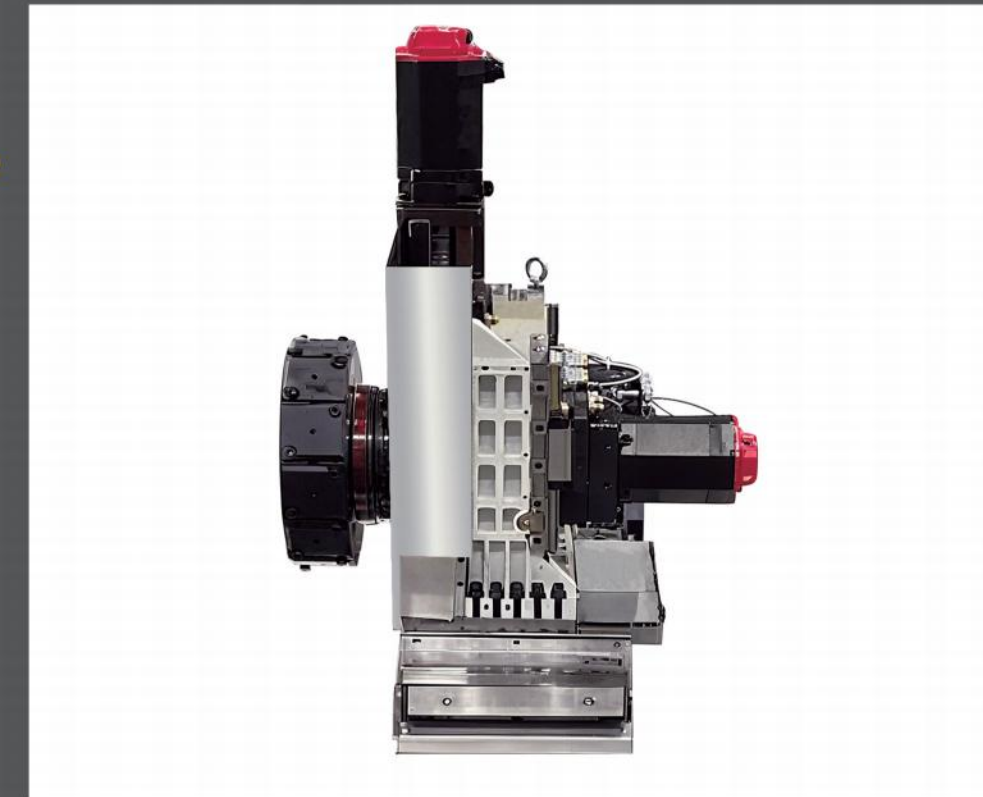
Y-AXIS / SUB SPINDLE

High-power motor inside spindle

Y-axis Travel ± 50 mm

Y-axis guide 4 linear guide

Y-axis — BMT55 Power turret Optional



Through hole of Sub spindle 66 mm

Outer diameter of main spindle 200 mm

Precision of main spindle ≤ 0.003 mm

Rated rotational speed 2320 rpm

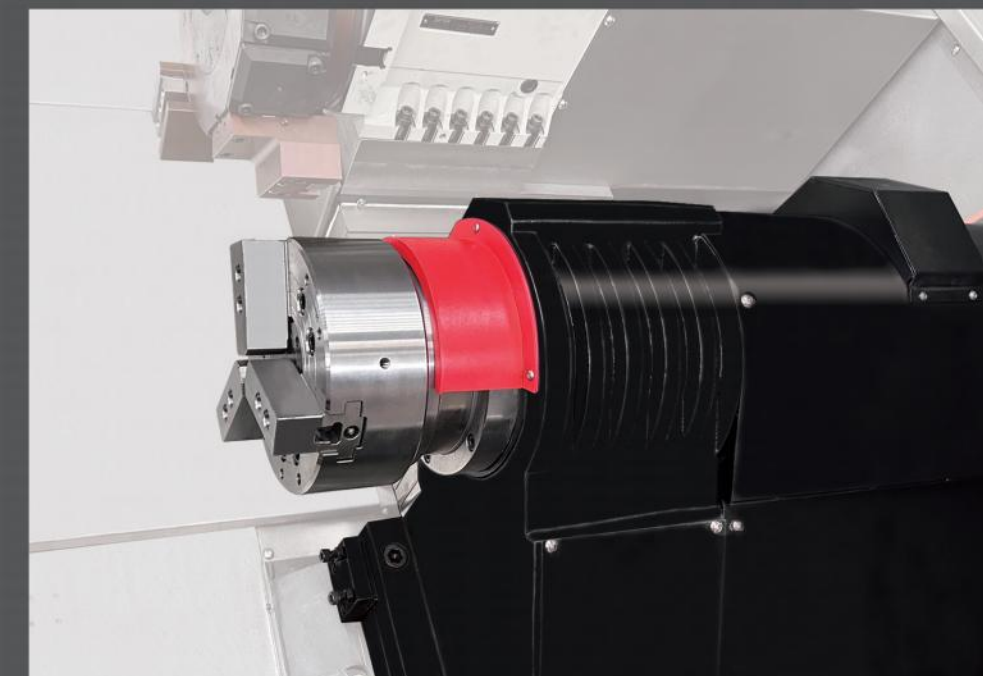
Maximum rotating speed 4000 rpm

Rated power 22.15 kw

Rated torque 100 Nm

Max. torque 226 Nm

Sub spindle spindle Optional

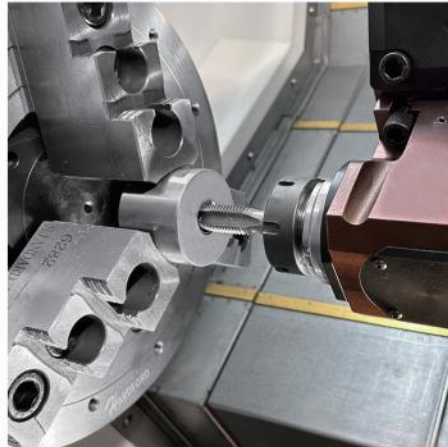


CUTTING PERFORMANCE

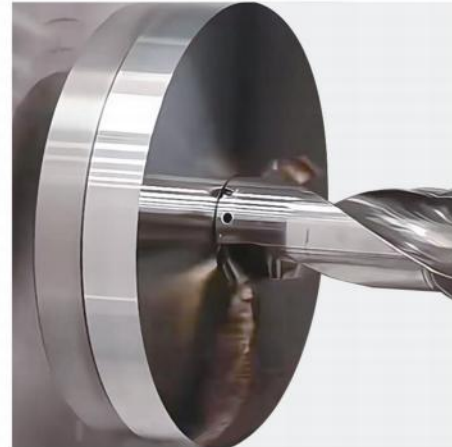
TCK600 machines can perform high-productivity, heavy-duty machining operations such as ID/OD turning, end milling, tapping and U-drilling etc.



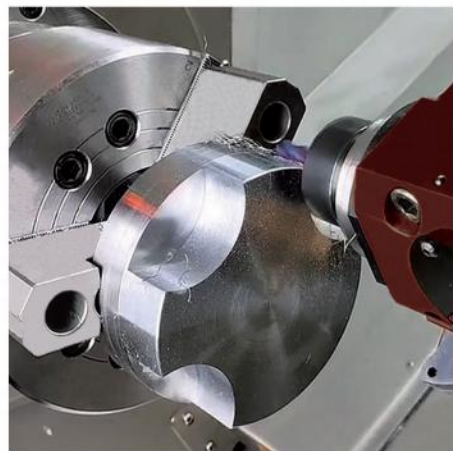
O.D turning(Material diameterφ220mm)	
Speed	400rpm
Feed	0.35mm/rev
Depth of cut	5mm
Chip Removal rate	150cm ³ /min



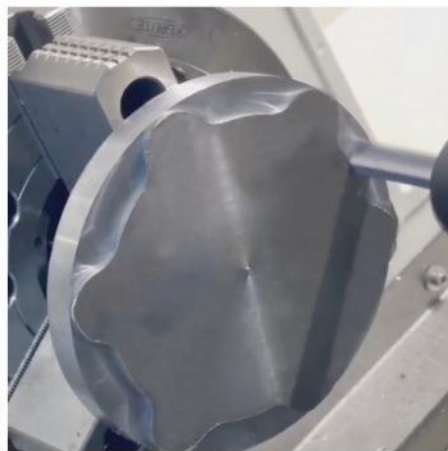
Tapping	
Cutting Tool	M16
Feed	2.5mm/rev
Depth of cut	30mm



