

Heavy Duty CNC Turning Lathe
PROTURN 60/60B



HANKOOK
HANKOOK MACHINE TOOLS CO.,LTD.



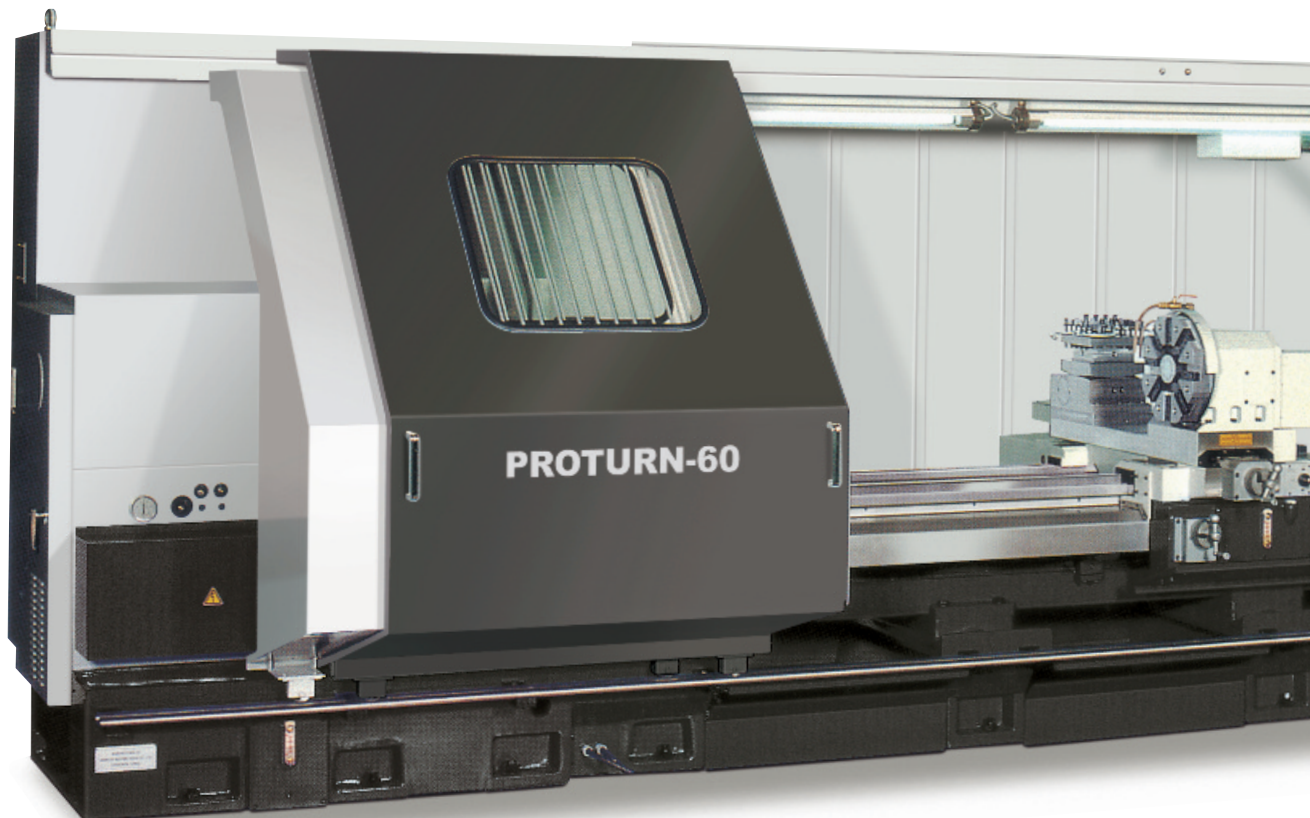
Heavy Duty CNC Turning Lathe

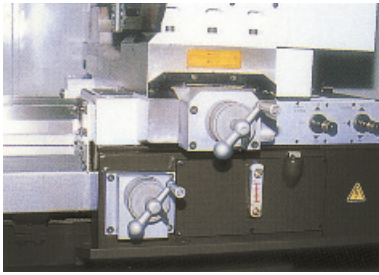
PROTURN 60/60B

The Proturn 60/60B large bore, heavy duty turning lathes are designed to handle heavy and interrupted cutting and maintain long-term high accuracies and superior surface finishes. Classic manufacturing methods and ultra rigid construction are combined with advanced technological features to provide exceptional value.

