

**SUMMIT**  
MACHINE TOOL LLC



**PRECISION ENGINE LATHES**

**20-4", 24-4" & 28-4" LATHES**

# SUMMIT 20-4", 24-4" & 28-4" PRECISION ENGINE LATHES

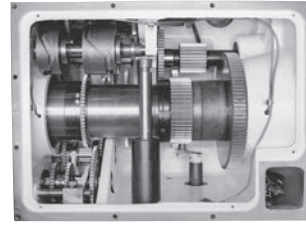
The **Summit** 20-4", 24-4" & 28-4" Lathes combine accuracy, simplicity and affordability to bring you a proven industry leader. Tested under the most demanding work conditions, the **Summit** 20-4", 24-4" & 28-4" turn rings around other lathes in their range.

The 20-4", 24-4" & 28-4" lathes have just the right amount of engineering to afford simplicity of operation, coupled with plain and simple rugged reliability. In addition, built in safety features like the safety clutch in the apron that kicks out the feed and the feed/threading safety interlock eliminating the simultaneous engagement of the feed and threading motion, place these machines in a field of their own — unparalleled in performance.

A few of the outstanding features of the 20-4", 24-4" & 28-4" lathes are a cross ribbed headstock for added strength and stability, with anti-friction mounted shafts and dynamically balanced components; hardened and ground alloy steel gears, shafts and splines, and an oversized precision chrome alloy spindle with a big 4 1/8" thru hole that is mounted in double row angular contact thrust bearings and 2 double row roller bearings. These large spindle bearings give the 20-4", 24-4" & 28-4" greater radial and thrust capacities ensuring very precise turning capabilities.

Available in 40", 60", 80", 120", 160" and 200" center distances, the 20-4", 24-4" & 28-4" lathes feature hardened and precision ground bedways on a heavy one-piece closed grain cast bed that is fully ribbed for maximum stability and even thermal expansion. Standard on every machine is a quick-change gearbox for cutting Metric, Module and Diametral Pitch threads as well as standard American threads.

The engineering excellence, fine workmanship, materials and impressive specifications of the **Summit** 20-4", 24-4" & 28-4" Lathes assure you of greater production and easy, trouble free operation for years to come.



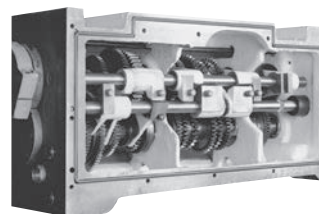
## Headstock

Fully geared headstock provides fifteen spindle speeds in the 20" and twenty-one speeds in the 24" and 28" through precise, hardened and ground gears. Each gear is thoroughly tested for accurate tooth configuration and flank engagement to assure optimum quiet and smooth running, and is precision fitted on hardened and ground splined shafts for ease of speed selection. All shafts are mounted in ball or tapered roller bearings. Spindle drive is achieved through mechanical "multi-disc" clutches for forward and reverse rotation.



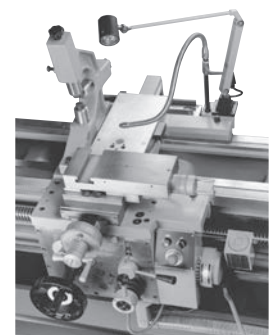
## "Thru Hole"

Spindle is precision machined, hardened and ground from a massive one-piece forging. It features a full 4 1/8" thru hole, enabling large work pieces to be introduced without excessive overhang. The spindle is mounted in precision angular contact thrust bearings for accuracy and smooth running, and is supported by large diameter precision roller bearings for stability. Chuck mounting is standard D1-8 camlock and a reduction sleeve is provided to facilitate use of Morse taper tooling.



