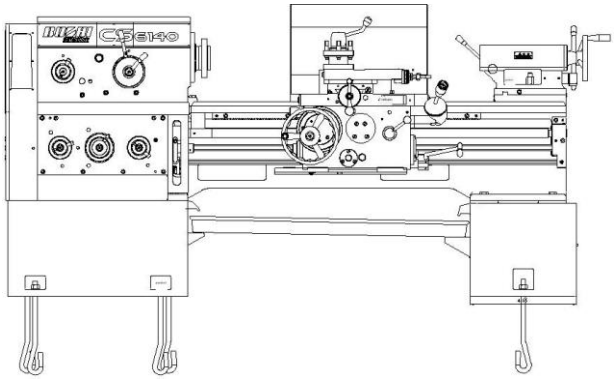
Structural Features and Technical Parameters of the CS61 Large-Diameter Series Ordinary Horizontal Lathe

I. Product Overview



The CS61 large-diameter series ordinary lathe has undergone multiple iterations and upgrades, integrating advanced technologies. Its structural design and turning performance have gained market recognition, and it is widely used in the automotive, energy, engineering machinery, and mold industries. The entire machine has undergone finite element analysis and dynamic and static simulation, and the reasonable combination of structural strength and reinforcing ribs ensures that the machine has high rigidity and high stability. In addition, to prevent deformation after machining, the castings are annealed to eliminate internal stress, while the entire assembly process of the machine tool is strictly controlled. The CS61 large-diameter series ordinary lathe can undertake various turning operations, including turning internal and external cylindrical surfaces, end faces and other rotating surfaces, turning various commonly used metric, imperial, module, and diametrical pitch threads, as well as drilling, reaming, and oil groove drawing. It can also achieve high precision in the machined parts and obtain good surface roughness. Meanwhile, there are also relatively complete special configurations such as metric or imperial feed transmission systems, manual brakes and foot brakes for users to choose from.

Bed: The bed and legs are made of high-strength cast iron and undergo multiple aging treatments to effectively suppress deformation and stress caused by cutting forces during machining. The bed guide rails are precision ground after medium-frequency quenching, maintaining excellent strength and ensuring the stability of the machine tool during long-term use;

Headstock: The headstock is precision machined on a horizontal machining center. The bearings inside the headstock are from well-known domestic brands. The spindle and gears undergo special treatments such as high-frequency quenching, precision grinding, and surface shot blasting to maximize the overall machine performance.

Feed Box: The feed box's unique speed change mechanism can accurately transmit the speed changes of the headstock to the lead screw. The panel displays the selection of metric and imperial threads, technical parameter reference tables, and various user-friendly designs to ensure quick, safe, and efficient operation for operators.

Slide Box: Scientific analysis and calculation, and reasonable gear transmission matching, accurately transmit the rotation of the lead screw to the saddle's cross and longitudinal feeds, ensuring the realization of the machine tool's machining functions.

Saddle: The saddle flat-V guide rail adopts plastic coating technology, which has low dynamic and static friction. Manual scraping ensures contact while also enhancing guide rail lubrication and lubricant storage, significantly improving accuracy retention.

Tailstock Tailstock: The tailstock body and sleeve are designed with a locking mechanism to ensure sufficient holding force during turning. The entire machine is aligned with the headstock spindle during assembly to ensure precise machining of parts.

Tool Tool Post: The tool post is ingeniously designed, providing convenient tool clamping. The combination of large and small tool posts allows for the machining of some special parts.

Cooling system: **Independently installed water pumps ensure cooling during the machining process. II. Main specifications of CS61 large bore series ordinary horizontal lathe**

Item		Unit	Parameters Quantity				
			CQ6280B	CS6140C CS6240C	CS6150C CS6250C	CS6166C CS6266C	CQ6280C
Machining range	Maximum turning diameter on the bed	mm	Φ800	Φ400	Φ500	Φ660	Φ800
	Maximum turning diameter on the tool holder	mm	Φ560	Φ220	Φ300	Φ420	Φ560
	Maximum turning diameter inside the saddle	mm	Φ1000	Φ630	Φ710	Φ870	Φ1000
	Effective Length Inside the Saddle	mm	240				
	Maximum Turning Length	mm	1950/2950	950/1450/1950/2950			1950/2950
	Maximum Workpiece Length	mm	2000/3000	1000/1500/2000/3000			2000/3000
Spindle	Spindle Through-Hole Diameter	mm	Φ82	Φ105			
	Spindle Head Type		ISO 702/II No.8 Cam locking type				
	Spindle Speed Range	r/min	24 grades 8-1400	12 grades 36-1600			12 grades 30-1400
	Spindle motor power	kW	7.5				
Tailstock	Tailstock sleeve diameter / Stroke	mm	Φ90/150	Φ75/150			Φ90/150
	Center taper	MT	MT5#				
Tool post	Number of tools / Tool square size		4/25×25				
Feed	Maximum X-axis travel	mm	145				
	Maximum stroke in Z direction	m/min	320			310	320
	X-axis feed range	mm/r	93 types 0.028-6.43	65 types 0.063-2.52			
	Feed range in Z direction	mm/r	93 types 0.012-2.73	65 types 0.027-1.07			
	Metric thread range	mm	48 Types 0.5-224	22 types 1-14			