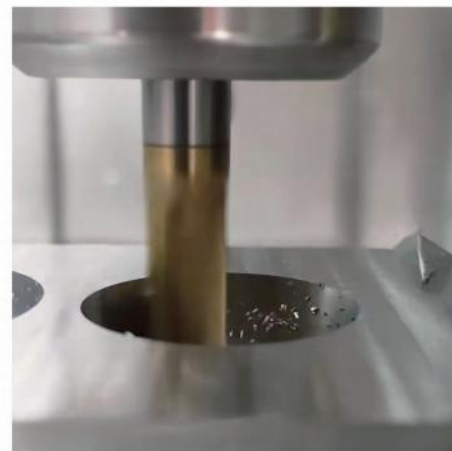
U-Drill	
Cutting Tool	φ24mm
Cutting line speed	2000m/min
Feed	0.1mm/rev
Chip Removal rate	150cm ³ /min



End mill ((Low Speed)	
Cutting Tool	φ24mm
Cutting line speed	30m/min
Feed	90mm/min
Chip Removal rate	150cm ³ /min



End mill (High Speed)	
Cutting Tool	φ20mm
Cutting line speed	220m/min
Feed	1000mm/min
Chip Removal rate	175cm ³ /min



Milling	
Cutting Tool	φ20mm
Cutting line speed	240m/min
Feed	800mm/min
Chip Removal rate	100cm ³ /min

STABLE THREADING PERFORMANCE

All TCK600 series (2-Axis* to Y-Axis) are capable of threading work.

* In order to re-machine threads or perform arbitrary speed threading on a 2-Axis machine, additional optional devices have to be selected.

Threading repair function

This function allows users to repair threads even when the original program is not available. This is a standard Fanuc NC function.

Arbitrary speed threading

Optional

This function allows users to control and override spindle speeds in order to set them to produce/replicate the best thread quality.

Re-machining function

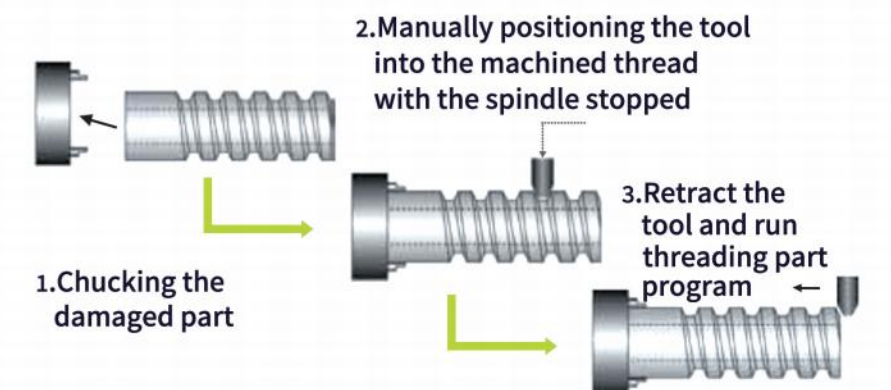
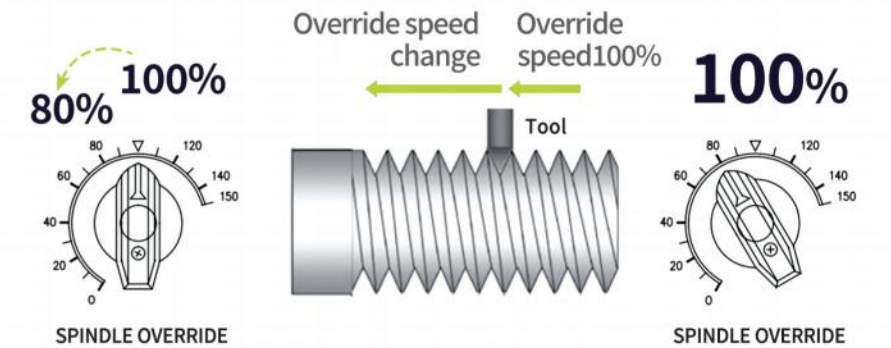
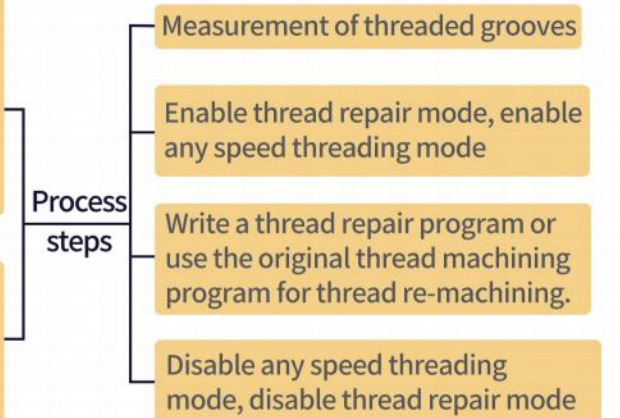
Optional

This function is included in the arbitrary speed threading. It allows users to re-machine damaged threads using the existing program.

Thread cutting and re-machining

For thread repair machining where the threads need to be re-machined after the fixture is removed.

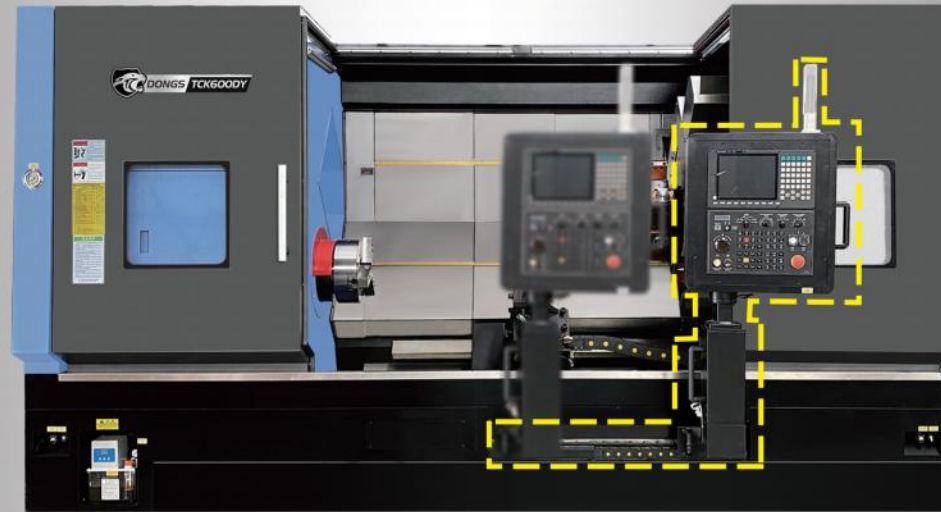
Re-threading of used and heavily worn workpieces



STANDARD & OPTIONAL SPECIFICATIONS

Diverse optional features are available for customer-specific work applications.

Movable Operating Panel



Standard&optional specifications

Description	Features	TCK600 series			
		A2-8	A2-11	132	
Spindle taper					
Through hole of main spindle					
Chuck	10 inch	●	●	X	
	12inch	○	○	○	
	15 inch	X	○	●	
Jaw	Soft Jaws	●	●	●	
	Hardened & ground hard jaws	○	○	○	
Chucking option	Single pressure chucking	●	●	●	
	Dual pressure chucking	X	X	X	
	Chuck clamp confirmation	○	○	○	
Steady rest	Hydraulic	Type C (10-100mm)	○	○	○
		Type C (20-165mm)	○	○	○
		Type C (30-200 mm)	○	○	○
	Type	Single	○	○	○
		Twin	○	○	○
Tailstock	Hydraulic Programmable type	●	●	●	
	Built-in dead center	X	X	X	
Coolant pump (60/50Hz)	4.5/3.0 Bar	○	○	○	
	7/5,10/7,14.5/10,28/19.5,70/70 Bar	○	○	○	
	Coolant level switch : Sensing level - Low	○	○	○	

Description	Features	TCK600 series		
		A2-8	A2-11	132
Spindle taper				
Through hole of main spindle				
Coolant options	Oil skimmer	○	○	○
	Coolant chiller	○	○	○
	Coolant pressure switch	○	○	○
	Coolant gun	●	●	●
Chip disposal	Chip conveyor (Right side)	●	●	●
	Chip bucket	●	●	●
	Air blower for chuck	○	○	○
	Mist collector interface (Duct only)	○	○	○
Optionals	Tool setter (automatic)	○	○	○
	Automatic Door	○	○	○
	Signal tower	○	○	○
	Air gun	○	○	○
	Automatic power of	○	○	○
	Air unit for air chuck Single	○	○	○
	Air unit for air chuck Twin	○	○	○
	manual guide	○	○	○
Standard Accessories	Foundation bolt for anchoring	○	○	○

● Standard ○ Optional X N/A

Please contact DONGS SOLUTIONS representative for detailed machine information.



