EFFICIENT MEDIUM AND LARGE
HORIZONTAL TURNING CENTER

TCK 700

DONGS SOLUTIONS

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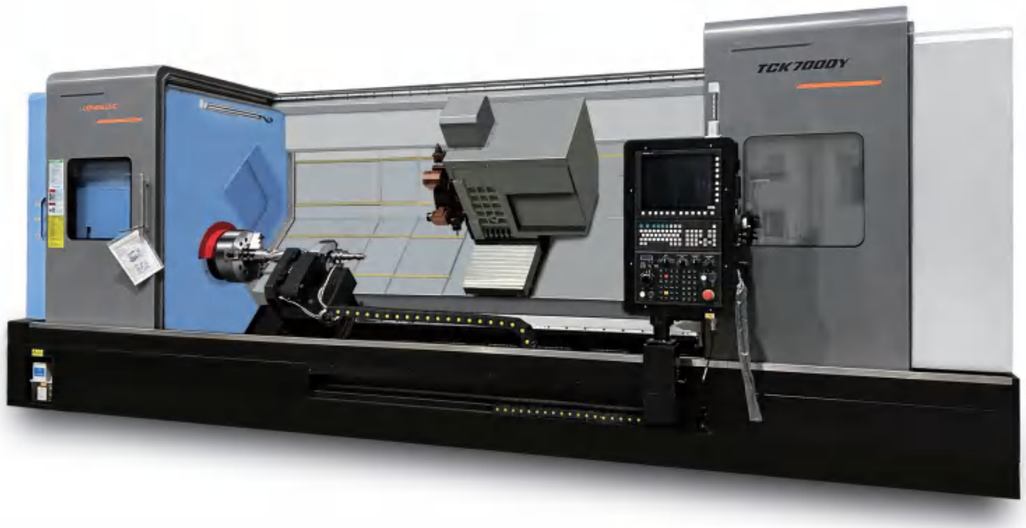
TCK700 machines are large horizontal turning centers ideal for machining pipes, valvesand flanges used in oil and gas industry, hydraulic parts used in construction equipment, and alsocomplex parts used in the aircraft and ship building,industries. Maximum turning, diameters andlengths are Ø680mm and 5000mm respectively, which are the highest in theirclass.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) (±100mm(3.9inch)) orthogonal Y-axis structure, which allows users to machine a wide rang

THE LARGEST MACHINING AREA AND TOP PERFORMANC INITS CLASS

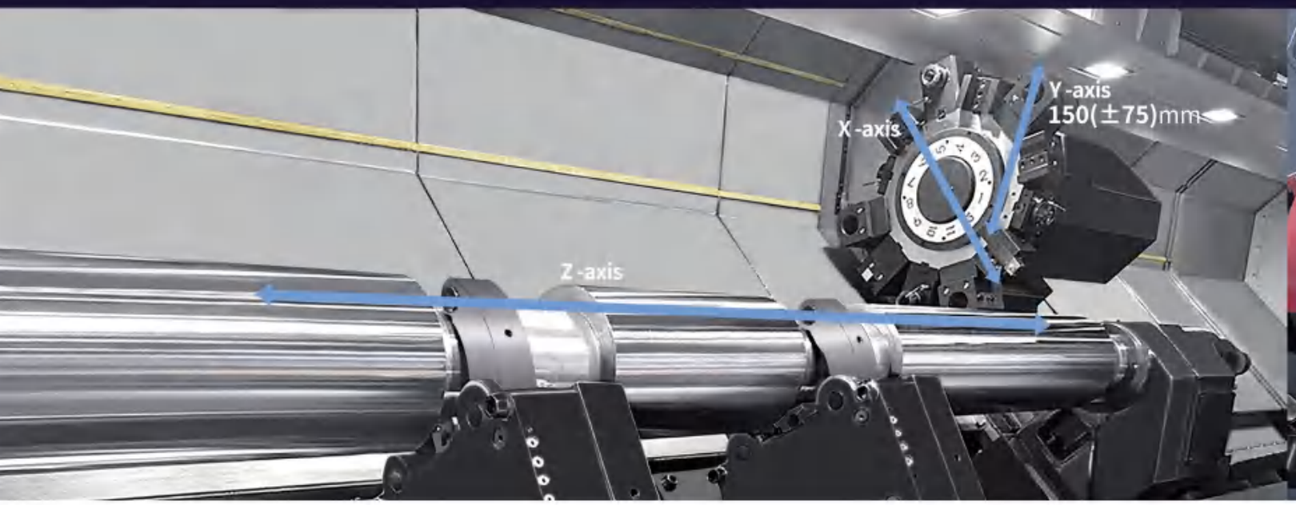
- With 5m maximum turning length, Ø680mm maximum turning diameter and 2176N·m of Torque, the machines are ideal for the heavy-duty cutting of large parts

THE SOLUTION FOR MACHINING A WIDE RANGE OF PIPES

- Ø220mm maximum spindle through hole diameter makes the machines ideal for turning large diameter pipes.
- The machines take the machining of high-accuracy and perfomance-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

