



EFFICIENT MEDIUM AND LARGE
HORIZONTAL TURNING CENTER

TCK1000



DONGS SOLUTIONS

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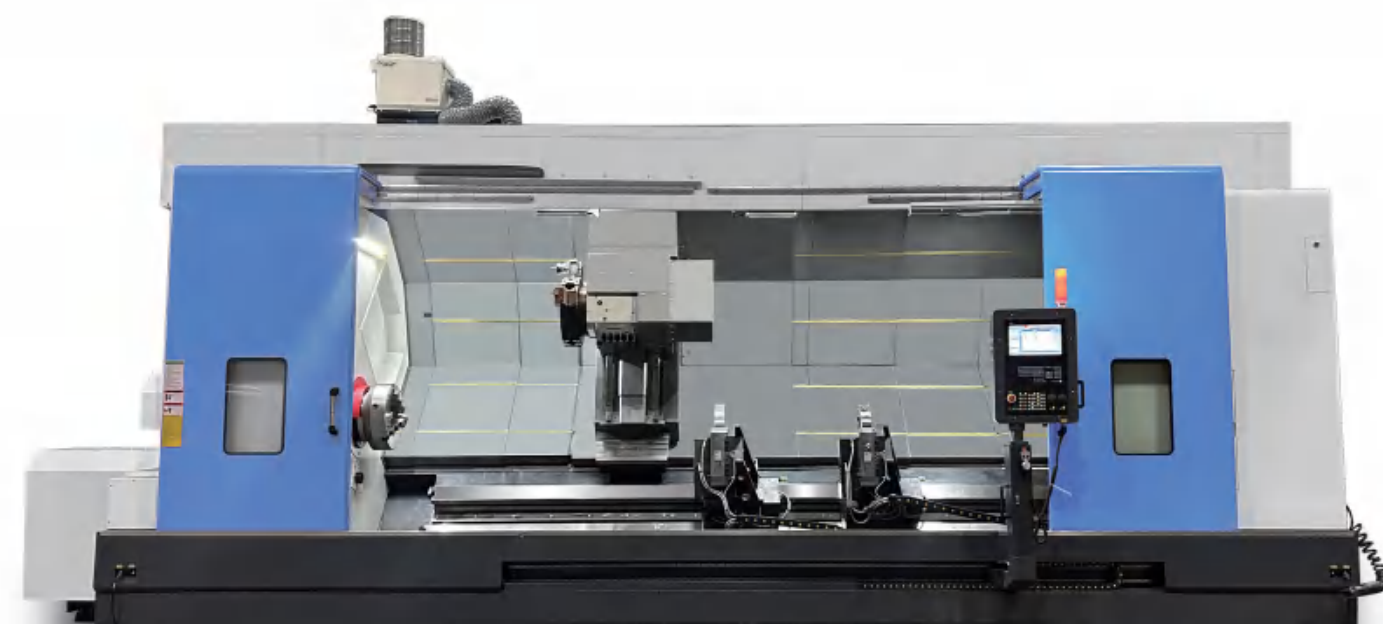
FOR MORE DETAILS, PLEASE CONTACT DONGS MACHINE TOOL

Our company reserves the right to change product design and specifications without prior notice. If there are any differences between the product image and the actual product, the actual product shall prevail. If there are any printing errors or omissions, we hope for the understanding of our customers.

DONGS SOLUTIONS

TCK1000 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 Ø900mm and 6060mm respectively, which are the highest in their class. The slant bed design allows easy chip disposal.

Product Advantages



SINGLE SETUP FOR MACHINING LARGE COMPLEX PARTS

- Maximum productivity can be achieved with the machines' 200mm (7.9inch) ($\pm 100\text{mm}$ (3.9inch)) orthogonal Y-axis structure, which allows users to machine a wide range

THE LARGEST MACHINING AREA AND TOP PERFORMANCE IN ITS CLASS

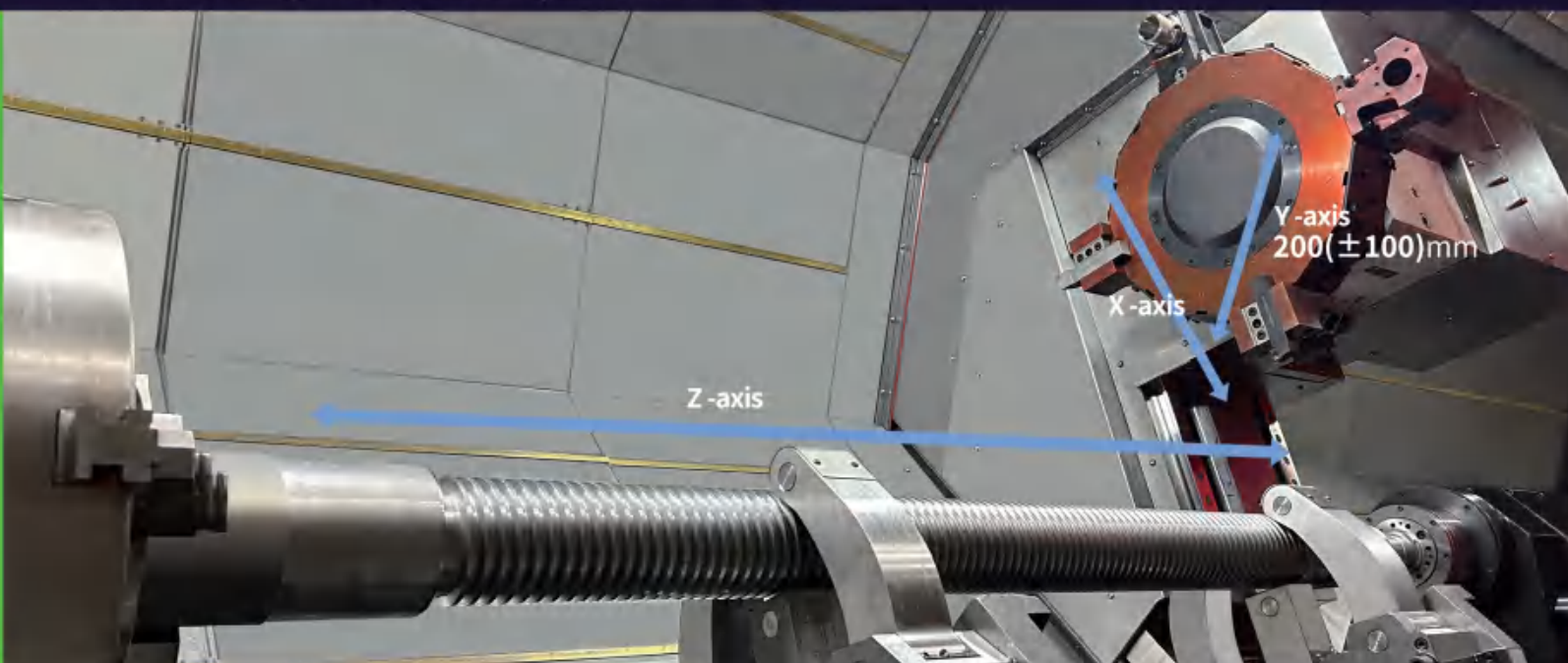
- With 6060mm maximum turning length, Ø900mm maximum turning diameter and 11013N·m of Torque, the machines are ideal for the heavy-duty cutting of large parts

THE SOLUTION FOR MACHINING A WIDE RANGE OF PIPES

- Ø375mm 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



Centre distance	1100	1600	2100	3100	4100	5100
Chuck Size (inch)	18/21/24/32					
X-axis travel (mm)	500					
Y-axis travel (mm)	200 (±100)					
Z-axis travel (mm)	1100	1600	2100	3100	4100	5100

*Chucks and rotary cylinders are optional.

