

T80 SERIES

High Precision Turning Lathe

COLLET-READY
SPINDLE



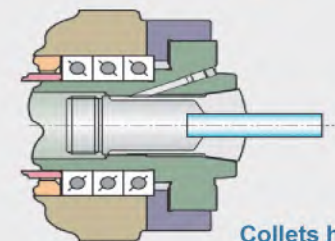
High Precision CNC Lathe

KELLENBERGER High Precision Turning Market Leader!

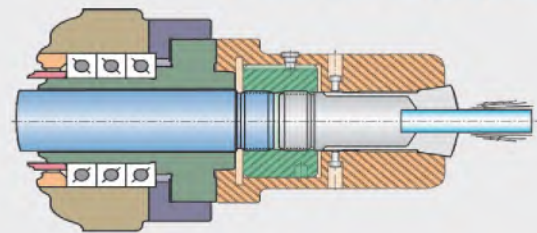
Collet Ready Spindle

- This high-precision collet-type spindle boasts a runout accuracy of less than $1\mu\text{m}$, making it the optimal choice for precision hard turning.
- Workpiece clamping is closer to the spindle bearing, resulting in higher machining rigidity and precision, resulting in better concentricity, surface finish, and roundness.
- Significantly increase the service life of cutting tools and reduce the cost of equipment usage
- The spindle can be directly mounted with a collet or three-pin chuck, eliminating the need for additional adapters.
- The chuck enables quick changeover between different processes with simple operation, eliminating the need for complex workpiece adjustments and alignment.

Collets hold the workpiece closer to the spindle bearings



Collets hold the workpiece

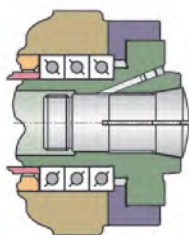


Collets adapter or chucks hold the workpiece

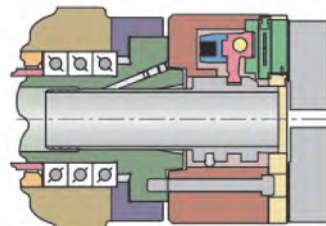
The T80 series of high-precision CNC lathes, meticulously designed by KELLENBERGER, boast high precision, high rigidity, and high efficiency for hard turning precision parts. These machines achieve exceptional workpiece accuracy through a high-precision spindle, a robust bed structure, fully closed-loop servo control, and thermal temperature control.



"Collet Ready" spindles can be directly mounted with collets or three-jaw chucks, eliminating the need for collet adapters

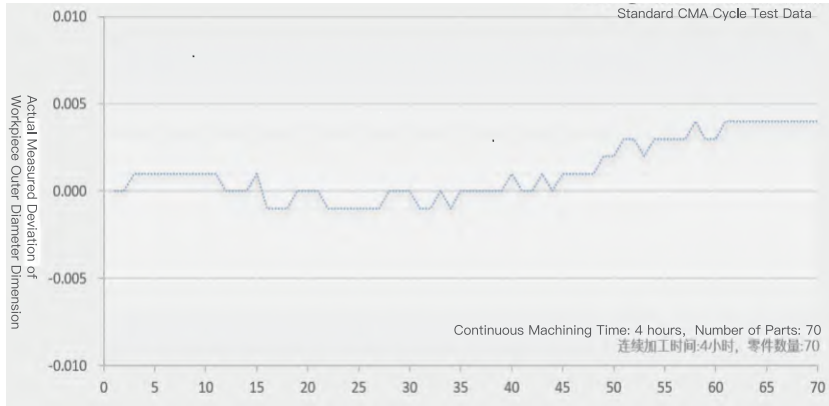


Spindle-mounted collets



Spindle-mounted chucks

Precision Characteristics



Note: Actual test results may vary due to processing conditions.