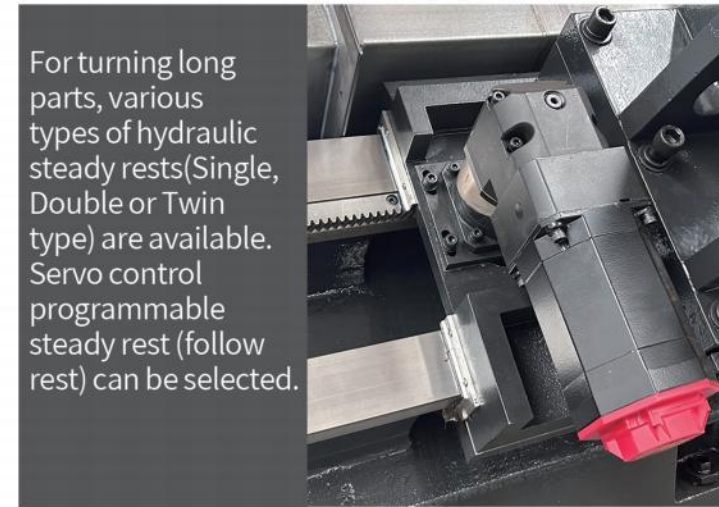
Fire Safety Precautions

There is a high risk of fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting the controlled and careful use of coolants and modifying the machine without the consent of the manufacturer. Always check the SAFETY GUIDELINES carefully before using the machine.

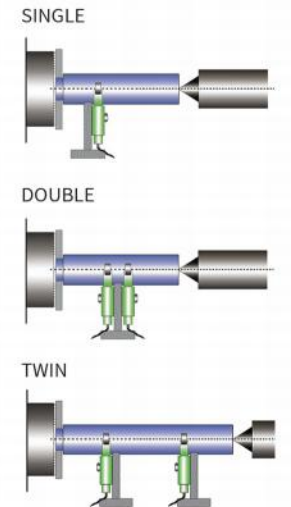
PERIPHERAL EQUIPMENT

Users can choose from a variety of configurations according to different processing needs.

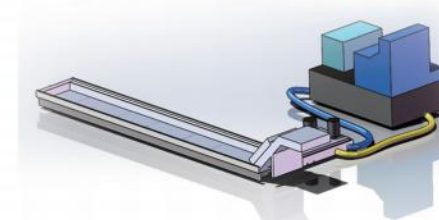
Hydraulic steady rest Optional



For turning long parts, various types of hydraulic steady rests(Single, Double or Twin type) are available. Servo control programmable steady rest (follow rest) can be selected.



Coolant chiller Optional

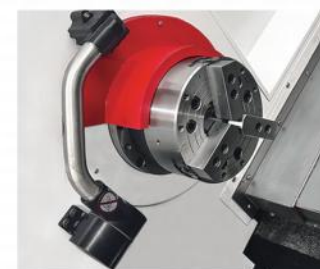


Coolant tank



A coolant chiller is recommended to help prevent temperature rises and to reduce thermal deformation when using a water-insoluble coolant or high-pressure coolant system (i.e., power over 1.5KW).

Automatic tool setter Optional



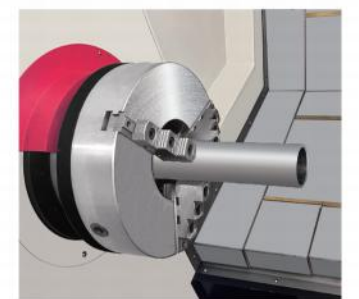
Renishaw tool setter

Oil skimmer Optional



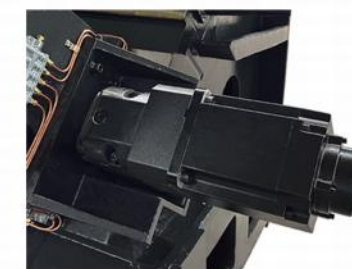
Belt oil skimmer

Twin chucking Optional



For more stable pipe threading processing, the twin chucking option(manual or pneumatic) is available. Please consult with DONGS Solutions for details.

Servo tailstock Optional



Servo programmable fully automatic tailstock

Oil mist filter Optional



Low noise/high efficiency/stable

CONVENIENT OPERATION

FANUC

Range of applications

Providing various applications related to planning, machining, improvement and utility, for customer convenience.

iHMI touchscreen Optional

iHMI provides an intuitive interface that uses a touchscreen for quick and easy operation.

USB and PCMCIA card QWERTY keyboard

- Manual Guide i optional
- Ergonomic operator panel
- 2MB Memory
- Hot keys



NUMERIC CONTROL SPECIFICATIONS

Division	Item	Specifications	FANUC					
			Fanuc i (FOi-F Plus-3B)	Fanuc i (FOi-F Plus-3B)	Fanuc i (FOi-F Plus-3B)	Fanuc i (FOi-F Plus-1)	Fanuc i (FOi-F Plus-3A)	Fanuc i (FOi-F Plus-0)
Controlled axis	Controlled axes		2(X,Z)	3(X,Z,C)	4(X,Z,C,Y)	2(X,Z)	3(X,Z,C)	4(X,Z,C,Y)
	Simultaneously controlled axes		2axes	3axes	4axes	2axes	3axes	4axes
Data input/output	Fast data server		○	○	○	○	○	○
	Memory card input/output		●	●	●	●	●	●
	USB memory input/output		●	●	●	●	●	●
Interface function	Larger capacity memory_2GB	Note *2) Available Option only with 15" Touch LCD (iHMI Only) .	X	X	X	X	X	○
	Embedded Ethernet		●	●	●	●	●	●
Operation	DNC operation	Included in RS232C interface.	●	●	●	●	●	●
	DNC operation with memory card		●	●	●	●	●	●
Program input	Workpiece coordinate system	G52-G59	●	●	●	●	●	●
	AI contour control I	G5.1Q_40 Blocks	○	○	○	○	○	○
Feed function	AI contour control II	G5.1Q_200 Blocks	○	○	○	○	○	○
	Manual Guide i (Conversational Programming Solution)		X	X	X	○	○	○
Operation Guidance Function	iHMI with Machining Cycle	Note *1) Only with 15" Touch LCD standard	X	X	X	X	X	○
	EZ Operation package		●	●	●	●	●	●
Setting and display	CNC screen dual display function		●	●	●	●	●	●
	FANUC MTConnect		☆	☆	☆	☆	☆	☆
Network	FANUCOPCUA		☆	☆	☆	☆	☆	☆
	Display unit	15" color LCD	X	X	X	X	X	●
Others	Threading repair function	15" color LCD with Touch Panel	X	X	X	X	X	○
			X	X	X	X	X	X

Network: FANUC MTConnect and FANUC OPC UA available.

● Standard ○ Optional X N/A ☆ Available

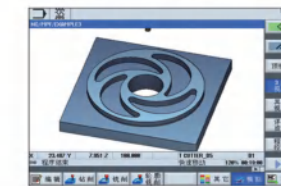
CONVENIENT OPERATION

Siemens 828D

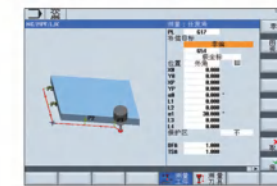
15. inch display

Siemens 828D' operation panel enhances operating convenience by incorporating common-design buttons and layout. It features a Qwerty keyboard for fast and easy data input and operation.

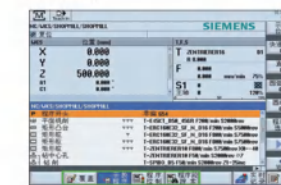
Convenient conversational functionality



3D finished product simulation function
This function observes the finest machining details and provides optimum machining reliability.



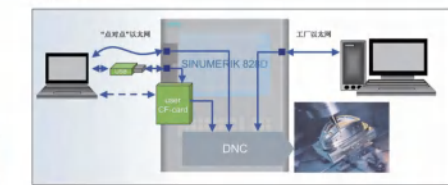
Measuring cycle function
Ensure machining accuracy



Flexible programme execution functions
In MDA mode, you can directly enter the programme manager to select the loaded programme, or save the MDI programme to the specified programme path.



Balance Turning
This function allows you to quickly complete two passes through the easy-to-use programming wizard or the graphical dialogue programming image of the ShopTurn step-by-step program, ensuring the correctness of the machining program and increasing programming efficiency.