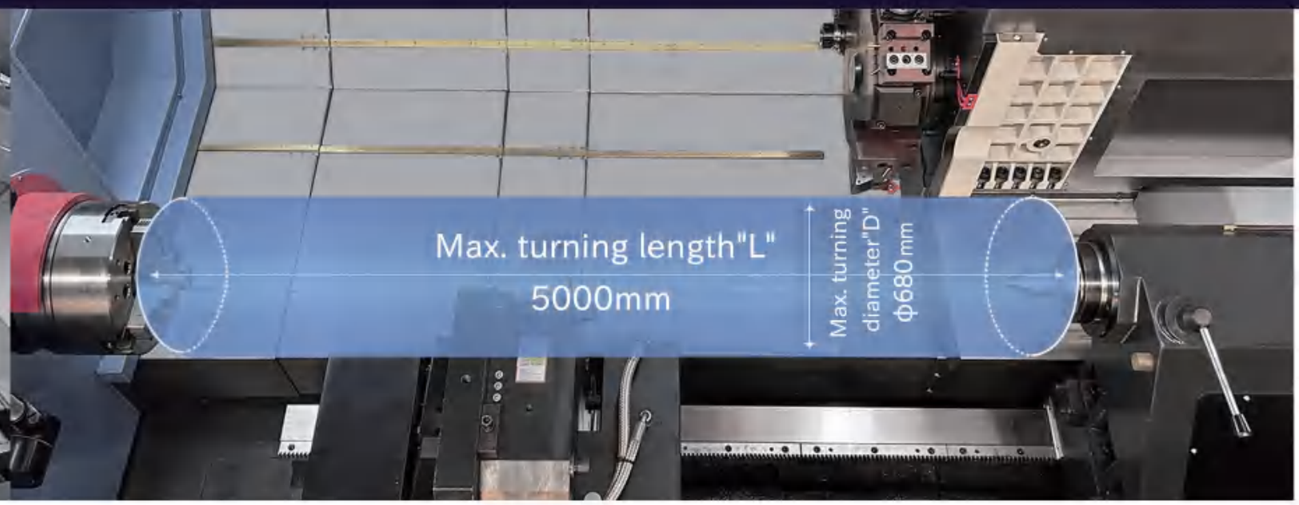


Centre distance	1100	1600	2100	3100	4100	5100
Chuck Size（inch）	15/18/21/24					
X-axis travel（mm）	350					
Y-axis travel（mm）	150（±75）					
Z-axis travel（mm）	1000	1500	2000	3000	4000	5000

**Chucks and rotary cylinders are optional.*

MACHINING AREA

The largest work envelope in their class with a maximum turning diameterof ϕ680mmand maximum turning length of 5m.



Max. turning diameter

ϕ680 mm

Max. turning length

5000 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

1200-3000 r/min

Max. spindle power

30 kw

Max. spindle torque

2176 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	ϕ88	3000	22	708{1888}
A2-11	ϕ105	2000	22	
A2-11	ϕ132	1800	30	816{2176}
A2-15	ϕ181	1600	30	
A2-15	ϕ220	1200	30	

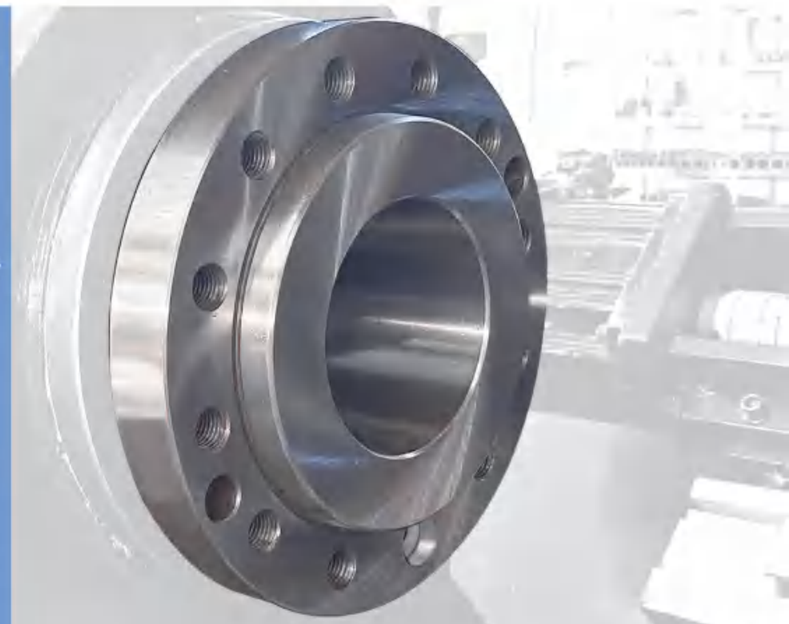
Machines are available with various spindle-through-hole sizes to provide the optimum machining solutions for different sized pipes.

Max. spindle through hole diameter

ϕ220 mm

Unit: mm

Spindle front taper	Max. through hole diameter	Bar through diameter
A2-8	ϕ88	ϕ75
A2-11	ϕ105	ϕ90
A2-11	ϕ132	ϕ120
A2-15	ϕ181	ϕ166
A2-15	ϕ220	ϕ220



TAILSTOCK

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

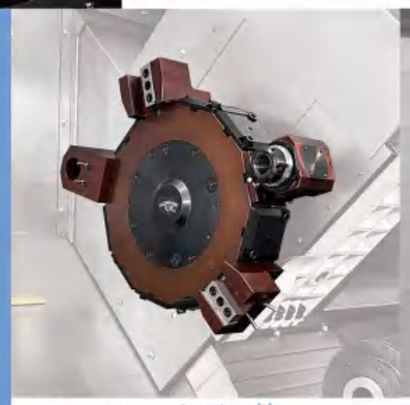
The tailstock body driven by the hydraulic motor through the gear rack. The tailstock sleeve is pushed by the hydraulic cylinder. The tailstock body is automatically locked by the hydraulic cylinder. All actions are controlled by M Code.

Unit: mm

Model	Tailstock sleeve	Travel of sleeve	Tail stock travel
TCK700-1000	150	180	1100
TCK700-1500			1600
TCK700-2000	160		2100
TCK700-3000			3100
TCK700-5000			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 65	turret position	Standard configuration	Turret position
	12	Diameter 480mm	12