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

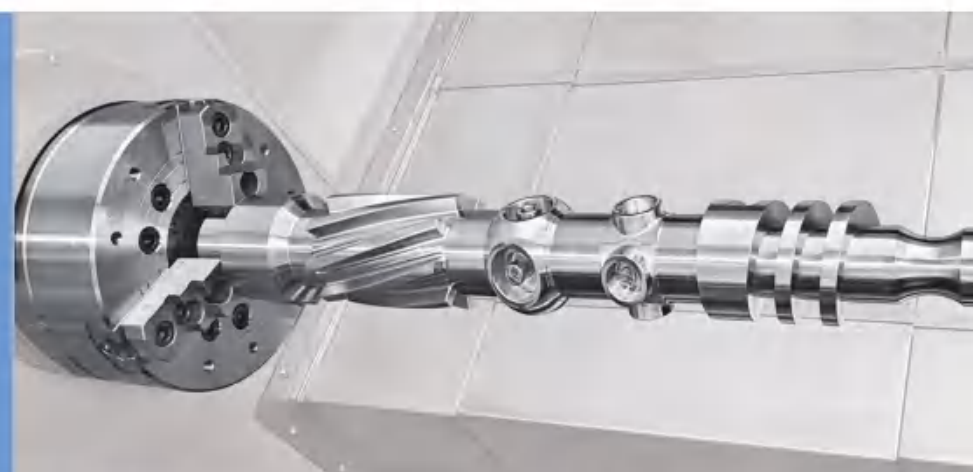
1800r/min

Max. spindle power

55{75 Optional}kw

Max. spindle torque

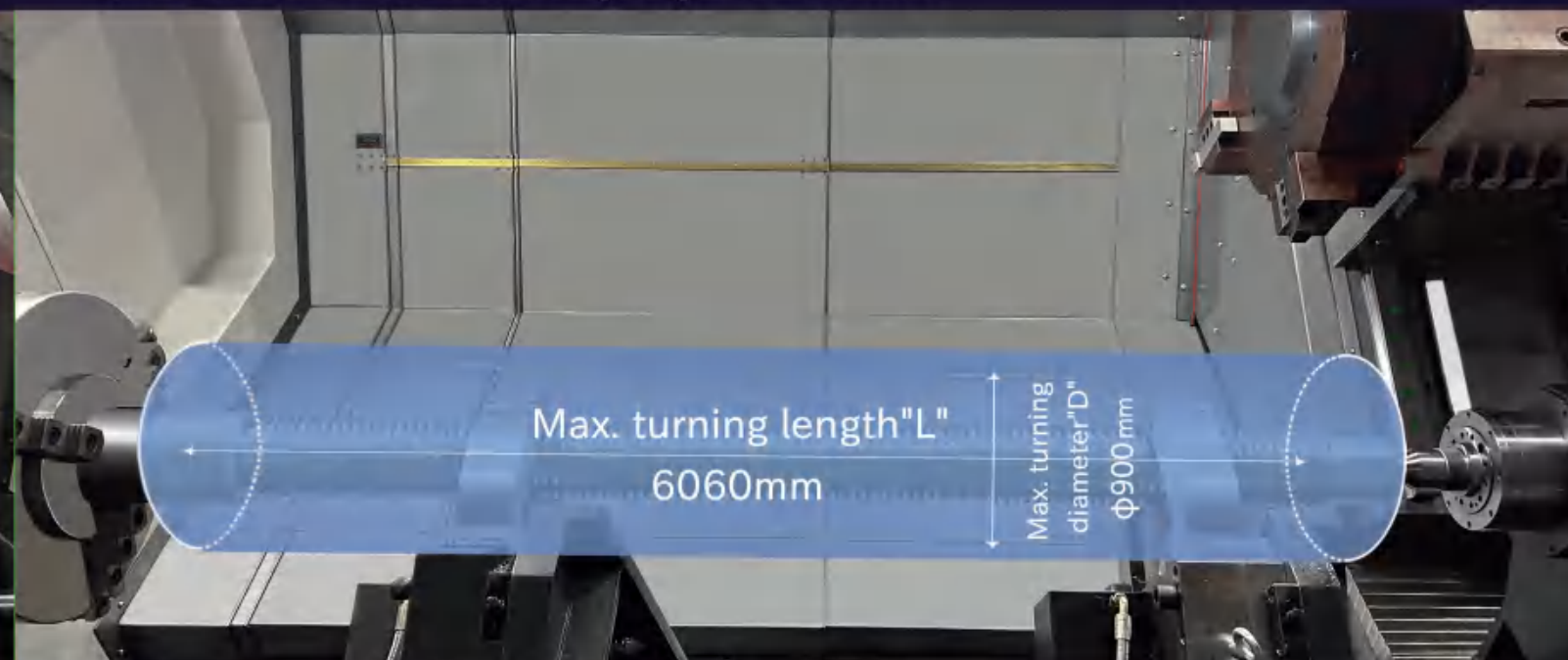
8076{11013 Optional}N.M



Spindle through hole (mm)	Max. Spindle speed (r/min)	Max. Spindle power (KW)	Max. spindle torque (N.M)
φ 132	1800	55	6622 {9030}
φ 181	1400	55	
φ 220	1000	55	
φ 320	800	75	8070 {11013}
φ 375	750	75	

MACHINING AREA

The largest work envelope in their class with a maximum turning diameter of φ900mm and maximum turning length of 6060mm.



Max. turning diameter

φ900 mm

Max. turning length

6060 mm

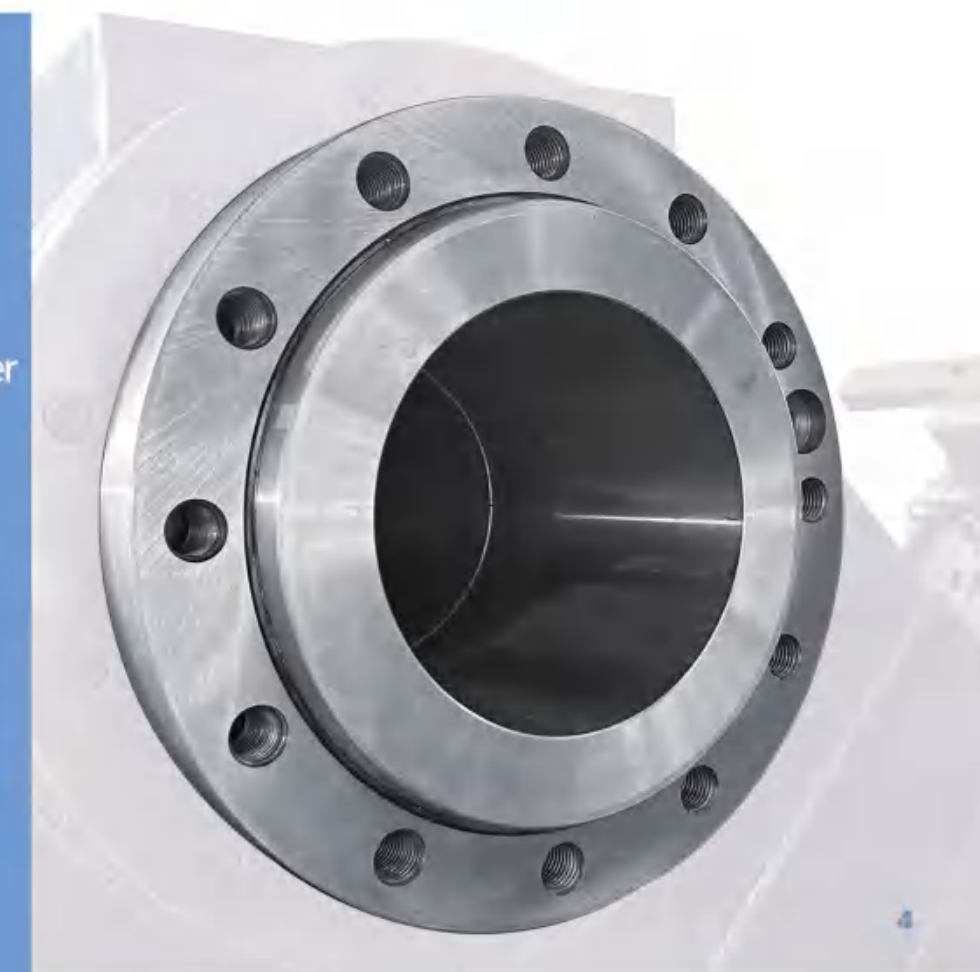
Machines are available with various spindle-through-hole sizes to provide the optimum machining solutions for different sized pipes.

Max. spindle through hole diameter

φ375 mm

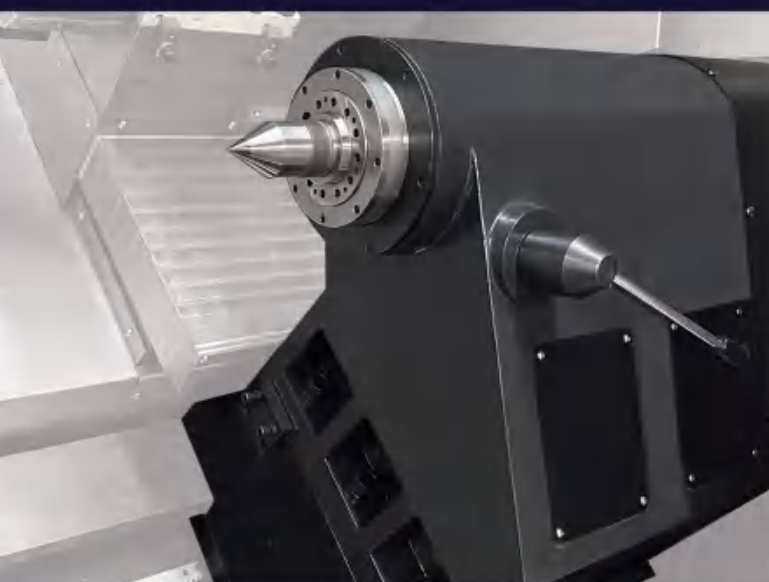
Unit: mm

Max. through hole diameter	Bar through diameter
φ 132	φ 120
φ 181	φ 166
φ 220	φ 220
φ 320	φ 320
φ 375	φ 375



TAILSTOCK

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



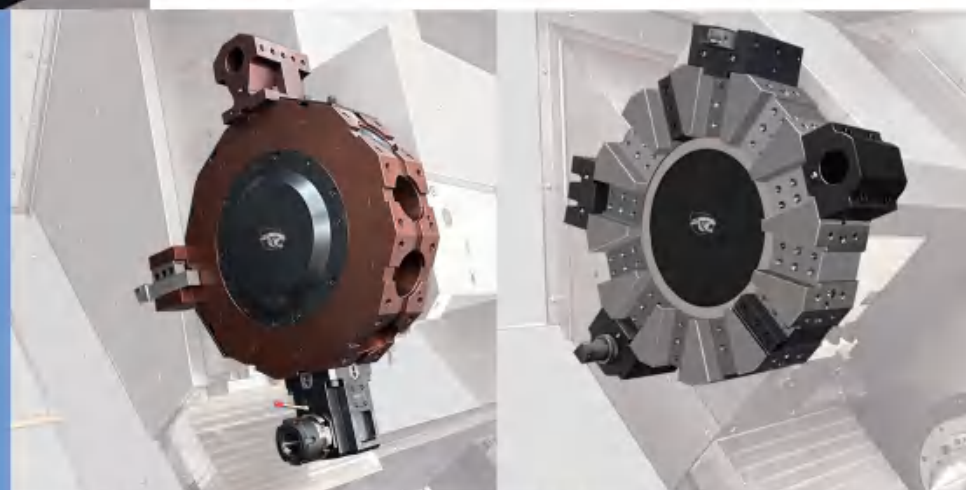
The tailstock body driven by the hydraulic motor through the gear rack. The tailstock sleeve is pushed by the hydraulic cylinder. The tailstock body is automatically locked by the hydraulic cylinder. All actions are controlled by M Code.