Precision Characteristics:

Using Hardinge Hard Turning, the following accuracy can be achieved:

- Laser inspection Positioning/Repeatability: 0.004/0.003mm (ISO230-2)
- Hard turning of parts with a hardness of HRC60 or higher
- Dimensional accuracy can be controlled to $\leq 0.005\text{mm}$
- Surface finish can be achieved to $\leq \text{Ra}0.2\mu\text{m}$
- Part roundness can be fine-turned to $\leq 0.5\mu\text{m}$
- Contour accuracy $\leq 0.005\text{mm}$



CMA Performance (Continue Machining Accuracy)

Continuous machining accuracy is an important reference indicator for considering the thermal stability of machine tools. Hardinge standard CMA cycle test:

- CMA Value: 0.005mm
- Spindle Speed: 1200rpm
- Workpiece Material: Brass
- Depth of Cut: 0.065mm
- Ambient Temperature: 24.8-25.2°C

Hard Turning Technology

Leveraging the inherent advantages of machines and years of experience in hard turning technology, the Hardinge technical team provides solutions to customers in various industries, optimizing machining processes, improving machining efficiency and tool life, and reducing the overall cost of equipment use.



Structural configuration

Standard

- Collet-Ready Spindle
- 12T servo turret
- X- and Z-axis linear scales
- Spindle oil chiller
- LED interior lighting
- Spindle side water outlet
- MT#5 servo tailstock
- Hinge Type Chip Conveyor
- Chip bucket
- Coolant tank and Pump
- RJ45 Ethernet port
- USB, PCMCIA card port
- Automatic centralized grease lubrication

Optional

- Automatic door
- HPMA Tool Probe
- OLP40 workpiece probe
- Oil mist Gathering
- Spindle Airtight Detection
- Pull Rod Position Detection
- Coolant Through Turret, 20bar
- Coolant Through Turret, 50/70Bar
- Air Blast, Spindle Side
- Hydraulic Steady Rest
- Oil Skimmer
- Electrical cabinet air conditioner
- Automation interface

Stable 45° Structural Bed

The integrated 45° inclined bed design minimizes thermal deformation and distortion, achieving high-precision cutting performance and meeting high-precision part machining requirements. The 45° angle also facilitates chip evacuation. The bed is constructed of high-quality gray cast iron and utilizes the latest FEA finite element analysis technology to ensure an optimized structural design, ensuring superior strength, rigidity, and thermal stability.

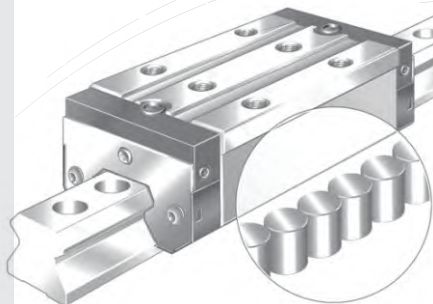
Spindle Oil Chiller

The Spindle cooling device can timely cool the heat generated by the Spindle during rotation, effectively controlling temperature rise and suppressing thermal displacement of the spindle box to achieve better processing stability.



X- and Z-axis linear scales

The X- and Z-axes are equipped with high-resolution linear scales as standard, forming a closed-loop detection system that compensates for thermal displacement caused by transmission components, ensuring higher machining performance in mass production.



Drive System

The X and Z axes are equipped with C1-grade $\phi 40$ mm precision ball screws and G1-grade 45 mm roller linear guides, enhancing the machine's rigidity and vibration resistance during heavy cutting, ensuring superior heavy cutting capabilities.

NC Servo Tailstock

Equipped with a standard MT#5 servo tailstock, it supports NC programming to achieve rapid positioning of the servo motor, enables programmable adjustment of the tailstock's thrust force, and allows forward or backward movements during the machining cycle—meeting diverse process requirements. Additionally, an optional MT#4 dead center tailstock with a built-in precision rotating component is available; when used in conjunction with a dead center, it can enhance rigidity and precision.



