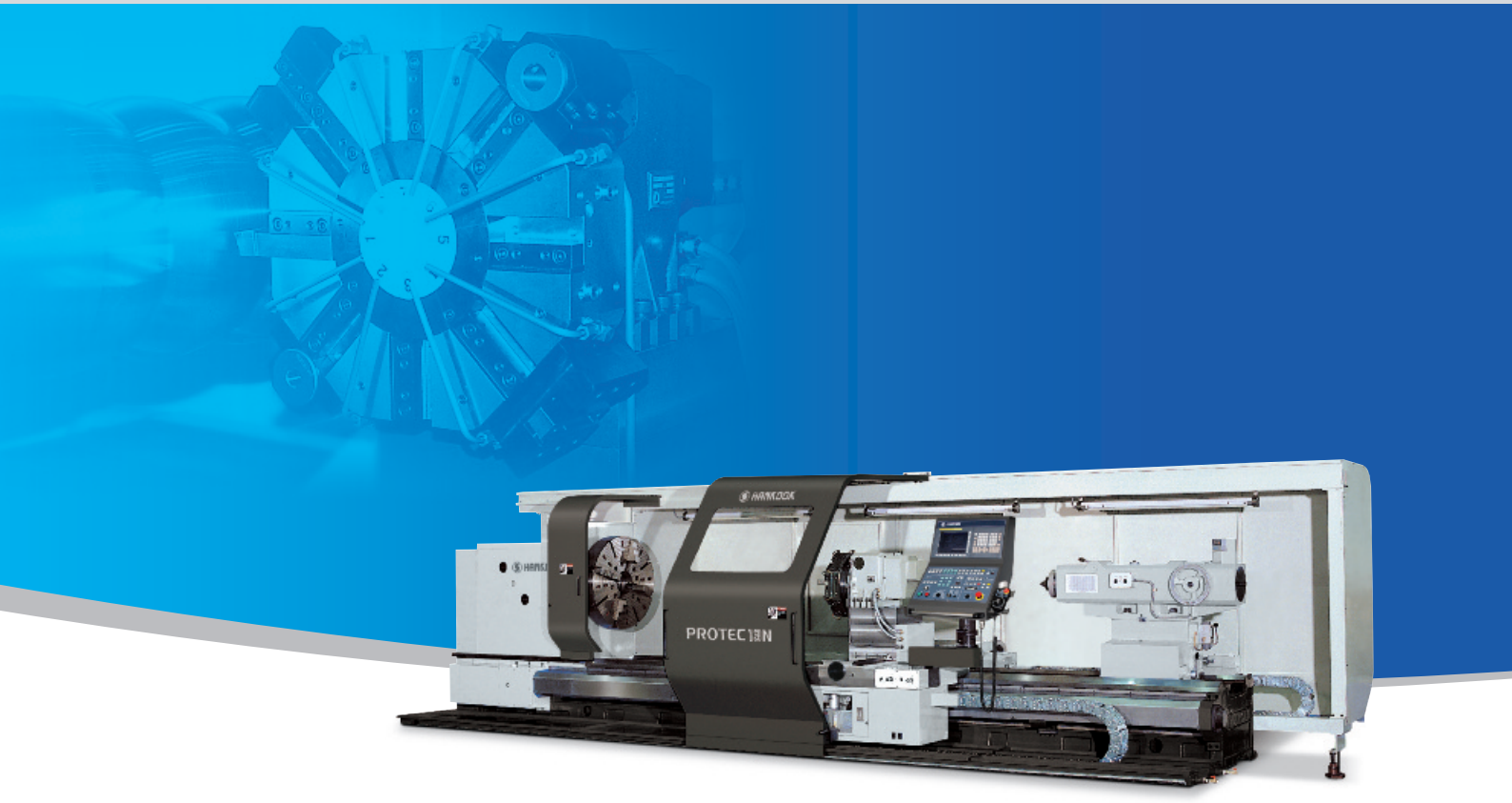
Heavy Duty CNC Turning Lathes

PROTEC 11N/13N



HANKOOK

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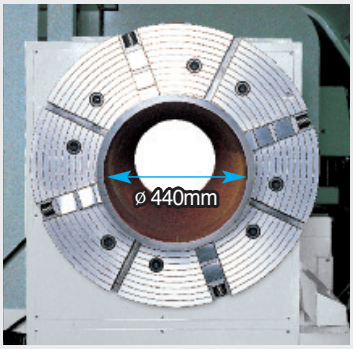
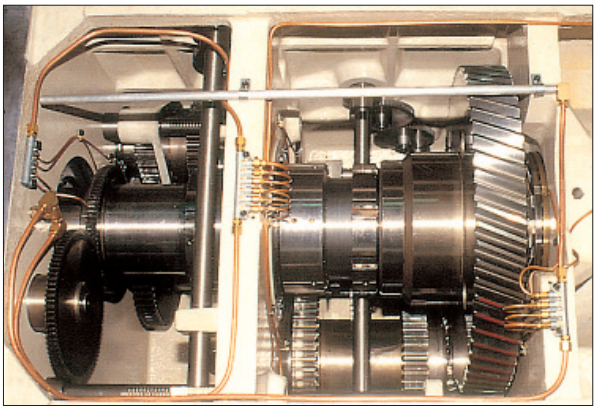
Features

- Suitable for large diameter workpiece (Ø1100/1300mm)
- Up to 8,000mm (315″) shaft turning length
- Large 8 tons (17,600lbs) load capacity between centers
- Automatic shifting 4 or 2 speed geared head stock
- Big bore spindle Ø330, 381 and Ø440mm
- Extra wide one-piece cast iron bed
- Induction-hardened and precision-ground guide ways
- High precision ball screws and servo motors for both axes
- Built-in live tailstock spindle(Ø200mm quill dia.) and load-meter
- Rapid feed device for tailstock body
- Full automatic lubrication to all critical areas



Big Bore Spindle

■ *Headstock*

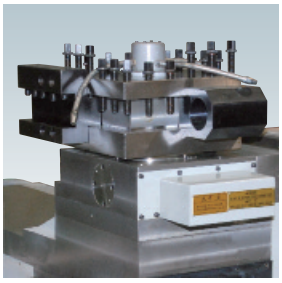


- Three points support system for main spindle, double-row cylindrical roller bearing with angular ball bearing in front, and double-row cylindrical roller bearing at rear.
- Automatic 4steps gear change for high torque driving with low speeds.
