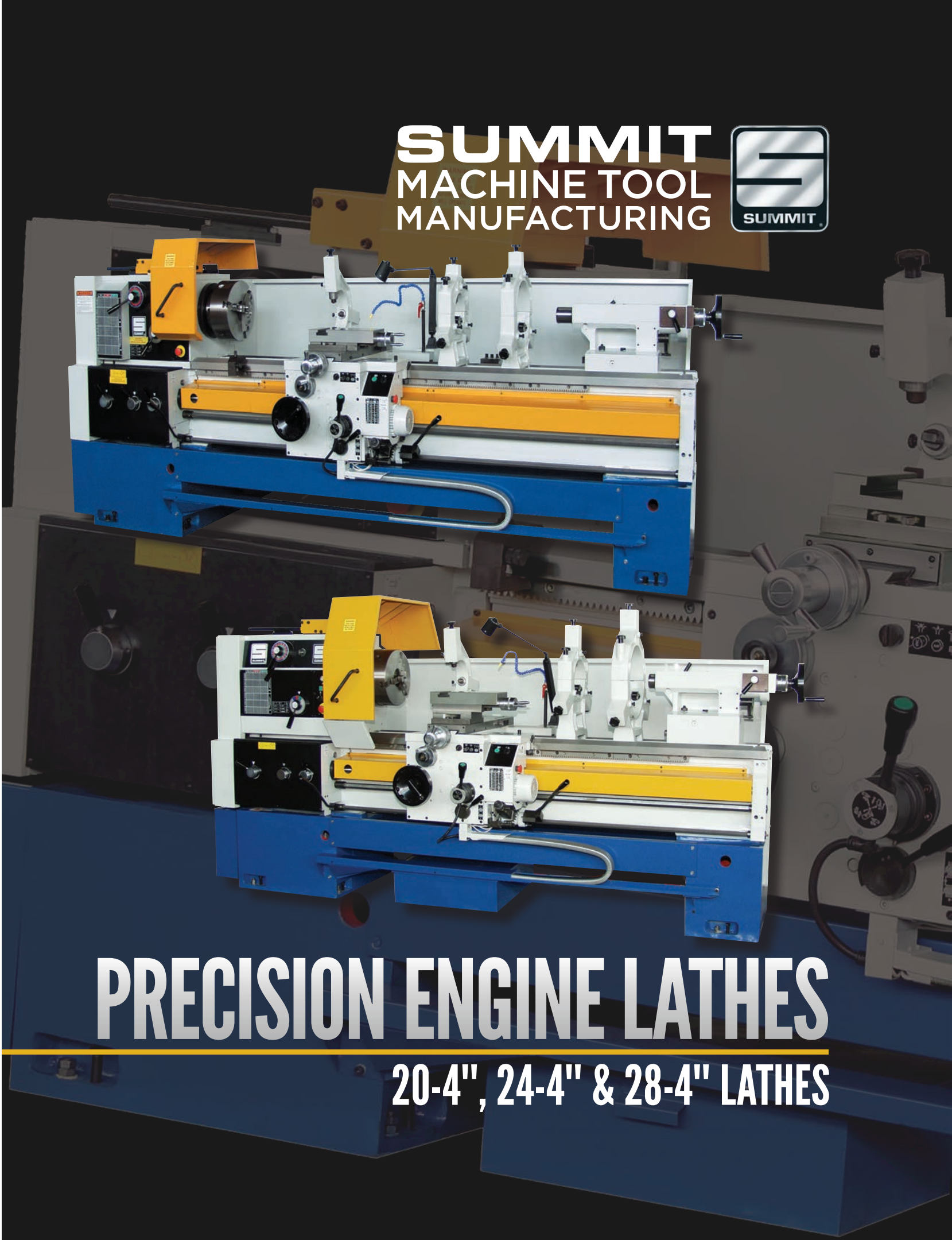
SUMMIT
MACHINE TOOL
MANUFACTURING



PRECISION ENGINE LATHES

20-4", 24-4" & 28-4" 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.