RCS Host Remote Diagnostic Function
It establishes the connection and access between the remote diagnostic computer and the CNC system, and realises the functions of file transfer, remote display of the system operation screen, as well as remote operation and diagnosis, so as to better improve the efficiency of online service of machine tools.



NUMERIC CONTROL SPECIFICATIONS

Division	Item	Specifications	SIEMENS					
			2-Axis 828D	D 828D	S 828D	DS 828D	Y 828D	YS 828D
Controlled axis	Controlled axes		X,Z,SP	X,Z,C,R	X,Z,C,C2,B	X,Z,C,R,C2,B	X,Z,C,R,Y	X,Z,C,R,C2,Y,B
	Simultaneously controlled axes		4axes	4axes	4axes	4axes	4axes	4axes
Data input/output	Memory card input/output		X	X	X	X	X	X
	USB memory input/output		●	●	●	●	●	●
Interface function	Ethernet	(X130)	○	○	○	○	○	○
	On network drive	(without EES option, Extcall)	○	○	○	○	○	○
Operation	On USB storage medium, e.g. memory stick	(without EES option, Extcall)	●	●	●	●	●	●
	Workpiece coordinate system	G54 - G59, G507 - G599	●	●	●	●	●	●
Feed function	Advanced surface		X	X	X	X	X	X
	Top surface		X	X	X	X	X	X
Programming & Editing function	Look ahead number of block		1	1	1	1	1	1
	3D simulation, finished part		●	●	●	●	●	●
Operation Guidance Function	Simultaneous recording		●	●	●	●	●	●
	DXF Reader for PC integrated in SINUMERIK Operate		○	○	○	○	○	○
Setting and display	Shopturn		●	●	●	●	●	●
	EZ Operation package		●	●	●	●	●	●
Network	Operation via a VNC viewer		●	●	●	●	●	●
	MTConnect		☆	☆	☆	☆	☆	☆
Others	OPCUA		○	○	○	○	○	○
	Display unit	15.6" color display with touch screen	●	●	●	●	●	●
Part program storage size	CNC user memory 10 MB		●	●	●	●	●	●
	CNC user memory 100MB		○	○	○	○	○	○
	CNC user memory 6MB		X	X	X	X	X	X
	CNC user memory 40GB (with PCU or IPC)		X	X	X	X	X	X
	CNC user memory without limit(Execution from external storage devices)(EES / Using by USB or Network)		○	○	○	○	○	○
	HMI user memory for CNC part program 6GB		X	X	X	X	X	X

● Standard ○ Optional X N/A ☆ Available 12

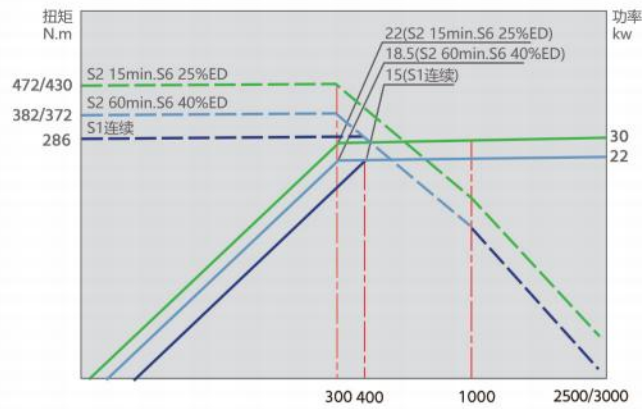
POWER & TORQUE

FANUC / SIEMENS

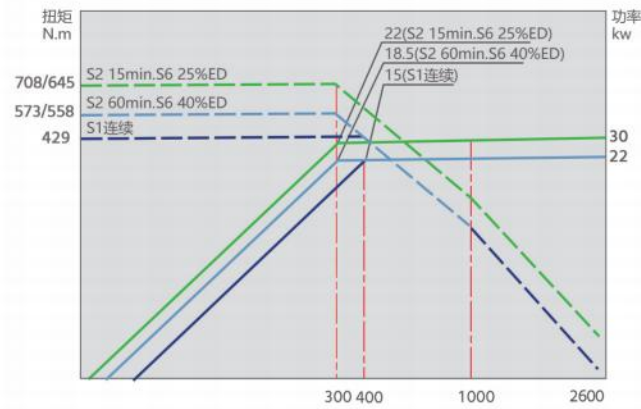
POWER & TORQUE

SYNTEC / GSK

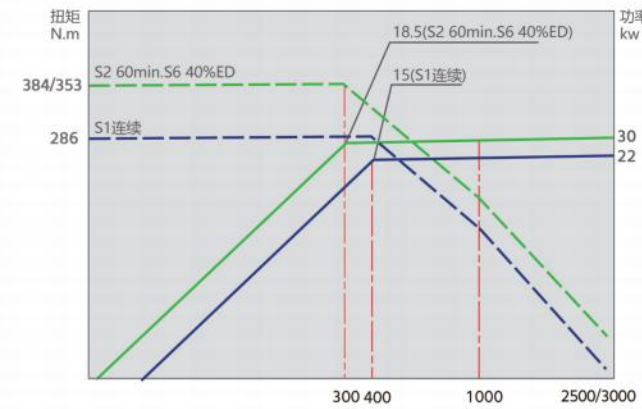
TCK600 series [A2-8]



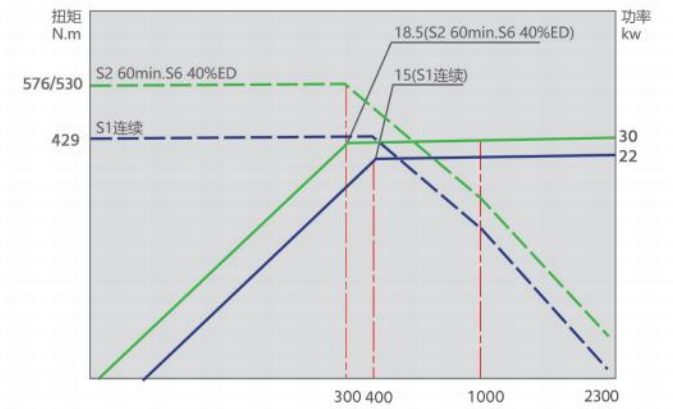
TCK600 series [A2-11] **Optional**



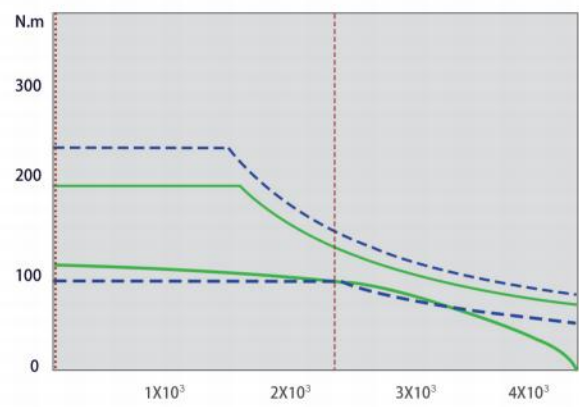
TCK600 series [A2-8]



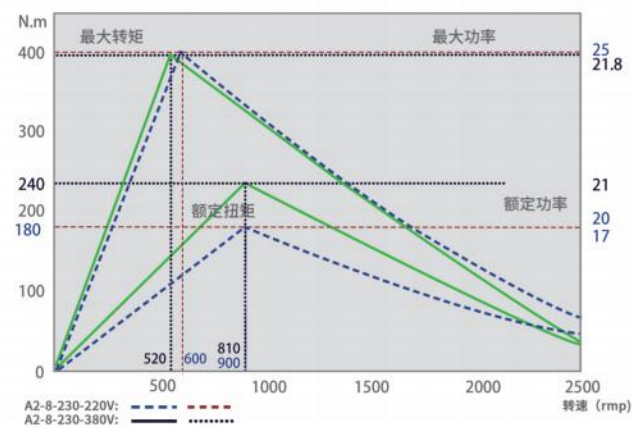
TCK600 series [A2-11] **Optional**



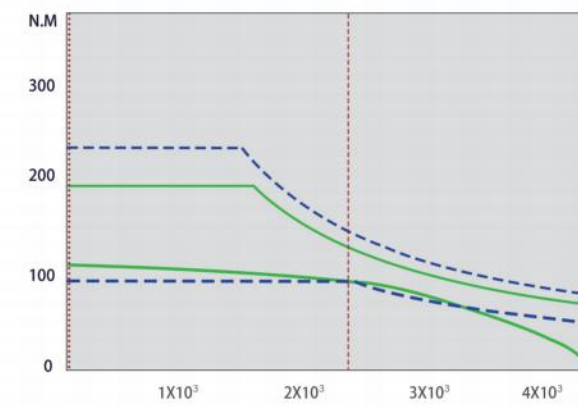
Torque-N [Sub spindle A2-6]