Unit: mm

Model	Tailstock sleeve	Travel of sleeve	Tail stock travel
TCK1000-1000	180	200	1100
TCK1000-1500			1600
TCK1000-2000			2100
TCK1000-3000			3100
TCK1000-5000			5100

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 85

刀位数
12位

标配

刀盘直径 540 mm

刀位数
12位

VDI TURRET Optional

The VDI powered 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

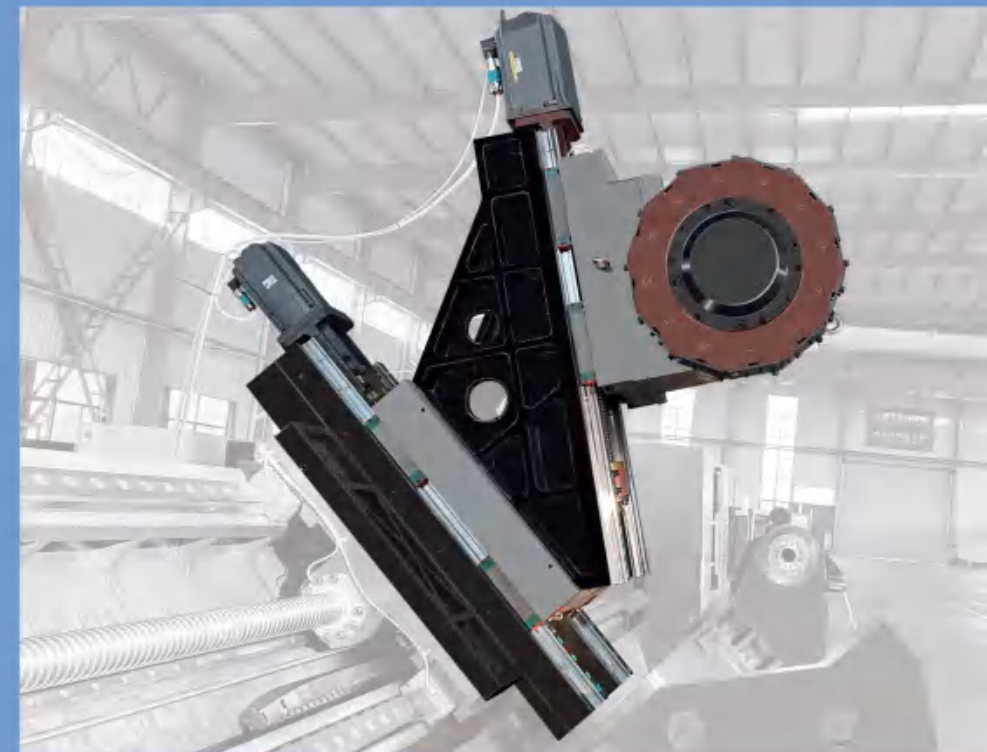
High-power motor inside spindle

Y-axis Travel **±100mm**

Y-axis guide **Rectangular
Hard Rails**

Power Turret Motor **11 kw**

Y-axis - combined axis
BMT85 Power turret



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

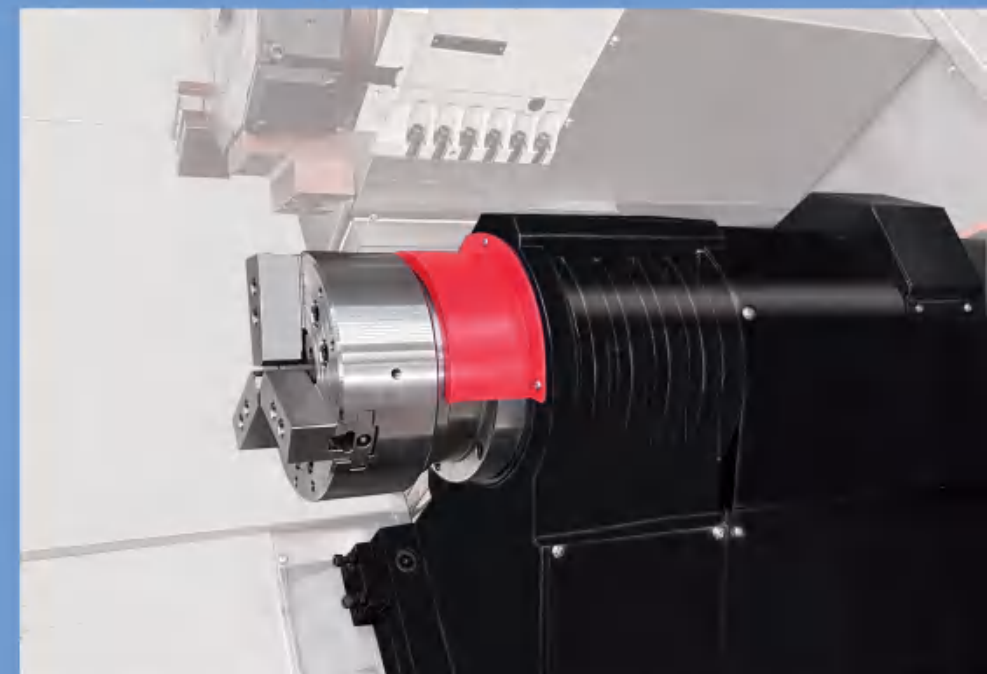
Maximum rotating speed
4300 rpm

Rated power
22.15 kw

Rated torque
91.1 Nm

Max. torque
227 Nm

Sub spindle spindle Optional

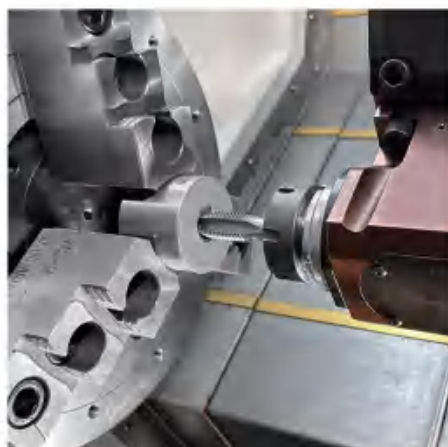


CUTTING PERFORMANCE

TCK1000 machines can perform high-productivity, heavy-duty machining operations such as ID/OD turning, end milling, tapping and U-drilling etc.



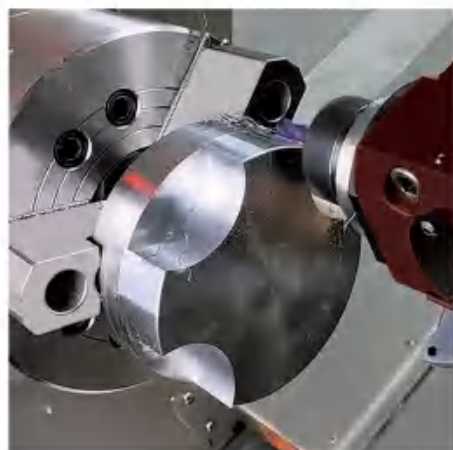
O.D turning(Material diameterφ220mm)	
Speed	400rpm
Feed	0.35mm/rev
Depth of cut	14mm
Chip Removal rate	150cm ³ /min



Tapping	
Cutting Tool	M20
Feed	2.5mm/rev
Depth of cut	30mm



U-Drill	
Cutting Tool	φ40mm
Cutting line speed	2000m/min
Feed	0.15mm/rev
Chip Removal rate	170cm ³ /min



End mill ((Low Speed)	
Cutting Tool	φ32mm
Cutting line speed	30m/min
Feed	90mm/min
Chip Removal rate	105cm ³ /min



End mill (High Speed)	
Cutting Tool	φ25mm
Cutting line speed	220m/min
Feed	1000mm/min
Chip Removal rate	175cm ³ /min



Milling	
Cutting Tool	φ25mm
Cutting line speed	240m/min
Feed	800mm/min
Chip Removal rate	100cm ³ /min