- All spindle bearings are precision class and permanently grease lubricated to minimize thermal growth
- Spindle bore, Ø105mm(4.13″), 330mm(13″), 381mm(15″) and 440mm(17.3″)
- Main spindle gears and other bearings are forced-lubricated.

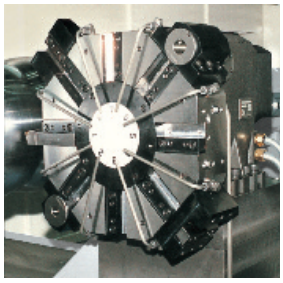
※Optional accessories included

Carriage

- The extremely rigid extended H-style saddle wide and cross slide allow heavy and interrupted cutting with ultimate stability and high accuracy.
- Even the operators accustomed to manual lathes can operate this machine very easily by operating portable handles.
- High precision ball screw for longitudinal and cross feed to obtain high accurate turning with servo motors. Longitudinal and cross handles have pulse generators, not connected directly with ball screw.
- The fluorine-plastic resin combined way lubrication provides a low frication on surface and prevent guide-way from wearing.
- The manually indexed square tool post features Curvic coupling. It can be positioned per every 15 degree increments. Index repeatability is guaranteed within ±5 seconds.

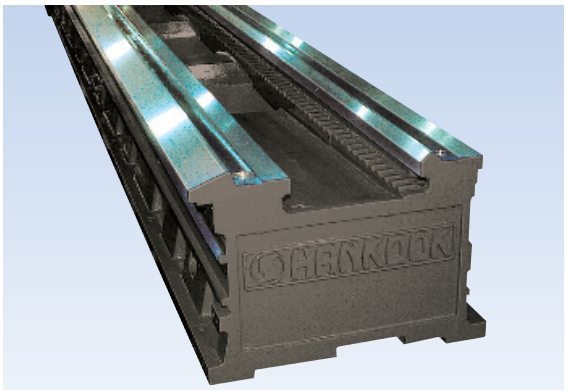


Hydraulic H-4 Turret (Option)



Electrical V-8 Turret (Option)