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 **±75 mm**

Power Turret Motor **5.5 kw**

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

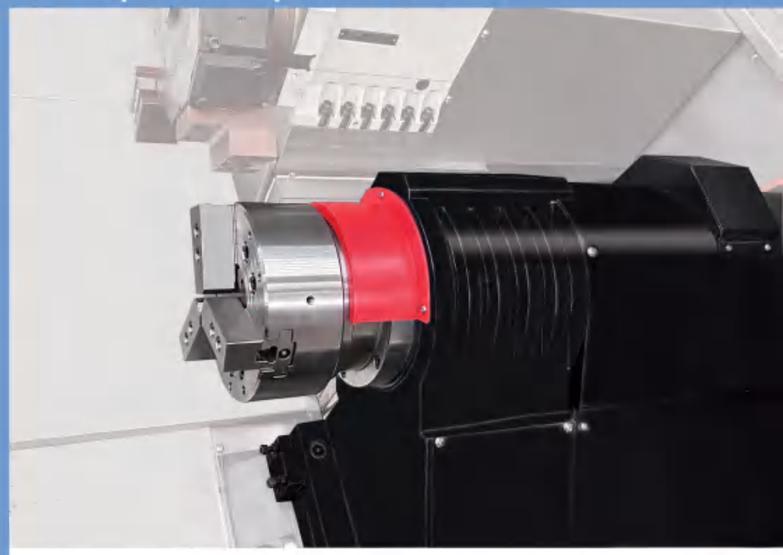
Rated power
22.15 kw

Rated torque
91.1 Nm

Max. torque
227 Nm

Y-axis – **BMT65 /75** Power turret Optional

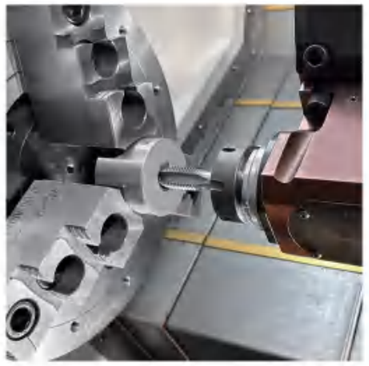
Sub spindle spindle Optional



CUTTING PERFORMANCE

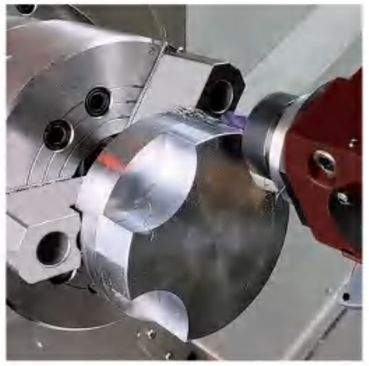
TCK700 machines can perform high-productivity, heavy-duty machining operations such as ID/OD turning, end milling, tapping and U-drilling etc.

O.D turning(Material diameterϕ220mm)	
Speed	400rpm
Feed	0.35mm/rev
Depth of cut	10mm
Chip Removal rate	150cm³/min



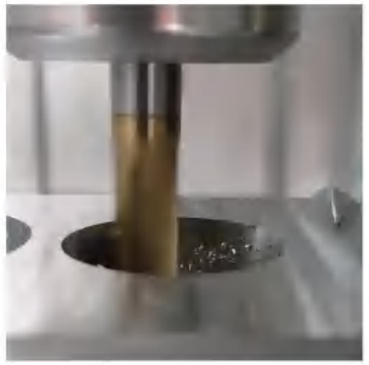
Tapping	
Cutting Tool	20mm
Feed	2.5mm/rev
Depth of cut	30mm

U-Drill	
Cutting Tool	ϕ30mm
Cutting line speed	2000m/min
Feed	0.15mm/rev
Chip Removal rate	150cm³/min



End mill （(Low Speed）	
Cutting Tool	ϕ32mm
Cutting line speed	30m/min
Feed	90mm/min
Chip Removal rate	105cm³/min

End mill （ High Speed）	
Cutting Tool	ϕ25mm
Cutting line speed	220m/min
Feed	1000mm/min
Chip Removal rate	175cm³/min



Milling	
Cutting Tool	ϕ25mm
Cutting line speed	240m/min
Feed	800mm/min
Chip Removal rate	100cm³/min

STABLE THREADING PERFORMANCE

All TCK700 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.

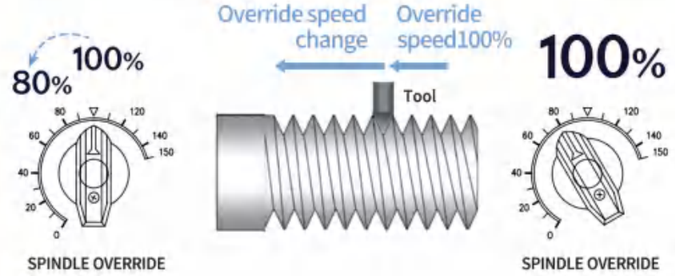
Thread cutting and re-machining

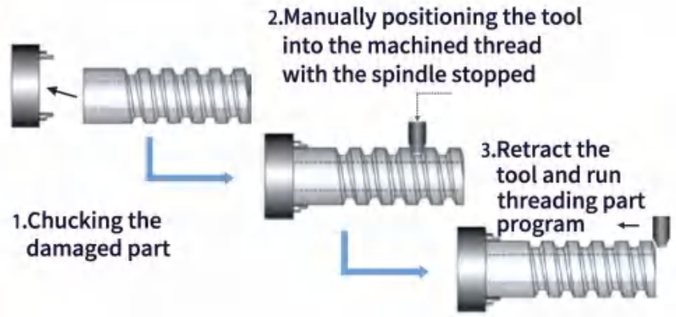
For thread repair machining where the threads need to be re-machined after the fixture is removed.

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		TCK700series		TCK800series			
Spindle taper			A2-11		A2-11		A2-15	
Through hole of main spindle			105	132	105	132	181	220
Chuck	15inch		●	●	●	●	X	X
	18inch		○	○	○	○	X	X
	21inch		X	○	X	○	●	X
	24inch		X	○	X	○	○	●
Jaw	Soft Jaws		●	●	●	●	●	●
	Hardened & ground hard jaws		○	○	○	○	○	○
Chucking option	Single pressure chucking		●	●	●	●	●	●
	Dual pressure chucking		X	X	X	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	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	X	○	○
	manual guide		○	○	○	○	○	○
Standard Accessories	Foundation bolt for anchoring		○	○	○	○	○	○

Please contact DONGS SOLUTIONS representative for detailed machine infommation.

● *Standard* ○ *Optional* X *N/A* ✪ *Available*

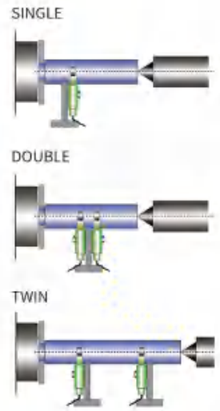
⚠ Fire Safety Precautions | There is a high risk of fire when using non-water-soluble cutting fluids, processing flammable materials. neglecting the controlled and careful use of coolants and modifying the machine without the consent of the manufacturer. Always check the SAFETY GUIDELINES carefully before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

PERIPHERAL EQUIPMENT

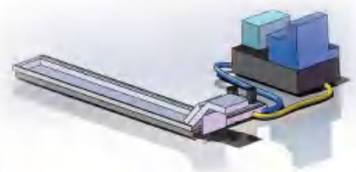
Users can choose from a variety of configurations according to different processing needs.

