

Heavy Duty Long Bed CNC Turning Center
PROTURN 60/60B





Heavy Duty Long Bed CNC Turning Center

PROTURN 60/60B

The Proturn 60/60B large bore, long bed turning centers 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.

STANDARD FEATURES

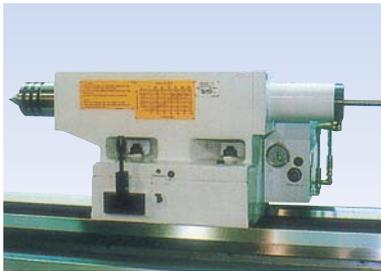
- Up to 4000mm(158") shaft turning length
- Large 3000kg(6,600lbs) load capacity between centers
- One-piece Meehanite cast iron bed
- Powerful 30 horsepower spindle motor
- 3-speed geared headstock
- Two heavy duty bi-directional turrets
- Induction hardened and precision ground guide ways
- Up to 4,160 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

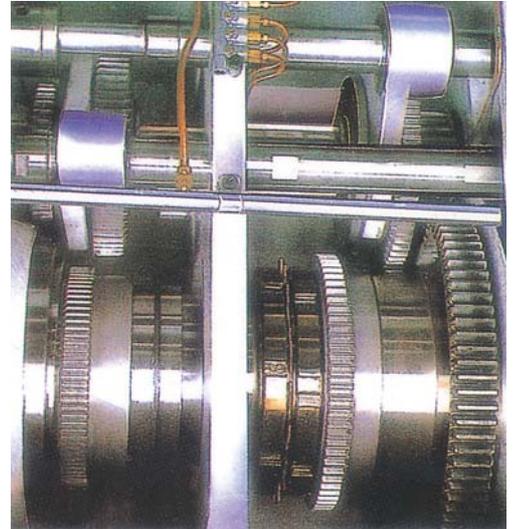
The heavy duty tailstock has a Morse taper #6 live center and 112mm (4.4") quill diameter for to handle heavy shafts up to 6,600 lbs. The quill stroke of 200mm (7.9") is activated by foot pedal or program. Movement of the tailstock body is accomplished by a drive hook which can be engaged with the carriage.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



HEAVY DUTY TURRET

Two turrets with a total of 12 tool stations are provided as standard equipment. Both turrets have large Curvic couplings and hydraulic clamp force, to guaranty rigidity for excellent surface finishes and extended tool life. Indexing repeatability is 0.001 degree. Turret indexing is bi-directional. The front mounted vertical 8 station turret is primarily used for O.D. turning. 8 O.D. turning tools can be mounted without concern of tool interference. The horizontal 4 station turret mounted on the rear of cross slide is primarily used for boring but can also accommodate turning tools if needed.

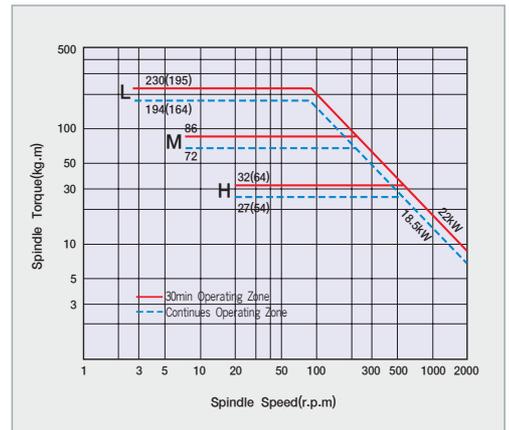
PRECISION HEADSTOCK



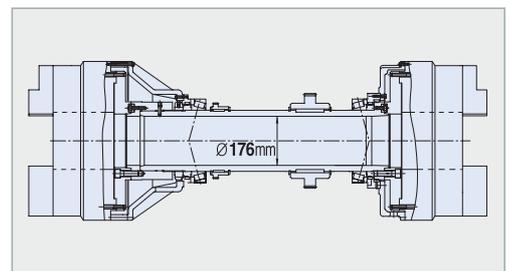
The spindle is supported by three angular contact bearings and one double-row cylindrical roller bearing. All spindle bearings are high precision class and are permanently grease lubricated to minimize thermal growth. Power is delivered through 3 gear ranges to obtain a wide range of constant power.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