Bed

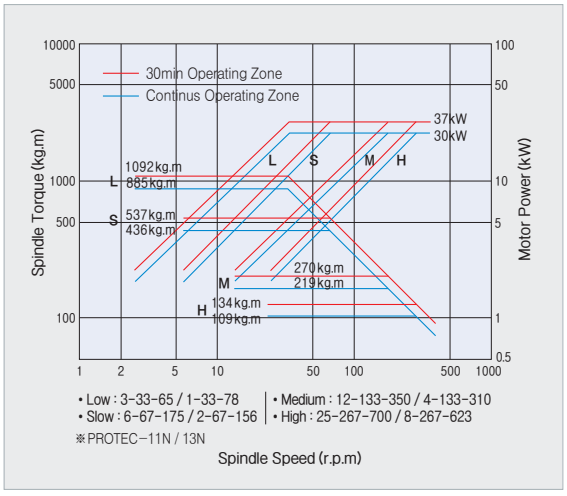


- The bed is a heavy one-piece (up to BC 6m) casting with thick ribbing to prevent twisting and deformation.
- High-quality cast iron is used for its excellent dampening characteristics.
- The flat bed design is suitable for heavy weight of work-piece directly downward onto the bed ways.
- Width of bed is 800mm (31.5″)

Tailstock

- The heavy duty tailstock has a MT#6 center and quill diameter 200mm to load heavy shafts up to 8tons (17,600lbs).
- The quill stroke of 300mm and speed reduction gear box (ratio 1:1/4) for drilling operation.
- Rotary type tailstock spindle.
- Rapid feed device for tailstock body
- Tailstock load-meter 6ton

Spindle Torque & Power Diagram



Machine Specifications

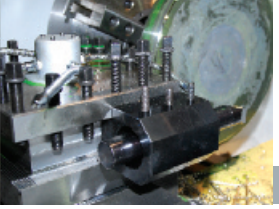
Items		Unit	PROTEC-11N [D/E/F]				PROTEC-13N [D/E/F]		
Capacity	Swing over bed	mm(inch)	1100 (43.3)				1300 (51.2)		
	Swing over carriage	mm(inch)	740 (29.1)				940 (37)		
	Max. turning diameter	mm(inch)	1100 (43.3)				1300 (51.2)		
	Distance between centers	mm(inch)	2000(79)	3000(118)	4000(157)	5000(197)	6000(236)	7000(275)	8000(315)
	Load capacity between centers	kg(lbs)	8000 (17600)						
Spindle	Spindle bore	mm(inch)	Ø105 (4) [Ø330(13)/Ø381(15)/Ø440(17.3)]						
	Spindle nose	–	A2-15″[A2-20″/A2-20″/A2-28″]						
	Spindle speed	rpm	3~700[2~500/3~400/3~400]				1~623[2~500/3~400/3~400]		
	Spindle speed range	step	Automatic 4[Automatic 2]						
	Spindle center taper	–	MT#6						
Carriage	Type of tool post	–	Manual H-4(Curvic tool post)						
	Tool size	mm(inch)	32×32(1.26×1.26)						
	X-axis travel (Cross)	mm(inch)	620(24.4)				720(28.3)		
	Z-axis travel (Longitudinal)	mm(inch)	2000(79)	3000(118)	4000(157)	5000(197)	6000(236)	7000(275)	8000(315)
	X-axis rapid traverse	m/min(ipm)	4(157)						
	Z-axis rapid traverse	m/min(ipm)	6(236)						
Tailstock	Tailstock quill diameter	mm(inch)	200(7.9)						
	Tailstock spindle taper	–	MT#6						
	Max. quill travel	mm(inch)	300(11.8)						
Bed	Bed width	mm(inch)	800(31.8)						
	Bed length	mm(inch)	4730(186)	5730(226)	6730(265)	7730(304)	8730(344)	9730(383)	10730(422)
Motor	Spindle motor	kW(Hp)	AC37/45(50/60)						
	X-axis servo motor	kW(Hp)	AC3(4)						
	Z-axis servo motor	kW(Hp)	AC7(9.5)						
Machine Weight	11N	kg(lbs)	13500(29700)	14500(32000)	15500(34200)	16500(36400)	17500(38600)	18500(40800)	19500(43000)
	13N		14300(31500)	15300(33700)	16300(35900)	17300(38100)	18300(40300)	19300(42500)	20300(44800)
CNC Controller		–	FANUC 0i series						