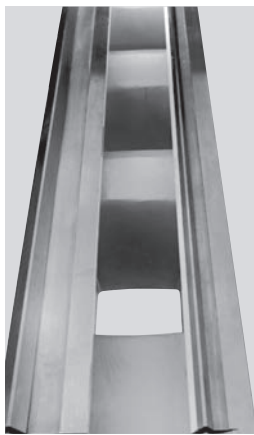
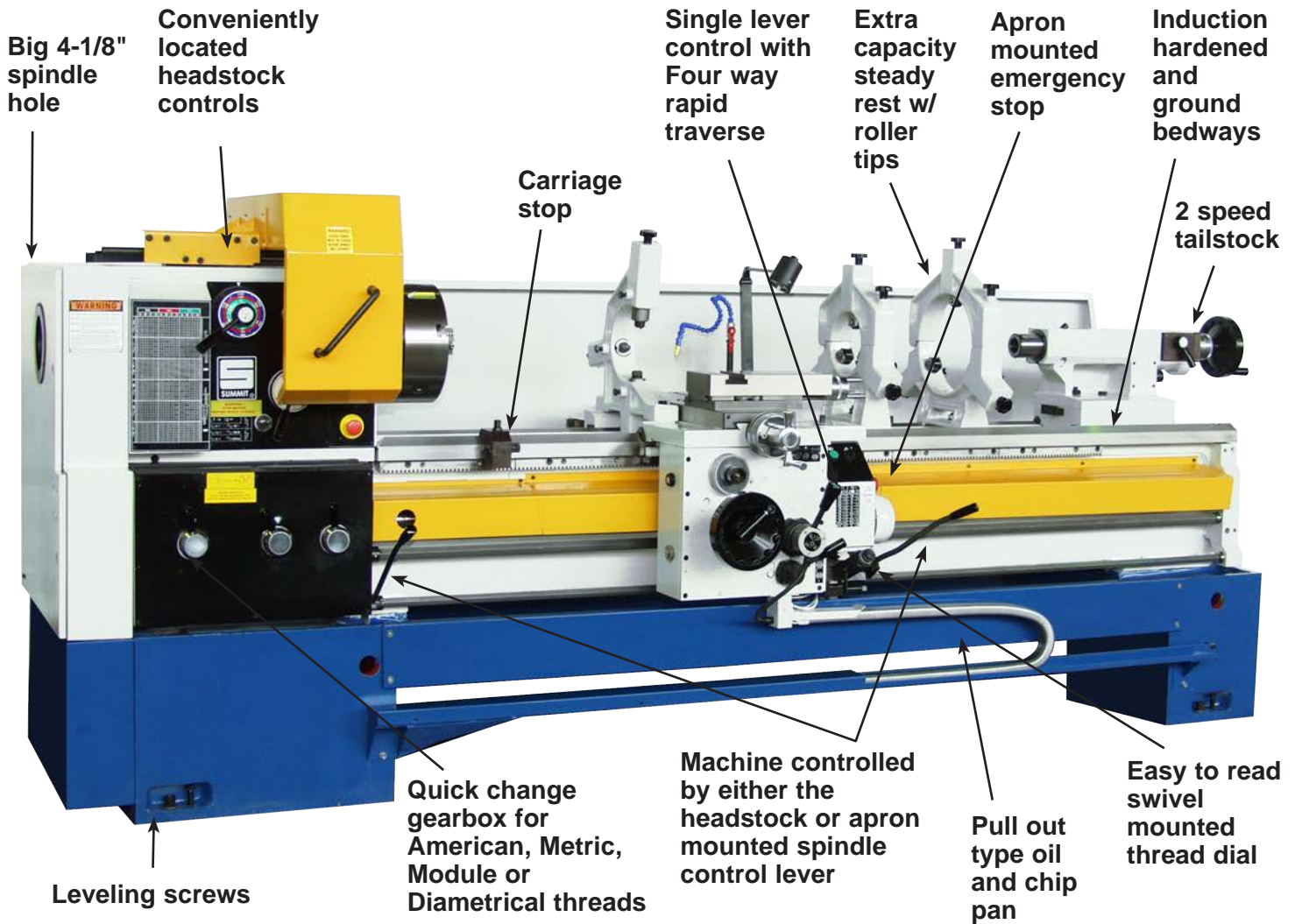
## Norton Control Box

Totally enclosed, quick change feed gearbox allows easy selection of most standard and metric threads and feeds without use of change gears. All gears and splined shafts are of hardened and ground alloy steel, precision fitted for ease of shifting and mounted in high precision anti-friction bearings. The feed gearbox assembly is oil bath lubricated for smooth operation and quiet running.



## Carriage

Carriage assembly features extended cross slide for accommodation of special tooling, tracer attachments, etc. The cross slide is constructed of high quality cast iron and incorporates externally adjustable nuts to provide for backlash elimination. The rugged, heavy duty taper attachment is capable of generating tapers of  $\pm 10$  degrees up to 15 3/4 inches long and is graduated in degrees for convenience of operation.