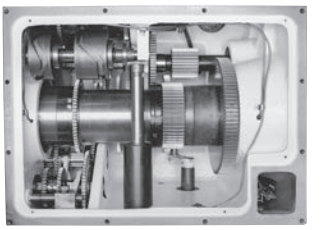
The 20-4", 24-4" & 28-4" lathes have just the right amount of engineering to afford simplicity of operation, coupled with plain and simple rugged reliability. In addition, built in safety features like the safety clutch in the apron that kicks out the feed and the feed/threading safety interlock eliminating 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 60", 80", 120" and 160" center distances, the 20-4", 24-4" & 28-4" lathes feature hardened and precision ground bed-ways 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.

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

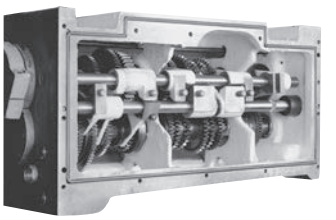


Headstock

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.

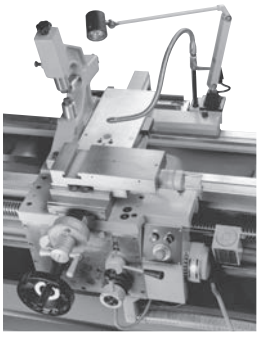
"Thru Hole"

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.



