Heavy Duty CNC Turning Lathes

PROTEC 9N Series

PROTEC-9NA/PROTEC-9NB/PROTEC-9NC

HANKOOK

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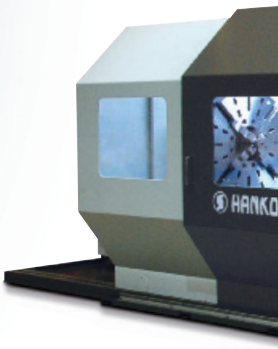
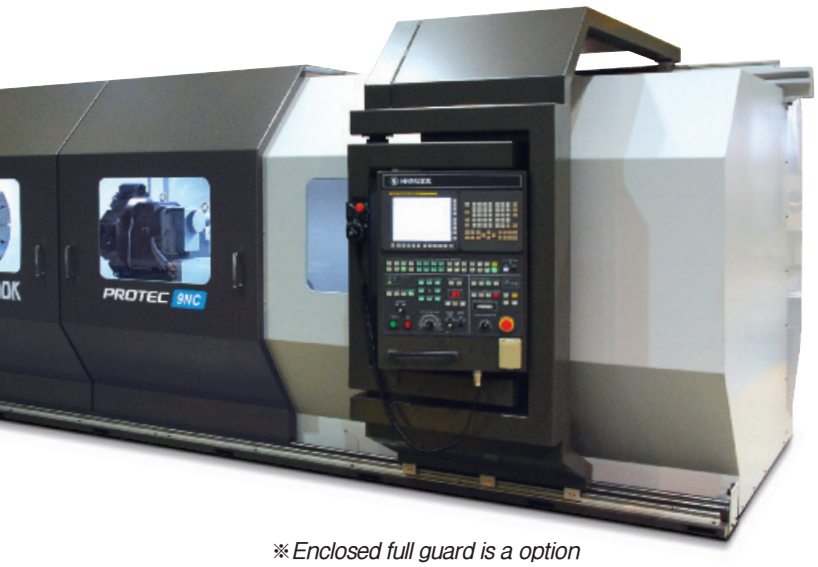
PROTEC 9N Series

Features

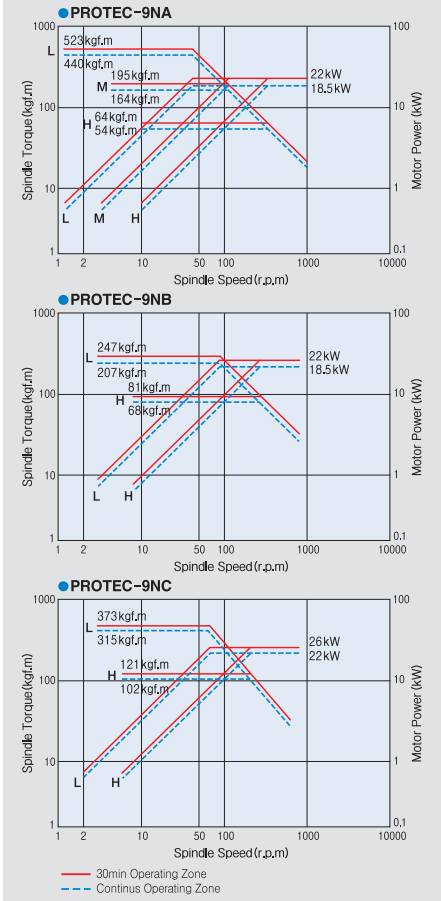
- Up to 8,000mm (315″) shaft turning length
- Large 5,000kg (11,000lbs) load capacity between centers
- Automatic shifting 2 or 3 speed geared headstock
- Extra wide one-piece cast iron bed
- Induction-hardened and precision-ground guide ways
- High precision ball screws for both axes
- Servo motor for both axes
- Large spindle bore (ø 105, 176 and 254 mm)
- Square tool post featuring Curvic coupling
- Buit-in live tailstock spindle(ø 180mm quill dia.)
- Two speed tailstock spindle
- Guidance hand-wheel (simultaneous 2 axes control)
- X/Z axes electronic hand wheels (MPG)
- Full automatic lubrication to all critical areas

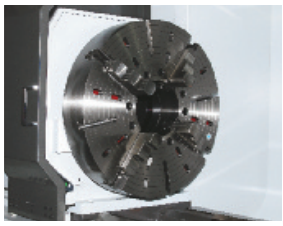




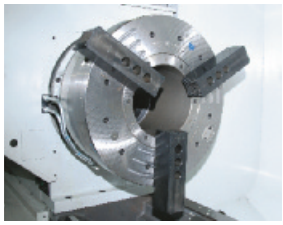
※Enclosed full guard is a option

Spindle Torque & Power Diagram

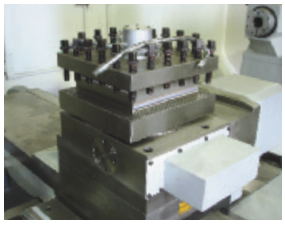




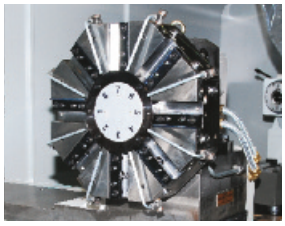
Big bore spindle(Ø176/254mm)