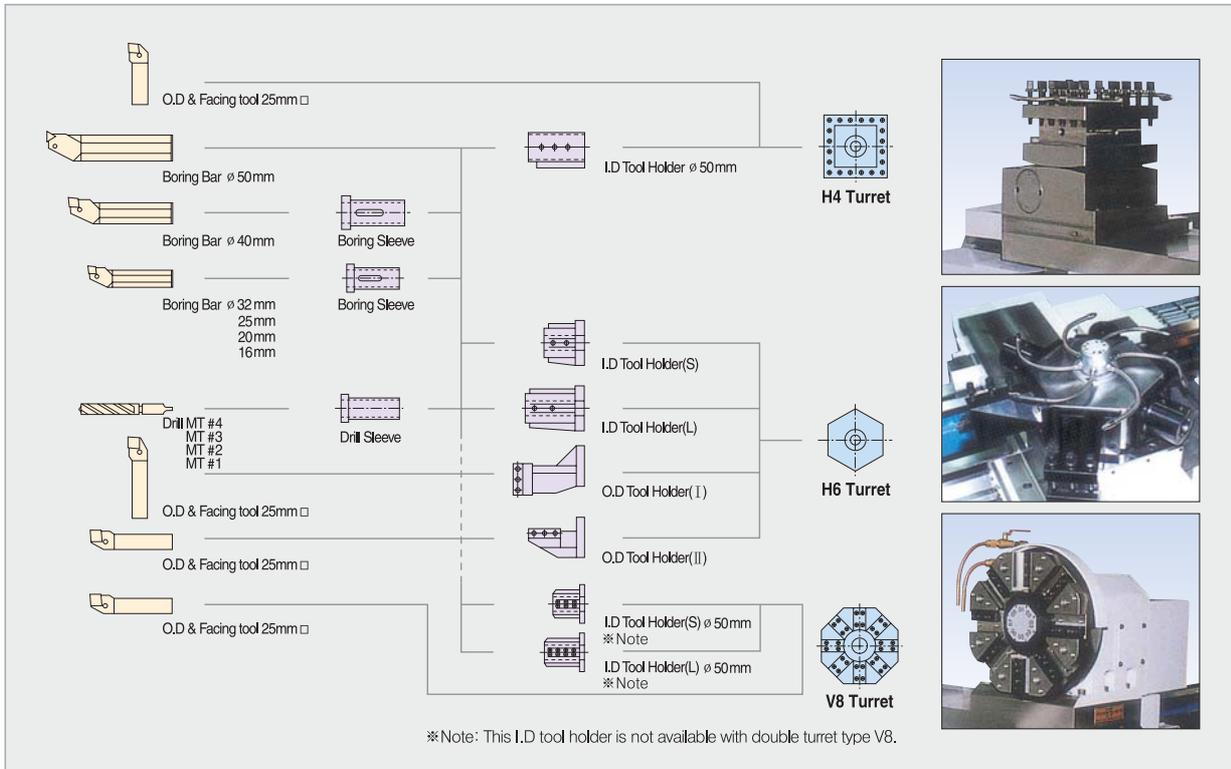
SPINDLE TORQUE(kg.m) PROTURNS-60(60B)



LARGE SPINDLE (PROTURN-60B)

