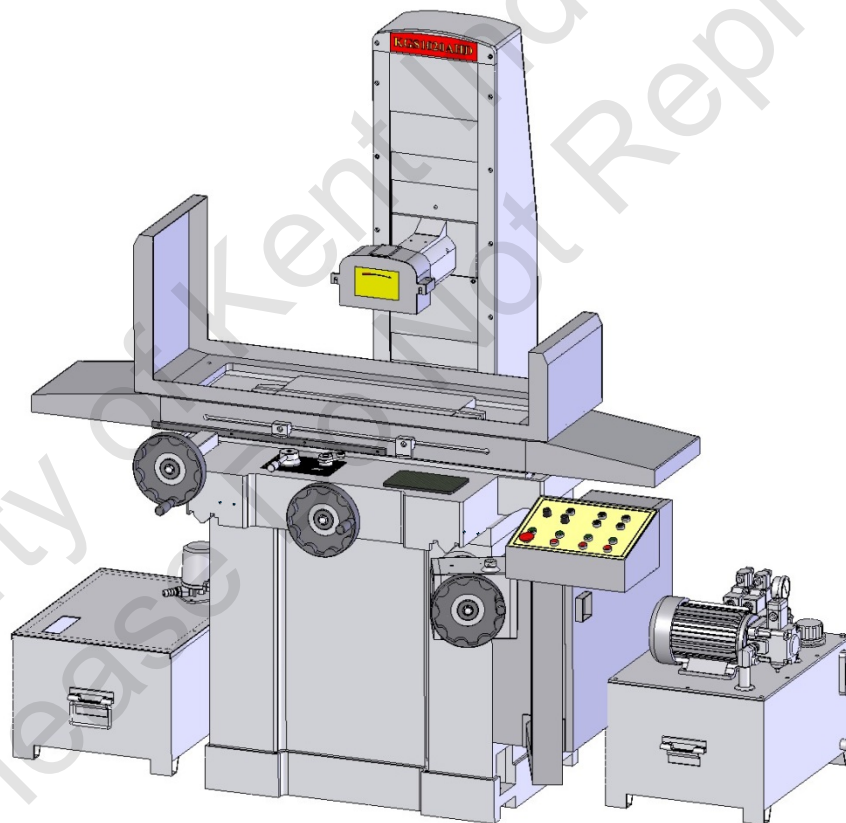


INSTRUCTION MANUAL FOR PRECISION SURFACE GRINDER

MODEL : KGS818AH/AHD

KGS1020AH/AHD



KENT INDUSTRIAL (U.S.A.) INC

Chapter One Installation Guidelines

General Safety Rules

Do

1. The employer must select trained and qualified personnel to operate machinery.
2. The employer must adhere to local national safety laws and regulations when teaching operators safety and cleanly procedures.
3. The employer must inform operators to look out for unsafe operating practices.
4. The brightness of the lighting equipment in the workplace must conform to local government regulations.
5. The machine's fire extinguisher must use non-conducting CO₂ or ABC.
6. The operation manual, instructions, and warning labels must be read before operating the machine.
7. The operation manual must be kept ready at all times. If an accident occurs, please contact our company representatives.
8. Hair must be properly restrained. Wear a hat if necessary before operating or maintaining the machine.
9. Before operating the machine, safety glasses, a filter mask, and work safety shoes must be worn.
10. The machine and its surrounding area must be kept clean and orderly to prevent slippery surfaces and unnecessary obstacles.
11. The operator must remain at least 600 mm away from the machine to prevent contact with the machine and injury. A yellow line should be drawn to mark areas where personnel are restricted from entering.
12. Operation and maintenance personnel must only work within the designated safe areas.
13. When moving work pieces that exceed 30 kilograms, use a hoist operated by licensed personnel to lift and lower these pieces.
14. All protective guards and doors must be closed at all times, except when maintenance work is being done.
15. Before conducting any maintenance work, the power source should be turned off and only proper tools should be used.

Don't

1. Persons wearing ties, long sleeves, or loose fitting clothing should not operate or maintain the machine.
2. Persons within the work area must not lean on the machine while it is running.
3. When the machine is running, the wheel guard, right and left stroke adjusters, and nozzles must not be adjusted by hand or with tools.
4. To prevent eye injury to personnel by dust particles, compressed air should not be used to clean the machine.

1.1 Safety rules for this machinery

Do

1. Only use grinding wheel with a maximum peripheral speed of 2000 m/min or greater.
2. Before inspecting or maintaining the power source, make sure you are following the instructions that are given on the warning signs.
3. If warning or instruction signs should fall off the machine or become illegible, re-affix with replacement signs or contact your sales representative or this company for replacements.
4. When inspecting electrical sections of the machine, insulating gloves, rubber or leather boots, and other non-conducting protective items should be used.
5. Electrical wiring that needs to be grounded, must be done so following the diagrams provided.
6. Before inspecting electrical circuits, check to make sure that the circuit is turned off.
7. When the electrical portions malfunction, only qualified personnel should carry out the maintenance work.
8. Check with the grinding wheel manufacturer about grinding wheel specifications for work pieces with a hardness of HRC65.
9. The grinding wheel balancing should be done by trained personnel only. After balancing the grinding wheel, it can be mounted onto the wheel spindle. Before mounting, wipe the flange and the mounting portion of the wheel spindle clean.
10. Before starting the machine, find the location of the machine stop and emergency push-buttons.
11. Before starting up the wheel spindle motor, inspect the grinding wheel and the turning direction of the wheel spindle. After starting the wheel spindle motor, let the grinding wheel spin freely for at least five minutes before beginning to grind the work piece.
12. Make sure the surface of the electric magnet chuck is clean before mounting work pieces. If there are marks on the surface, regrind its surface.
13. Use the proper clamps when mounting non-magnetic material work pieces such as aluminum, graphite, etc., or work pieces that are difficult to hold onto the magnetic chuck. These clamps cannot come into contact with the grinding wheel.
14. When the grinding wheel is not turning, the operator should check with his hands to see whether the work piece is firmly attached to the magnetic plate.
15. Adjust the left or right stroke only when the table is at a stop.
16. For wet grinding, turn off the coolant system before turning off the spindle motor.
17. Wet grinding material that produce dust during the grinding process.