Features

- Up to 4000mm(158") shaft turning length
- Large 3000kg(6,600lbs) load capacity between centers
- One-piece Meehanite cast iron bed
- Powerful 30 horsepower spindle motor
- 3-speed geared headstock
- Two heavy duty bi-directional turrets
- Induction hardened and precision ground guide ways
- Up to 4,160 pounds of Z axis thrust
- Full length chip guard
- Oversized Z ball screw and drive motor
- 230kg·m(1,660ft-lbs) of low end spindle torque
- Sealed grease lubricated spindle bearings

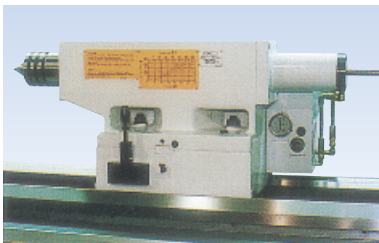




■ Convenient Manual Operation

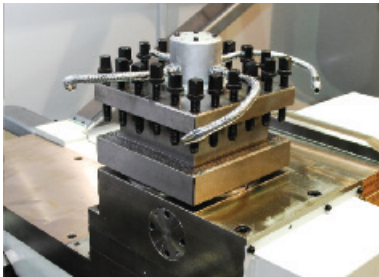
Manual pulse generators (MPG) are mounted on the saddle. Separated MPG are supplied for cross and longitudinal feeds. Manual jogging and continuous feed lever and spindle on/off lever are also located on the saddle for convenient manual operation.

All other control and machine functions are located on the rail mounted swiveling pendant console which can be moved to desired location.



■ Rigid Tailstock

The heavy duty tailstock has a Morse taper #6 live center and 112mm (4.4") quill diameter for to handle heavy shafts up to 6,600 lbs. The quill stroke of 200mm (7.9") is activated by foot pedal or program. Movement of the tailstock body is accomplished by a drive hook which can be engaged with the carriage. Quill thrust force, up to 2,645 lbs. can be adjusted by a dial on the tailstock body.

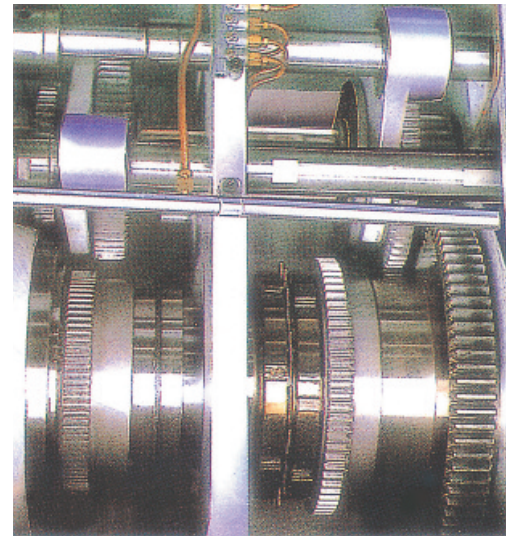


■ Heavy Duty Turret

Single turret 4 position turret is provided as standard and two turrets at maximum 16 tool positions are provided as option. Turrets have large Curvic couplings and hydraulic clamp force, to guarantee rigidity for excellent surface finishes and extended tool life. Indexing repeatability is 0.001 degree. Turret indexing is bi-directional. The front turret can have both H4 or V8, and various configuration for double turret is selected as per primary cutting. 8 O.D. turning tools can be mounted without concern of tool interference.

