

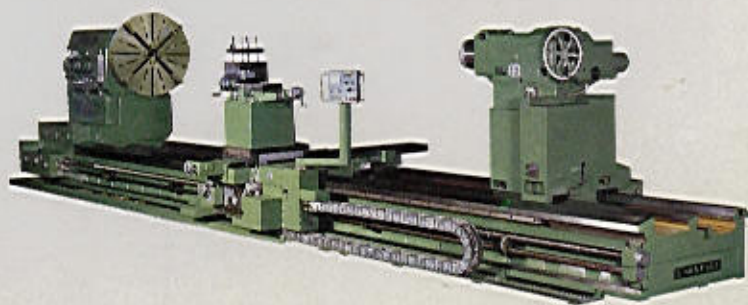
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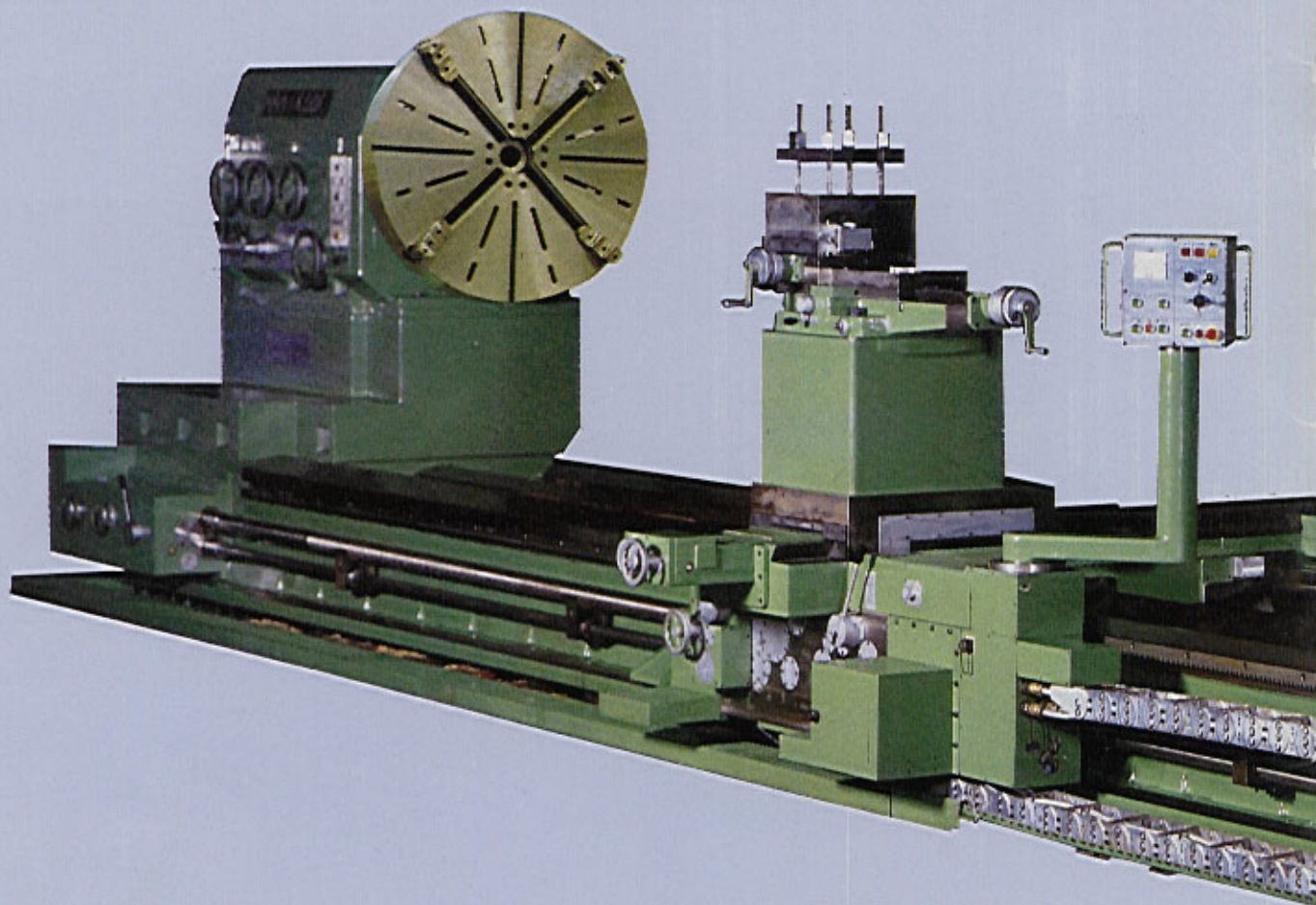


**HANKOOK**

# **КН.КНШ**

*Heavy Duty Large Lathe*





## FEATURES

### MODEL : KH, KH III

#### 1. PERFORMS EXTRA HEAVY CUTTING WORKS.

For the endurance for heavy cuttings machines are provided with 2 Slideways for KH and 3 Slideway for KH III and it minimizes the vibration from heavy cutting works. The firmness of the machine was also carefully considered to allow heavy works on ROLL cuttings.