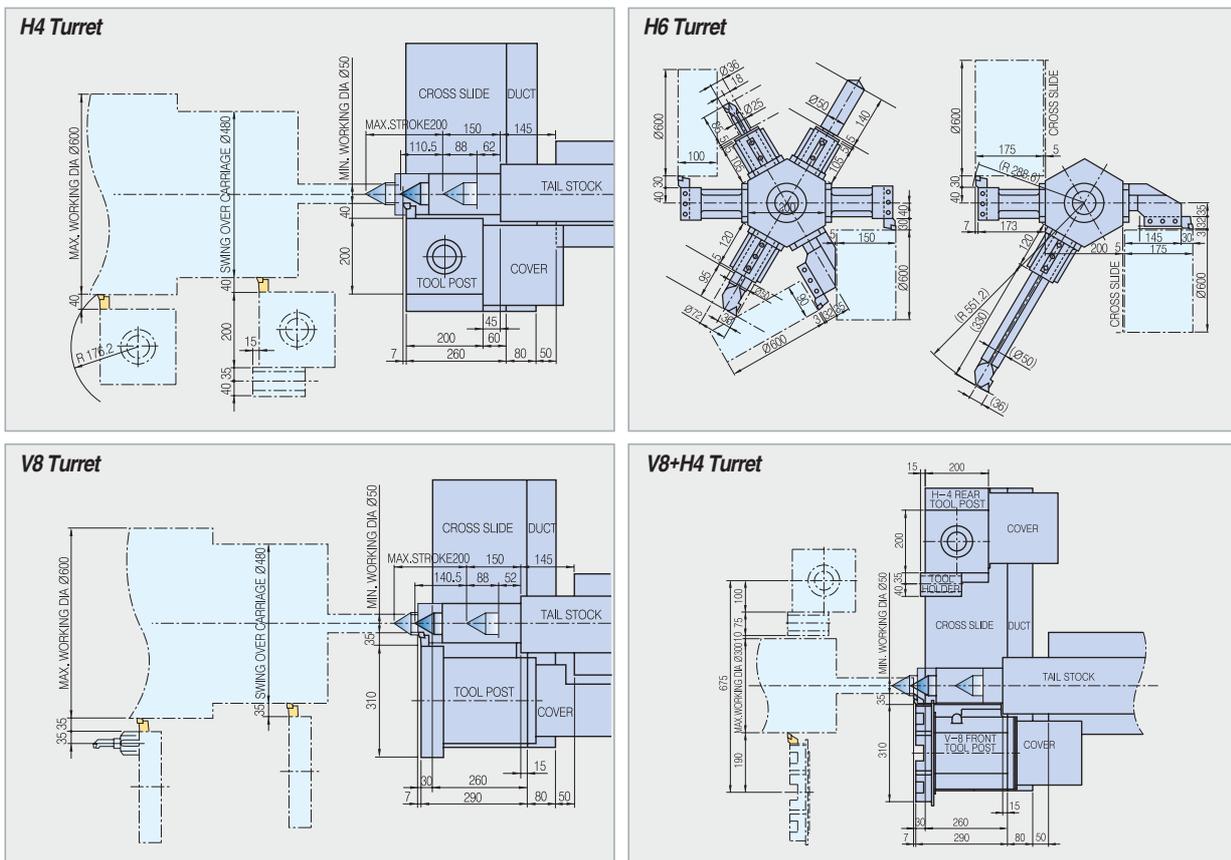


TOOLING SYSTEM



WORKING AREA

unit:mm





MACHINE SPECIFICATIONS

Items		Unit	PROTURN -60			PROTURN -60B	
Capacity	Swing over bed	mm(inch)	710(27.9)				
	Swing over carriage	mm(inch)	300(11.8):Double turret, 480(18.9):Single 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	-	A1-11"			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 V8+H4				
	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 (30min./cont. rating)	kW(HP)	AC 22/18.5(30/25)				
	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 21i-TB				

STANDARD ACCESSORIES

- CNC controller, Fanuc 21i-TB
- 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 V8+H4 turret tool post(bi-directional)
- Fully enclosed chip guard
- Hydraulic tailstock(Quill in & out only)
- Coolant system
- Hydraulic power unit
- Drill sleeves(φ 50mm × MT#4, #3)
- Boring bar sleeves(φ 50mm × φ 40, 32mm)
- Boring tool holder(φ 50mm)
- 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 H6 turret
- Automatic V8 turret
- Automatic H4+H4 turrets
- Manual steady rest, roller jaws φ 50~250mm (2~10")
- Manual steady rest, roller jaws φ 250~450mm (10~18")
- Manual steady rest, metal jaws φ 50~250mm (2~10")
- Manual steady rest, metal jaws φ 250~450mm (10~18")
- Manual follow rest, metal jaws φ 20~200mm (0.8~8")
- Self-centering hydraulic follow/steady rests
- Chip conveyor & Chip bucket
- Deep hole boring bar device(φ 100, φ 150mm)
- Hydraulic chuck(closed center type) 15", 16" – for PROTURN-60
- Hydraulic chuck(open center type) 20" – for PROTURN-60B
- Drill sleeves(φ 50mm × MT#4, #3, #2, #1)
- Boring bar sleeves(φ 50mm × φ 40, 32, 25, 20, 16mm)
- Boring tool holder(φ 50mm)

STANDARD CNC CONTROL FEATURES

FANUC 21i-TB CONTROL FEATURES:

- Simultaneously controllable axes : 2
- Minimum programmable increment : 0.001mm(0.00001")
- Tape storage length : 320m(1050 feet)
- Registerable programs : 63
- Backlash compensation
- Pitch error compensation
- Constant surface speed control
- Self diagnostic functions

PROGRAMMING FEATURES:

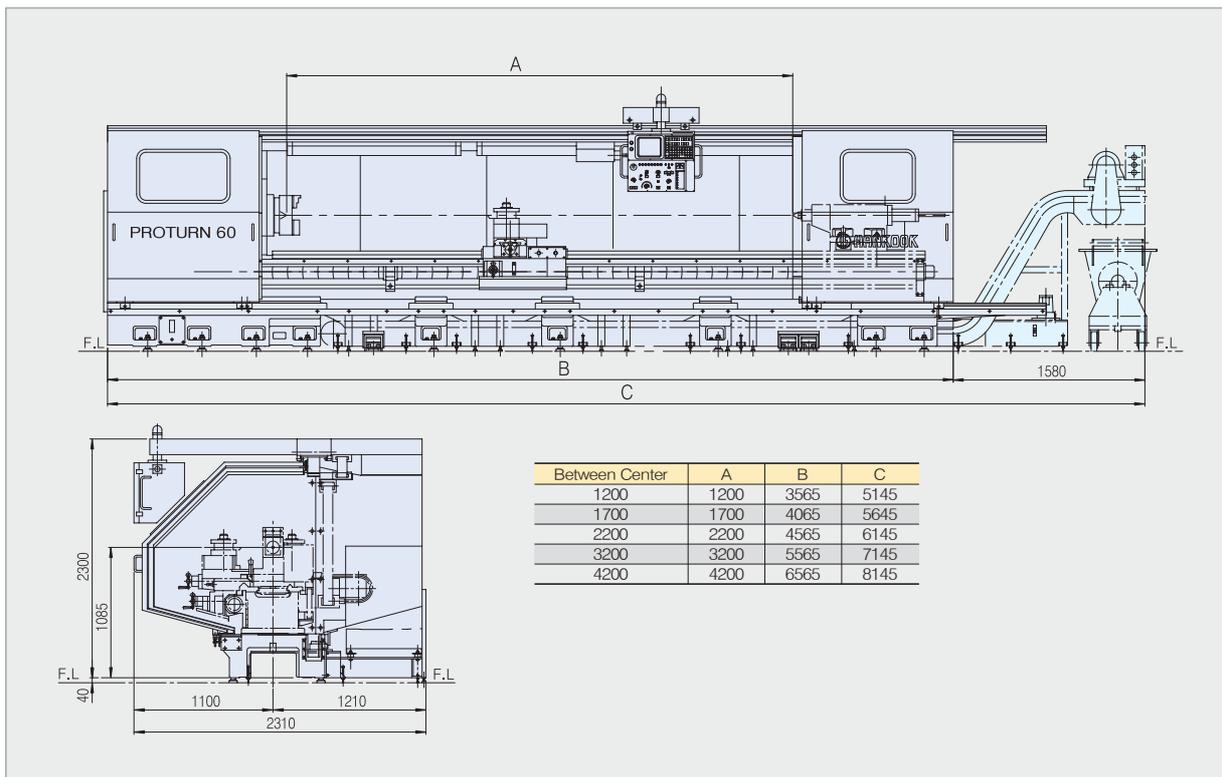
- Circular interpolation by radius designation
- Tool nose radius compensation(G40-G42)
- Combined use of absolute/incremental command
- Inch/Metric programming
- Chamfering, corner R
- Multiple repetitive cycles(G70-G76)
- Canned cycles(G90,G92,G94)
- Decimal point programming
- Reference point return(G27-G30)
- Sub-program 4 holds nested

OPERATION FEATURES:

- 10.4" color LCD
- Absolute position encoders(no zero return required)
- Geometry and wear offsets
- 16 pairs of tool offsets
- Run hour display
- Thread cutting retract
- Direct input of offset value measured
- Input/output interface(RS232C)
- Keyboard type manual data input (MDI full key)
- Program protect key
- Incremental offset
- Rapid traverse override
- Feed rate override
- Spindle speed override
- Tape code:EIA, ISO Automatic recognition
- Manual handle feed 2 units

EXTERNAL DIMENSIONS

unit:mm



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



HEAD OFFICE & PLANT
HANKOOK MACHINE TOOLS CO., LTD.
 52, Ungnam-dong, Changwon-si, Gyeongnam, Korea.
 TEL: 82-55-282-7781, 7660 FAX: 82-55-284-9791
 E-mail: sales@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: hankookamerica@msn.com

EUROPE OFFICE
**Vertriebsgesellschaft
 HANKOOK MACHINE GERMANY GmbH**
 Schwalbacher Str. 62, 65760 Eschborn, Germany.
 TEL: 49-6186-99849-0 FAX: 49-6196-99849-29
 E-mail: info@hanmachine.de
www.hanmachine.de