Standard Accessories

- CNC controller FAUNC 0i series
- Spindle motor & electrical equipments
- 4-jaw independent chuck Ø32″(Ø800mm)
  D:Ø32″(ID 330mm), E:Ø36″(ID 380mm), F:Ø36″(ID 440mm)
- Automatic gear shift
- Rotary tailstock spindle
- Tailstock rapid feeding device
- Tailstock load-meter 6-ton
- Curvic tool post Manual H-4
- Coolant system
- Work light
- Center MT#6 (for haedstock and tailstock)
- Center sleeve MT#6×Metric taper #120
- Chuck cover
- Handle for bite clamping
- Leveling block, Foundation bolts & nuts
- Tool box with maintenance tools

Optional Accessories

- 4-jaw independent chuck Ø32″, Ø40″, Ø50″(Only for 13N)
  D-type:Ø32″(ID 345mm), Ø36″(ID 345mm), Ø40″(ID 330mm)
  E-type:Ø32″(ID 380mm), Ø36″(ID 380mm)
  F-type:Ø36″(ID 440mm)
- Face plate Ø800mm(11N), Ø1000mm(13N)
- Steady rest, metal jaws Ø50-350, Ø300-600mm
- Steady rest, roller jaws Ø50-350, Ø300-600mm
- Follow rest, metal jaws Ø30-200mm
- Roll chock stand Ø400-800mm
- Automatic index turret Hydraulic H-4, Electrical V-8
- Tool slide Only for manual H-4
- Tailstock load-meter 8-ton
- Live center MT#6
- Boring bar device(Bar excluded) Ø100, Ø150, Ø200mm
- Rear side full splash guard & single front door
- Transformer



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ISO 9001 REGISTERED FIRM

Standard CNC Control Features

FANUC 0i series Control Features

- Simultaneously controllable axes : 2
- Minimum programmable increment : 0.001mm(0.00001″)
- Tape storage length : 640m(512 KB)
- Registerable programs : 400EA
- Backlash compensation
- Pitch error compensation
- Constant surface speed control
- Self diagnostic functions

Programming Features

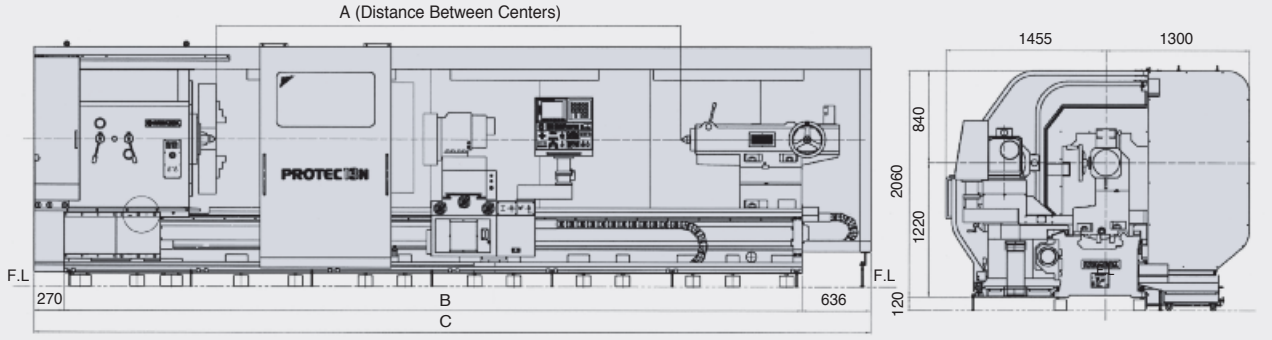
- Circular interpolation by radius designation
- Tool nose radius compensation(G40–G42)
- Combined use of absolute/incremental command
- Inch/Metric programming
- Chamfering, corner R
- Multiple repetitive cycles(G70–G76)
- Canned cycles(G90,G92,G94)
- Decimal point programming
- Reference point return(G27–G30)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

Operation Features

- 10.4″ color LCD
- Geometry and wear offsets
- 64 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

External Dimensions

unit:mm



A	2000	3000	4000	5000	6000	7000	8000
B	4730	5730	6730	7730	8730	9730	10730
C	5636	6636	7636	8636	9636	10636	11636

• Specifications and features are subject to change without prior notice.

HANKOOK

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