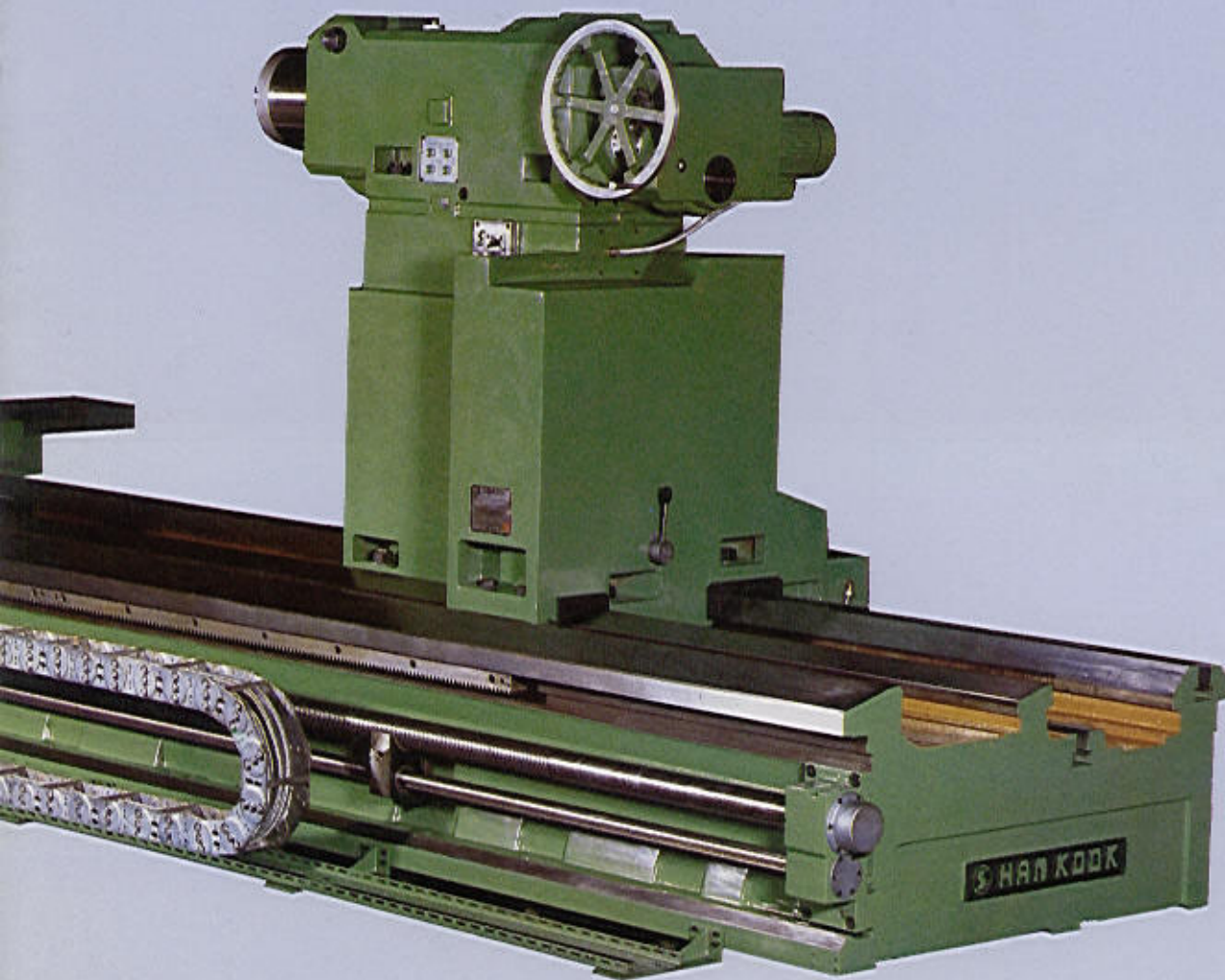
#### 2. PROMOTE EFFICIENCY

Spindle speed change levers or feed speed change handle at the head stock and quick change gearbox make shifting easy and carriage side pendant type control panel is of central at operator's side, encouraging operator to use correct cutting speeds for better tool life and increased production. Not only for heavy works, but lead to maintain outstanding accuracy by the comple of precision bearing, at spindle and gears.

#### 3. STABLE ACCURACY

This machine has high level of operational accuracy which is keep for a long period of time as the machine is manufactured under strict quality control.

Surface of the bed slides are hardened and ground. Inside of the cross slide, swivel slide and tool slide contain oil in which the feed screw and the female screw are dipped in and it allows less wearing of the screw and to keep high accuracy.



#### 4. SAFETY WARRANTY FOR OPERATORS

Motors have overload safety device which prevents machine from being damaged.

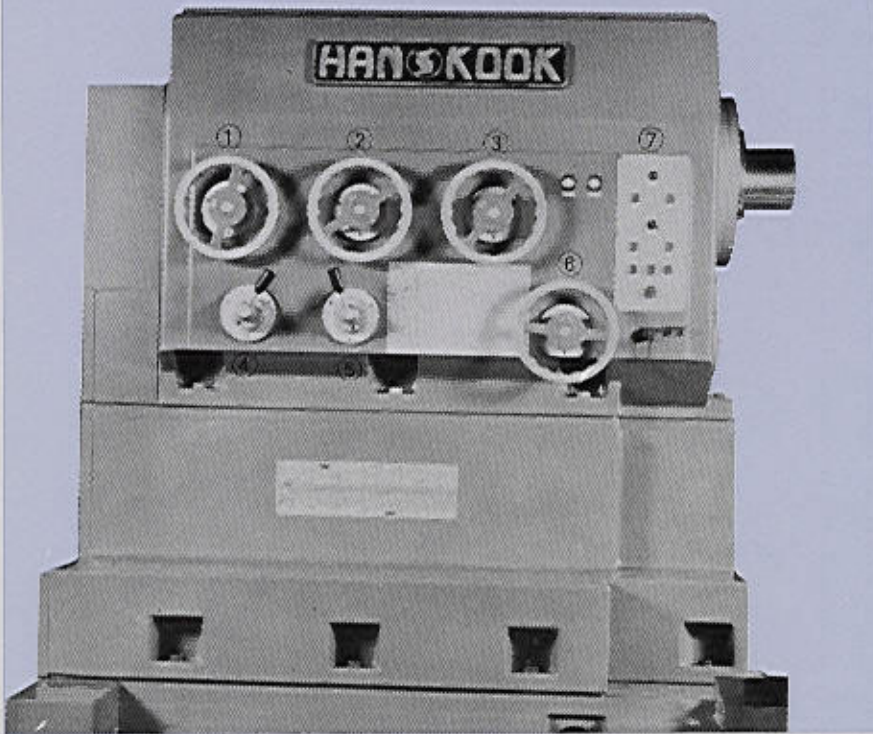
A torque limit is attached on the tail stock to provide against unexpected happenings when it was overloaded. Various sort of safety device are attached on the machine by which the safety for the machine operation is fully guaranteed.