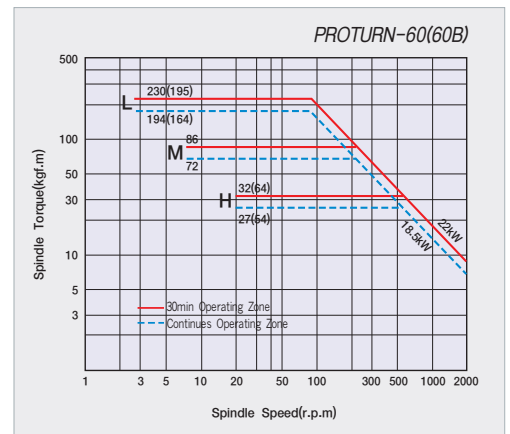
The horizontal 4 station turret is primarily used for boring but can also accommodate turning tools if needed. Both turrets are available at tool size square 25mm (1") or I.D. 50mm (2").

■ Precision Headstock

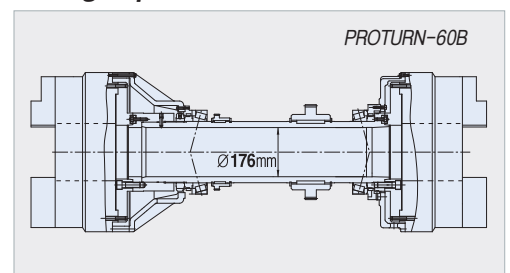


The spindle is supported by three angular contact bearings and one double-row cylindrical roller bearing. All spindle bearings are high precision class and are permanently grease lubricated to minimize thermal growth. Power is delivered through 3 gear ranges to obtain a wide range of constant power. Maximum torque is 230kg.m (1,660 ft-lbs). The design facilitates heavy cutting and ensures the highest accuracies and surface finishes.

■ Spindle Torque



■ Large Spindle Bore



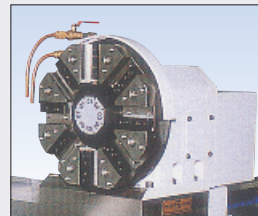
The diagram illustrates the tool configurations for three types of turret lathes: H4, H6, and V8. It shows the compatibility of various tools and holders with these turret types.

Tools and Holders:

- O.D. & Facing tool 25mm □
- Boring Bar $\phi 50$ mm
- Boring Bar $\phi 40$ mm
- Boring Bar $\phi 32$ mm (25mm, 20mm, 16mm)
- Drill MT #4, MT #3, MT #2, MT #1
- Drill Sleeve
- I.D. Tool Holder $\phi 50$ mm
- I.D. Tool Holder(S)
- I.D. Tool Holder(L)
- O.D. Tool Holder(I)
- O.D. Tool Holder(II)
- I.D. Tool Holder(S) $\phi 50$ mm ※ Note
- I.D. Tool Holder(L) $\phi 50$ mm ※ Note

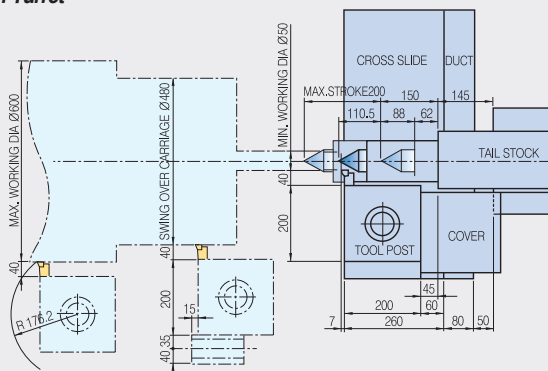
Turret Types:

- H4 Turret
- H6 Turret
- V8 Turret

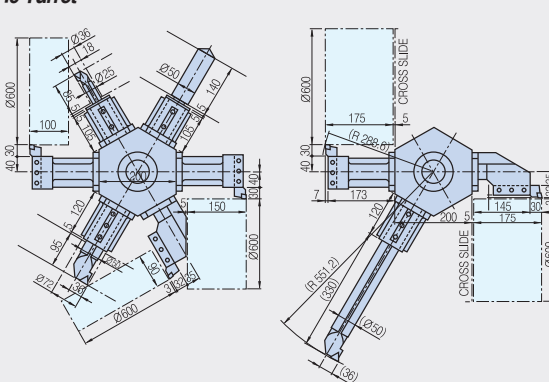


※Note: This I.D tool holder is not available with double turret type V8.