Don't

1. The machine must not be installed in areas with explosive materials.
2. Combustible liquids must not be used as a cutting liquid.
3. The machine should not be used to grind lumber, plastic, or other combustible materials. Please contact KENT Industrial Co, Ltd. if you wish to use optional or special equipment provided by the company to grind graphite or porcelain.
4. The grinding wheel on the wheel spindle head cannot be used as a disk sander.
5. Do not haphazardly change the use and/or capacity setting on the machine and do

- not use grinding wheels that do not conform to listed specifications or work pieces that are excessively large or heavy.
6. To avoid the risk of an accident, the user should not modify the electrical circuitry without prior authorization.
 7. Do not change interlocking circuits into bypass circuits.
 8. Do not come into contact with those areas of the machine that are labeled with lightning signs and decals.
 9. Do not come into contact with the electrical box or circuits when one's body or hands are wet.
 10. When inspecting or maintaining electrical sections, keep all personal metallic items away from possible contact. Additionally, hang a warning sign to prevent other personnel from inadvertently starting the machine.
 11. Do not use very thin and short work pieces, or work pieces which have complex shapes or unstable centers of gravity on the magnetic chuck for grinding.
 12. When grinding, make sure the work piece is securely mounted and that no other object is place on the machine.
 13. During wet grinding, the nozzles cannot be adjusted when the wheel spindle is rotating.
 14. When the work table is in motion or when the wheel spindle is rotating, the work piece cannot be moved or changed.
 15. After the wheel spindle motor is turned off, do not use your hand or any other object to stop or slow down the grinding wheel.
 16. During grinding and before the grinding wheel stops rotating after work is finished, do not attempt to clean the shavings of the work piece or move the work piece.
 17. When taking off the grinding wheel, use a flange remover to detach it. Do not use any method that involves pounding the grinding wheel. This could result in damage to the grinding wheel.

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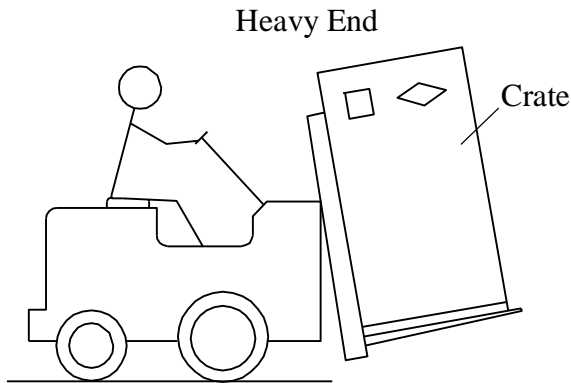
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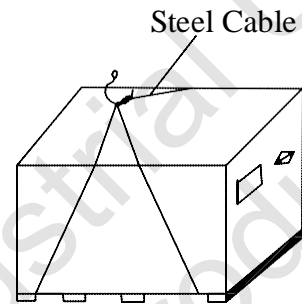
* THIS MACHINE HAS BEEN FULLY TESTED, ADJUSTED, AND INSPECTED FOR CORRECT ALIGNMENT AND OPERATION. PRIOR TO SHIPMENT, IN TRANSIT, OR INSTALLATION, PLEASE ENSURE THAT THE MACHINE IS NOT BUMPED WHEN BEING ROLLED OR SET DOWN TO AVOID ANY FAILURE.

A) Transit

By Fork Lift



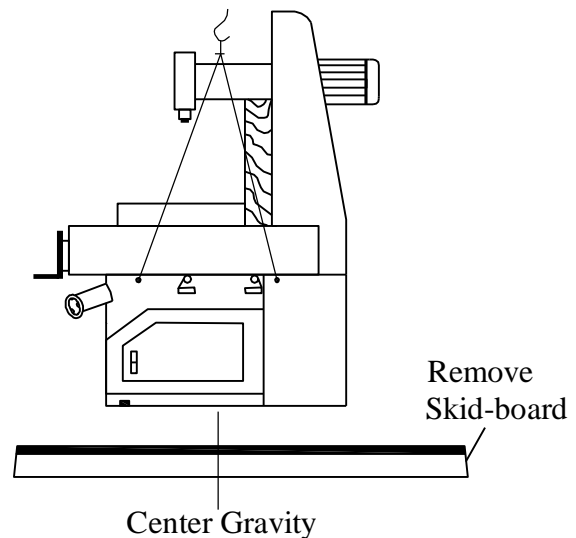
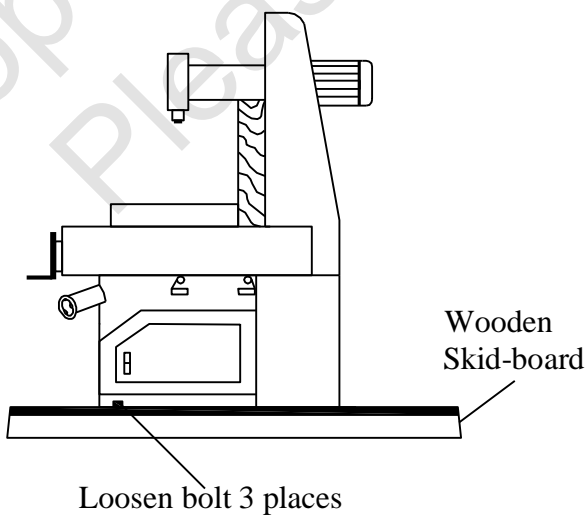
By Hoist or Chain Block