#### 5. AUTOMATIC LUBRICATION

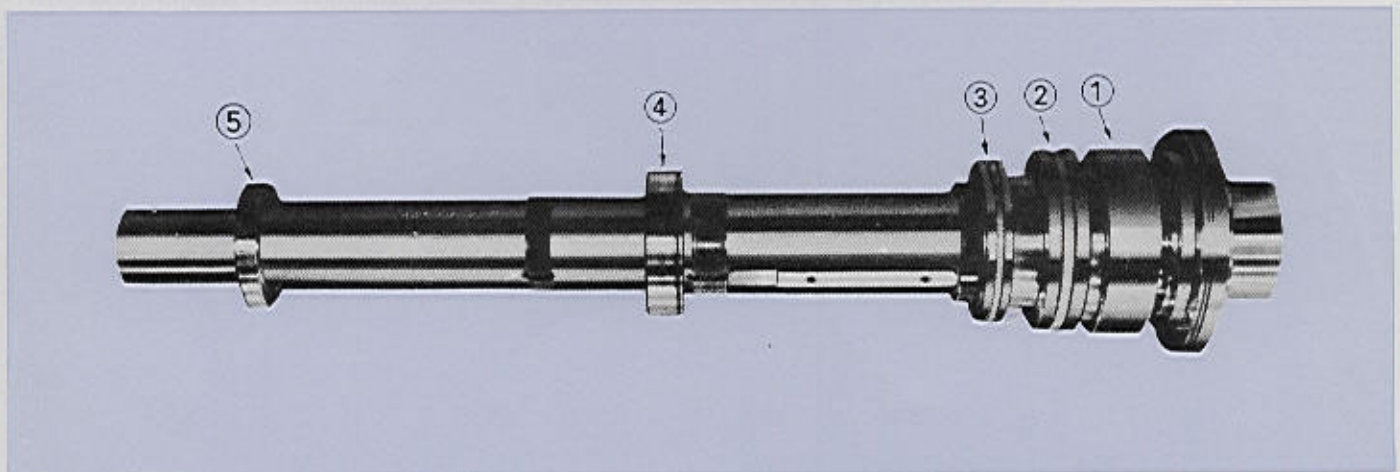
Automatic filtered lubrication of head stock and feed gear box gives longer machine life.

Automatic lubrication is also equipped to the carriage and protects the apron and the cross slide.

## HEADSTOCK

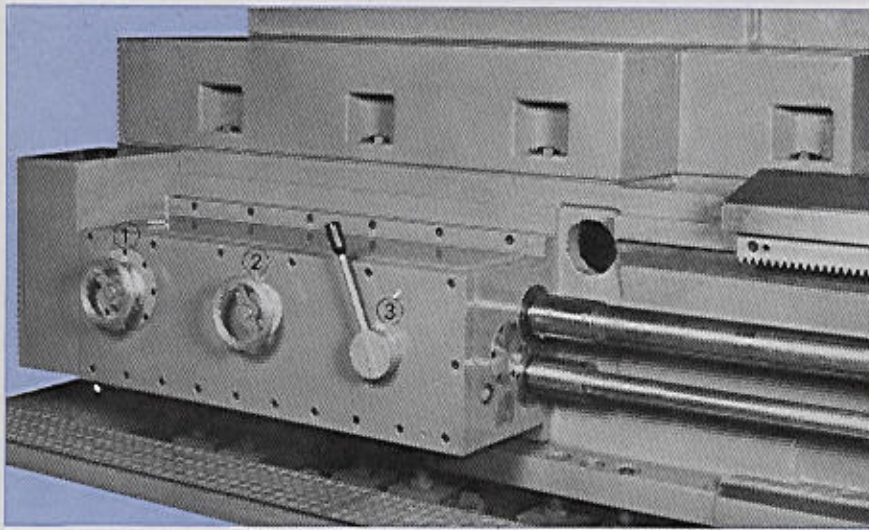


- Characteristic design for box type head stock extremely rigid and strong.
  - Main spindle speed is changeable in 24 steps for 1~200r.p.m (1, 1.25, 1.6, 2, 2.5, 3, 2, 4, 5, 6, 3, 8, 10, 12.5, 16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160, 200)  
0.8~160r.p.m (0.8, 1, 1.25, 1.6, 2, 2.5, 3, 15, 4, 5, 6, 3, 8, 10, 12.5, 16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160)
  - Gears and shafts are made of Chrome-Molybdenum steel and are induction hardened and ground.
  - All handles and levers are easy to operate.
  - Automatic forced lubrication in head stock and in case of lubrication pressure on main spindle bearings decreased, buzzer alarms.
- (1)(2)(3)(6) Handwheel for spindle speed change  
 (4) Lever for right hand/left hand threading.  
 (5) Lever for feed 2-step change.  
 (7) Control panel at head stock.



## SPINDLE

- The main spindle is supported by three super precised bearings.
  - Short taper A2-15° type spindle nose is adopted so as to mount the chucks easily.
  - $\phi 4\frac{1}{8}$ inch( $\phi 105$ mm) dia. spindle bore ensures large size bar works.
  - The bearings for main spindle are lubricated automatically by the positive lubrication system when the machine electricity on for running.
- (1)(4) Double row cylindrical roller bearing(#NN3052K, #NN3036K)  
 (2)(3) Thrust ball bearing(#51252, #51152)  
 (5) Radial ball bearing(#6028)

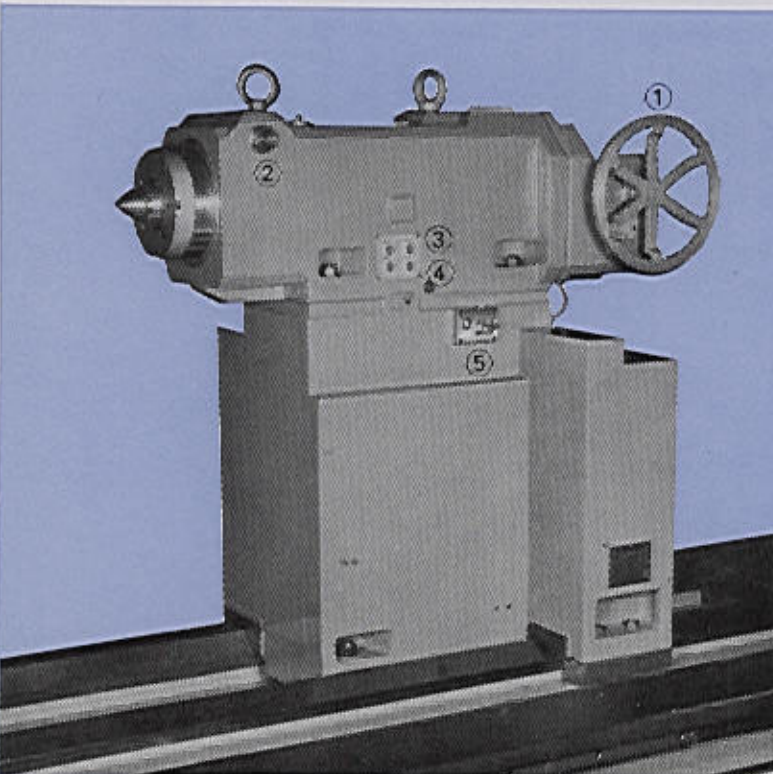
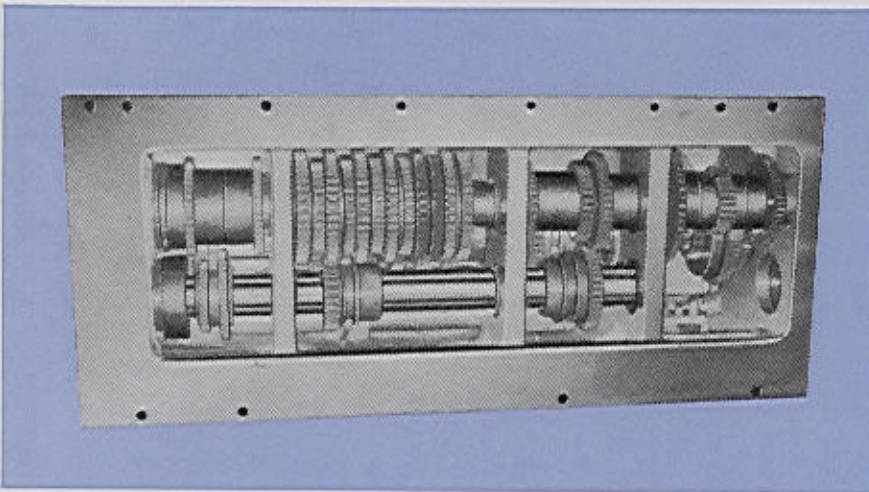