Control System



Fanuc Oi TF Plus

10.4" LCD Display
Servo Control HRV3
Two-axis interpolation
Programming Resolution 0.001mm
G code metric/imperial conversion
Program storage size 2MB PCMCIA Interface
Embedded Ethernet
USB Interface
Additional user macro public variables
Graphical dialogue input
Tool offset pairs, 128pairs Tool Life Management Number of registered programs 1000
Background Editing
Memory card editing operation
Run hour and parts count display
Self-diagnosis function
Dynamic graphics display

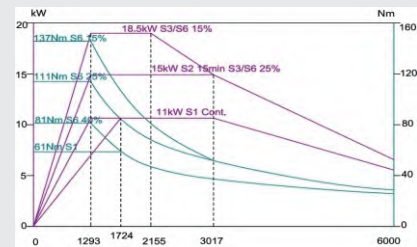
User Macro Program
Thread cutting
Thread cutting retract
G31 Jump
High-speed skip
Feed per minute/ Feed per revolution
Automatic acceleration /deceleration
Absolute/incremental commands
Coordinate System Setting
Direct input of drawing size
Corner R
Programmable Data Input

Siemens 828D

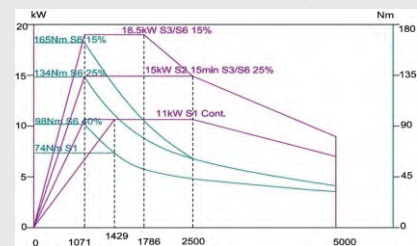
15"color display
Integrated QWERTY keyboard Block switching time 9ms
Tool management with tool life monitoring Number of tools/tool edges in the tool table: 128/256
Graphical conversational programming
Linear, circular, and helical interpolation
Jerk control
Backlash and lead screw pitch error compensation
Machine option management (Easy Extend)Backup management (Easy Archive)
Polar coordinates programming
Graphical HMI
3MB of CNC user memory (cache) for storing CNC part programs
Expand memory by >16GB via a USB device or by inserting a user CF card from the front interface
SINUMERIK Operate graphical user interface with animation support
Supported G-code programming standards: DIN/ISO Part programs on PPU,maximum number 750
Graphical CNC machining simulation
Set workpiece coordinate compensation number: 100
Predefined user variables (R variables) with annotations
Online program help available from a storage device connected to the front USB/CF card port