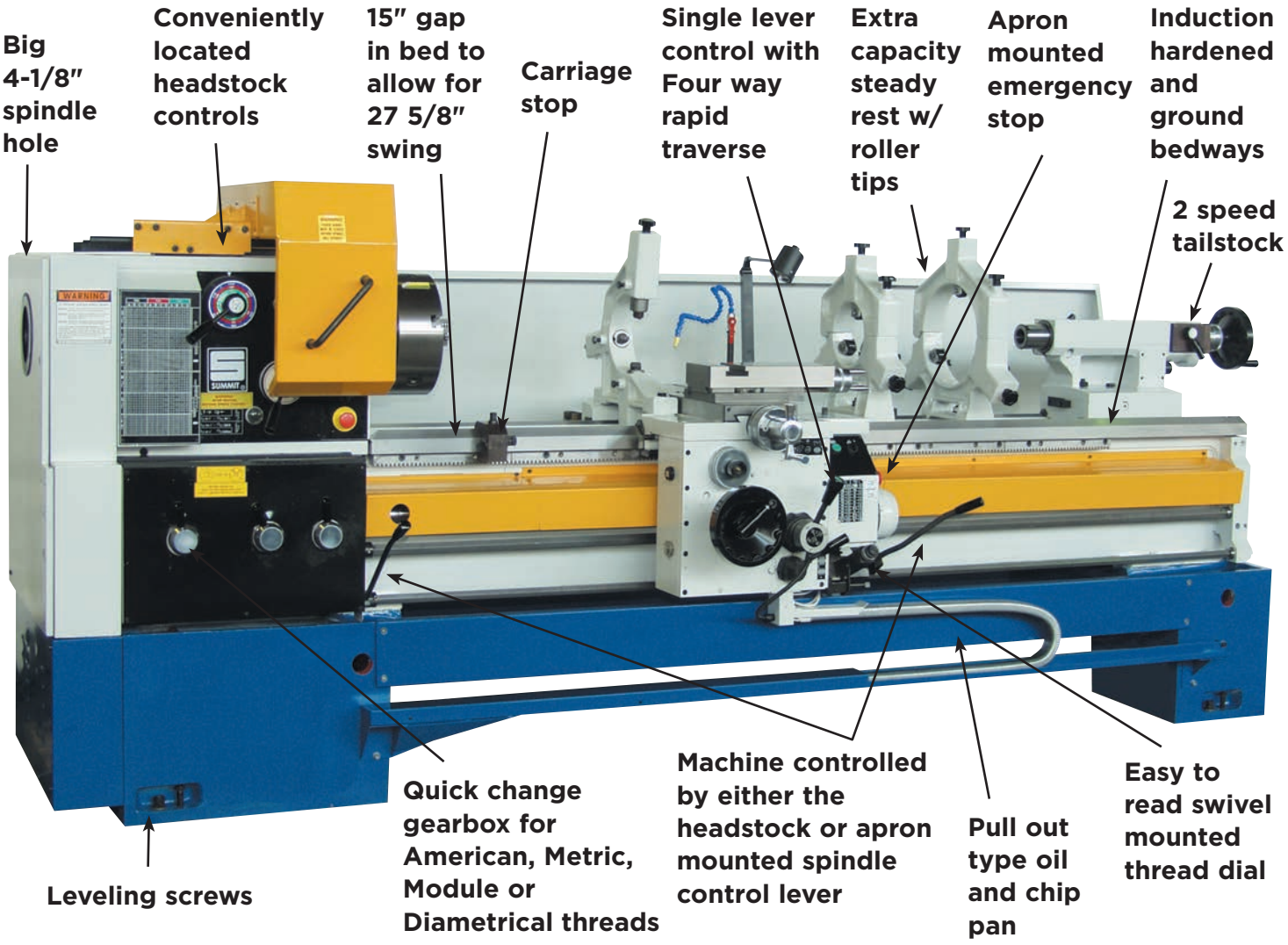
Norton Control Box

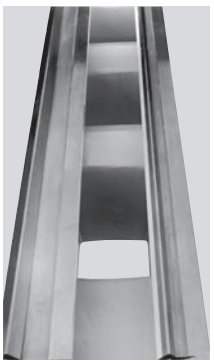
Totally enclosed, quick change feed gearbox allows easy selection of most standard and metric threads and feeds without use of change gears. All gears and splined shafts are of hardened and ground alloy steel, precision fitted for ease of shifting and mounted in high precision anti-friction bearings. 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 ± 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. The bedway design is of the double vee, 60 degree opposed style (most commonly described as the "LeBlond Profile"), affording extended accuracy and long machine life.

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

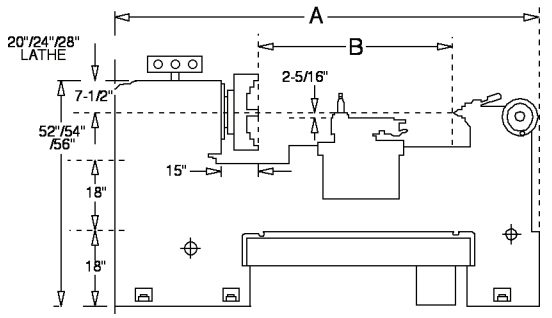
- Quick change tool post
- Faceplates
- Electronic DRO
- Premium chucks
- Other workholding devices & tooling available on request

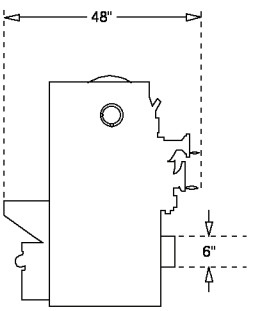
STANDARD FEATURES

- Hardened and ground bedways
- Big 4 1/8" thru hole
- Removable gap
- 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" and 28-4" Precision Engine Lathe





A	121"	141"	181"	221"
B	60"	80"	120"	160"

SPECIFICATIONS	20-4" Inch	20-4" Metric	24-4" Inch	24-4" Metric	28-4" Inch	28-4" Metric
CAPACITIES						
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
Swing over gap	27 5/8"	702mm	32 5/8"	830mm	36 1/2"	930mm
Length of gap		15"			381mm	
Length of gap in front of face plate		8 3/8"			213mm	
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	11 3/8"	290mm	12 1/8"	310mm	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" Inch	20-4" Metric	24-4" Inch	24-4" Metric	28-4" Inch	28-4" 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"			90 mm	
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	67"	1,700mm	73"	1,850mm	75"	1,900mm
Overall length/weight						
60"Centers (In/lbs-mm/kgs)	134"/7,200-3,400/3,260		134"/7,600-3,400/3,420		134"/7,800-3,400/3,530	
80" Centers (In/lbs-mm/kgs)	154"/7,700-3,900/3,500		154"/8,100-3,900/3,660		154"/8,300-3,900/3,770	
120"Centers (In/lbs-mm/kgs)	194"/8,600-4,925/3,900		194"/9,000-4,925/4,060		194"/9,200-4,925/4,170	
160"Centers (In/lbs-mm.kgs)	234"/9,500-5,945/4,320		234"/9,900-5,944/4,480		234"/10,100-5,945/4,590	

WARRANTY: A copy of Summit Machine Tool Manufacturing L.L.C.'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.

8/2012

SUMMIT MACHINE TOOL MANUFACTURING, L.L.C.

P.O. Box 1402 • Oklahoma City, OK 73101
405.235.2075 • FAX 405.232.5169
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FOR MORE INFORMATION CALL 1-800-654-3262

WWW.SUMMITMACHINETOOL.COM