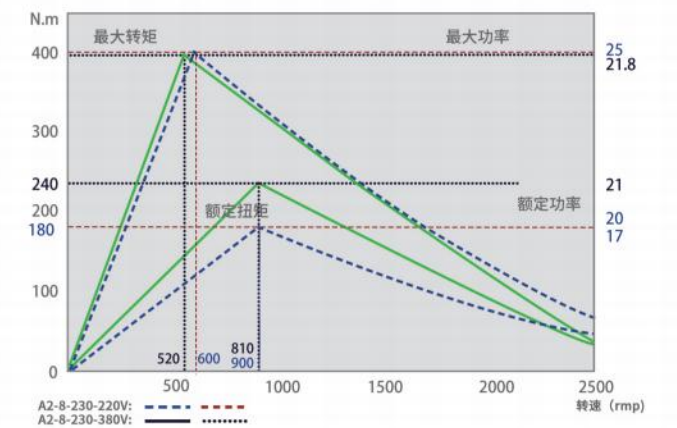
Torque-N [Sub spindle A2-8]



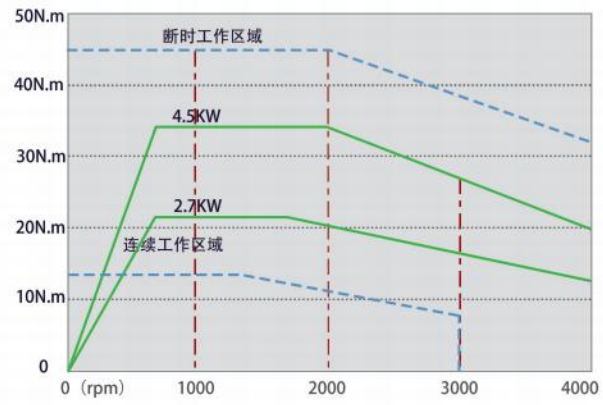
Torque-N [Sub spindle A2-6]



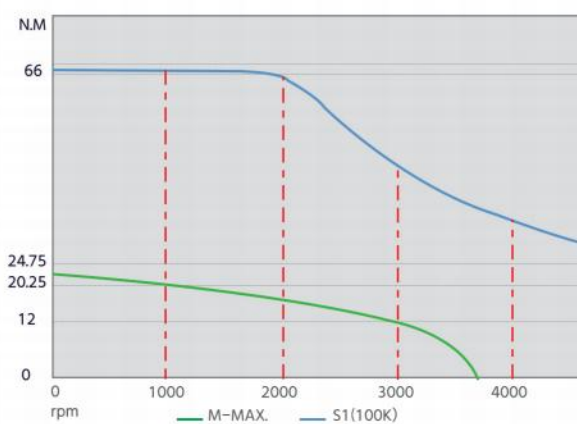
Torque-N [Sub spindle A2-8]



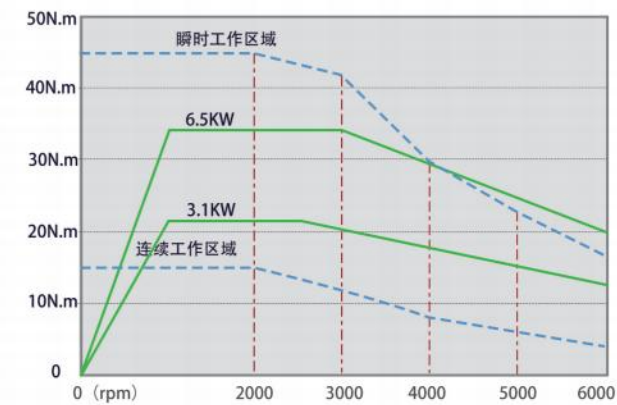
Rotary tool 2.7KW [FANUC]



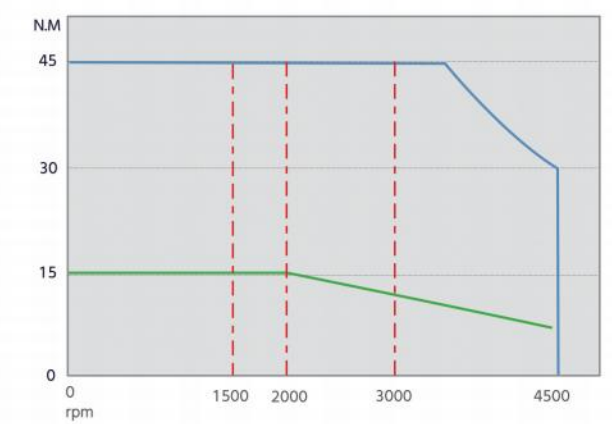
Rotary tool 2.9KW [SIEMENS]



Rotary tool 3.1KW [SYNTEC]

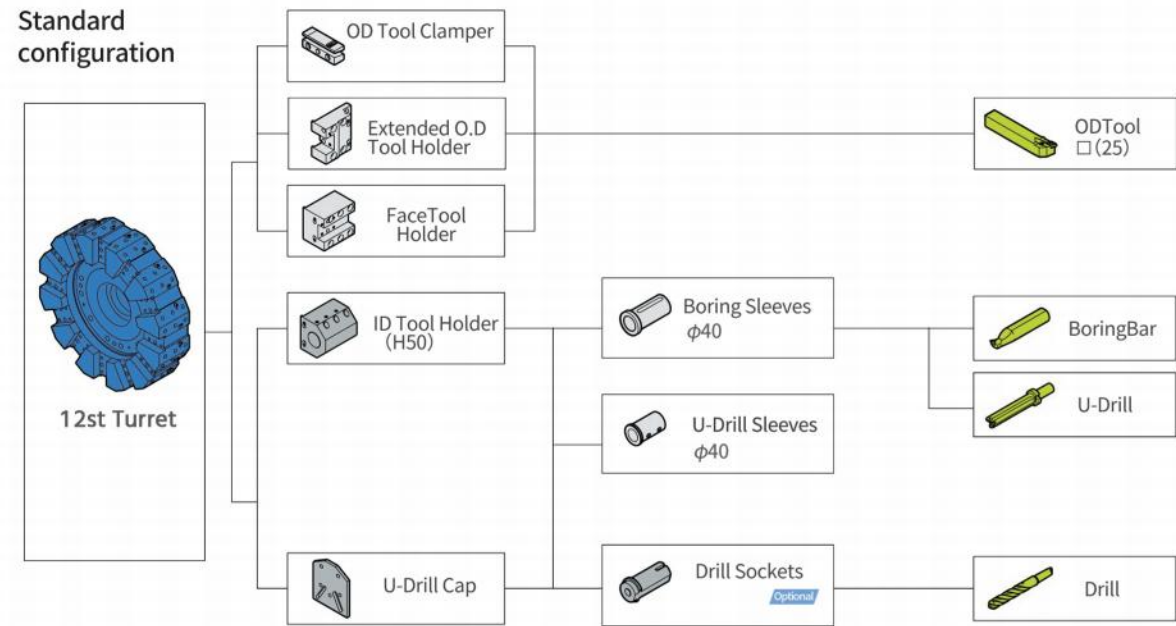


Rotary tool 3.9KW [GSK]