	Imperial Thread Range	t. p. i	48 Types 72-1/4	25 Types 28-2		
	Module Thread Range	π mm	42 Types 0. 5-112	18 Types 0.5-7		
	Diameter Pitch Thread Range	t. p. i . π	42 Types 56-1/4	24 Types 56-4		
Others	Cooling Pump Motor Power	kW	0. 15			
	Rapid Feed Motor Power	kW	0. 3			0. 37
	Machine Length	mm	3365/4365	2632/3132/3632/4632		3365/4365
	Machine Width	mm	1340	975		1340
	Machine Height	mm	1490	1270	1450	1490
	Machine Weight	kg	3300/3700	2100/2300/ 2500/2900	2200/2400 / 2600/3000	3000/3200
	Maximum Workpiece Weight (Clanging at Both Ends)	Kg	900（ϕ 315 Manual Three-Jaw)	700 (φ315 manual three-jaw chuck)		900（ϕ315 Manual Three-Jaw)

III. Configuration Selection

1. Chuck Protective Cover
2. Tool Post Protection
3. Triple-Jaw Protection
4. Lead Screw Protection
5. Thread Gauge
6. Taper Profilometer
7. Automatic Longitudinal Feed Stroke Determination Device
8. Digital Display Device
9. Longitudinal Unit Stroke Determination Device

IV. Acceptance Standards and Main Accuracy Items

(Executes GB/T 4020 Horizontal Lathe Accuracy) V. Accompanying Technical Documents

1. Machine Tool Instruction Manual
2. Machine Tool Certificate of Conformity
3. Packing List
4. Three-Jaw Chuck Instruction Manual

(1) List of random accessories for CS61 large bore series ordinary horizontal lathe

Serial Number	Name Title	Specifications and Markings	Quantity	Remarks
1	Three-Jaw Chuck and Chuck Seat	ϕ315	1 set	
2	Center socket	ϕ113, 1:20 / Mohs 6	1 piece	CQ6280B with φ90, 1:20 / MT5#
3	Center	MT5#，MT6#	1 piece each	CQ6280B with 2 pieces of MT5#
4	Anchor bolts	M16×400	6 sets	0.75m/1m/1.5m with 6 sets (optional) 2m/3m with 8 sets (standard)
5	Square socket wrench	17 or 22	1 set	For clamping tools A-type tool post 22
6	Inside square wrench	12	1 set	For tightening spindle cams

7	Single-ended wrench with grooved round nut Hand	45-48	1 piece	Adjusting longitudinal lead screw
8	Single-ended wrench with grooved round nut Hand	115-130	1 piece	CQ6280B for adjusting spindle bearings
9	Single-ended wrench with grooved round nut Hand	150-160	1 piece	CQ6280B for adjusting spindle bearings
10	Single-ended wrench with grooved round nut Hand	165-170	1 piece	C model for adjusting spindle bearings
11	Single-ended wrench with grooved round nut Hand	180-200	1 piece	C model for adjusting spindle bearings
12	Oil gun	$100cm^3$	1 piece	

(2) Optional accessories for CS61 large bore series horizontal lathe (priced separately, not included if not ordered)

Serial number	Name Title	Specifications Specifications	Quantity	Remarks Notes
1	Dial	φ250	1 set	
2	Faceplate	φ630	1 set	
3	Four-jaw chuck and chuck seat	φ400 or φ500	1 set	CS6266B with φ500
4	Center rest	φ20-φ125	1 set	2 meters and above are standard configuration
5	Tool holder	φ20-φ80	1 set	2 meters and above are standard configuration
6	Extra large center rest	φ120-φ260	1 set	50C with
7	Extra large center rest	φ120-φ260	1 set	CS6266C with
8	Full length chip guard	750/1000/1500/2000	1 set	
9	T-type tool post		1 set	
10	Gear quick change tool holder	12（1/2″）	1 set	
11	Italian quick change tool holder	±10°	1 set	
12	Faceplate	φ710	1 set	CS6266B uses
13	Faceplate	φ800	1 set	CS6266B uses