STABLE THREADING PERFORMANCE

All **TCK1000** 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

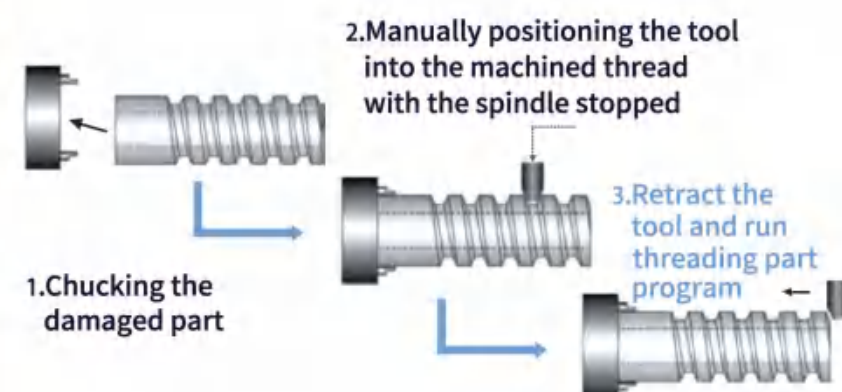
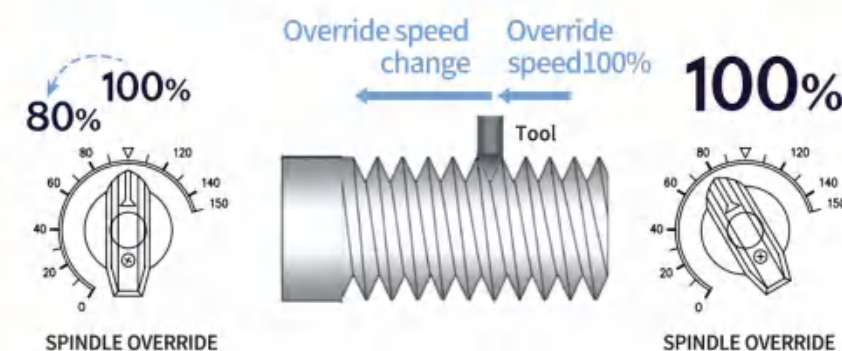
Process steps

Measurement of threaded grooves

Enable thread repair mode, enable any speed threading mode

Write a thread repair program or use the original thread machining program for thread re-machining.

Disable any speed threading mode, disable thread repair mode



STANDARD & OPTIONAL SPECIFICATIONS

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

Description	Features	TCK1000series				
Through hole of main spindle		132	181	220	320	375
Chuck	15inch	●	●	○	○	○
	18inch	○	○	○	○	○
	21inch	○	○	○	○	○
	24inch	○	○	○	○	○
Jaw	Soft Jaws	●	○	○	○	○
	Hardened & ground hard jaws	○	○	○	○	○
Chucking option	Single pressure chucking	●	○	○	○	○
	Dual pressure chucking	X	○	○	○	○
	Chuck clamp confirmation	○	○	○	○	○
Steady rest	Hydraulic	HCF3.1 (20~165mm)	○	○	○	○
		HCF3.2 (50~200mm)	○	○	○	○
		HCF4 (30~245 mm)	○	○	○	○
		HCF5 (45~310mm)	○	○	○	○
		HCF5.1 (85~350mm)	X	○	○	○
	Type	Single	○	○	○	○
		Twin	○	○	○	○
		Double	○	○	○	○
Tailstock	Hydraulic Programmable type	●	●	●	●	●
	Built-in dead center	●	●	●	●	●
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	○	○	○	○	○
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	X	X	X	○	○
	manual guide	○	○	○	○	○
Standard Accessories	Foundation bolt for anchoring	○	○	○	○	○

Please contact DONGS SOLUTIONS representative for detailed machine information.

● Standard ○ Optional X N/A ✎ Available



Fire Safety
Precautions

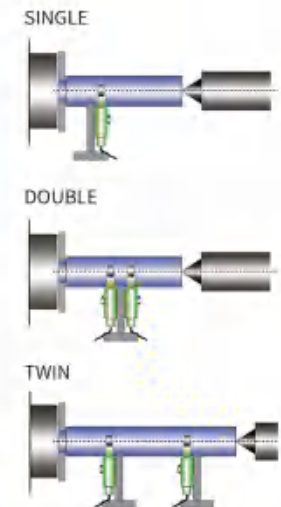
There is a high risk of fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting the controlled and careful use of coolants and modifying the machine without the consent of the manufacturer. Always check the SAFETY GUIDELINES carefully before using the machine.

PERIPHERAL EQUIPMENT

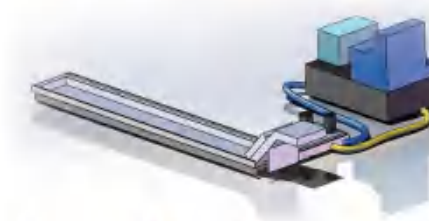
Users can choose from a variety of configurations according to different processing needs.

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).

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.

Automatic tool setter Optional



Renishaw tool setter

Oil skimmer Optional



Belt oil skimmer

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 i (FOI-F Plus-5)	Fanuc i (FOI-F Plus-5)	Fanuc i (FOI-F Plus-5)	Fanuc i (FOI-F Plus-1)	Fanuc i (FOI-F Plus-3)	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		●	●	●	●	●	●
	Fast Ethernet		○	○	○	○	○	○
Operation	Enhanced Embedded Ethernet function		●	●	●	●	●	●
	DNC operation	Included in RS232C interface.	●	●	●	●	●	●
Program input	DNC operation with memory card		●	●	●	●	●	●
	Workpiece coordinate system	G52-G59	●	●	●	●	●	●
Feed function	AI contour control I	G5.1Q_40 Blocks	○	○	○	○	○	○
	AI contour control II	G5.1Q_200 Blocks	○	○	○	○	○	○
Operation Guidance Function	Manual Guide i (Conversational Programming Solution)		X	X	X	○	○	○
	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 S828D

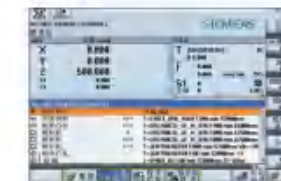
15.inch display

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.

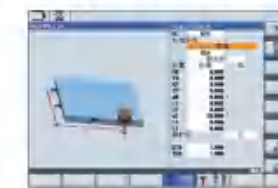
Convenient conversational functionality



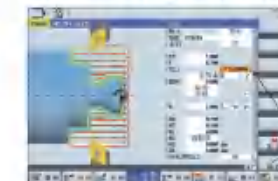
3D finished product simulation function
This function observes the finest machining details and provides optimum machining reliability.



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.



Measuring cycle function
Automatic workpiece setting and inspection, as well as tool setting and broken tool detection, reduces the machine tool's auxiliary machining time, improves productivity and ensures consistency of workpiece accuracy throughout the entire machining process.



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	2-Axis S828D	D S828D	S S828D	DS S828D	Y S828D	YS S828D
			X,Z,SP 4axes	X,Z,C,R 4axes	X,Z,C,C2,B 4axes	X,Z,C,R,C2,B 4axes	X,Z,C,R,Y 4axes	X,Z,C,R,C2,Y,B 4axes
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