## FEED GEAR

- Conversion for inch/metric threading is easily done by only one lever operation and unnecessary to exchange the gear
- Lubrication is automatically done by the positive lubrication system
- Travelling rod support brackets always support lead screw and feed rod keeping adequate supporting positions automatically by the movement of carriage for the protection of bending or deflection of lead screw and feed rod.

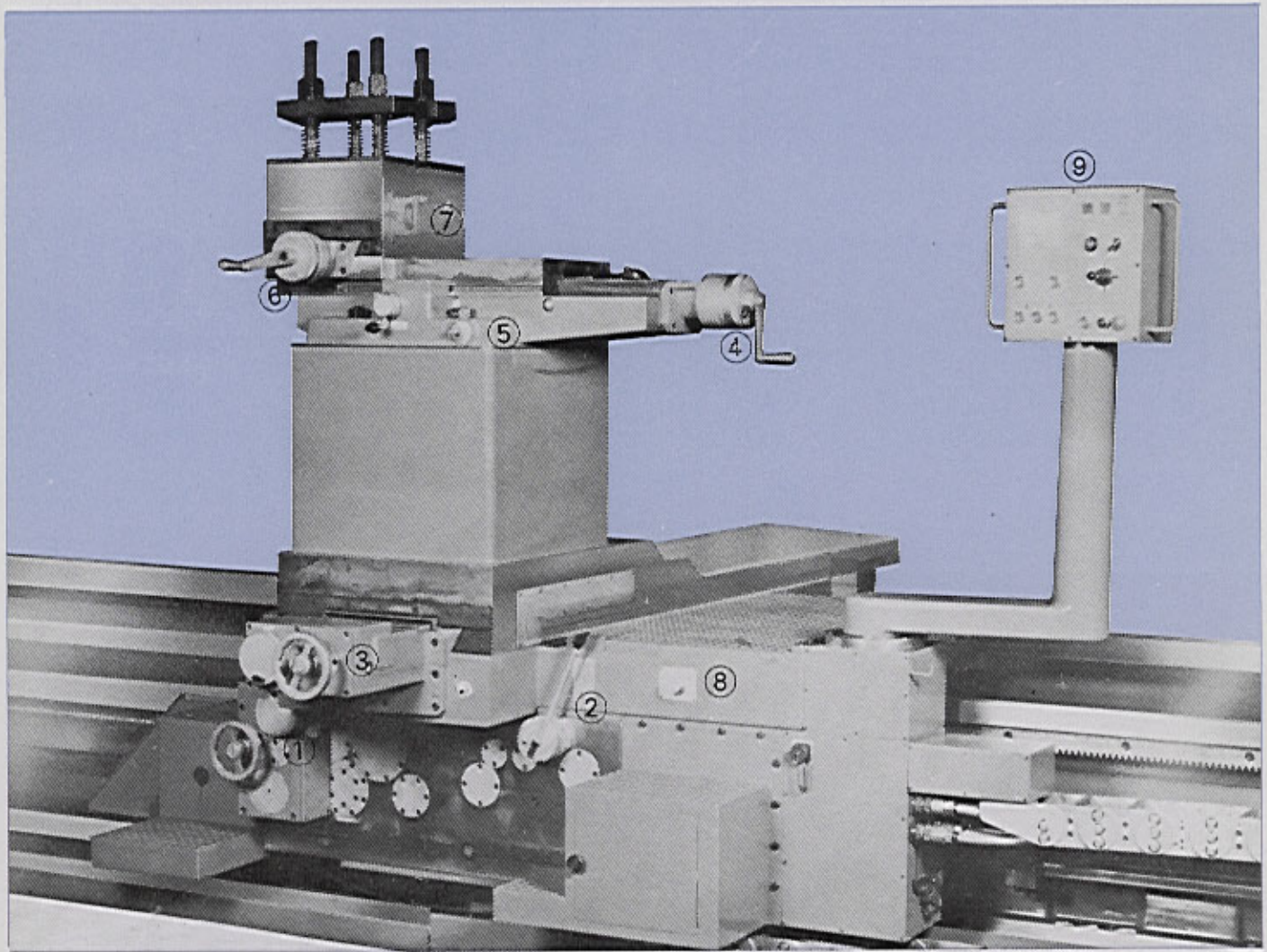
(1)(2) Handwheel for feed speed change.

(3) Lever for feed/thread change.