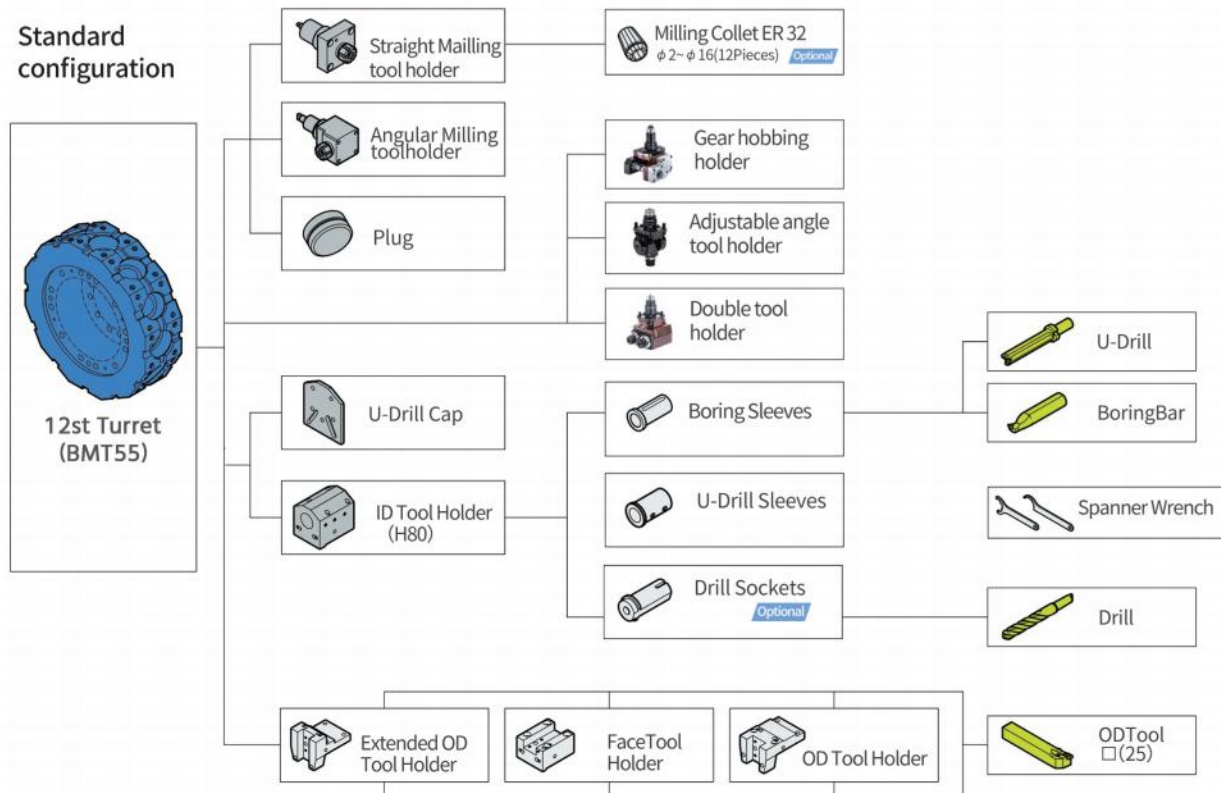


TOOLING SYSTEM

Turning turret

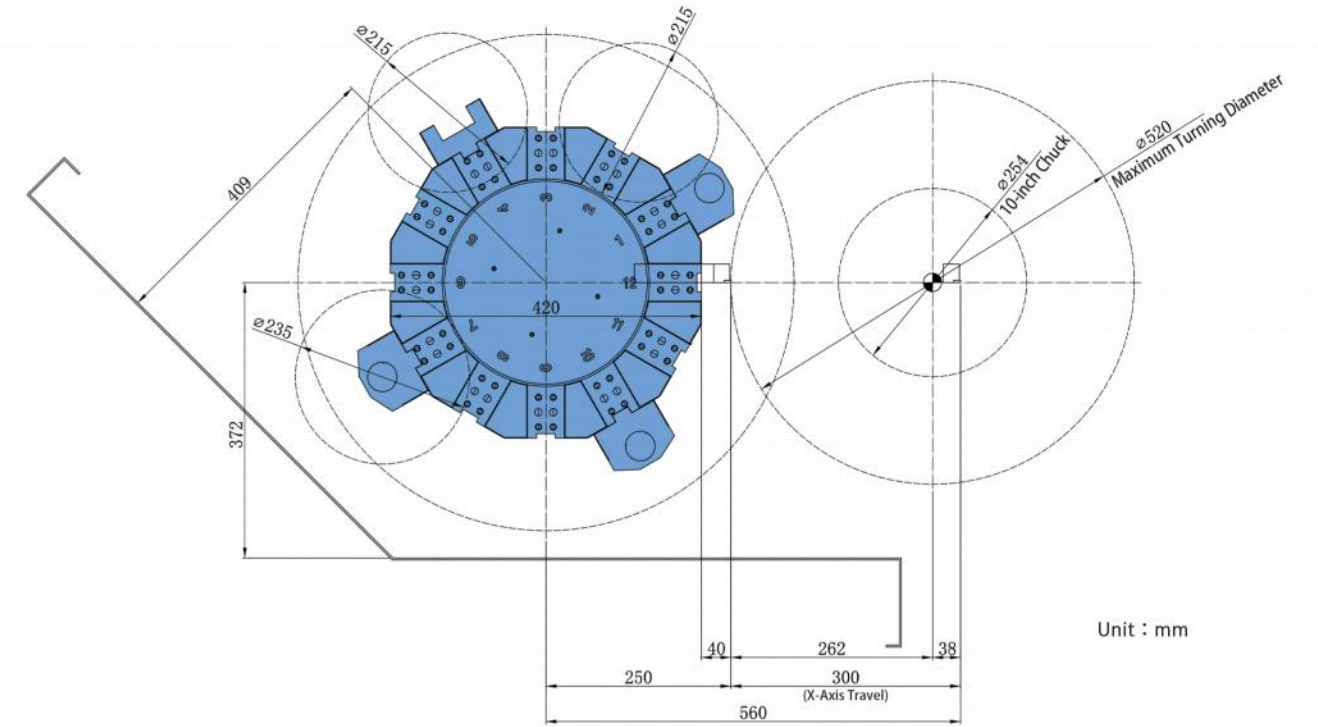


BMT55 Power turret

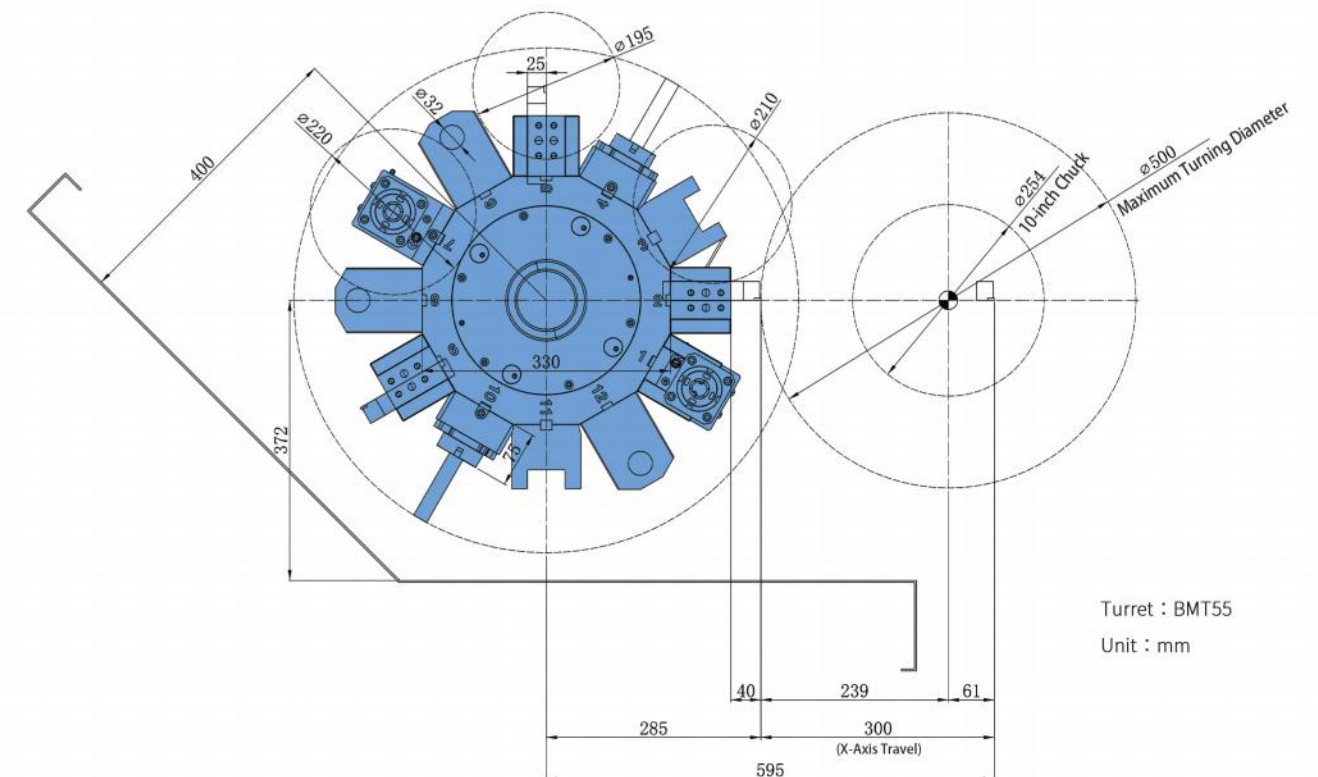


TOOL INTERFERENCE PATTERN

Turning turret



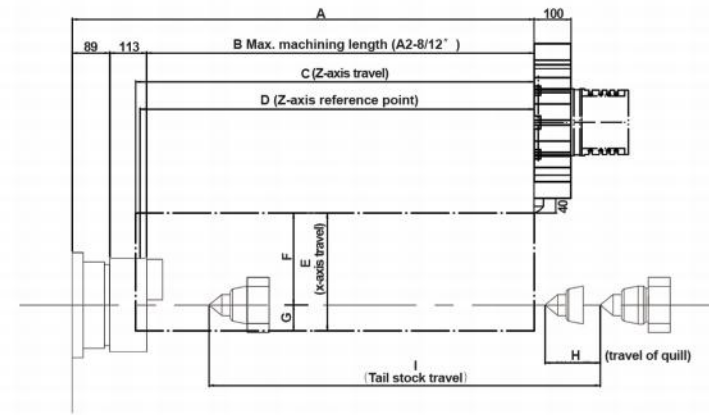
BMT55 Power turret



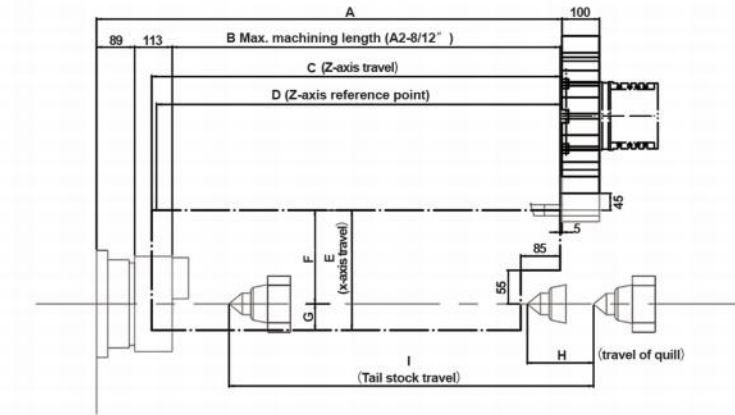
WORKING RANGE

Tuining turret

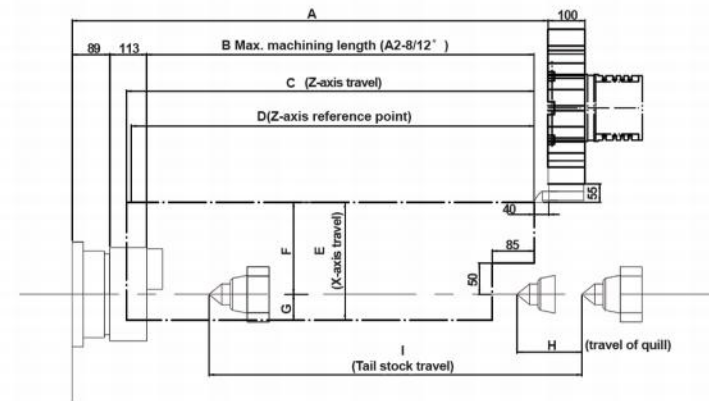
OD tool block



Boring tool block



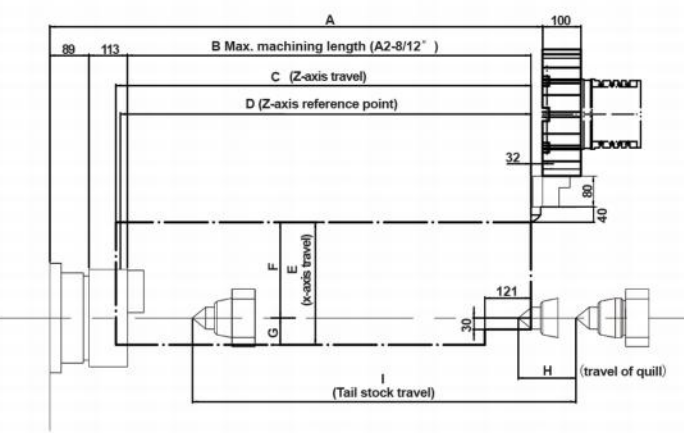
End face block



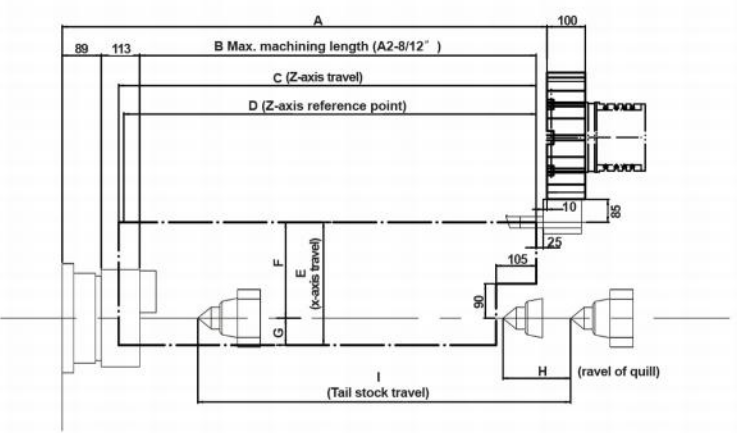
WORKING RANGE

BMT55 Power turret

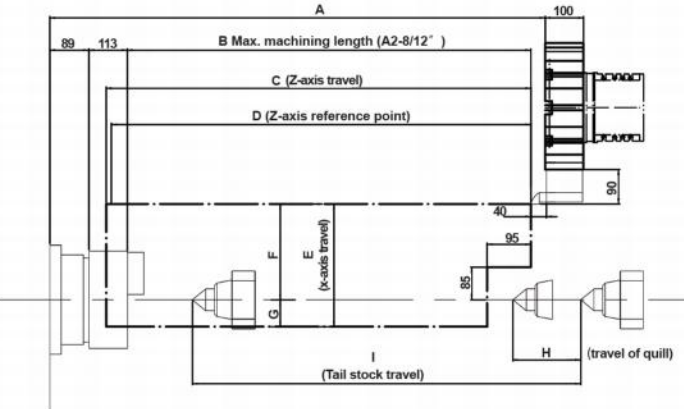
OD tool block



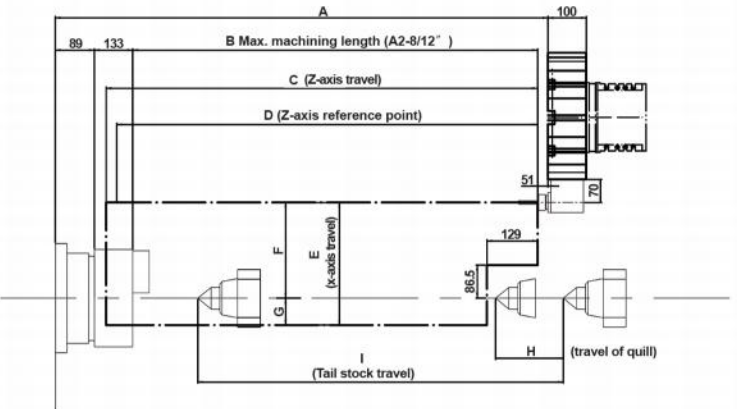
Boring tool block



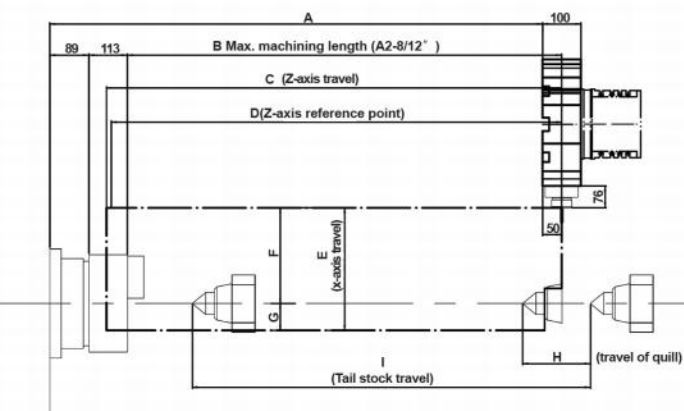
End face block



Axial living tool holder



Radial living tool holder

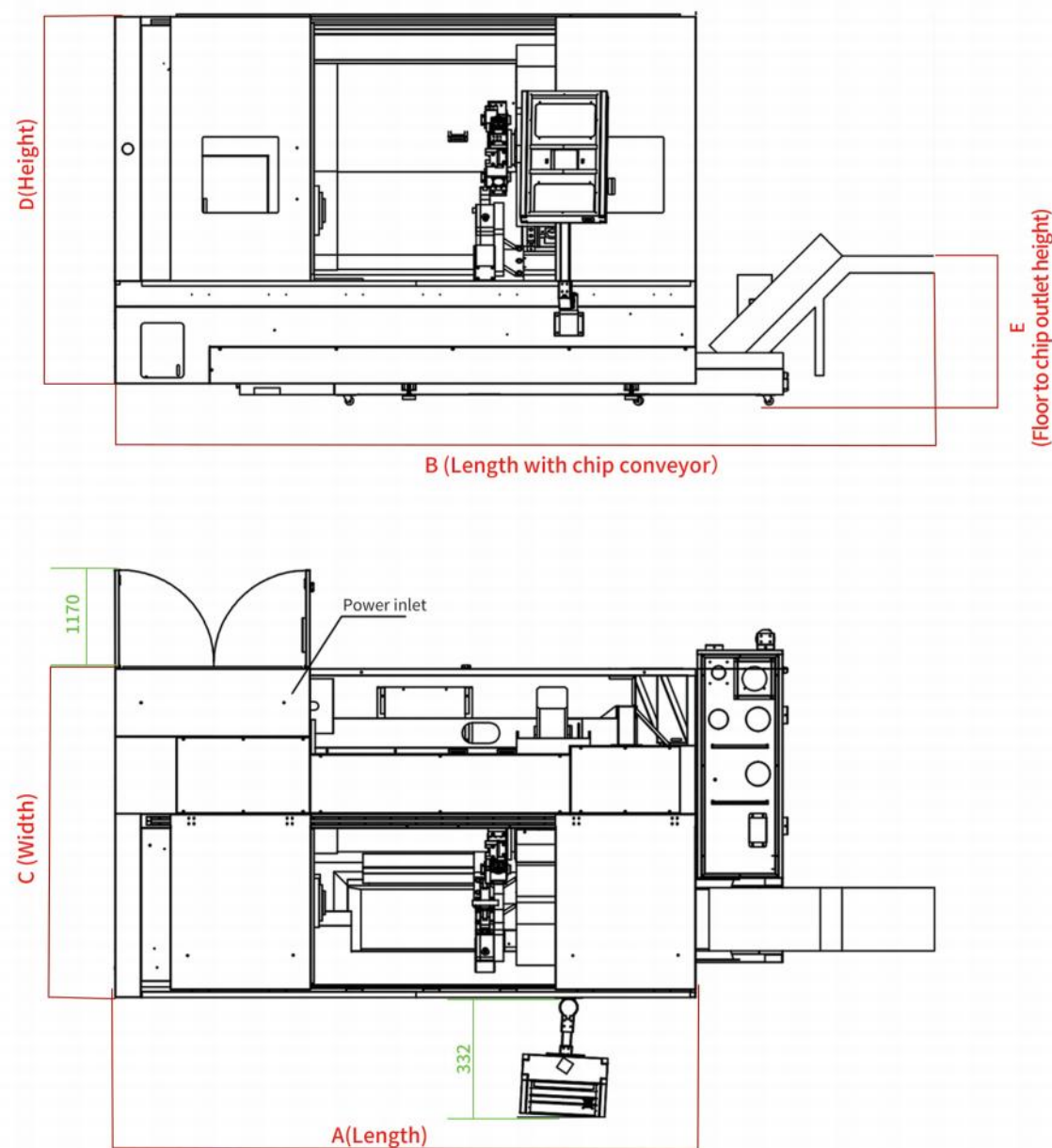


Model	Tool holder	Travel	A	B	C	D	E	F	G	H	I
TCK600-1000	OD tool block		1240	1006	1100	1053	300	262	38	150	1100
TCK600-1500			1740	1506	1600	1553					1600
TCK600-2000			2240	2006	2100	2053					2100
TCK600-1000	End face block		1240	1000	1100	1053	300	247	53	150	1100
TCK600-1500			1740	1500	1600	1553					1600
TCK600-2000			2240	2000	2100	2053					2100
TCK600-1000	Boring tool block		1240	1003	1100	1053	300	257	43	150	1100
TCK600-1500			1740	1503	1600	1553					1600
TCK600-2000			2240	2003	2100	2053					2100

Model	Tool holder	Travel	A	B	C	D	E	F	G	H	I
TCK600-1000	OD tool block		1240	1006	1100	1053	300	239	61	150	1100
TCK600-1500			1740	1506	1600	1553					1600
TCK600-2000			2240	2006	2100	2053					2100
TCK600-1000	End face block		1240	1000	1100	1053	300	269	31	150	1100
TCK600-1500			1740	1500	1600	1553					1600
TCK600-2000			2240	2000	2100	2053					2100