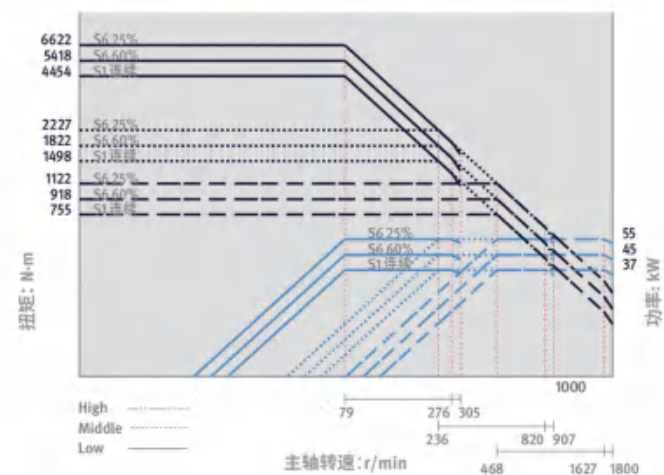
POWER & TORQUE

FANUC

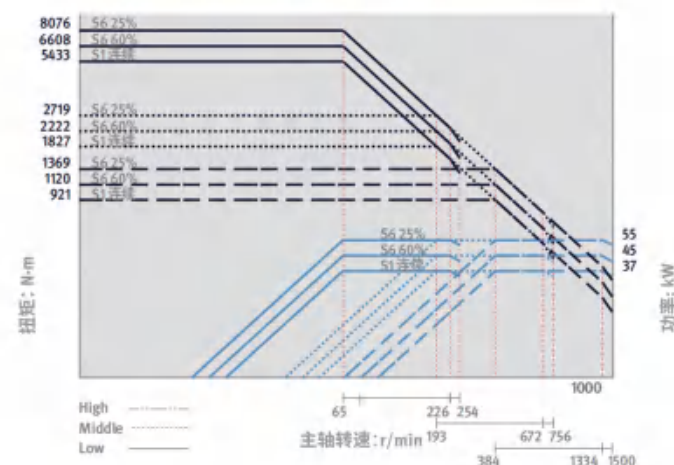
POWER & TORQUE

SIEMENS

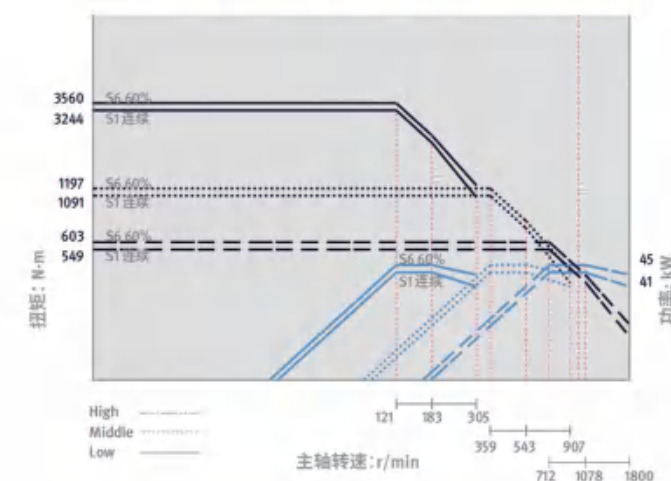
Spindle through hole $\phi 132$



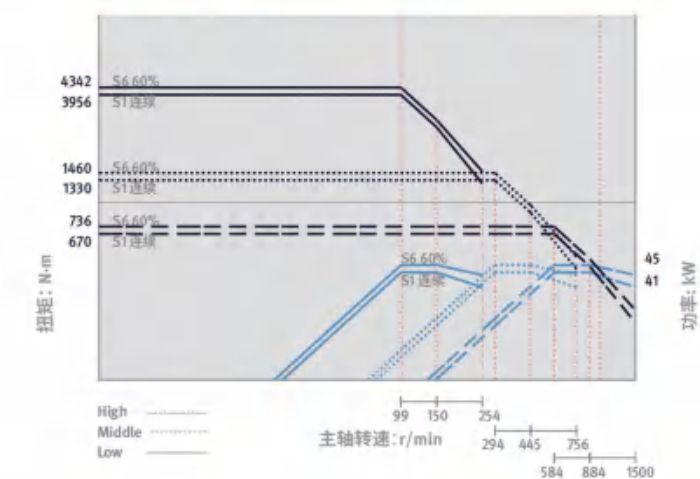
Spindle through hole $\phi 181$



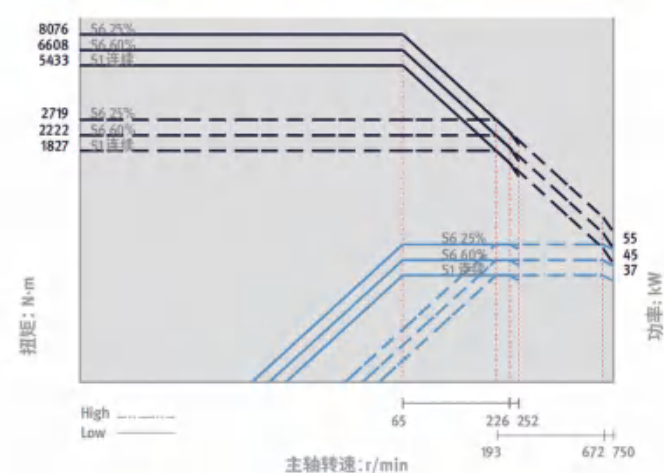
Spindle through hole $\phi 132$



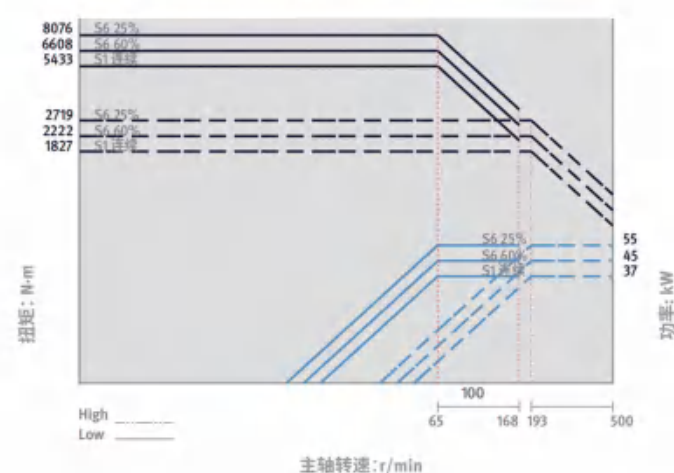
Spindle through hole $\phi 181$



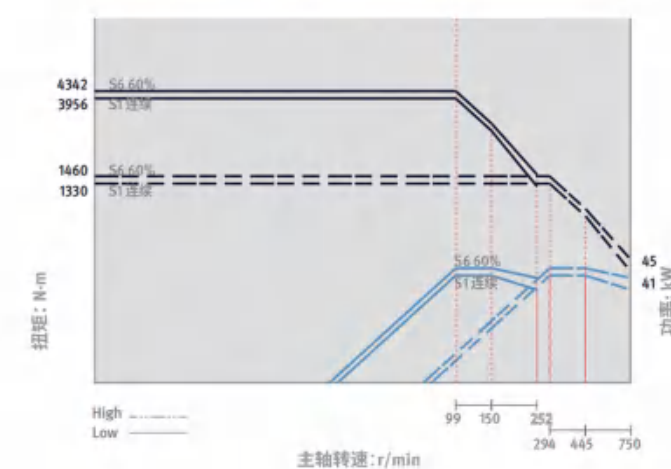
Spindle through hole $\phi 220$



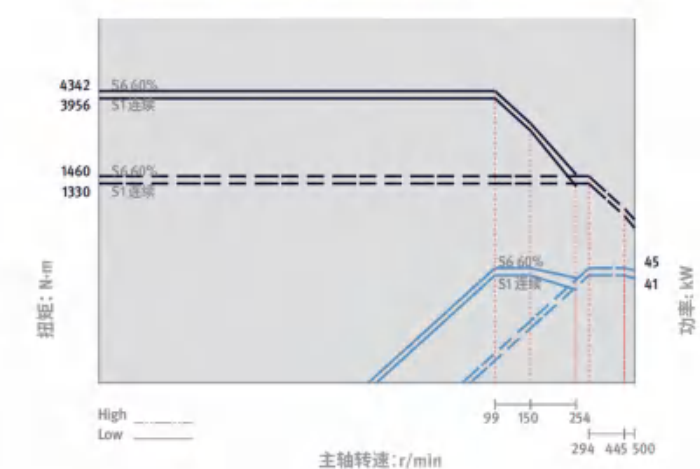
Spindle through hole $\phi 320/375$



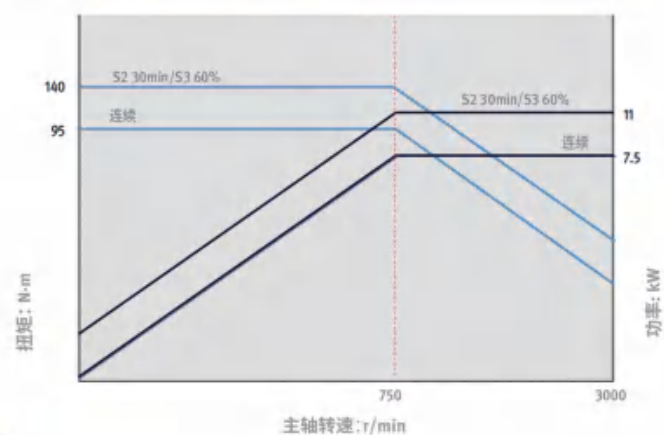
Spindle through hole $\phi 220$



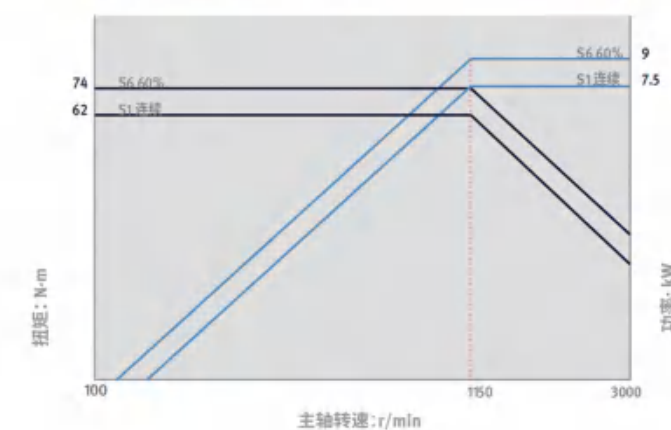
Spindle through hole $\phi 320/375$