Air chuck



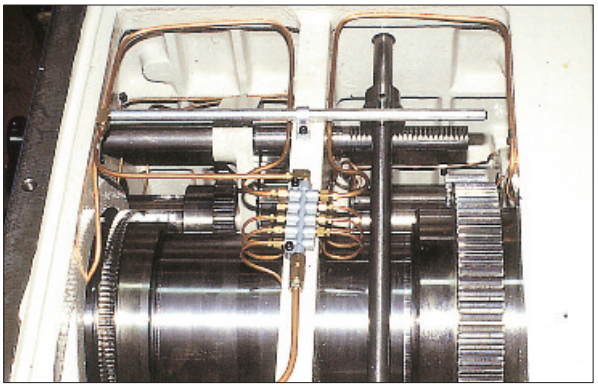
Auto. H-4 tool post



Electrical V-8 tool post

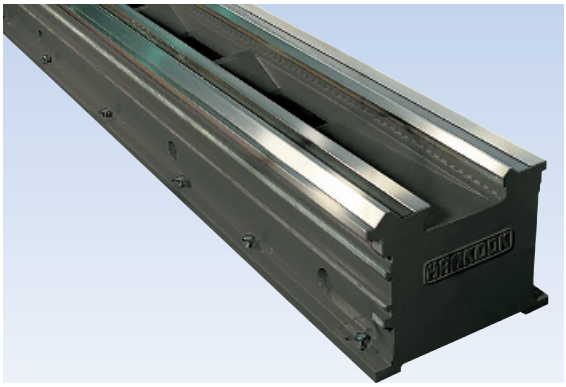
Boring bar device

Headstock



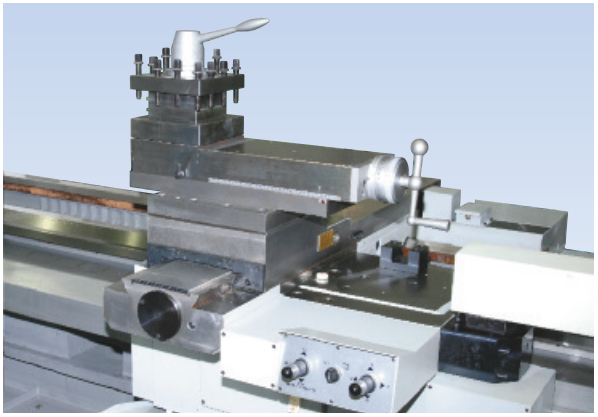
- Extremely rigid, robust box type to sustain heavy duty work.
- 2 or 3 steps gear change for high torque driving with low speed.
- All spindle bearings are precision class and permanently grease lubricated to minimize thermal growth.
- 3 sizes of spindle bore, 105mm, 176mm and 254mm (4.1″, 6.9″ and 10″).
- Main spindle gears & other bearings are forced-lubricated.

Bed



- The bed is a heavy one-piece 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 630mm.

Carriage



- The extremely rigid extended H-style saddle and wide cross slide allow heavy and interrupted cutting with ultimate stability and high accuracy.
- 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.
- Even the operators accustomed to manual lathes can operate this machine very easily by operating portable handles.
- The fluorine-plastic resin combined way lubrication provides a low friction 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.

Tailstock

- The heavy duty tailstock has a MT#6 center and quill diameter 180mm for to load heavy shafts up to 5 tons(11.000lbs).
- The quill stroke of 250mm and speed reduction gear box (ratio 1:1/4) for drilling operation.
- Built-in live tailstock spindle provided as standard.
- Tailstock body feed is accomplished by a drive hook engaged with the carriage.

Machine Specifications

Items		Unit	PROTEC						
			9NA		9NB		9NC		
Capacity	Swing over bed	mm(inch)	Ø950(37.4)						
	Swing over carriage	mm(inch)	Ø630(24.8)						
	Max. turning length	mm(inch)	1845(73)	2845(112)	3845(151)	4845(191)	5845(230)	6845(269)	7845(309)
	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)	5000(11000)						
Spindle	Spindle bore	mm(inch)	Ø105(4)		Ø176(7)		Ø254(10)		
	Spindle nose	–	A2-11″		A2-11″		A2-15″		
	Spindle speed	rpm	2~1000		3~800		2~630		
	Spindle speed range	step	Auto. 3		Auto. 2				
	Spindle center taper	–	MT#6						
Carriage	Type of tool post	–	Manual H-4(Curvic tool post)						
	Tool size	mm(inch)	□32(□1 1/4)						
	X-axis travel(cross)	mm(inch)	535(21.1)						
	Z-axis travel(longitudinal)	mm(inch)	1845(73)	2845(112)	3845(151)	4845(191)	5845(230)	6845(269)	7845(309)
	X-axis rapid traverse	m/min(ipm)	4(157)						
	Z-axis rapid traverse	m/min(ipm)	6(236)						
Tailstock	Tailstock quill diameter	mm(inch)	Ø180(7.08)						
	Tailstock spindle taper	–	MT#6						
	Max. quill travel	mm(inch)	250(9.8)						
Bed	Bed width	mm(inch)	630(24.8)						
	Bed length	mm(inch)	3715(146)	4715(186)	5715(225)	6715(264)	7715(304)	8715(343)	9715(382)
Motor	Spindle motor(30min/cont.)	kW(Hp)	AC 22/18.5(30/25)		AC 26/22(35/30)				
	X-axis servo motor(Torque/Power)	N·m/kW	12/1.8(2.4Hp)						
	Z-axis servo motor(Torque/Power)	N·m/kW	30/4.2(5.6Hp)						
Machine Weight		kg(lbs)	7010 (15450)	8090 (17830)	9170 (20220)	10280 (22660)	11360 (25040)	11450 (25240)	13530 (29830)
CNC Controller		–	FANUC 32i-A						