TCK600-1000	Boring tool block		1240	1003	1100	1053	300	274	26	150	1100
TCK600-1500			1740	1503	1600	1553					1600
TCK600-2000			2240	2003	2100	2053					2100
TCK600-1000	Axial living tool holder		1240	987	1100	1053	300	289	11	150	1100
TCK600-1500			1740	1487	1600	1553					1600
TCK600-2000			2240	1987	2100	2053					2100
TCK600-1000	Radial living tool holder		1240	1088	1100	1053	300	285	15	150	1110
TCK600-1500			1740	1588	1600	1553					1600
TCK600-2000			2240	2088	2100	2053					2100

OVERALL DIMENSIONS

TCK600 series



Unit : mm

Model	A (Length)	B (Length with chip conveyor)	C (Width)	D (Height)	E (Floor to chip outlet height)
TCK600-1000	3550	4900	1965	2250	770
TCK600-1500	4260	5340	1965	2250	
TCK600-2000	4770	6140	2043	2250	

* 500mm of a space is required to the right of the machine in order to install and remove chip conveyor.

* Machine foundation : Anchoring is recommended to maintain accuracy over a long period of time, The anchor bolts and other related parts of foundation work are supplied as standard items. Please consult with DONGS Solutions and sales technicians regarding ground and operating conditions.

* Some peripheral equipment can be placed in other places.

MACHINE SPECIFICATIONS

TCK600 series

Description		Unit	TCK600 series		
Capacity	Max.swing over bed	mm	Φ 650	Φ 750	
	Max.swing over saddle	mm	Φ 400	Φ 500	
	Chuck size	inch	10/12/15		
Travels	X-axis	mm	300		
	Y-axis	mm	±50		
	Z-axis	mm	1100/1600/2100		
Feedrates	Rapid traverse rate	X-axis	m/min	24	
		Y-axis	m/min	8	
		Z-axis	m/min	24	
Main Spindle	Main spindle motor power	KW	22 {30}		
	Spindle nose	ASA	A2-8	A2-11	
	Spindle Ratio	/	1:2	1:3	
	Through hole of main spindle	mm	Φ86	Φ105	Φ132
	Bar capacity	mm	< 75	< 91	< 120
	Spindle bearing diameter (Front)	mm	180	240	280