## TAILSTOCK

- Tail stock is fixed type and rotary type, rotary type tail stock spindle can be used for fixed type, too.
  - Tail stock spindle is hardened(HRC 60°) and ground, fixed type by  $\phi 7\frac{3}{4}$ inch( $\phi 200$ mm) diameter, rotary type by  $\phi 12\frac{3}{8}$ inch( $\phi 315$ mm) diameter and 10inch(250mm) maximum travel.
  - Rapid feed for tail stock and tail stock spindle can be operated by the control panel at tail stock side.
  - Safety device for tail stock and rapid feed of tail stock is built in the gear box.
  - Thrust load meter is equipped.
- (1) Handwheel for tail stock spindle  
 (2) Clamp bolt for tail stock spindle  
 (3) Push button switch for tail stock spindle rapid feed  
 (4) Push button switch for tail stock rapid feed  
 (5) Lubrication pump for slideways for tailstock

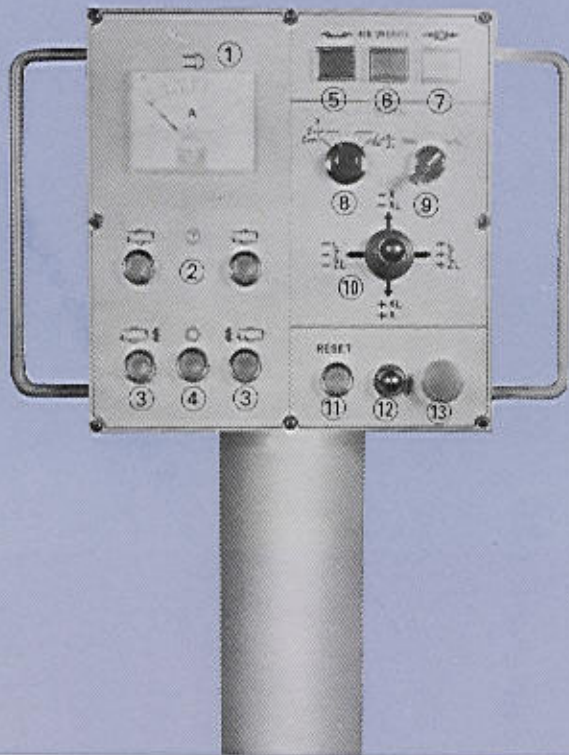


## CARRIAGE

- Saddle space on bed slideways is wide enough to ensure high.
- Slideways of saddle and cross slide are coated by coating bearing or bearing tape to reduce frictions for the movement and improves the life of bed.
- An emergency switch for safety measure is handily driven as it locates on central operating station.
- Capable of rapid feeding by a feed motor.
- Automatic lubrication system is applied for the lubrication to apron bed slideways and cross slide.
- Taper turning by combination feed of long and cross slide is available in special order (Max taper length 67inch(1700mm) within  $\pm 14^{\circ}15'$ )
- Upper slide can slide by  $60^{\circ}$  each for taper turning(taper length  $13\frac{3}{4}$ inch(350mm))
- Tool post type is holder type and standard size of cutting bite is  $2\frac{7}{8}$ inch(75mm)

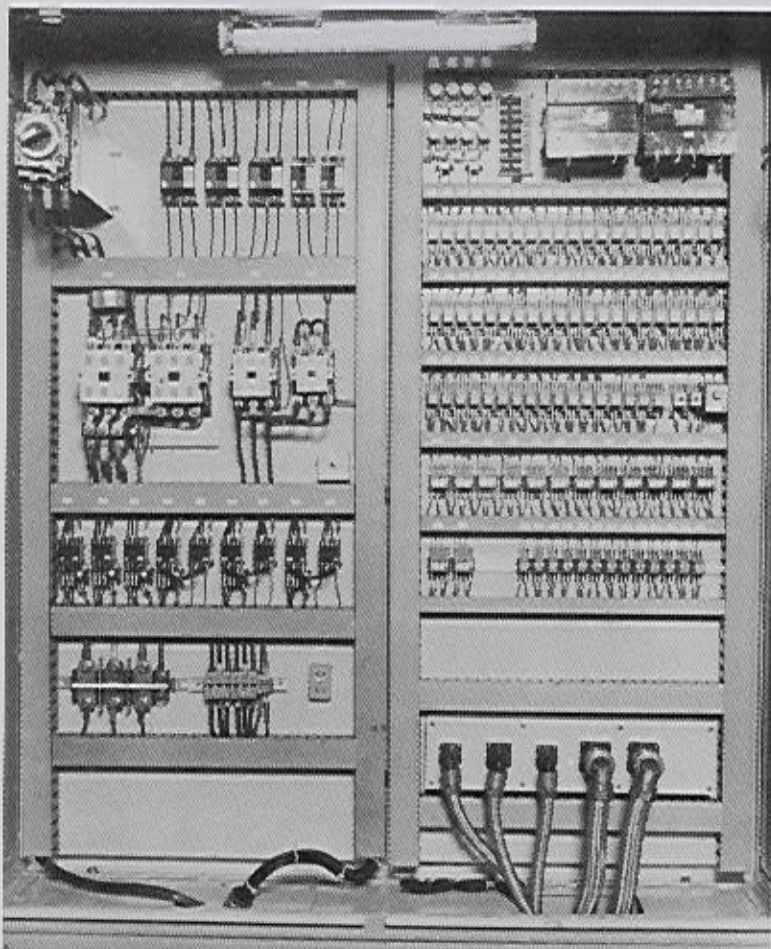
- |   |                                 |
|---|---------------------------------|
| (1) Handwheel for longitudinal feed                                   | (2) Half nut lever              |
| (3) Handle for cross feed   | (4) Handle for upper slide feed |
| (5) Handle for swivel slide feed                                      | (6) Handle for tool slide feed  |
| (7) Lubrication pump for upper slide and tool slide                   |                                 |
| (8) Switching knob for lubrication of cross slide, half nut and apron |                                 |
| (9) Operating station at carriage.                                    |                                 |

## CENTRAL OPERATION STATION(Standard)



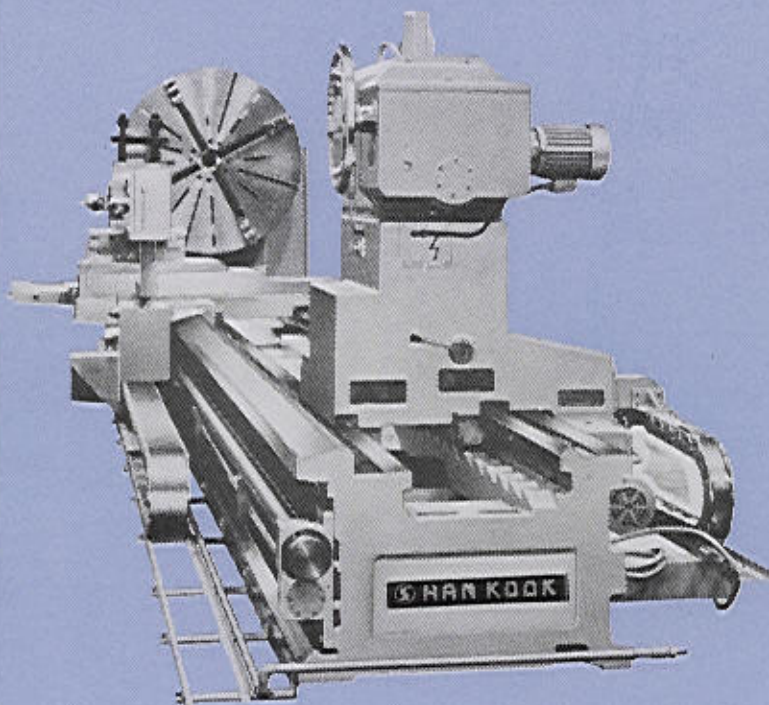
- (1) Amp meter
- (2) Push button switch for main spindle inching
- (3) Push button switch for main spindle ON
- (4) Push button switch for main spindle OFF
- (5) Pilot lamp for stroke end
- (6) Pilot lamp for mis operate.
- (7) Pilot lamp main motor brake
- (8) Feed direction selection switch
- (9) Feed and rapid feed, conversion switch
- (10) Mono lever for feed ON/OFF
- (11) Push button switch for Re-set
- (12) Pilot lamp for emergency stop
- (13) Push button switch for emergency stop