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
- Ergonimic operator panel
- 2MB Memory
- Hot keys

NUMERIC CONTROL SPECIFICATIONS

FANUC

Division	Item	Specifications	Fanuc i (F0i-F Plus-5)	Fanuc i (F0i-F Plus-5)	Fanuc i (F0i-F Plus-5)	Fanuc i (F0i-F Plus-1)	Fanuc i (F0i-F Plus-3)	Fanuc i (F0i-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		●	●	●	●	●	●
	Larger capacity memory_2GB	Note *2) Available Option only with 15" Touch LCD (iHMI Only) .	X	X	X	X	X	○
Interface function	Embedded Ethernet		●	●	●	●	●	●
	Fast Ethernet		○	○	○	○	○	○
	Enhanced Embedded Ethernet function		●	●	●	●	●	●
Operation	DNC operation	Included in RS232C interface.	●	●	●	●	●	●
	DNC operation with memory card		●	●	●	●	●	●
Program input	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		●	●	●	●	●	●
Network	FANUC MTConnect		✪	✪	✪	✪	✪	✪
	FANUCOPCUA		✪	✪	✪	✪	✪	✪
Others	Display unit	15" color LCD	X	X	X	X	X	●
		15" color LCD with Touch Panel	X	X	X	X	X	○
	Threading repair function		X	X	X	X	X	X

Network: FANUC MTConnect and FANUC OPC UA available.

● *Standard* ○ *Optional* X *N/A* ✪ *Available*

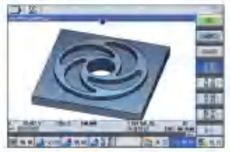
CONVENIENT OPERATION

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.

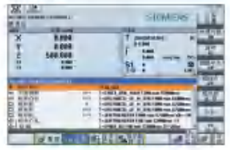
Convenient conversational functionality



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

Measuring cycle function
⇓
Ensure machining accuracy

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.



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

SIEMENS

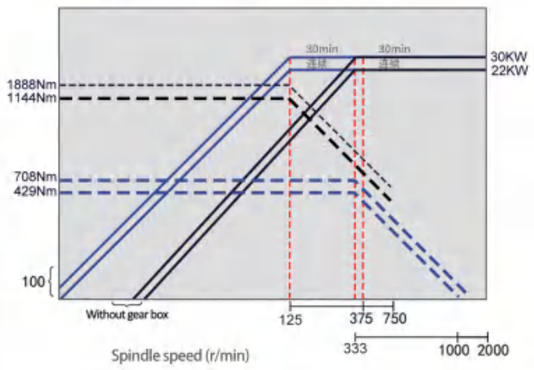
Division	Item	Specifications	2-Axis S828D	D S828D	S S828D	DS S828D	Y S828D	YS S828D
Controlled axis	Controlled axes		X,Z,SP	X,Z,C,R	X,Z,C,C2,B	X,Z,C,R,C2,B	X,Z,C,R,Y	X,Z,C,R,C2,Y,B
	Simultaneously controlled axes		4axes	4axes	4axes	4axes	4axes	4axes
Data input/output	Memory card input/output		X	X	X	X	X	X
	USB memory input/output		●	●	●	●	●	●
Interface function	Ethernet	(X130)	○	○	○	○	○	○
Operation	On network drive	(without EES option, Extcall)	○	○	○	○	○	○
	On USB storage medium, e.g. memory stick	(without EES option, Extcall)	●	●	●	●	●	●
Program input	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
	Look ahead number of block		1	1	1	1	1	1
Programming & Editing function	3D simulation, finished part		●	●	●	●	●	●
	Simultaneous recording		●	●	●	●	●	●
	DXF Reader for PC integrated in SINUMERIK Operate		○	○	○	○	○	○
Operation Guidance Function	Shopturn		●	●	●	●	●	●
	EZ Operation package		●	●	●	●	●	●
Setting and display	Operation via a VNC viewer		●	●	●	●	●	●
Network	MTConnect		✪	✪	✪	✪	✪	✪
	OPCUA		○	○	○	○	○	○
Others	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 extenal 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*

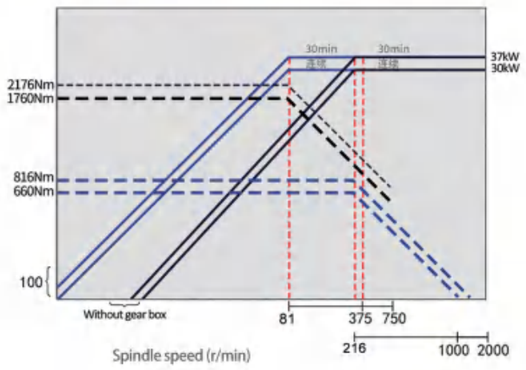
POWER & TORQUE

FANUC

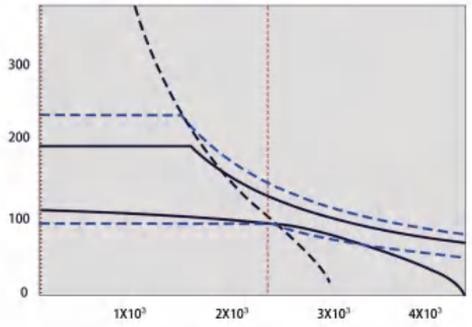
TCK700series



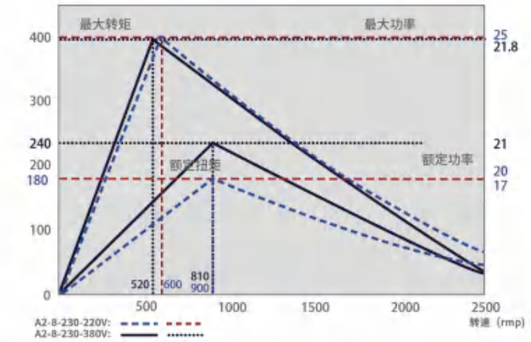
TCK700series Optional



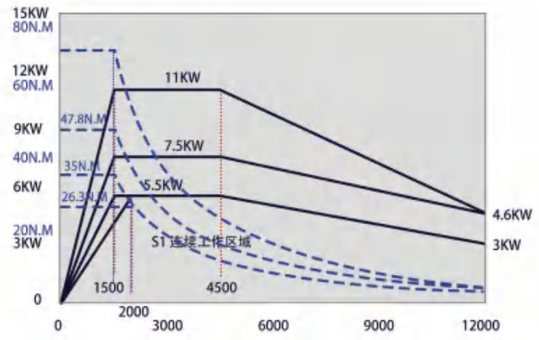
Torque-N [Sub spindle A2-6]