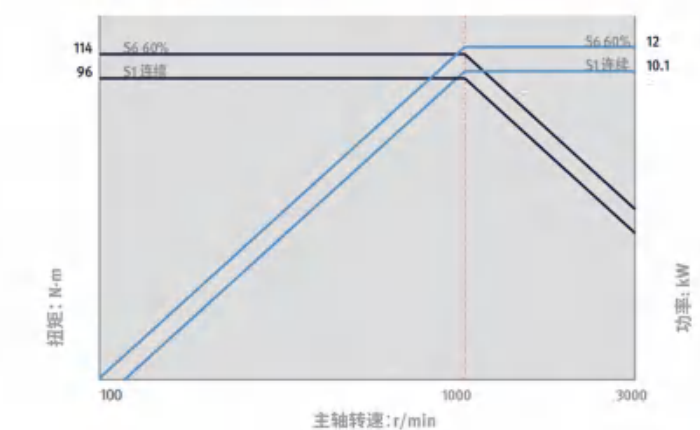
Rotary tool 11KW



Rotary tool 7.5KW

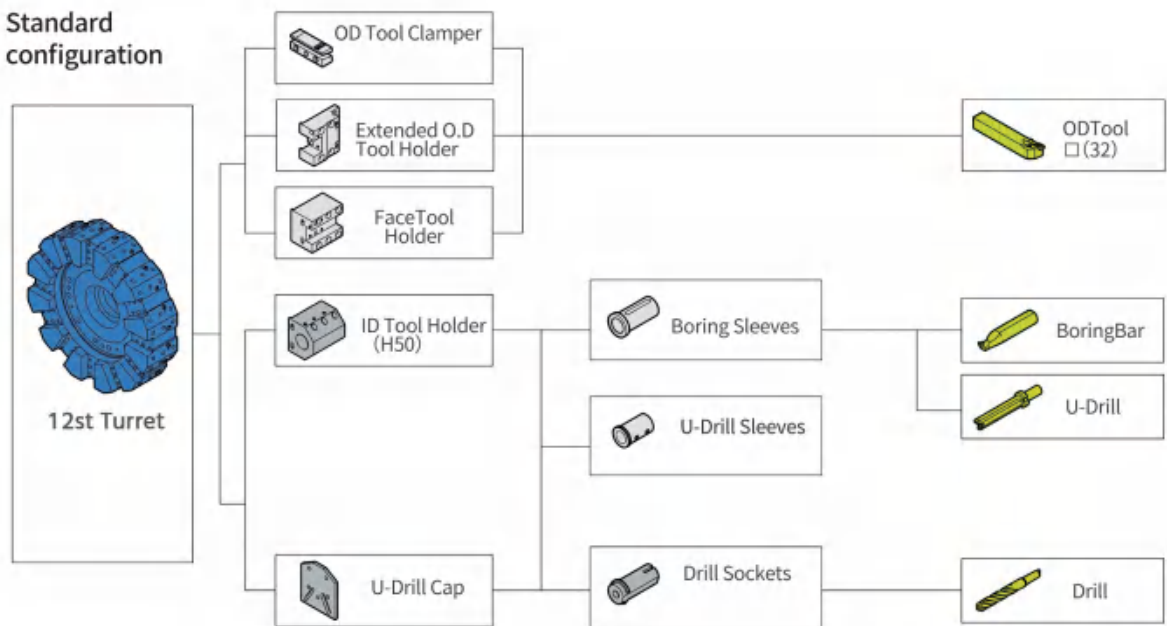


Rotary tool 11KW

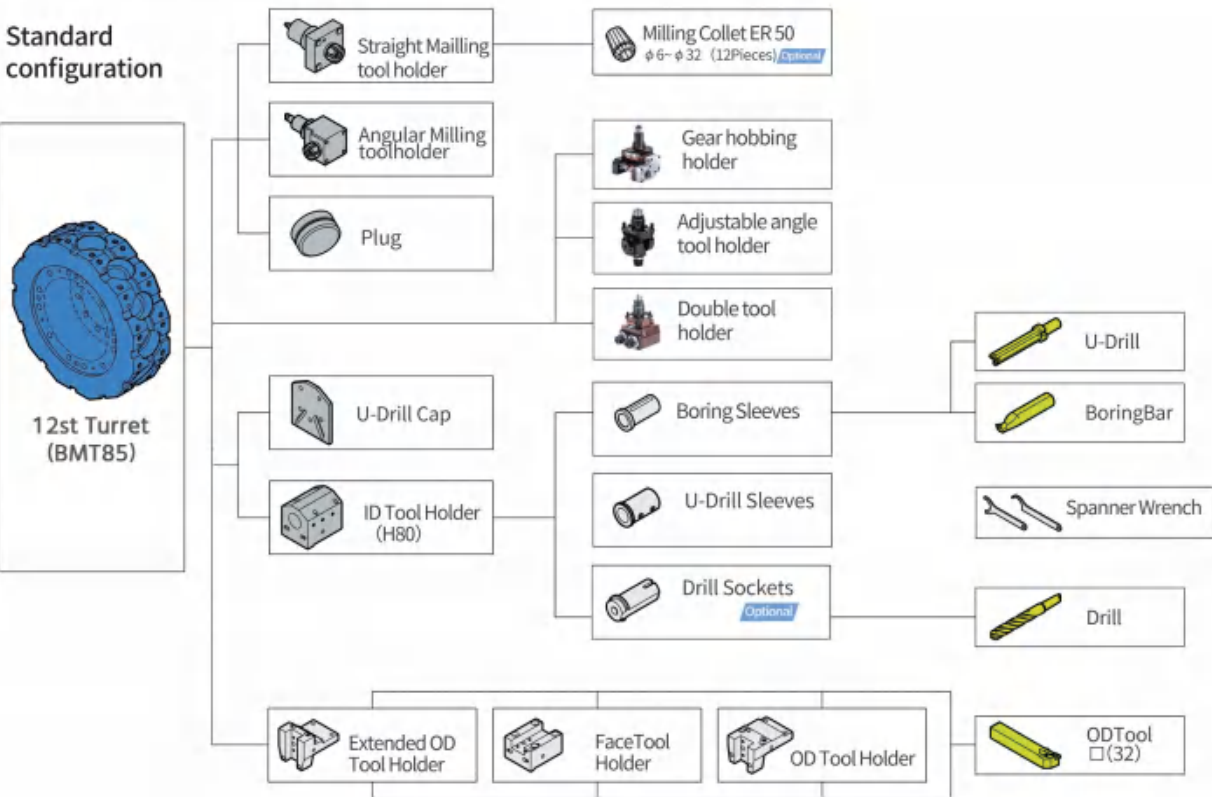


TOOLING SYSTEM

Turning turret

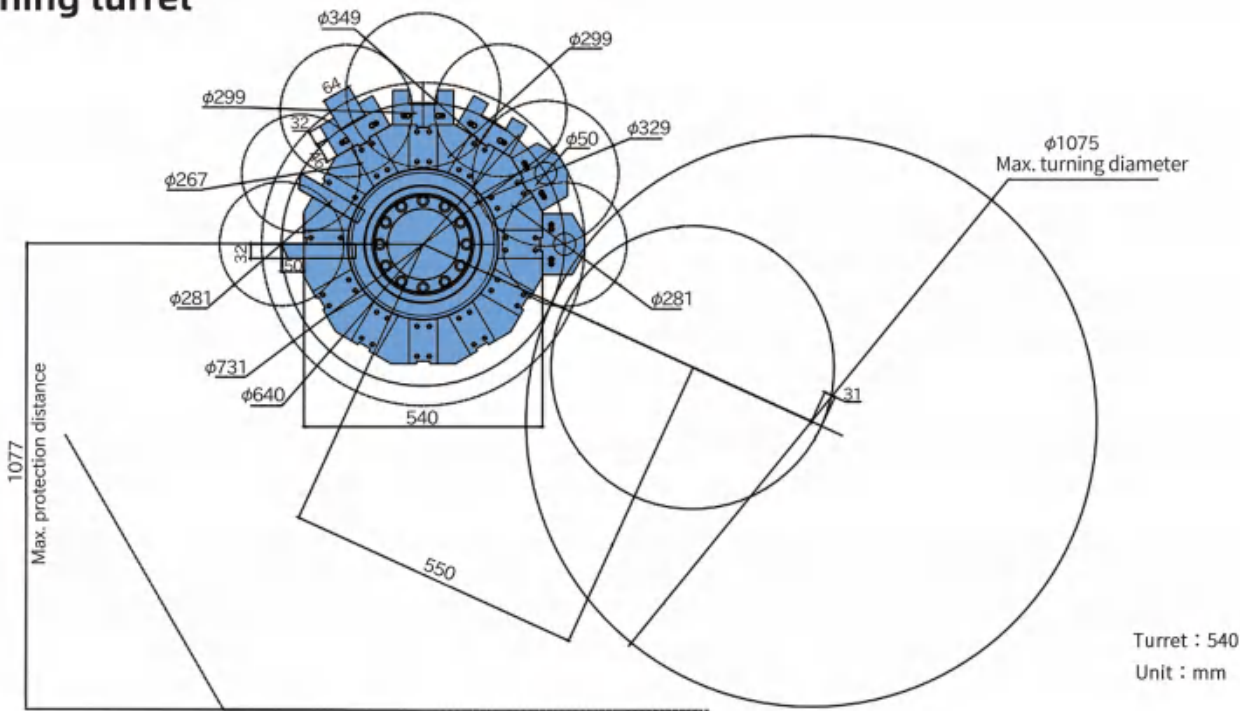


BMT85 Power turret

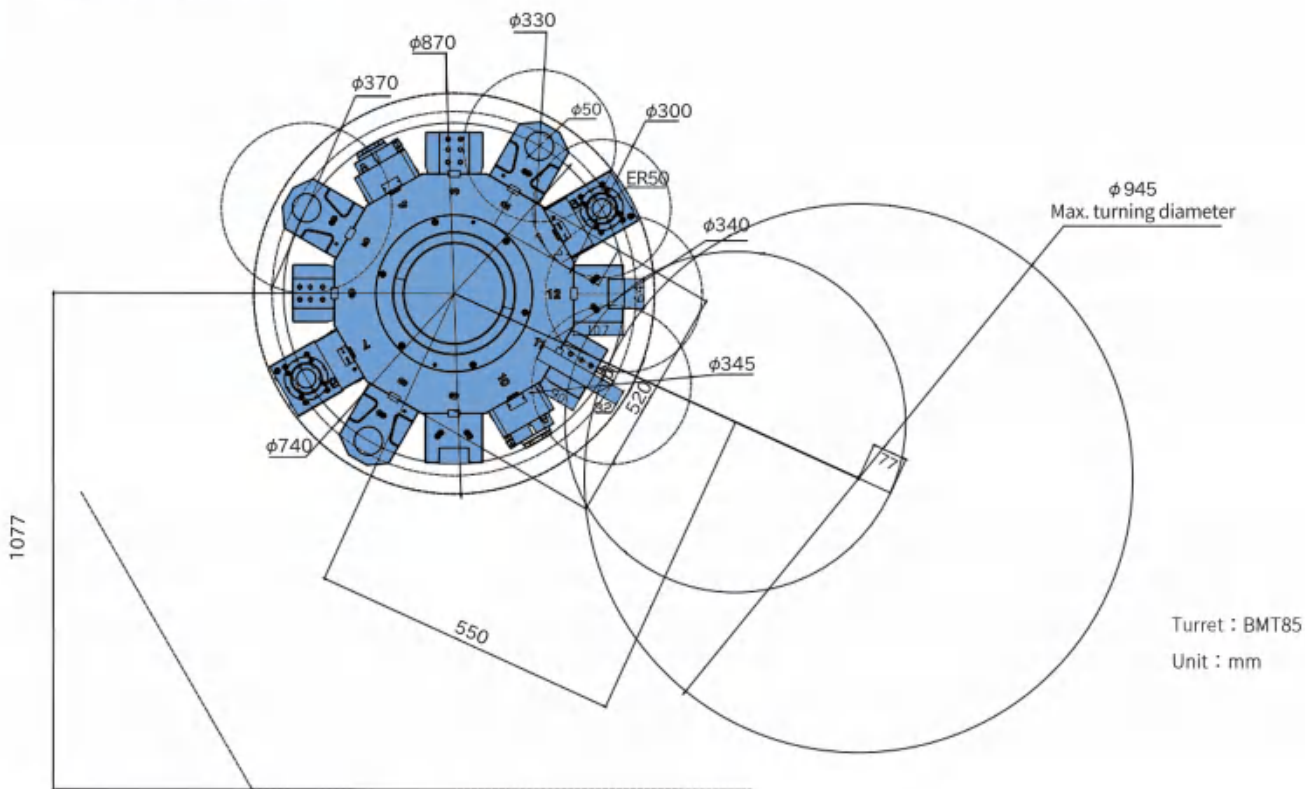


TOOL INTERFERENCE PATTERN

Turning turret



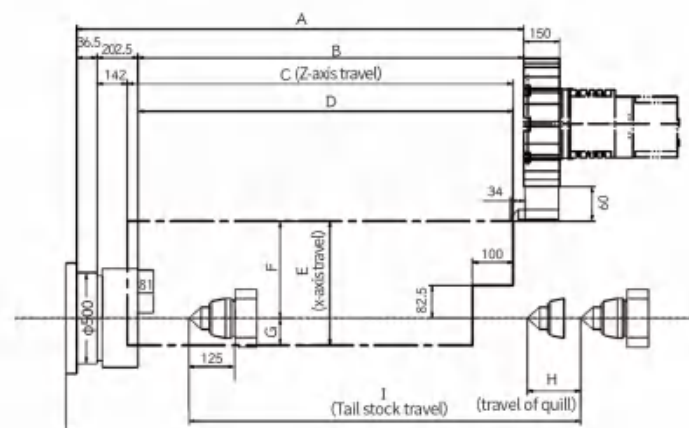
BMT85 Power turret



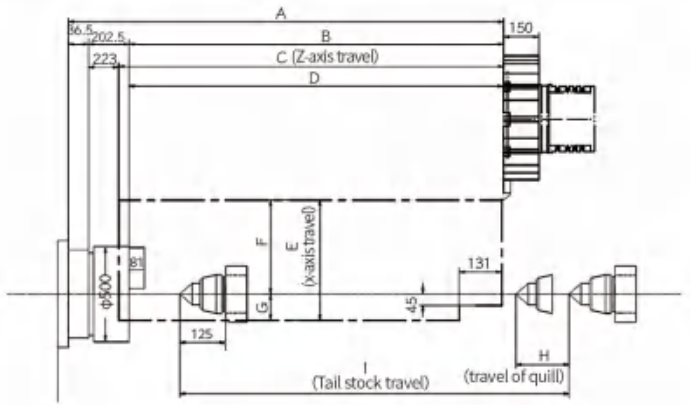
WORKING RANGE

Tuining turret

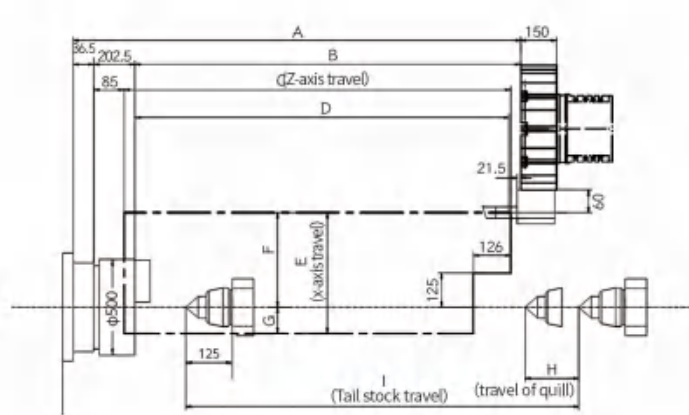
End face block



OD tool block



Boring tool block



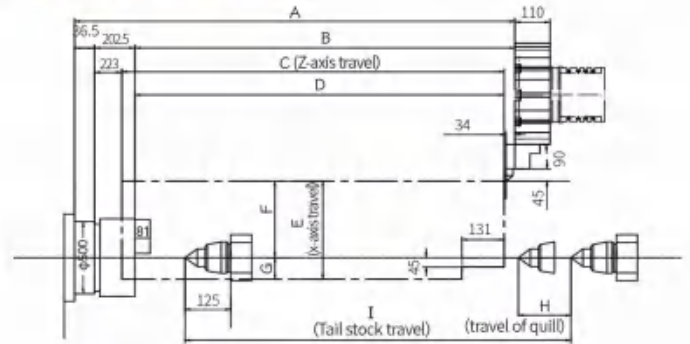
Tool holder		End face / O.D / Boring				Tail stock travel
Model	Travel	A	B	C	D	I