## ELECTRICAL CONTROL BOX



- It contains various kinds of breakers, main spindle driving unit and carriage driving units.  
Main spindle brake torque adjusting volume, over-load alarm buzzer are equipped
- Control panel is equipped in front of headstock and carriage pendant, carriage side pendant type control panel is of central at operator's side.

**Model:KH**



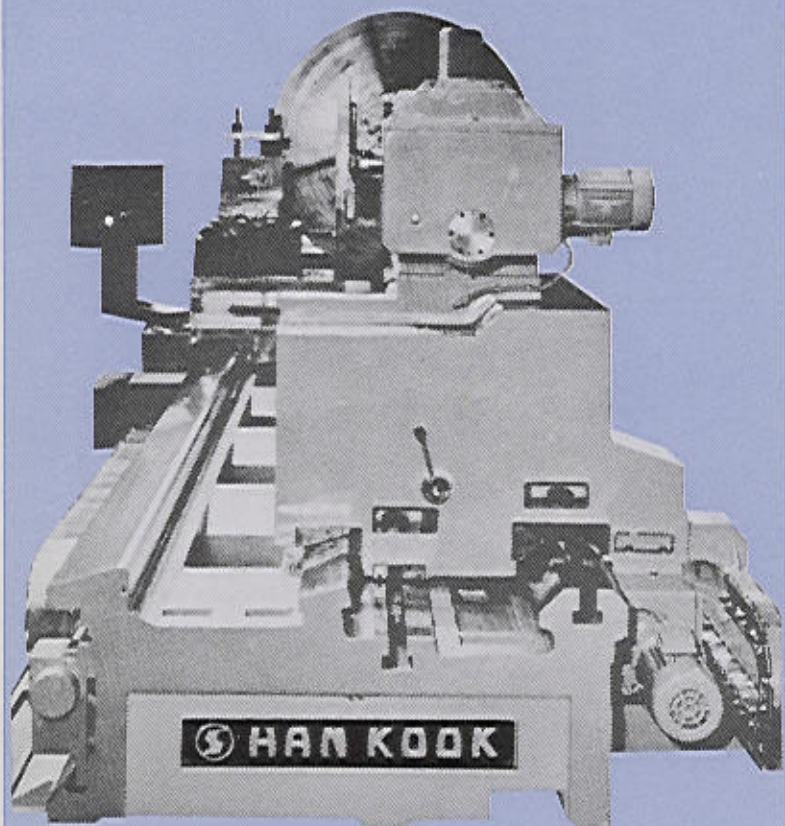
## **BED**

- Rigid and rugged construction having X type rib formation is strong-enough against bending or distortion.
- Bed is made of meehanite cast iron.
- Slideways are induction hardened and precisely ground by the bed grinder.
- Slideways of bed are designed to have wide space by our own design.
- Slideways of bed, specially design narrow guide type having wide slide space ensure heavy duty cutting operation and smooth disposal of cut chips.
- All the electric wirings for pendant panel, rapid feed motor, lubrication pump motor, rapid feed motors for tail stock and tail stock spindle are arranged to get into cable chain system to protect any twisting or damages of wires.
- For the arrangement of hoses of coolant system and wiring of work light, the cable chain system is used, too.
- Limit switches to detect the stroke end for X axis, Z axis are provided.