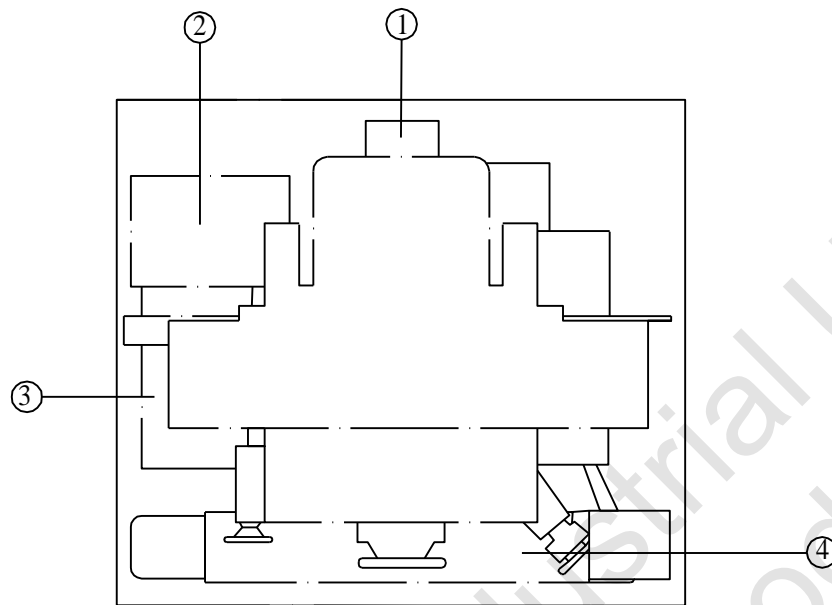
*Machine weight	KGS818	KGS1020
Net	1320kg	1680kg
Gross	1520kg	1930kg

B) Unpacking

1. When unpacking the crate, take apart the upper cover, then follow the sequence of front and rear board, left and right.
2. Do not use a hammer to break down the crate. Please use a nail puller or pry bar instead.
3. To avoid damaging the machine or paint, be more careful when removing the wooden covers.
4. Loosen the fixing screws before lifting the machine, then remove the skid-board.



(1) Packing Diagram



1. Machine
2. standard Accessories
3. Coolant Tank
4. Table and Splash Guard

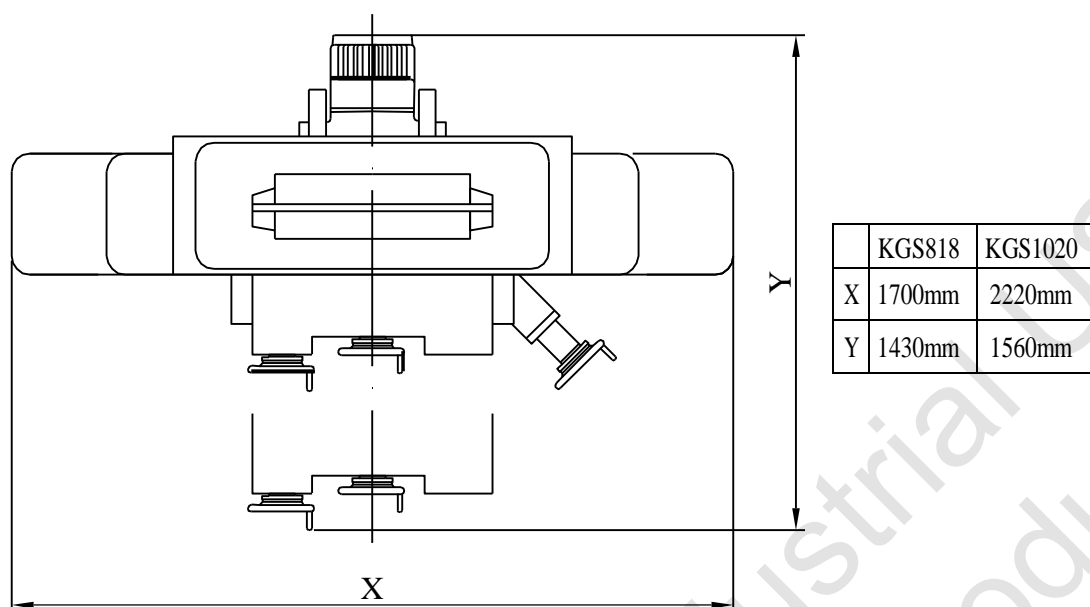
C) Choice of Site

The output of the machine and the degree of accuracy of the components produced depend on the correct choice of site for the position of the machine.

Grinding machines are often found between milling, shaping, drilling and even slotting machines, without any thought of the consequences of such planning.

In such cases, it is impossible to achieve good surface finishes, as the vibrations from the milling machine or jerks from the reversal of the shaper stroke, etc. are transmitted to the grinding machine. Chatter marks can be found on the ground surface, which are due to these extraneous influences. A non-solid floor is unsuitable for supporting the machine as it can result in distortion of the machine bed.