	Max. spindle speed	r/min	3000	2000	1500
Turret	No. of tool stations	ea	12		
	OD tool size	mm	25X25		
	boring bar size	mm	40/50		
	Turret indexing time (1 station swivel)	s	0.5		
	Max. rotary tool speed	r/min	BMT55 (4000)		
Tailstock	Tailstock guide rail	mm	Box way		
	Sleeve diameter	mm	100		
	Travel of sleeve	mm	150		
	Taper of sleeve hole	MT	MT5		
	Tail seat travel	mm	1100/1600/2100		
Machine tool weight (approx.)	TCK600-1000	T	6.3		
	TCK600-1500	T	7.5		
	TCK600-2000	T	9.4		

Global Services

DONGS Machine Tool Global Service,
24-hour rapid response to customer needs

DONGS Machine Tool provides systematic services for all pre-sales and after-sales processes, responding quickly to customer needs and resolving issues quickly. From the supply of machine tool equipment and equipment spare parts to product training, troubleshooting, and technical support, we can provide customers with fast services through our service network. °



Global Operations Center

- Russia Operations Center
- South Africa Operations Center
- European Operations Center
- Turkey Operations Center
- Zhejiang Ningbo Operation Center
- Jiangsu Operation Center
- Guangdong Operation Center
- Sichuan Chengdu Operation Center

Customer Support Service

We help customers to achieve success by providing a variety of professional services from pre-sales consultancy to post-sales support.



Field Services / Training

On-site installation/testing and regular maintenance of machines/Programming/machine setupoperation/applications

Technical Support

Support processing methods and technologies, answer technical questions



Processing capacity

High-end precision mother machines continuously set global manufacturing accuracy standards, ensuring product precision.