FANUC

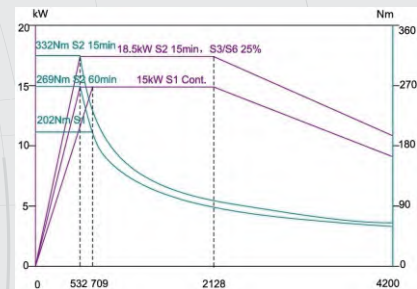


42Pro



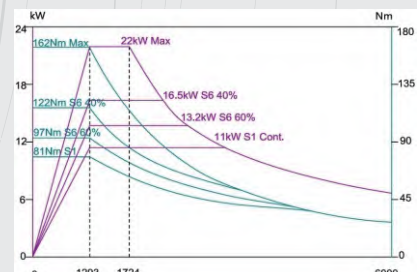
51Pro

T80

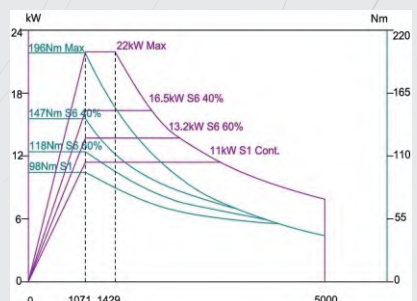


65Pro

SIEMENS

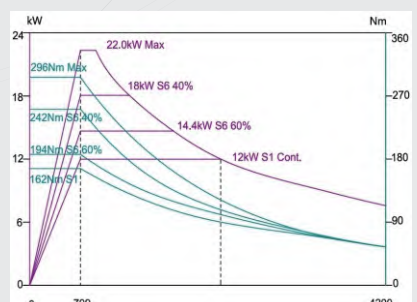


42Pro



51Pro

T80



65Pro

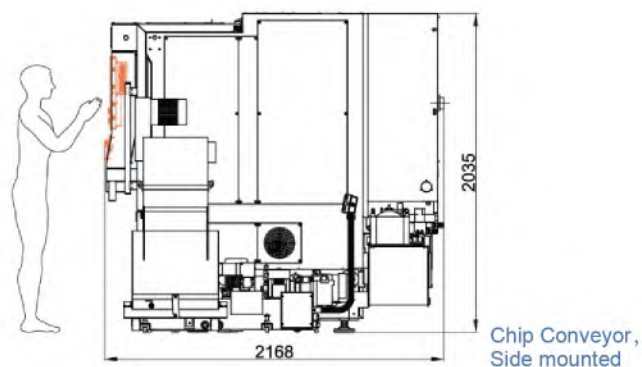
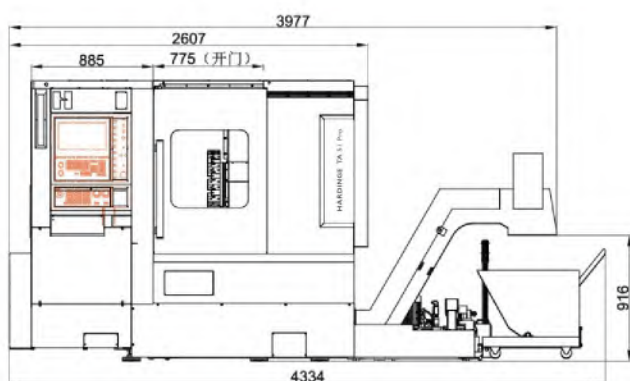
Machine Specifications

T80

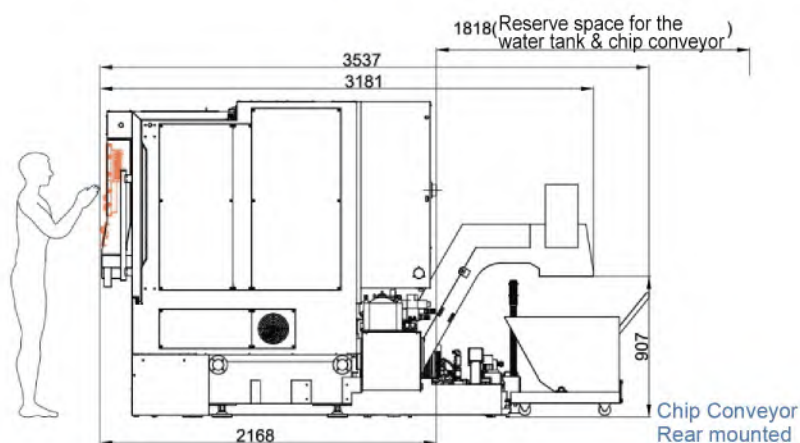
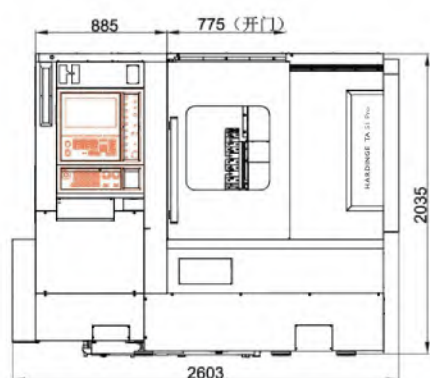
		Fanuc		Siemens		Fanuc		Siemens		Fanuc		Siemens	
Spindle													
Spindle Nose		16C/A2-5				20C/A2-6				25C/A2-6			
Bar Capacity	mm	42				51				65			
Clamp Type		16C/6"				20C/8"				25C/8"			
Height of Spindle Center	mm	1085				1085				1085			
Drive Motor													
Spindle Power	kW	18.5		22		18.5		22		18.5		22	
Max.Spindle Speed	rpm	6000				5000				4200			
Output torque	Nm	137		162		165		196		332		296	
X/Z Axis Power	kW	3.0/3.0		3.05/3.05		3.0/3.0		3.05/3.05		3.0/3.0		3.05/3.05	
Machining Range													
Max.Swing Over Lathe	mm	680				680				680			
Max.Cutting Length	mm	597/562(M)				597/562(M)				587/552(M)			
Max.Cutting Diameter	mm	500/400(M)				500/400(M)				500/400(M)			
X/Z Axis													
X Axis Travel	mm	251/259(M)				251/259(M)				251/259(M)			
Z Axis Travel	mm	604/595(M)				604/595(M)				594/585(M)			
X/Z Axis Rapid Speed	m/min	30/30				30/30				30/30			
T-type Turret (Turning)													
Tool Capacity		12				12				12			
Square Tools	mm	25				25				25			
Round Tools	mm	Φ40				Φ40				Φ40			
Tool Change Time (T-T)	s	0.5				0.5				0.5			
BMT-type Turret(Turning Center)													
Tool Capacity		12				12				12			
Max. Power tool speed	rpm	6000				6000				6000			
Square Tools	mm	25				25				25			
Round Tools	mm	Φ40				Φ40				Φ40			
Tailstock													
Taper No.		MT.5				MT.5				MT.5			
Tailstock Travel	mm	630				630				630			
Rapid Traverse Rate	m/min	24				24				24			
Coolant System													
Coolant Capacity	L	200				200				200			
Coolant Pressure	bar	2.8				2.8				2.8			
Machine Accuracy(ISO 230-2)													
X/Z Position Accuracy	mm	0.004				0.004				0.004			
X/Z Repeatability Accuracy	mm	0.003				0.003				0.003			
Others													
Machine length	mm	2607				2607				2607			
Width * Height	mm	2168*2035				2168*2035				2168*2035			
Machine weight	Kg	5000				5000				5060			
Power Requirement	kW	25		40		25		40		25		40	