TCK1000-1000		1395	1156	1070	1060	1424
TCK1000-2000		2395	2156	2070	2060	2424
TCK1000-3000		3395	3156	3070	3060	3424
TCK1000-4000		4395	4156	4070	4060	4424
TCK1000-5000		5395	5156	5070	5060	5424

Model	Tool holder	Travel	E	F	G	H
TCK1000 (1000-5000)	End face block		550	526	24	200
	OD tool block			538	12	
	Boring tool block			526	24	

WORKING RANGE

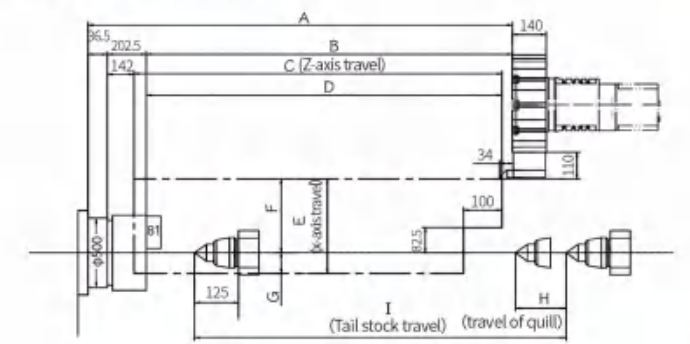
BMT85 Power turret

OD tool block



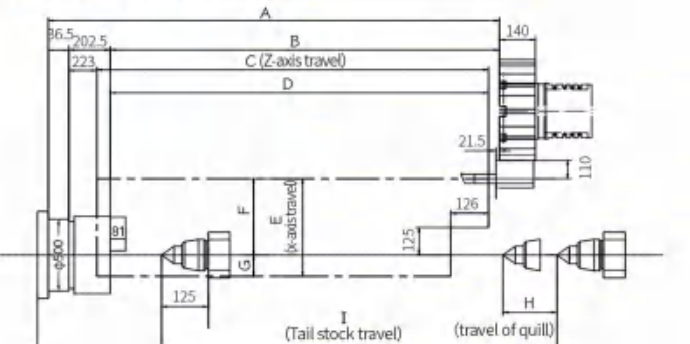
Model	Travel	A	B	C	D	E	F	G	H	I
TCK1000-1000		1371.5	1132.5	1070	1065	550	428	122	200	1424
TCK1000-2000		2371.5	2132.5	2070	2065					2424
TCK1000-3000		3371.5	3132.5	3070	3065					3434
TCK1000-4000		4371.5	4132.5	4070	4035					4434
TCK1000-5000		5371.5	5132.5	5070	5065					5434