Standard Accessories

- CNC controller — FAUNC 32i-A
- Spindle motor & electrical equipments
- 4-jaw independent chuck — Ø24″(Ø600mm) : 9NA
Ø28″(ID 180mm) : 9NB
Ø32″(ID 254mm) : 9NC
- Automatic gear shift
- Rotary tailstock spindle
- Curvic tool post — Manual H-4
- Coolant system
- Work light
- Center — MT#6 (for haedstock and tailstock)
- Center sleeve — MT#6×1/10 Taper #120
- Rear side full splash guard & Single front door (Only for BC2000, 3000)
- Chuck cover — Front : 9NA, Front & rear : 9NB/C
- Handle for bite clamping
- Leveling blocks, foundation bolts & nuts
- Tool box with maintenance tools

Optional Accessories

- 4-jaw independent chuck — Ø20″, Ø24″, Ø28″, Ø32″ : 9NA
Ø28″, Ø32″(ID 176mm) : 9NB
Ø32″, Ø36″(ID 254mm) : 9NC
- Face plate — Ø850mm
- Steady rest (metal jaws) — Ø50-250, Ø250-450, Ø450-650mm
- Steady rest (roller jaws) — Ø50-250, Ø250-450, Ø450-650mm
- Follow rest (metal jaws) — Ø20-200mm
- Automatic index turret — Hydraulic H-4, Electrical V-8
- Tool slide — Only for manual H-4
- Live center — MT#6
- Boring bar device (Bar excluded) — Ø100, Ø150, Ø200mm
- Rear side full splash guard & Single front door (Only for BC4000 to 8000)
- Transformer
- Motor power up — 30/37kW only for 9NC
- Customized color

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ISO 9001 REGISTERED FIRM

Standard CNC Control Features

FANUC 32i-A Control Features

- Simultaneously controllable axes : 2
- Minimum programmable increment : 0.001mm(0.00001″)
- Tape storage length : 640m(512 KB)
- Registerable programs : 63
- Backlash compensation
- Pitch error compensation
- Constant surface speed control
- Self diagnostic functions

Programming Features

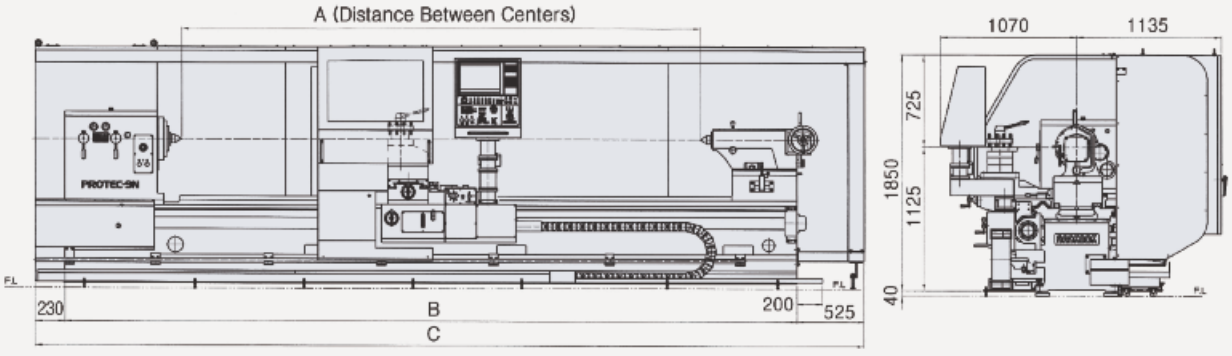
- Circular interpolation by radius designation
- Tool nose radius compensation(G40–G42)
- Combined use of absolute/incremental command
- Inch/Metric programming
- Chamfering, corner R
- Multiple repetitive cycles(G70–G76)
- Canned cycles(G90,G92,G94)
- Decimal point programming
- Reference point return(G27–G30)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

Operation Features

- 10.4″ color LCD
- 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	3715	4715	5715	6715	7715	8715	9715
C	4470	5470	6470	7470	8470	9470	10470

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

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