Floor plan:



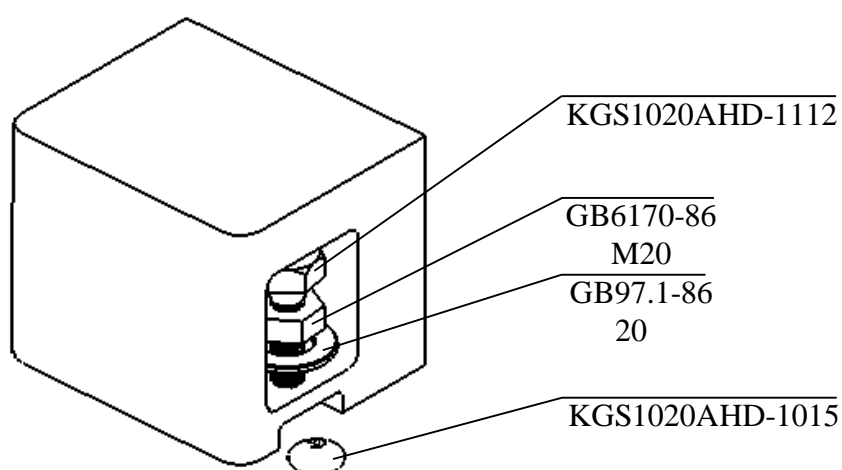
D) Installation

(1).Power Consumption

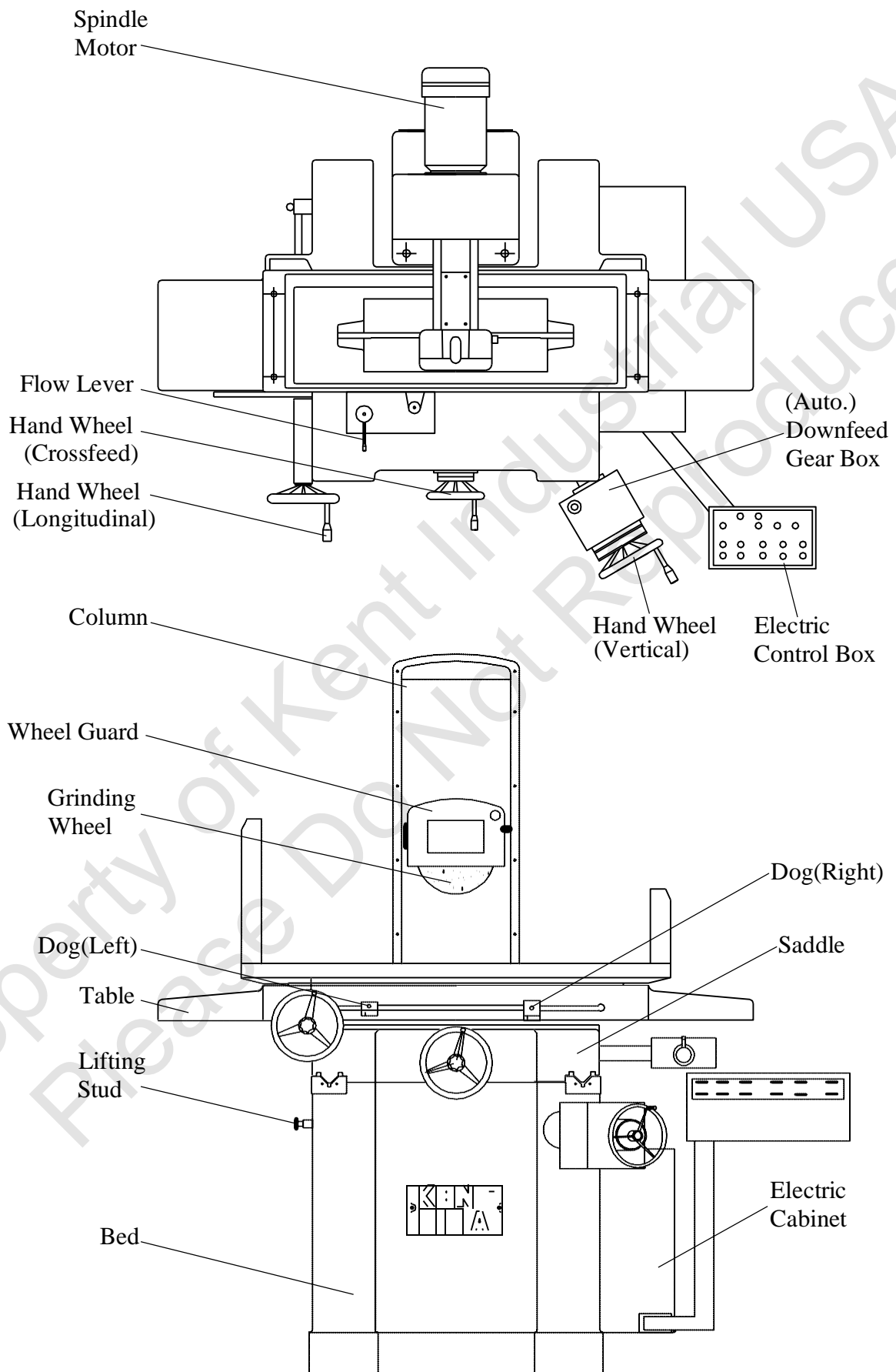
	Spindle Motor	Coolant Motor	Hydraulic Motor	Dust Collection Motor	Crossfeed Motor
KGS818AH/AHD	1.5KW	90W	1.5KW	550W	60W
KGS1020AH/AHD	2.2KW	90W	1.5KW	550W	60W

(2).Foundation (Use the leveling pads and screws)

- * Lower the machine slowly into position.
- * Insert the leveling pad into the hole of the machine base.
- * Adjust the leveling screws 1112 and make the machine leveled.