End face block



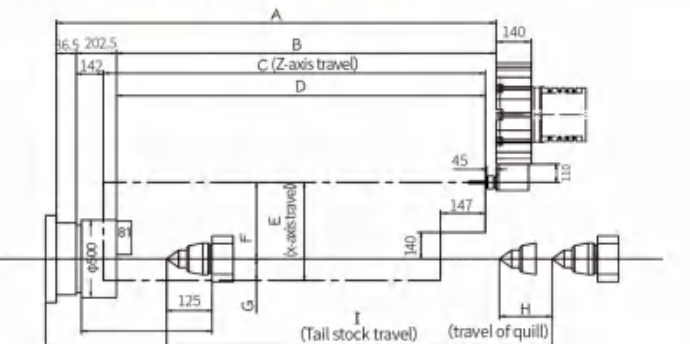
Model	Travel	A	B	C	D	E	F	G	H	I
TCK1000-1000		1371.5	1132.5	1070	1065	550	473	77	200	1424
TCK1000-2000		2371.5	2132.5	2070	2065					2424
TCK1000-3000		3371.5	3132.5	3070	3065					3434
TCK1000-4000		4371.5	4132.5	4070	4035					4434
TCK1000-5000		5371.5	5132.5	5070	5065					5434

Boring tool block



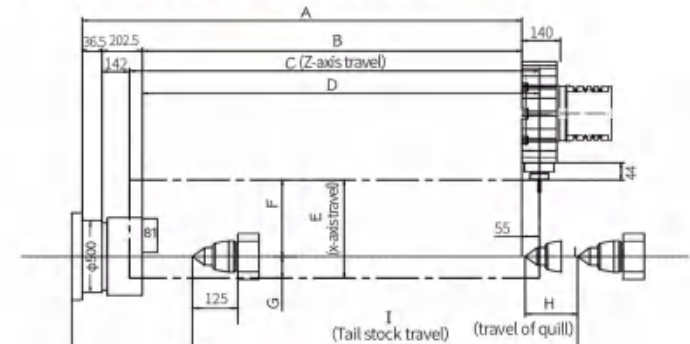
Model	Travel	A	B	C	D	E	F	G	H	I
TCK1000-1000		1371.5	1132.5	1070	1065	550	473	77	200	1424
TCK1000-2000		2371.5	2132.5	2070	2065					2424
TCK1000-3000		3371.5	3132.5	3070	3065					3434
TCK1000-4000		4371.5	4132.5	4070	4035					4434
TCK1000-5000		5371.5	5132.5	5070	5065					5434

Axial living tool holder



Model	Travel	A	B	C	D	E	F	G	H	I
TCK1000-1000		1371.5	1132.5	1070	1065	550	473	77	200	1424
TCK1000-2000		2371.5	2132.5	2070	2065					2424
TCK1000-3000		3371.5	3132.5	3070	3065					3434
TCK1000-4000		4371.5	4132.5	4070	4035					4434
TCK1000-5000		5371.5	5132.5	5070	5065					5434

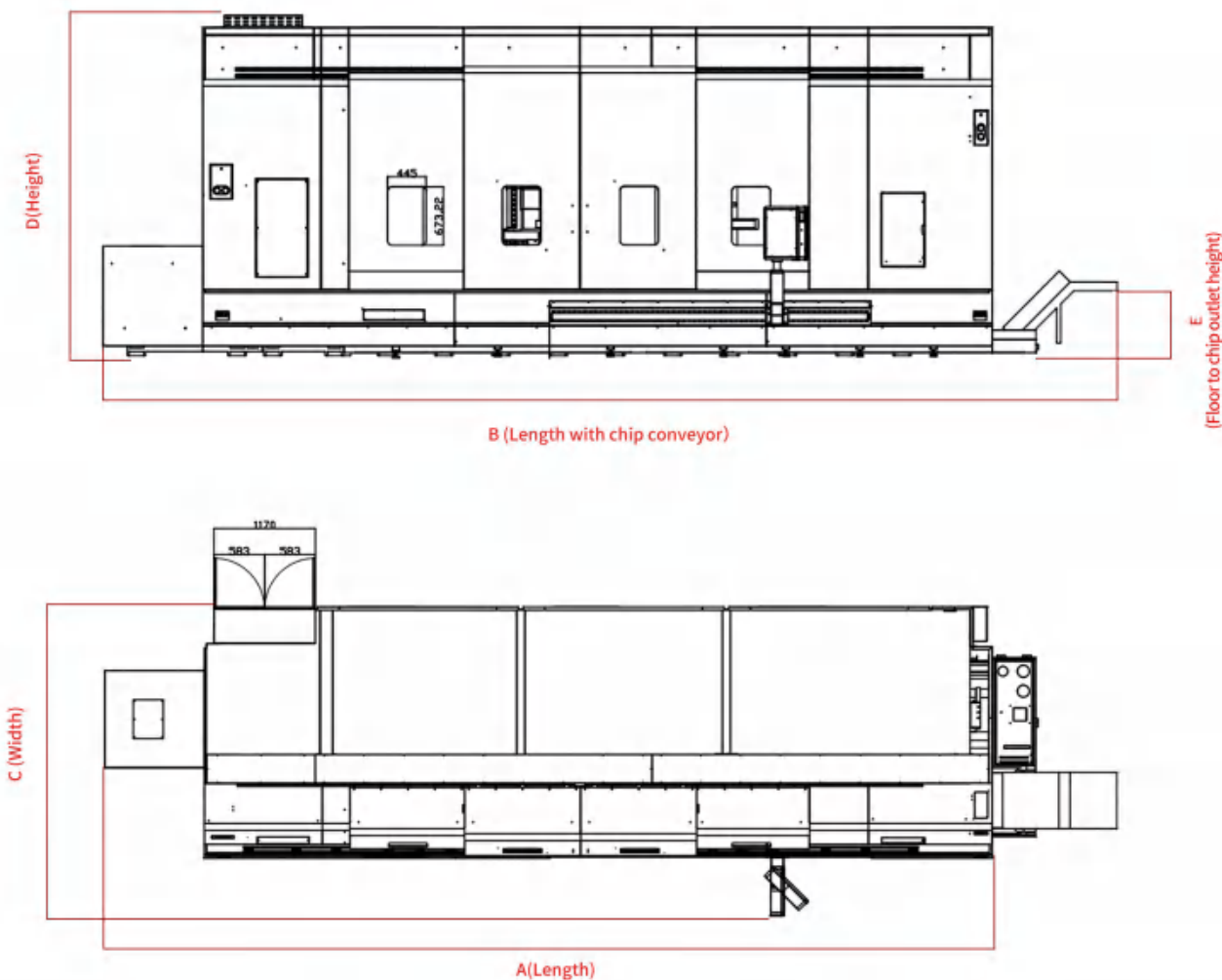
Radial living tool holder



Model	Travel	A	B	C	D	E	F	G	H	I
TCK1000-1000		1371.5	1132.5	1070	1065	550	473	77	200	1424
TCK1000-2000		2371.5	2132.5	2070	2065					2424
TCK1000-3000		3371.5	3132.5	3070	3065					3434
TCK1000-4000		4371.5	4132.5	4070	4035					4434
TCK1000-5000		5371.5	5132.5	5070	5065					5434

OVERALL DIMENSIONS

TCK1000 series



Unit : mm

Model	A (Length)	B (Length with chip conveyor)	C (Width)	D (Height)	E (Floor to chip outlet height)
TCK1000-1000	5000	6400	3260	3940	890
TCK1000-1500	5900	7340	3260	3940	
TCK1000-2000	6700	8140	3260	3940	
TCK1000-3000	7990	9430	3260	3940	
TCK1000-4000	9040	10480	3260	3940	
TCK1000-5000	10240	11680	3260	3940	

* 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

TCK1000 series

Description			Unit	TCK1000				
Capacity	Swing over bed		mm	Φ 1030				
	Swing over saddle		mm	Φ 1000				
	Chuck size		inch	18/21/24/32				
Travels	X-axis		mm	500				
	Y-axis		mm	±100				
	Z-axis		mm	1000/1500/2000/3000/4000/5000				
Feedrates	Rapid traverse rate	X-axis	mm/min	16				
		Y-axis	mm/min	10				
		Z-axis	mm/min	16				
Main Spindle	Main spindle motor power		KW	55 {75}				
	Spindle Ratio		/	1: 3				
	Spindle Ratio optional gearbox		/	1: 8				
	Through hole of main spindle		mm	Φ132	Φ181	Φ220	Φ320	Φ375
	Bar through diameter		mm	120	166	220	320	375
	Spindle bearing diameter (Front)	mm	Φ132	Φ181	Φ220	Φ320	Φ375	
			280	360	420	/	/	
Turret	No. of tool stations		ea	12				
	OD tool size		mm	32X32				
	Max. boring bar size		mm	50				
	Turret indexing time (1 station swivel)		s	0.5				
	Max. rotary tool speed		r/min	BMT85 (1500)				
	Rotary tool motor power		KW	11				
Tailstock	Tail stock travel		mm	1100/1600/2100/3100/4100/5100				
	sleeve diameter		mm	180				
	Travel of sleeve		mm	200				
	sleeve bore taper		MT	MT6				

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

- North America Operations Centre
- 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.



Processing capacity

High-end precision mastering machine to ensure product manufacturing accuracy



Research and Development

Craftsmanship in design, making machines more aware of the world and creating productivity



Field Services

On-site installation, testing and regular maintenance of machines



Training

Programming /machine setupoperation /maintenance/applications