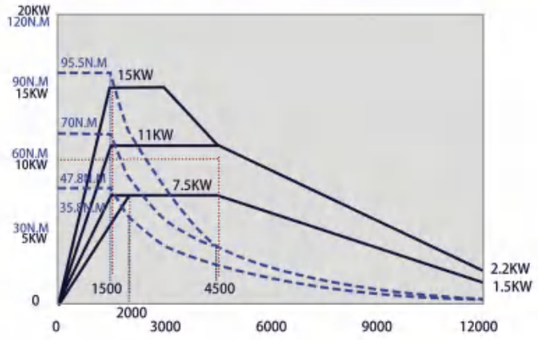
Torque-N [Sub spindle A2-8]



Rotary tool 5.5KW



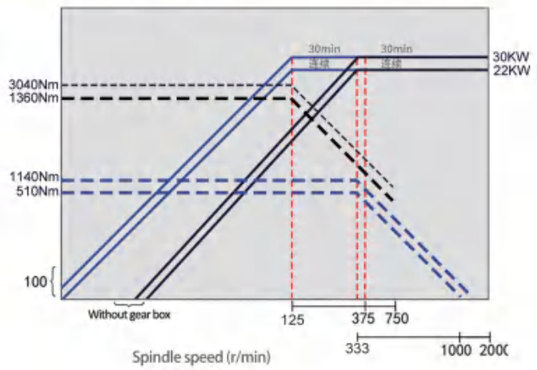
Rotary tool 7.5KW Optional



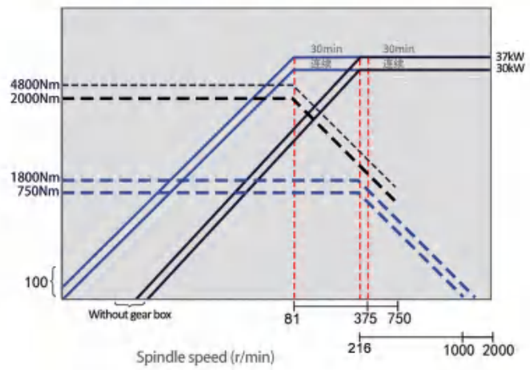
POWER & TORQUE

SIEMENS

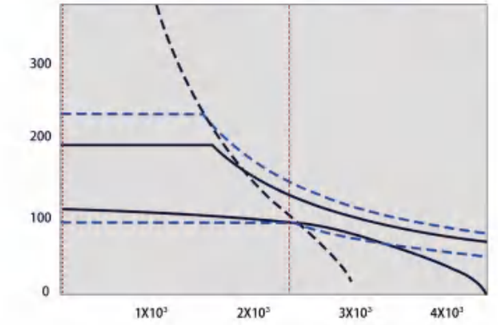
TCK700series



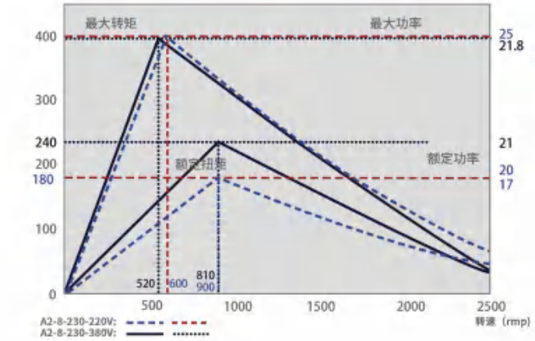
TCK700series Optional



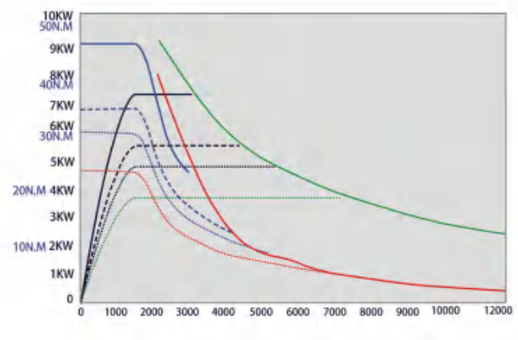
Torque-N [Sub spindle A2-6]



Torque-N [Sub spindle A2-8]