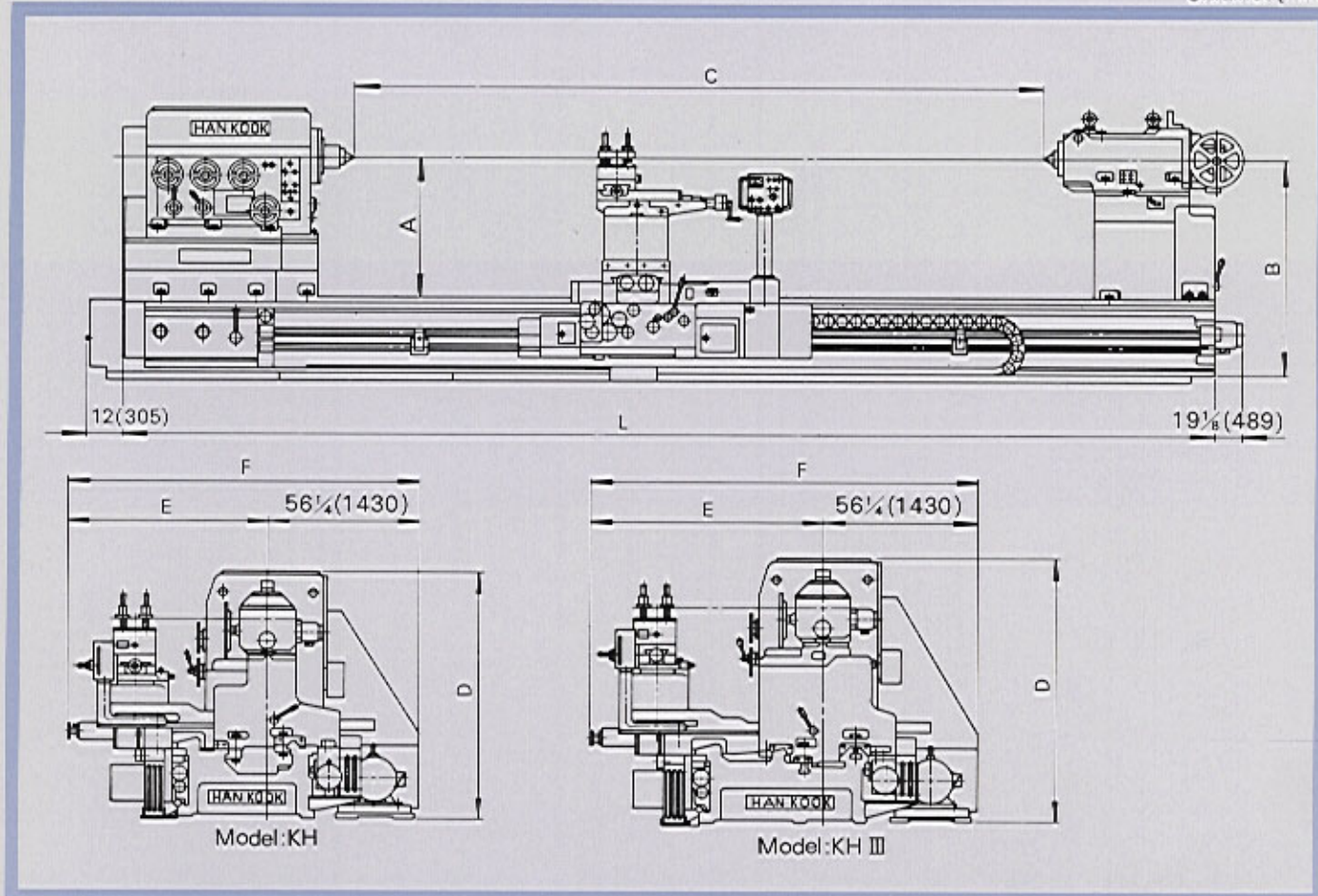
KH : 2- slideways type

KH III : 3- slideways type

**Model:KH III**







MODEL		KH				KH III			
Specification	TYPE	55	63	70	78	86	94	102	110
	A		27 $\frac{3}{4}$ (705)	31 $\frac{1}{8}$ (805)	35 $\frac{5}{8}$ (905)	39 $\frac{1}{2}$ (1005)	43 $\frac{1}{2}$ (1105)	47 $\frac{3}{8}$ (1205)	51 $\frac{3}{8}$ (1305)
B		53 $\frac{1}{4}$ (1355)	57 $\frac{1}{4}$ (1455)	61 $\frac{1}{8}$ (1555)	65 $\frac{1}{8}$ (1655)	69 (1755)	73 (1855)	76 $\frac{3}{8}$ (1955)	80 $\frac{3}{8}$ (2055)
D		69 $\frac{1}{2}$ (1767)	73 $\frac{1}{2}$ (1867)	77 $\frac{3}{8}$ (1967)	81 $\frac{3}{8}$ (2067)	85 $\frac{1}{4}$ (2167)	89 $\frac{1}{4}$ (2267)	93 $\frac{1}{8}$ (2367)	97 $\frac{1}{8}$ (2467)
C		118 $\frac{1}{8}$ (3000)	157 $\frac{1}{2}$ (4000)	197 (5000)	236 $\frac{1}{4}$ (6000)	275 (7000)	314 $\frac{3}{4}$ (8000)	354 $\frac{3}{8}$ (9000)	393 $\frac{3}{4}$ (10000)
L	KH	225 $\frac{3}{8}$ (6500)	295 $\frac{1}{4}$ (7500)	334 $\frac{3}{8}$ (8500)	374 (9500)	413 $\frac{3}{8}$ (10500)	452 $\frac{3}{4}$ (11500)	492 $\frac{1}{8}$ (12500)	539 $\frac{3}{8}$ (13700)
	KH III	263 $\frac{3}{4}$ (6700)	303 $\frac{1}{8}$ (7700)	342 $\frac{1}{2}$ (8700)	381 $\frac{3}{8}$ (9700)	421 $\frac{1}{4}$ (10700)	460 $\frac{5}{8}$ (11700)	500 (12700)	539 $\frac{3}{8}$ (13700)
E	KH	60 (1523)		63 $\frac{3}{8}$ (1623)	67 $\frac{1}{4}$ (1723)	—			
	KH III	80 $\frac{3}{4}$ (2053)				—			84 $\frac{3}{4}$ (2153)
F	KH	116 $\frac{1}{4}$ (2953)		120 $\frac{1}{4}$ (3053)	124 $\frac{1}{8}$ (3153)	—			
	KH III	137 $\frac{1}{8}$ (3483)				—			141 (3583)

# SPECIFICATION

## Name of Model

Each Model is called by means of Swing over bed x Distance between centers:

For example, if Swing over bed is 55inch(1400mm) and Distance between centers 197inch(5,000mm), the Model is named as KH 55 x 197

## 1. Swing

Unit: inch(mm)

Model Type	KH				KH III			
	55	63	70	78	86	94	102	110
Swing over bed	55½ (1400)	63 (1600)	70⅞ (1800)	78¾ (2000)	86⅝ (2200)	94½ (2400)	102¾ (2600)	110¼ (2800)
Swing over carriage	40 (1000)	48 (1200)	55⅝ (1400)	63 (1600)	70⅞ (1800)	78¾ (2000)	86⅝ (2200)	94½ (2400)

## 2. Distance between centers(Available longer distance Than 394")

Unit: inch(mm)

Specification	Type	118	157	197	236	275	314	354	393
Distance between center		118½ (3000)	157½ (4000)	197 (5000)	236¼ (6000)	275⅞ (7000)	314¾ (8000)	354⅝ (9000)	393¾ (10000)
Net. weight lbs(kg)	KH	52,800 (24,000)	55,000 (25,000)	57,200 (26,000)	59,400 (27,000)	61,600 (28,000)	63,800 (29,000)	66,000 (30,000)	68,200 (31,000)
	KH III	81,400 (37,000)	85,800 (39,000)	90,200 (41,000)	96,800 (44,000)	101,200 (46,000)	107,800 (49,000)	112,200 (51,000)	116,600 (53,000)