H4 Turret

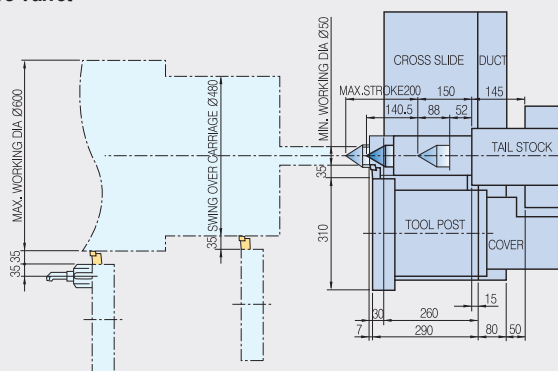


H6 Turret

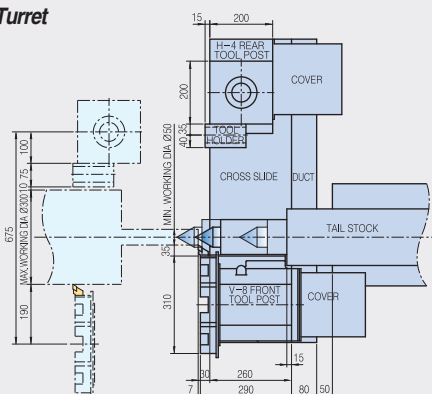


unit:mm

V8 Turret



V8+H4 Turret



Machine Specifications

Items		Unit	PROTURN -60			PROTURN -60B	
Capacity	Swing over bed	mm(inch)	710(27.9)				
	Swing over carriage	mm(inch)	480(18.9):Single turret, 300(11.8):Double turret				
	Distance between centers	mm(inch)	1200(47.2)	1700(66.9)	2200(86.6)	3200(126)	4200(165.3)
	Max. turning diameter	mm(inch)	300(11.8):Double turret, 600(23.6):Single turret				
	Max. turning length	mm(inch)	1000(39.4)	1500(59.0)	2000(78.7)	3000(118.1)	4000(157.5)
	Standard chuck size	mm(inch)	315(12")				
	Max. load between centers	kg(lbs)	3000(6600)				
Spindle	Spindle bore	mm(inch)	105(4.1)			176(6.9)	
	Spindle speeds	rpm	2.8~2000 rpm			3~1000 rpm	
	Spindle speed range	—	Auto. 3 steps			Auto. 2 steps	
	Spindle nose	—	A2-11"			A2-11"	
	Spindle taper	—	Metric taper No.120			1/10 Taper	
	Max. spindle torque	kg.m(ft-lbs)	230(1660)			195(1400)	
Travel	X-axis travel	mm(inch)	380(14.9)				
	Z-axis travel	mm(inch)	1100(43.3)	1600(63)	2100(82.7)	3100(122.0)	4100(161.4)
	X/Z-axis rapid traverse	m/min(ipm)	6(240)				
Turret Tool Post	Standard tool post	—	Automatic H-4				
	Cutting tool size (O.D/I.D)	mm(inch)	25×25(1×1)				
	No. of tool	—	12 tools				
	Turret clamping force	kgf	1800(H4 turret), 2600(V8 turret)				
Tailstock	Quill diameter	mm(inch)	112(4.4)				
	Quill type	—	Dead center type				
	Spindle taper	—	MT #6				
	Max. quill travel	mm(ipm)	200(7.9)				
Bed	Bed width	mm(inch)	500(19.7)				
	Bed height	mm(inch)	730(28.7)				
Motor	Main spindle motor (Cont./30min. rating)	kW(Hp)	AC 18.5/22(25/30)				
	X-axis servo motor	kW(Hp)	AC 0.9(1.2)				
	Z-axis servo motor	kW(Hp)	AC 2.8(3.7)				
Power Source	Input power supply	—	220/220V ±10%, 50/60Hz ±1Hz				
	Power capacity (including for option)	kVA	40				
Machine Size	Machine height	mm(inch)	2300(90.5)				
	Floor space (Without optional chip conveyor)	mm(inch)	3975×2310 (156×91)	4510×2310 (177×91)	5260×2310 (207×91)	6260×2310 (246×91)	7460×2310 (294×91)
	Machine weight	kg(lbs)	5910(13,030)	6460(14,240)	7010(15,450)	8110(17,880)	9210(20,300)
CNC Controller		—	FANUC 0i series				