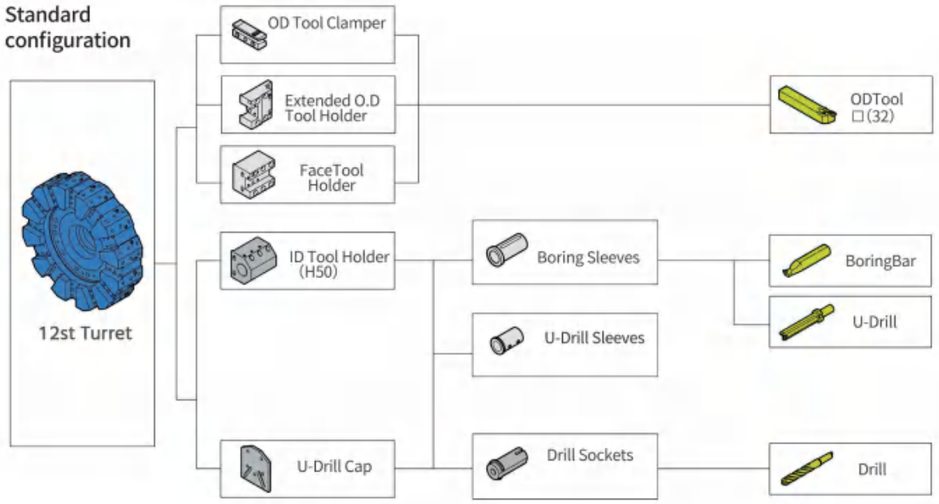


Rotary tool 5.5KW

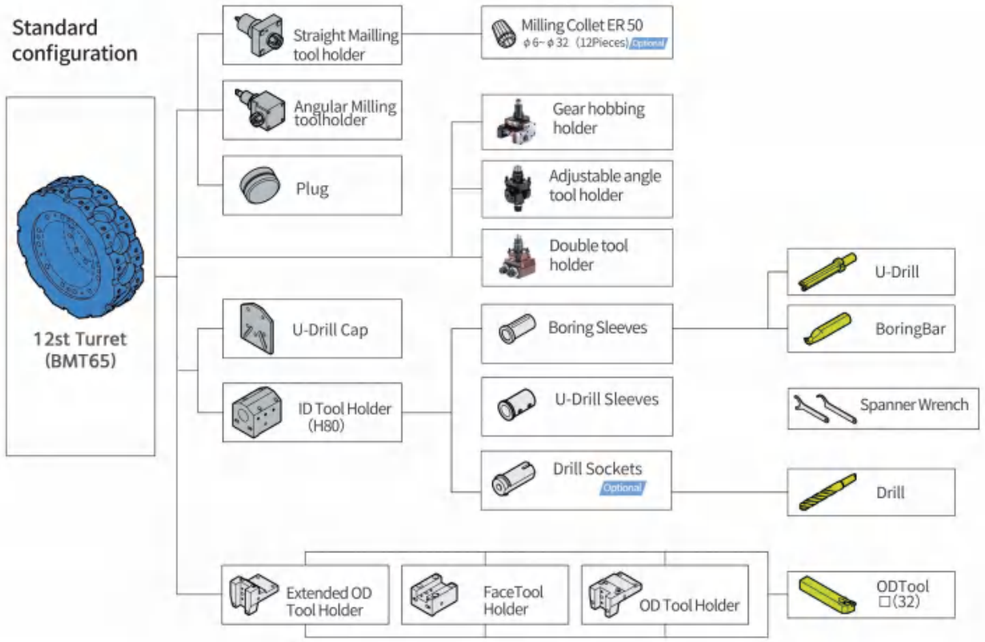


TOOLING SYSTEM

Turning turret

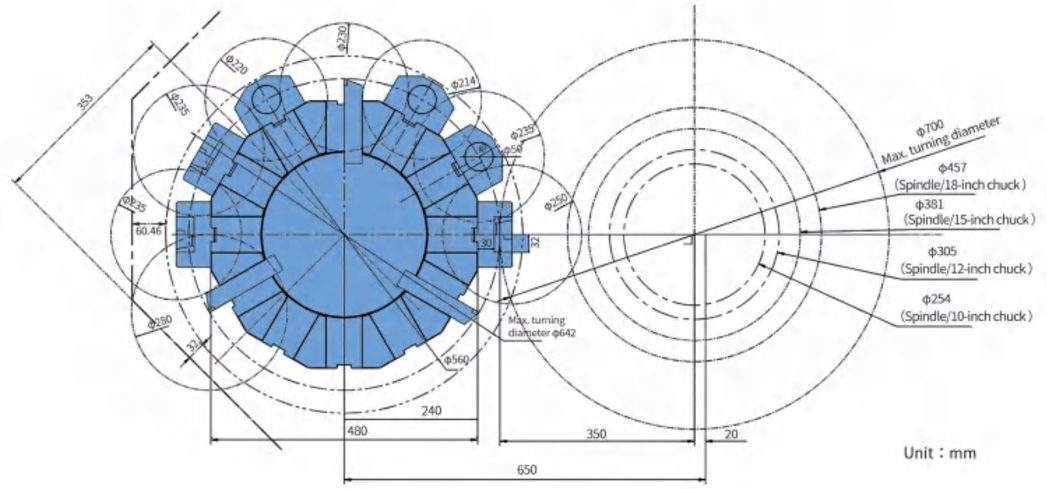


BMT65 Power turret

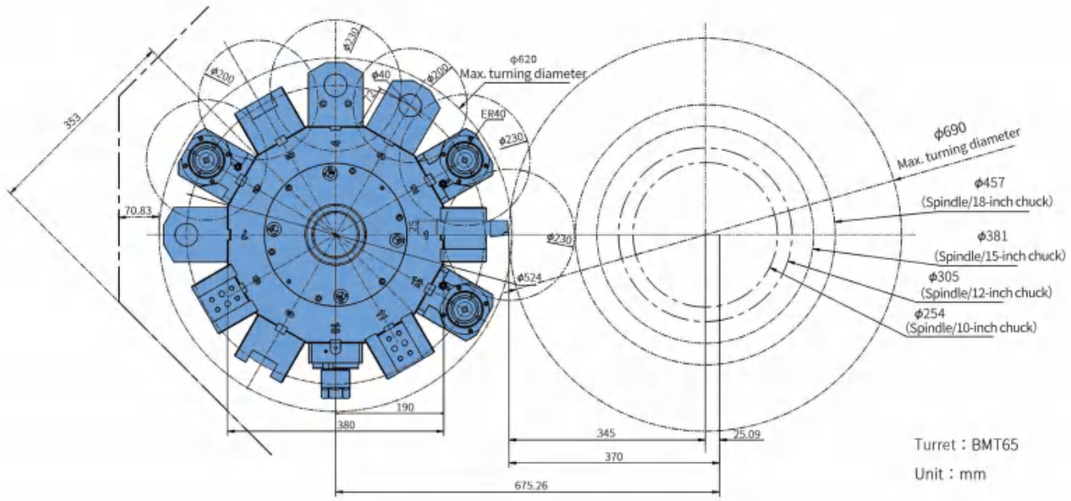


TOOL INTERFERENCE PATTERN

Turning turret



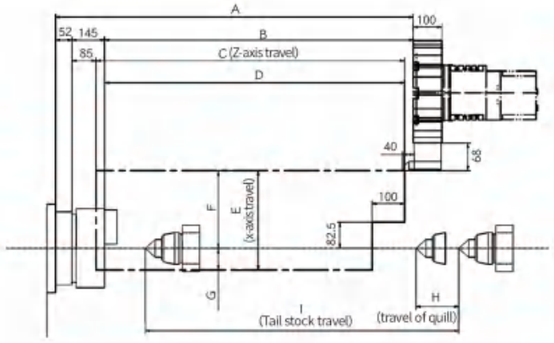
BMT65 Power turret



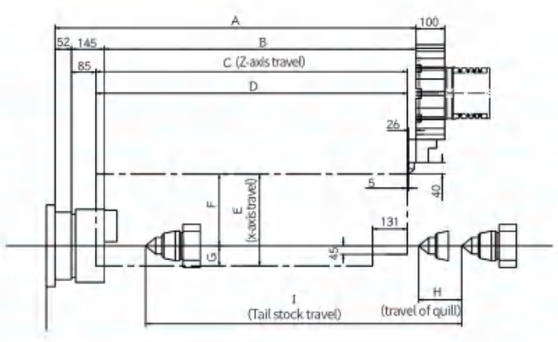
WORKING RANGE

Tuining turret

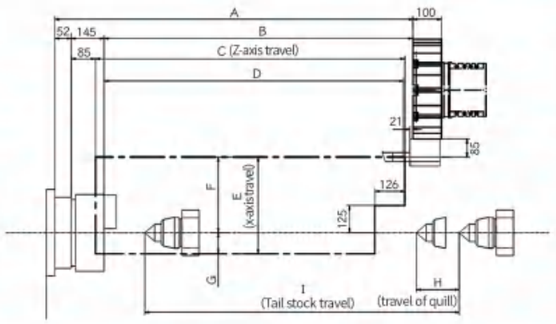
End face block



OD tool block



Boring tool block



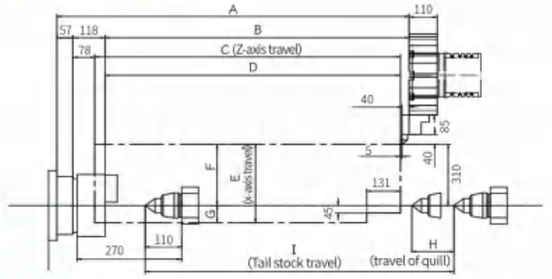
Tool holder	End face / O.D / Boring				Tail stock travel
Model \ Travel	A	B	C	D	I
TCK700-1000	1197	1000	1030	970	1100
TCK700-1500	1697	1500	1530	1470	1600
TCK700-2000	2197	2000	2030	1970	2100
TCK700-3000	3197	3000	3030	2970	3100
TCK700-4000	4197	4000	4030	3970	4100
TCK700-5000	5197	5000	5030	4970	5100

Model	Tool holder \ Travel	E	F	G	H
TCK700 (1000-3000)	End face block	380	302	78	200
	OD tool block		325	55	
	Boring tool block		342	38	

WORKING RANGE

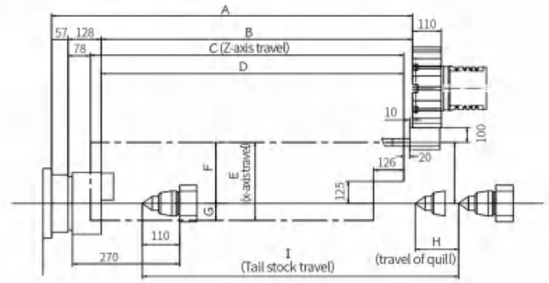