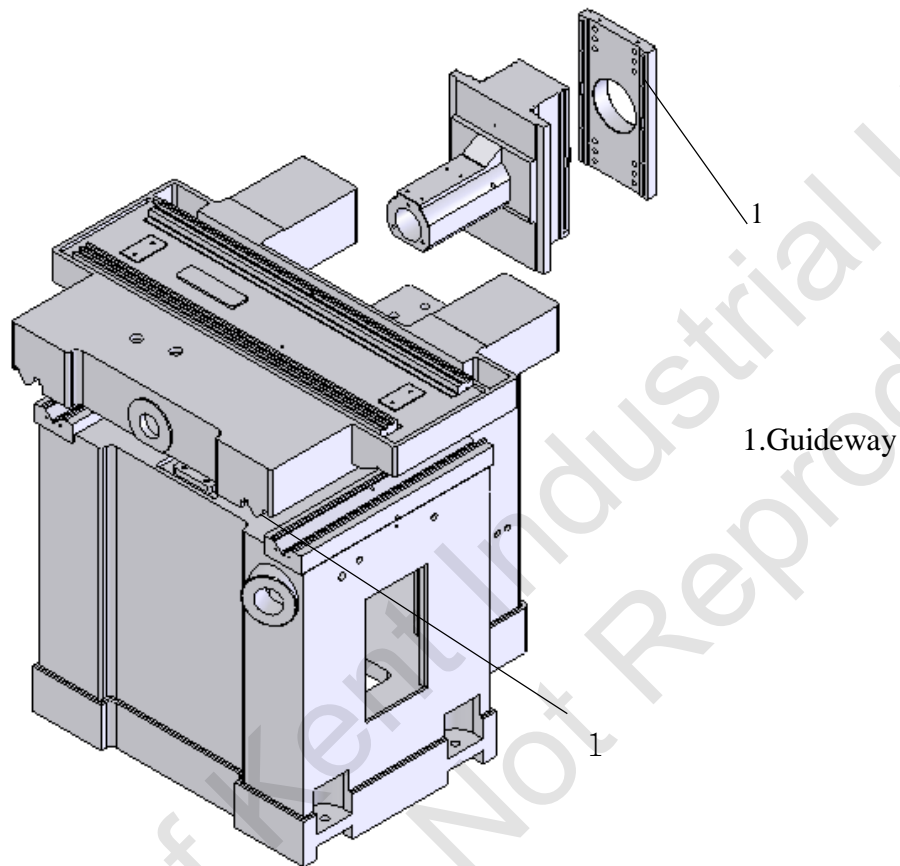


(3).Contour and Name of Components



(4).Cleaning Up the Machine

This machine has been ensured moisture-proof, dust-proof, and rust-proof before packing. Please cleanup the machine before moving the longitudinal cross and up & down, otherwise it will affect grinding accuracy.

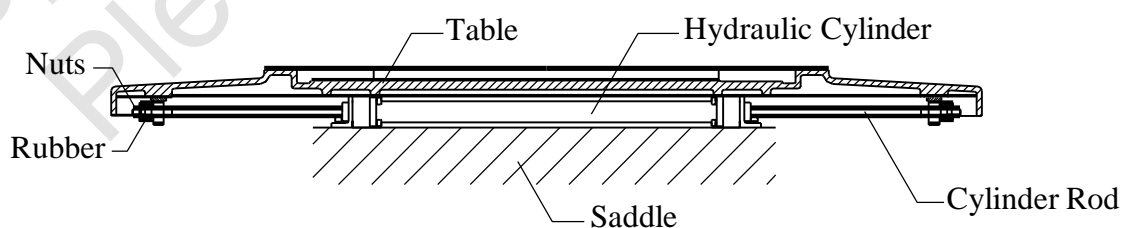


(5).Mounting the Table

a. Mounting the table

1. Put the steel ball and its retainers in the middle of slide ways.
2. Place the table on the steel ball retainers.
3. Install the hydraulic cylinder under the table as shown on the sketch below.

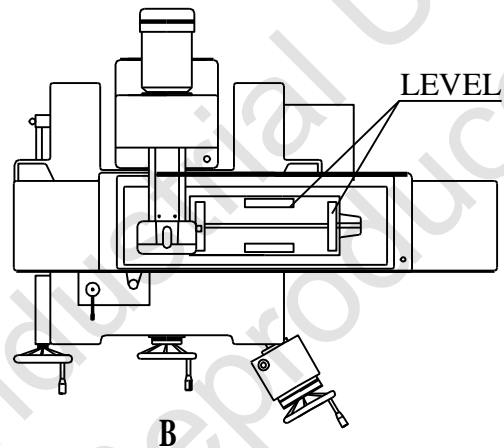
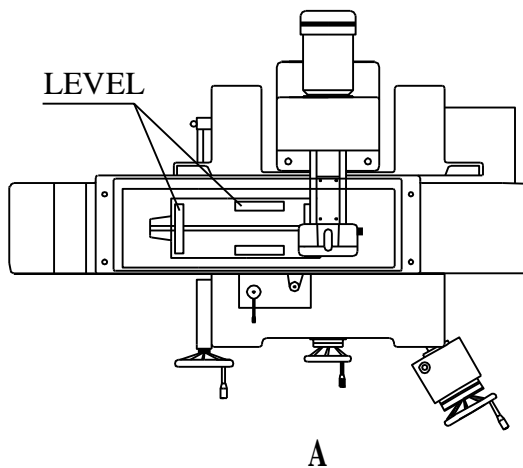
Note: Do not damage guideway, steel ball, or retainer.