### Bedway

The bed is constructed of high grade, alloyed cast iron, normalized and aged to achieve maximum stability. The design features heavy cross ribbing for rigidity and vibration dampening and utilizes hardened and ground bedways.

## INCLUDED ACCESSORIES

- Thread dial
- Standard steady rest with roller tips
- Extra capacity steady rest with roller tips
- Follow rest
- Coolant system
- Taper attachment
- 3-Jaw chuck with 2 piece rev. jaws
- Carriage stop
- Work light

All included accessories at no charge when ordered with lathe.

## OPTIONAL EQUIPMENT

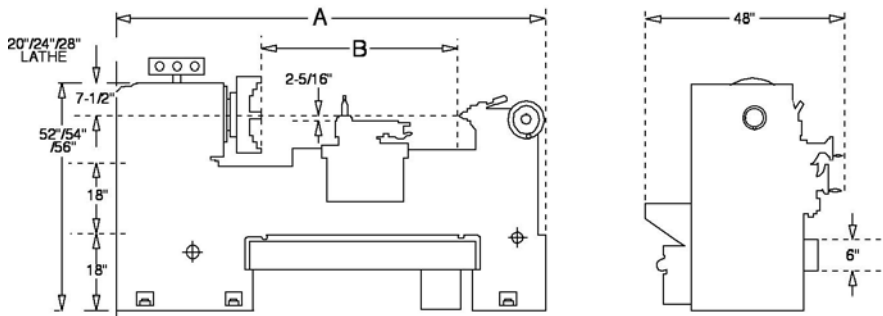
- Quick change tool post
- Faceplates
- Electronic DRO
- Premium chucks
- Other workholding devices & tooling available on request

## STANDARD FEATURES

- Hardened and ground bedways
- Big 4 1/8" thru hole
- Inch/metric threads
- Conveniently located controls
- Forced lubrication to the headstock, carriage and bedways
- Cuts most American & Metric threads without change gears
- Complete accessory package
- Crossfeed and threading safety interlock
- Feed reversing at the apron
- Hardened and ground cross slide ways
- 4-way rapid traverse
- Heavily ribbed bed
- Single lever control for feeds and rapids
- Full length chip and coolant guard
- 2 speed tailstock

# DIMENSIONS AND SPECIFICATIONS

## 20-4", 24-4" & 28-4" PRECISION ENGINE LATHES



A	101"	121"	141"	181"	221"	261"
B	40"	60"	80"	120"	160"	200"

SPECIFICATIONS CAPACITIES	20-4"		24-4"		28-4"	
	Inch	Metric	Inch	Metric	Inch	Metric
Swing over bed	20 1/4"	515mm	25"	635mm	28 1/2"	725mm
Swing over cross slide	11 7/8"	302mm	17"	430mm	19 5/8"	500mm

### WORKPIECE WEIGHTS

At headstock	400 lbs.	181 kgs
Between centers	2,000 lbs.	907 kgs
Between centers with steady rest	4,000 lbs.	1,814 kgs

### HEADSTOCK

Spindle speeds - number	15	21	21
Spindle speeds - range (RPM)	11.5 to 1400	20 to 1250	20 to 1250
Hole thru spindle	4 1/8"		105mm
Spindle nose type		D1-8 Camlock	
Headstock center		#6 MT	
Number of bearings on spindle		3	
Headstock length on bed	24 1/2"		622mm
Type of bearings on spindle		Angular Contact Thrust Bearings Straight Roller Radial Bearings	
Main spindle bearing			
outside diameter	8 1/2"		220mm
inside diameter	5"		130mm
Overall length of spindle	34"		864mm

### QUICK CHANGE GEARBOX

Threads per inch - (number) range	(64) 1/4 to 60	
Metric threads - (number) range	(64) .5 to 120	
Module threads - (number) range	(64).125 to 30	
Diametral pitch - (number) range	(64) 1 to 240	
Long. feeds - (number) range	(124) .00145 to .44474	
Cross feeds - (number) range	(124) .0007 to .22237	
Leadscrew - diameter/range	2" / 2 T.P.I.	
Feed rod diameter	1"	25mm
Lubrication system	Oil bath	