BMT65 Power turret

OD tool block



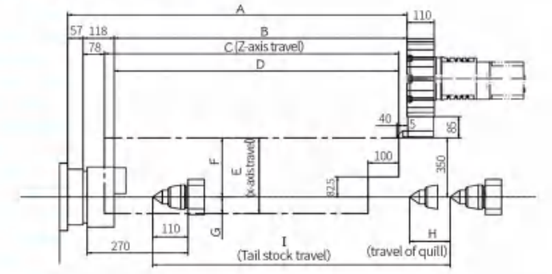
Model \ Travel	A	B	C	D	E	F	G	H	I
TCK700-1000	1125	940	1000	950	380	310	70	200	1100
TCK700-1500	1625	1440	1500	1450					1600
TCK700-2000	2125	1940	2000	1950					2100
TCK700-3000	3125	2940	3000	2950					3100
TCK700-4000	4125	3940	4000	3950					4100
TCK700-5000	5125	4940	5000	4950					5100

Boring tool block



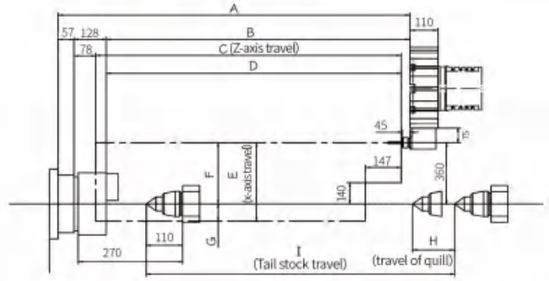
Model \ Travel	A	B	C	D	E	F	G	H	I
TCK700-1000	1125	940	1015	965	380	335	45	200	1100
TCK700-1500	1625	1440	1515	1465					1600
TCK700-2000	2125	1940	2015	1965					2100
TCK700-3000	3125	2940	3015	2965					3100
TCK700-4000	4125	3940	4015	3965					4100
TCK700-5000	5125	4940	5015	4965					5100

End face block



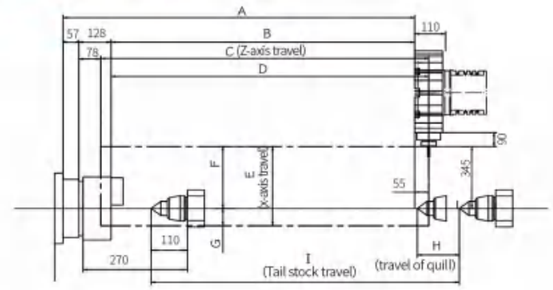
型号 \ 行程	A	B	C	D	E	F	G	H	I
TCK700-1000	1145	940	940	950	380	350	30	200	1100
TCK700-1500	1645	1440	1440	1450					1600
TCK700-2000	2145	1940	1940	1950					2100
TCK700-3000	3145	2940	2940	2950					3100
TCK700-4000	4145	3940	3940	3950					4100
TCK700-5000	5145	4940	4940	4950					5100