(6).Leveling the Machine

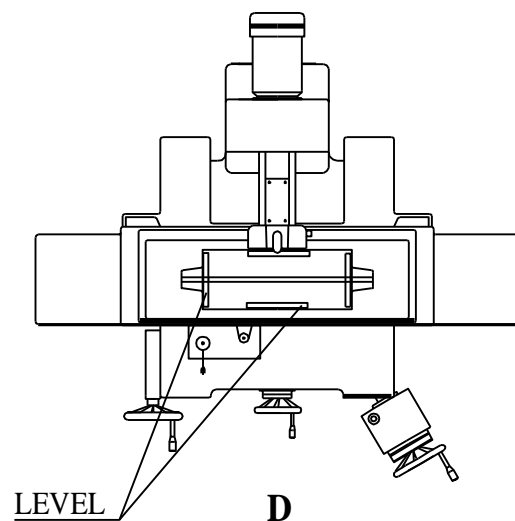
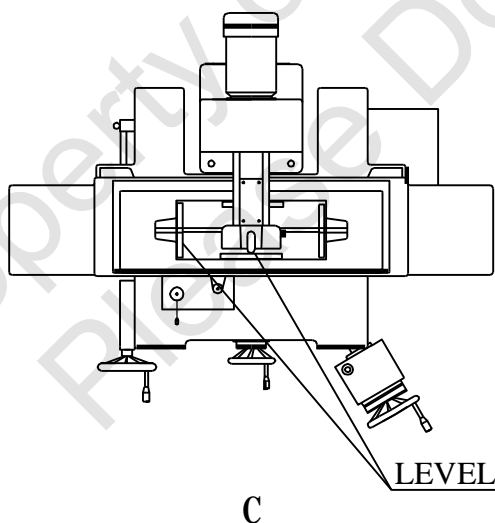
Procedure:

- a) Use longitudinal hand wheel to move table to the left end position. Level the machine by a Spirit Level in longitudinal and latitudinal direction (Fig.A).
- b) Use longitudinal hand wheel to move table to the right end position. Level the machine in the longitudinal and latitudinal direction (Fig.B).



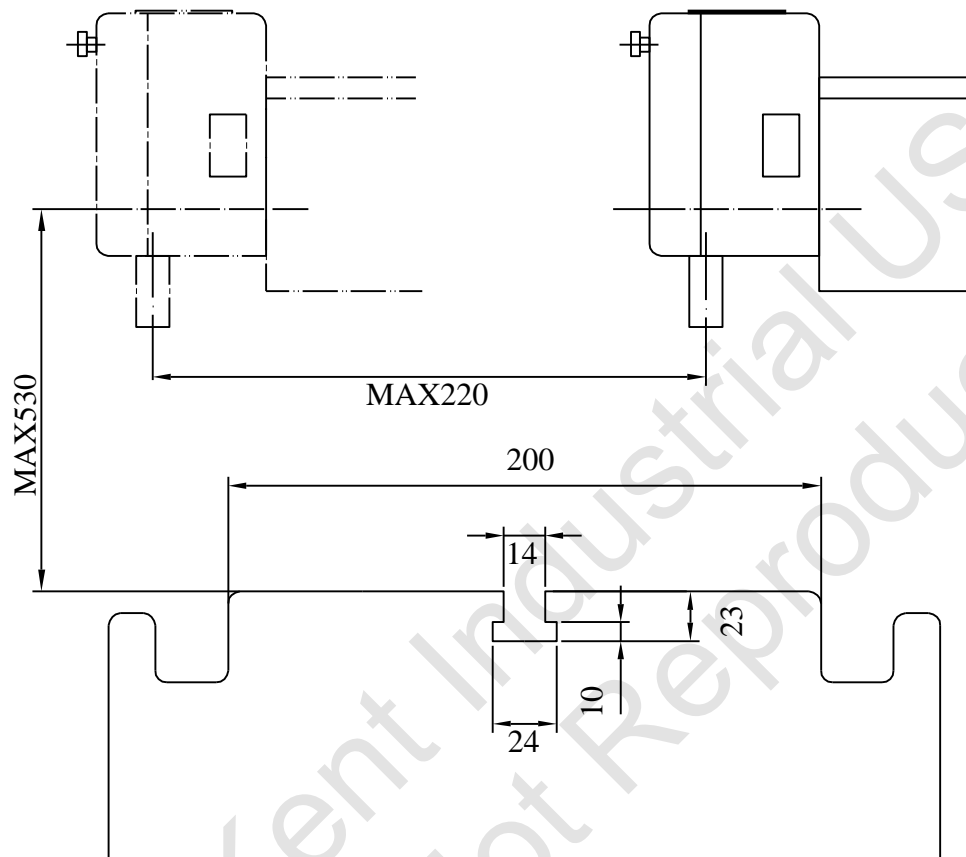
- c) Use cross-feed hand wheel to position the table at at front end position. Level the machine by a Spirit Level in longitudinal and latitudinal direction (Fig.C)

- d) Use cross-feed hand wheel to position the table at thr rear end position. Level the machine in the longitudinal and latitudinal direction (Fig.D)