### CARRIAGE & APRON

Cross slide travel	12 1/2"	315mm	12 1/2"	315mm	15 1/4"	390mm
Cross slide depth of bridge		4 3/4"		120mm		
Cross slide width of bridge		8 1/4"		210mm		
Compound rest travel		5 3/8"		136mm		
Compound rest width		5 7/8"		150mm		
Length of carriage bearing on ways		23"		584mm		
Graduation of apron handwheel		.020"		0.5mm		
Travel of carriage per revolution of handwheel		.875"		22mm		

SPECIFICATIONS	20-4"		24-4"		28-4"	
	Inch	Metric	Inch	Metric	Inch	Metric
Graduations of carriage cross slide handwheel (direct reading)		.002"				0.05mm
Travel of cross slide per revolution of handwheel		.200"				5mm
Height from top of compound to centerline of lathe		2 5/16"				59mm
Type of lubrication system			Reciprocating Pump			

### TAILSTOCK

Travel of spindle barrel	9 1/2"	241mm
Diameter of spindle barrel	3 1/2"	74mm
Taper of center		#5 MT
Tailstock body length on bed	13 3/4"	350mm
Length of barrel graduations on spindle	6"	152mm
Type of clamping on bed	Bolts and Lever Clamp	
Type of lubrication system	Reservoir	
Two Speed	1:1 - 4:1	

### HEADSTOCK DRIVE & MOTORS

Type of input drive	vee belt					
Number of vee belts	4					
Main drive motor	10 H.P.	7.5 KW	15 H.P.	11 KW	15 H.P.	11 KW
Coolant pump motor	1/4 H.P.		.18 KW			

### BED

Width of bed	15 3/4"	400mm
Depth of bed	16 7/8"	429mm
Hardness of bed (Rockwell C)	42 to 48	

### TAPER ATTACHMENT

Degrees of taper	±10°	
Maximum turning length per setting	15 3/4"	400mm

### MISCELLANEOUS

20-4" Standard steady rest w/rollers	1/2" to 6 1/8"	12.5 to 155mm	
24-4" & 28-4" Standard steady rest w/rollers	3/4" to 7 3/4"	20 to 200mm	
20-4" Extra cap. steady rest w/rollers	5" to 11"	125 to 280mm	
24-4" Extra cap. steady rest w/rollers	5 1/2" to 13 1/2"	140 to 343mm	
28-4" Extra cap. steady rest w/rollers	7 3/4" to 16 3/4"	200 to 425mm	
Follow rest - min. to max capacity	1/2" to 7 7/8"	12.5 to 200mm	
Centerline height above floor	44 1/2" 1130mm	46 1/2" 1180mm	48 1/2" 1230mm

### SHIPPING DATA

Overall width	48"		1,220mm			
Overall height	60"	1,524mm	62"	1,574mm	70"	1,778mm
Overall length/weight	(Inch/lbs - mm/kgs)					
40" Centers	114" / 6,800 - 2,900 / 3,091	114" / 7,200 - 2,900 / 3,273	114" / 7,600 - 3,450 / 3,455	114" / 7,600 - 2,900 / 3,455		
60" Centers	136" / 7,200 - 3,450 / 3,273	136" / 7,600 - 3,450 / 3,455	136" / 8,000 - 4,980 / 3,909	136" / 8,000 - 3,450 / 3,455		
80" Centers	156" / 7,700 - 3,960 / 3,500	156" / 8,100 - 3,960 / 3,682	156" / 8,500 - 4,980 / 3,909	156" / 8,500 - 3,960 / 3,773		
120" Centers	196" / 8,600 - 4,980 / 3,909	196" / 9,000 - 4,980 / 4,091	196" / 9,400 - 6,000 / 4,500	196" / 9,200 - 4,980 / 4,182		
160" Centers	236" / 9,500 - 6,000 / 4,318	236" / 9,900 - 6,000 / 4,500	236" / 10,300 - 7,000 / 4,727	236" / 10,100 - 6,000 / 4,590		
200" Centers	276" / 10,400 - 7,000 / 4,727	276" / 10,800 - 7,000 / 4,909		276" / 11,000 - 7,000 / 5,000		

**WARRANTY:** A copy of Summit Machine Tool LLC's standard written warranty is attached to each Summit Machine. Call or write to Summit for a copy or for further information concerning Summit's standard warranty. All purchases are subject to Summit's standard written warranty. Specifications are subject to change without notice.

**POINT OF OPERATION GUARDING** is the responsibility of the end user. For information contact your local OSHA office.

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