Note: The brochure data is based on the printing period level only, any technology and parameters are subject to change without notice.

Floor Plan



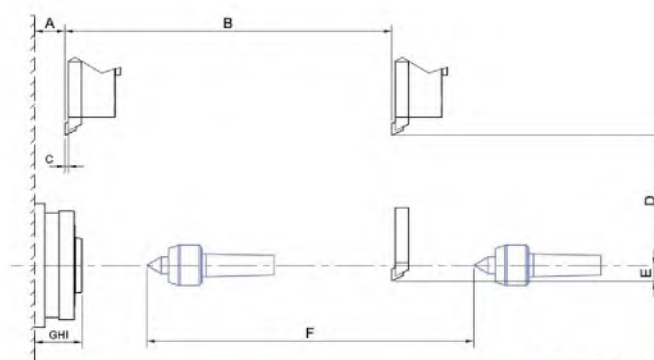
Chip Conveyor,
Side mounted



Chip Conveyor
Rear mounted

	B	C	D	E	F
42Pro	604	7	250	1	630
51Pro	604	7	250	1	630
T80 65Pro	594	7	250	1	630
42M Pro	595	7	200	59	630
51M Pro	595	7	200	59	630
65M Pro	585	7	200	59	630

单位:Unit



Travel Size



EUROPE & ASIA

Kellenberger Switzerland AG
Thannäckerstrasse 22
9403 Goldach
Tel. +41 71 242 91 11
info@kellenberger.net

AMERICA

Kellenberger Systems
1755 Britannia Drive, Unit A
Elgin, Illinois 60124
Tel. +800 8438801
info@kellenberger.net

CHINA

Kellenberger
1388 East Kang Qiao Road
Pudong, Shanghai 201319
Tel. +86 21 38108686
info@kellenberger.net

All prices and details are subject to change without notice. 1/2025

kellenberger.com