Axial living tool holder



型号 \ 行程	A	B	C	D	E	F	G	H	I
TCK700-1000	1125	940	1045	950	380	360	20	200	1100
TCK700-1500	1625	1440	1545	1450					1600
TCK700-2000	2125	1940	2045	1950					2100
TCK700-3000	3125	2940	3045	2950					3100
TCK700-4000	4125	3940	4045	3950					4100
TCK700-5000	5125	4940	5045	4950					5100

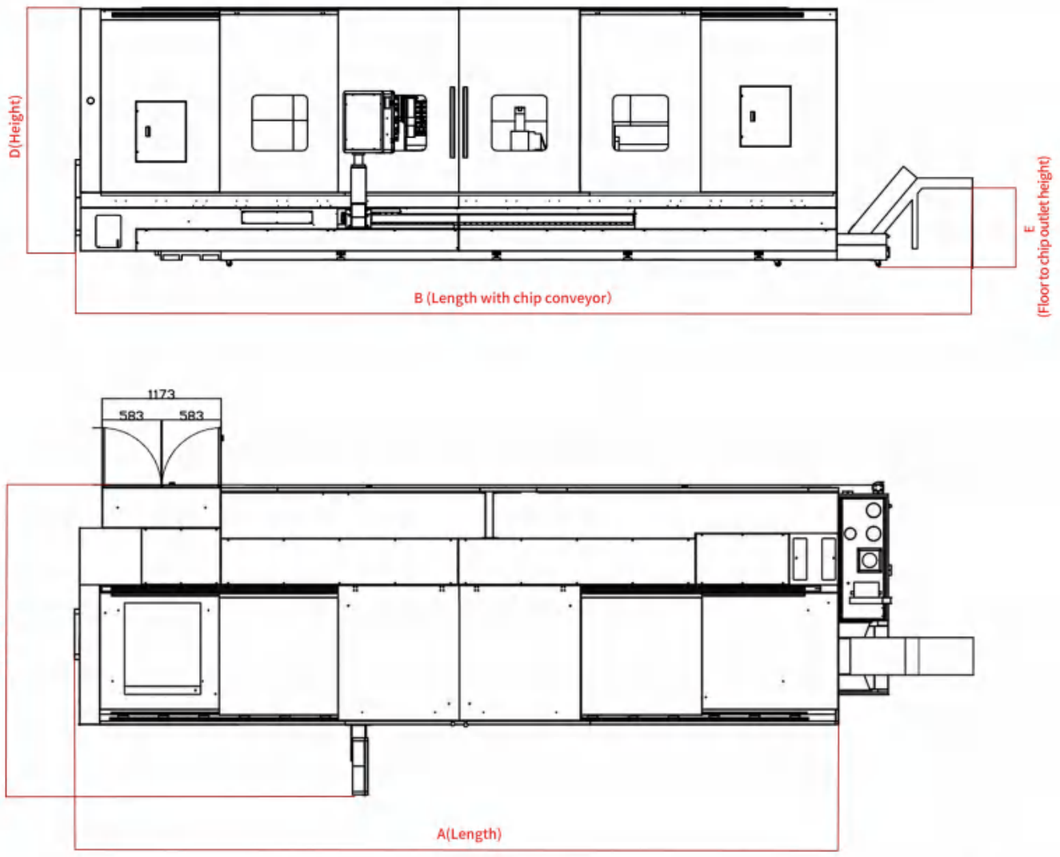
Radial living tool holder



型号 \ 行程	A	B	C	D	E	F	G	H	I
TCK700-1000	1125	940	1090	1050	375	345	30	200	1100
TCK700-1500	1625	1440	1590	1550					1600
TCK700-2000	2125	1940	2090	2050					2100
TCK700-3000	3125	2940	3090	3050					3100
TCK700-4000	4125	3940	4090	4050					4100
TCK700-5000	5125	4940	5090	5050					5100

OVERALL DIMENSIONS

TCK700 series



Unit : mm

Model	A (Length)	B (Length with chip conveyor)	C (Width)	D (Height)	E (Floor to chip outlet height)
TCK700-1000	4000	5400	2700	2400	830
TCK700-1500	4550	5950	3000	2400	
TCK700-2000	5500	6900	3000	2400	
TCK700-3000	6700	8100	3000	2400	
TCK700-4000	7600	9000	3100	2400	
TCK700-5000	8600	10000	3100	2400	

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

** Machine foundation : Anchoring is recommened to maintain accuracy over a long period of time, The anchor bolts and other related parts of foundation work are supplied ad tandard 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

TCK700 series

Description			Unit	TCK700	TCK800
Capacity	Swing over bed		mm	Φ 780	Φ 850
	Swing over saddle		mm	Φ 500	Φ 630
	Chuck size		inch	12/15/18/21/24	
Travels	X-axis		mm	350	
	Y-axis		mm	±75	
	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	22 {30}	
	Spindle Ratio		/	1:3	
	Spindle Ratio optional gearbox		/	1:8	
	Spindle nose		ASA	A2-8	A2-11 / A2-11 / A2-15
	Through hole of main spindle		mm	Φ88	Φ105 / Φ132 / Φ181 / Φ220
	Bar through diameter		mm	75	90 / 120 / 166 / 220
	Spindle bearing diameter (Front)		mm	Φ88 / 180	Φ105 / 240 / Φ132 / 280 / Φ181 / 360 / Φ220 / 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	BMT65 (4000)	
	Rotary tool motor power		KW	5.5/7.5	
Tailstock	Tail stock travel		mm	1100/1600/2100/3100/4100/5100	
	sleeve diameter		mm	150/160	
	Travel of sleeve		mm	180	
	sleeve bore taper		MT	MT5/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