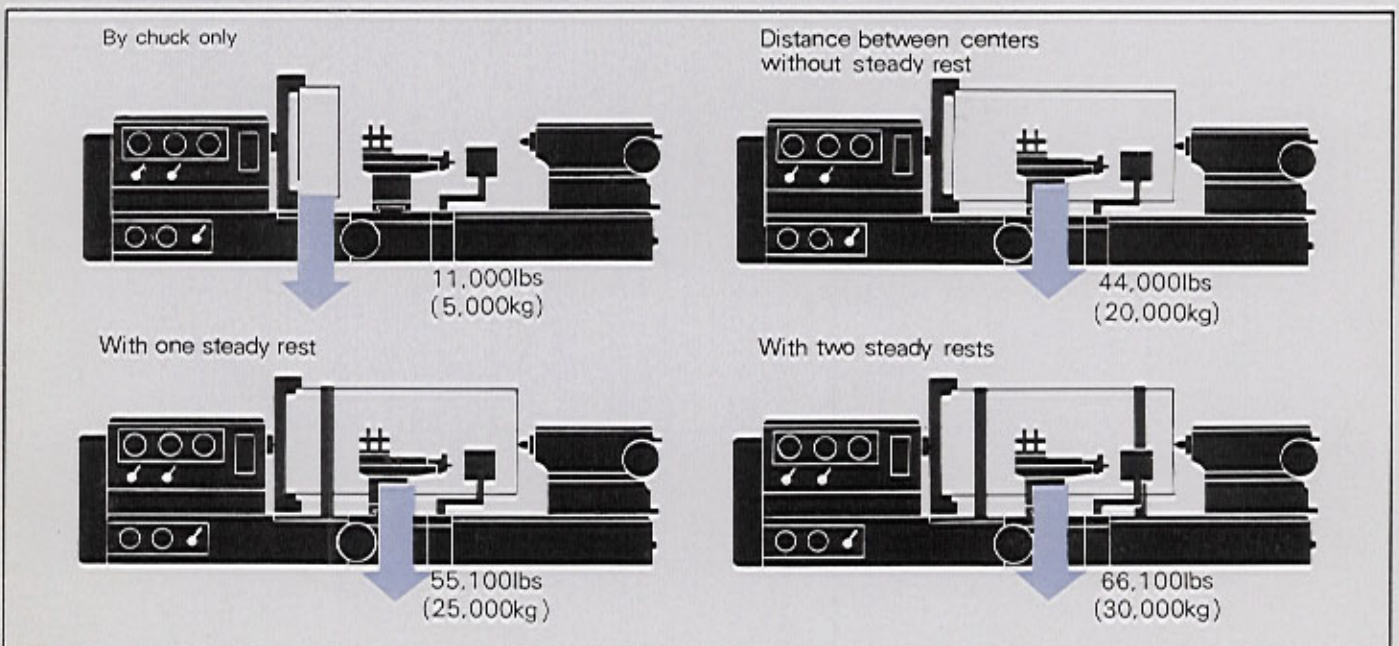
## Standard Accessories

- Center(Metric taper # 80x75") 2pcs
- Center sleeve(Metric taper # 120x# 80) 1pc
- Main drive motor and electricals 1set
- Change gears for(D.P and Module) 1set
- Chasing dial indicator and gears 1set
- V-Belts 1set
- Foundation bolts and nuts 1set
- Leveling block for foundations 1set
- Tail stock spindle feeding device 1set
- Remote control switch box for head stock and carriage 1set
- Tool box with necessary wrenches and spanners each 1set
- Instruction manual and parts list 1set

## Special Accessories

- 4-jaw chuck  $\phi 50''$  ( $\phi 1270\text{mm}$ )~ $\phi 100''$  ( $\phi 2500\text{mm}$ )
- Steady rest
- Roll chock stand
- Roll rest
- Coolant pump, piping and fittings
- Work lamp
- Tail stock load meter
- Rotary type tail stock
- Multi screw cutting device
- Automatic feed of upper slide
- X & Z axis digital read out facilities
- Taper turning device by combination Feeds

## SUPPORTING CAPACITY.



Unit : inch/mm)  
 STD : Standard  
 SPL : Special

### 3. General Specification

Item		Model Type	KH				KHIII			
			55	63	70	78	86	94	102	110
Main spindle	No. of spindle speed		24 Steps							
	Main spindle speed		STD : 1~200r.p.m SPL : 0.8~160r. p.m							
	Hole through spindle		$\phi 4\frac{1}{8}$ ( $\phi 105$ )							
	Spindle nose		ASA #15							
	Taper of spindle		Metric taper #120							
Feed	Longitudinal feed(Z axis)		36ch. 0.005~0.28inch/rev(0.125~7mm/rev)							
	Cross feed(X axis)		36ch. 0.0025~0.14inch/rev(0.063~3.5mm/rev)							
Threading	Lead screw(pitch x dia.)		2tpix $\phi 3\frac{3}{8}$ (12mm x $\phi 80$ )							
	Metric threading		36ch. 2~112mm/pitch							
	Inch threading		22ch. $\frac{1}{4}$ ~14tpi							
	Module threading		30ch. 0.5~28 <sub>mm</sub>							
	D.P. threading		34ch. 1~56tpi <sub>π</sub>							
Bed	Width		39 $\frac{1}{4}$ (1010)				61 $\frac{3}{8}$ (1560)			
Tool post	Max. traverse of tool slide		5(125)							
	Max. traverse of upper slide		14(355)							
	Max. traverse of cross slide		60(1520)							
	Size of tool		3 Square(75 Square)							
	Type of tool post		Holder type tool post							
Tailstock	Dia. of tailstock spindle		STD: 7 $\frac{3}{4}$ (200) SPL: 12 $\frac{3}{8}$ (315)							
	Max. traverse of tailstock spindle		10(250)							
	Max. load of tailstock spindle		17,600lbs(8,000kg)							
Capacity	Max. torque of main spindle		18,100 lb-ft (2,500kg-m)							
	Max. cutting power		8,800 lb(4,000kg)							
Rapid feed	Longitudinal feed(Z axis)		118 $\frac{1}{8}$ inch/min(3m/min)							
	Cross feed(X axis)		59inch/min(1.5m/min)							
Motor	Main drive motor		A. C. 60HP(A. C. 45Kw)							
	Rapid feed motor for carriage		A. C. 3HP(A. C. 2.2Kw)							
	Headstock lubrication pump motor		A. C. 1HP(A. C. 0.75Kw).							
	Rapid feed motor for tailstock		A. C. 3HP(A. C. 2.2Kw)							
	Rapid feed motor for tailstock spindle		A. C. 2HP(A. C. 1.5Kw)							

### 4. Special Specification

Item	Special Specification
Taper turning by combination feed of upper slide	67inch(1700mm) in Z axis within $\pm 14^{\circ}15'$ 41 $\frac{3}{8}$ inch(1050mm) in X axis within $\pm 5^{\circ}43.5'$ 13 $\frac{3}{4}$ inch(350mm) within $\pm 14^{\circ}15' \sim 60^{\circ}$

● Specifications & features may change without notice.