Standard Accessories

- CNC controller, FANUC 0i series
- AC spindle and servo drives and motors
- Hydraulic chuck(closed center type) 12" –for PROTURN-60
- Hydraulic chuck(open center type) 24" –for PROTURN-60B
- Automatic H-4 turret tool post(bi-directional)
- Fully enclosed chip guard
- Hydraulic tailstock(Quill in & out only)
- Coolant system
- Hydraulic power unit
- Drill sleeves(Ø50mm×MT#4, #3)
- Boring bar sleeves(Ø50mm×Ø40, 32mm)
- Boring tool holder(Ø50mm)
- Center sleeve MT#6×metric taper #120 (for PROTURN-60)
- Center sleeve MT#6×1/10 taper (for PROTURN-60B)
- Live center(MT#6)
- Work light
- Patrol lamp
- Leveling plates, foundation bolts and nuts
- Maintenance tool kits

Optional Accessories

- Automatic H-6 turret
- Automatic V-8 turret
- Automatic V8+H4, H4+H4 turrets
- Manual steady rest, roller jaws Ø50~250mm (2~10")
- Manual steady rest, roller jaws Ø250~450mm (10~18")
- Manual steady rest, metal jaws Ø50~250mm (2~10")
- Manual steady rest, metal jaws Ø250~450mm (10~18")
- Manual follow rest, metal jaws Ø20~200mm (0.8~8")
- Self-centering hydraulic follow/steady rests
- Chip conveyor & Chip bucket
- Deep hole boring bar device(Ø100, Ø150mm)
- Hydraulic chuck(closed center type) 15", 16" –for PROTURN-60
- Hydraulic chuck(open center type) 20" –for PROTURN-60B
- Drill sleeves(Ø50mm×MT#4, #3, #2, #1)
- Boring bar sleeves(Ø50mm×Ø40, 32, 25, 20, 16mm)
- Boring tool holder(Ø50mm)

■ Standard CNC Controller Features

FANUC 0i Series Control Features

- Simultaneously controlled axes : 2
- Minimum programmable increment : 0.001mm(0.00001")
- Part program storage size : 2Mbyte
- Number of registerable programs : Max.1000
- Backlash compensation
- Interpolation type pitch error compensation
- Constant surface speed control
- Self-diagnostic functions