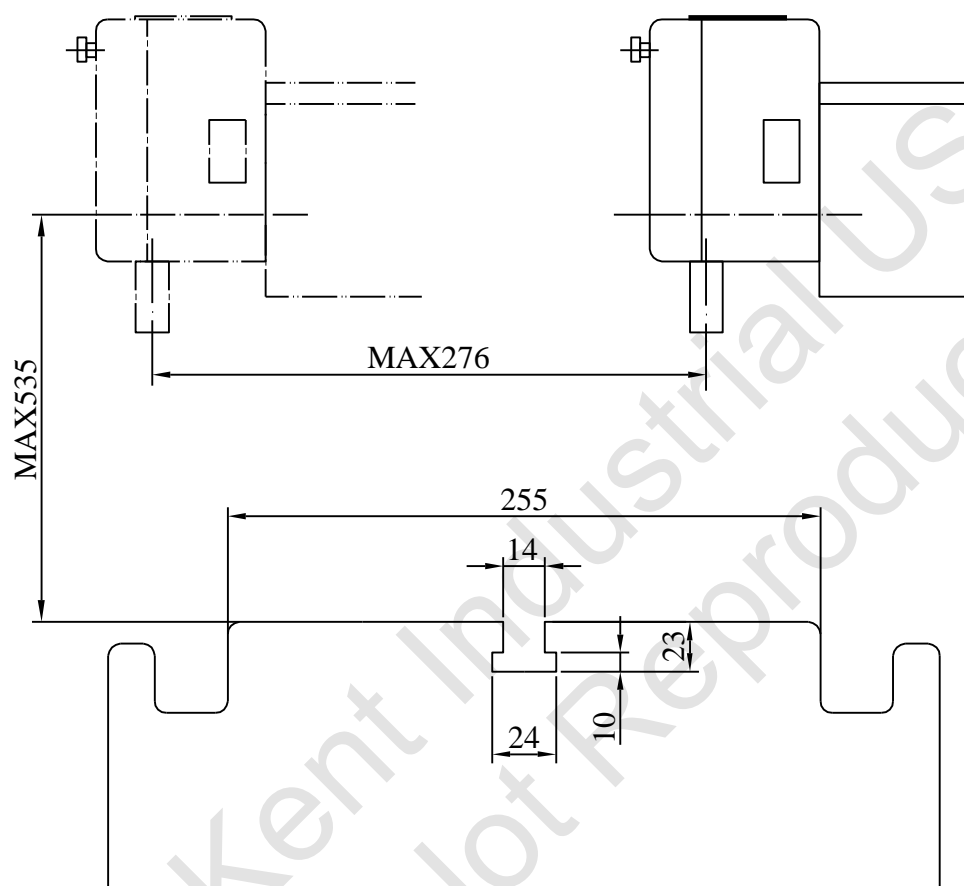
(7).Table size and movement scope

a.KGS818AH/AHD



SPECIFICATION		KGS818AH/AHD
Size of working table		200mm×460mm
Table traverse	Longitudinal traverse	510mm
	Cross traverse	250mm
Distance from spindle axis to table surface		70-530mm
Spindle vertical traverse		460mm
Wheel size		200mm×25mm×32mm
Spindle motor		2850r/min 50HZ
Overall dimension(L×W×H)		1570mm×1990mm×2120mm

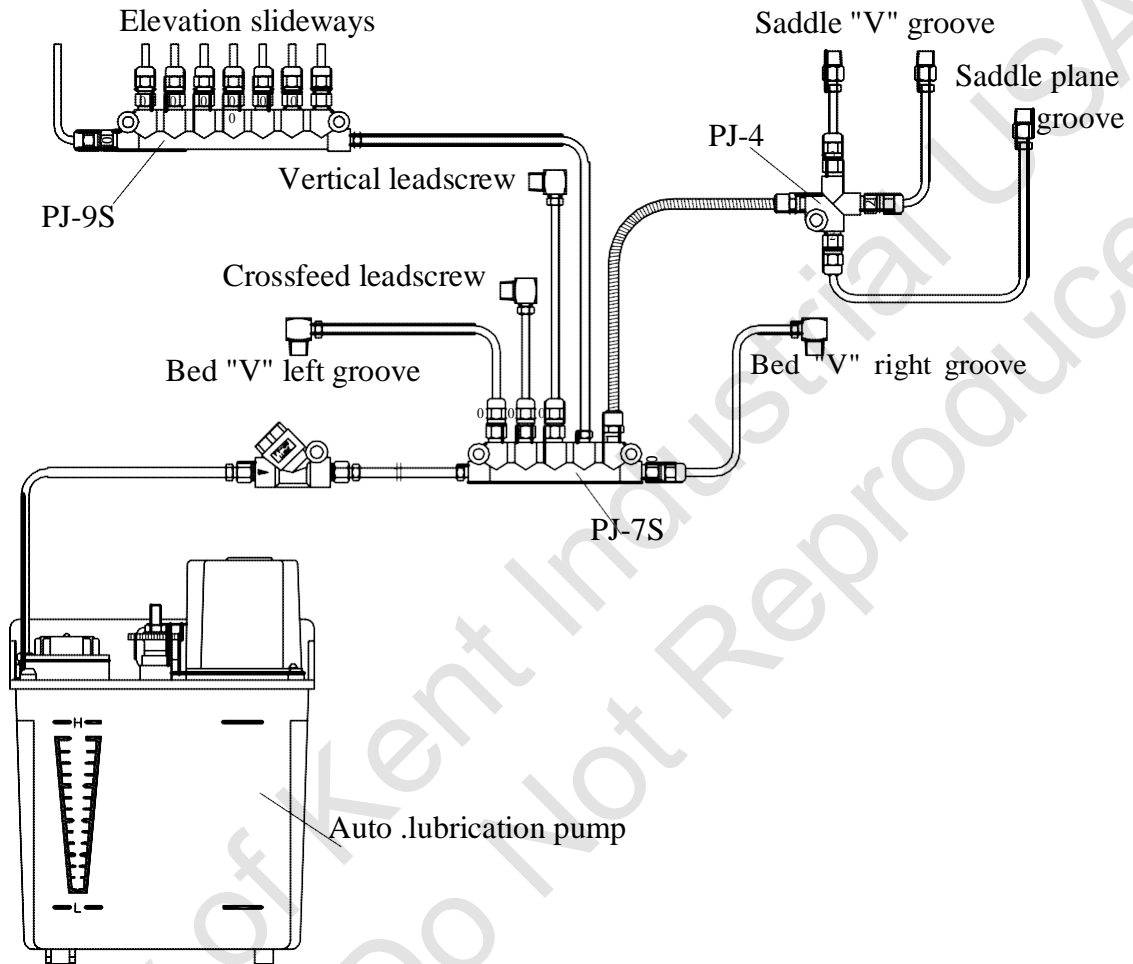
b.KGS1020AH/AHD



SPECIFICATION		KGS1020AH/AHD
Size of working table		250mm×510mm
Table traverse	Longitudinal traverse	575mm
	Cross traverse	280mm
Distance from spindle axis to table surface		70-535mm
Spindle vertical traverse		460mm
Wheel size		200mm×25mm×32mm
Spindle motor		2850r/min 50HZ
Overall dimension(L×W×H)		1680mm×2030mm×2110mm