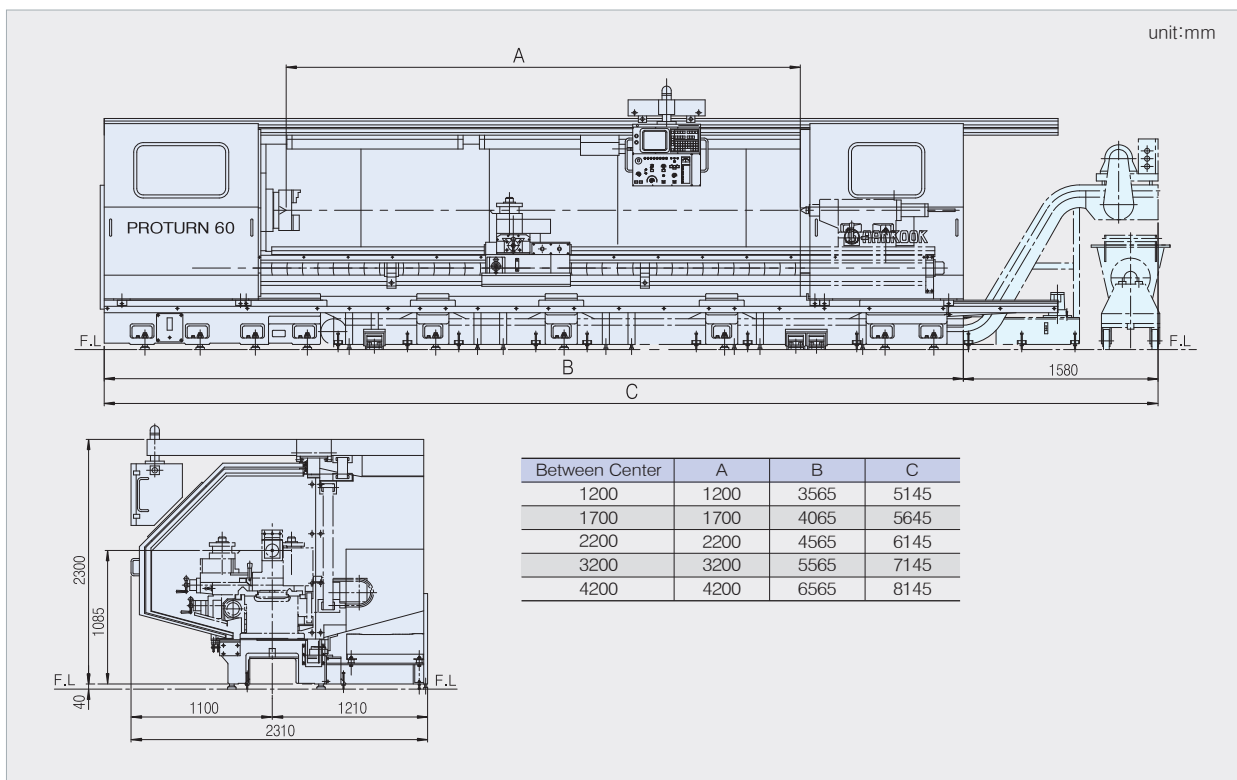
Programming Features

- Circular interpolation
- Tool radius/Tool nose radius compensation
- Absolute/Incremental programming : Combined use in the same block
- Inch/Metric conversion
- Chamfering/Corner R
- Multiple repetitive cycles
- Canned cycles
- Decimal point programming
- Reference position return(G28)
- Sub program call : 10 holds nested

Operation Features

- 10.4" color LCD
- Tool geometry/Wear compensation
- Tool offset pairs : 128 pairs
- Run hour and parts count display
- Thread cutting retract
- Direct input of tool offset value measured
- Keyboard type manual data input (MDI full key)
- Program protect
- Incremental feed
- Rapid traverse override
- Feedrate override
- Spindle override
- Program code : EIA/ISO

■ External Dimensions



Note : Specifications and features are subject to change without prior notice.



HANKOOK

HANKOOK MACHINE TOOLS CO.,LTD.

HEAD OFFICE & PLANT

HANKOOK MACHINE TOOLS CO., LTD.

80-1, Jangbang-ro, Hallim-myeon, Gimhae-si,
Gyeongsangnam-do, 50849 Korea

TEL : +82-55-282-7781 FAX : +82-55-342-9771

E-mail : hansale@hanmachine.com

www.hanmachine.com

AMERICA OFFICE

Hankook America, Corp.

1601 Atlantic Drive-#109 West Chicago, IL 60185, U.S.A

TEL : +1-630-562-9240 FAX : +1-630-562-9250

E-mail : info@hankookamerica.com

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