(8).Lubrication

Lubrication Flow Chart



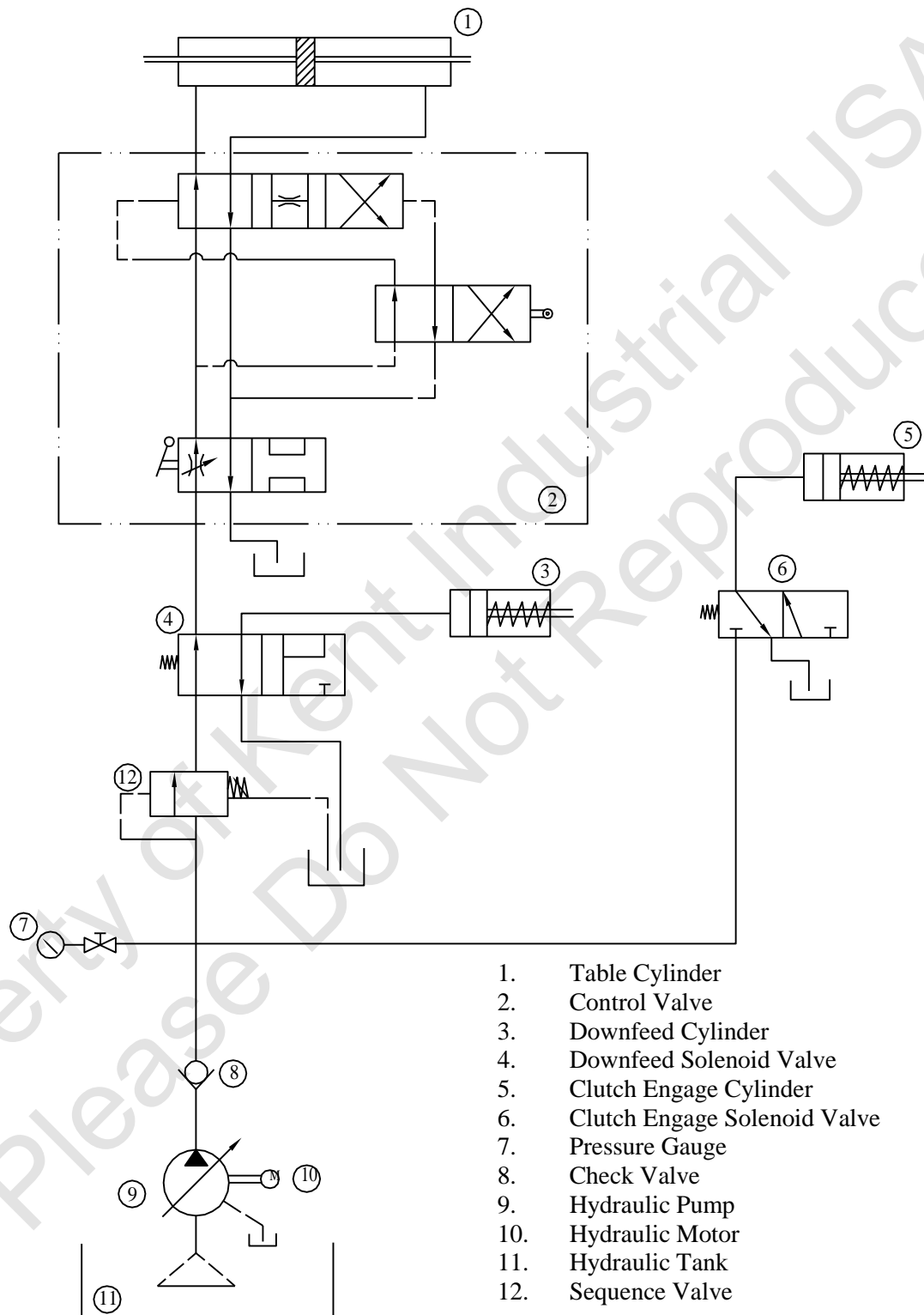
MMXL- III -6/5.5-AC220

Reliability and efficiency of the machine are ensured only by the correct choice of lubricant for the individual lubricating points.

- 1) Lubrication pump: Auto lubrication pump will work automatically and 2.5cc lube oil (adjustable) every 15 minutes.
- 2) Type of lubricant: BP, ESSO, MOBIL or SHEEL.
- 3) Lubricant tank: 1.8 liters.
- 4) Lubricating points: "V" base (2) Cross-feed lead-screw (1) Vertical lead-screw, gear

(9).Hydraulic System

a) **Hydraulic Diagram**



1. Table Cylinder
2. Control Valve
3. Downfeed Cylinder
4. Downfeed Solenoid Valve
5. Clutch Engage Cylinder
6. Clutch Engage Solenoid Valve
7. Pressure Gauge
8. Check Valve
9. Hydraulic Pump
10. Hydraulic Motor
11. Hydraulic Tank
12. Sequence Valve

b) Hydraulic Oil

Hydraulic tank volume: 51.3 liters

Re-fill frequency:

After the first month, clean the hydraulic tank and change the oil every six months.

Hydraulic oil:

CPC	BP	ESSO	MOBIL	MOBIL
R-68	ENGRGOL	ESSTIC 50	D.T.E OIL	SHELL
	HL100		Medium	Tellus oil 29
	4.5 E/50 C	4.7 E/50 C	3.93 E/50 C	4.0 /50 C
	33cst/50 C	35cst/50 C	28.9cst/50 C	29cst/50 C

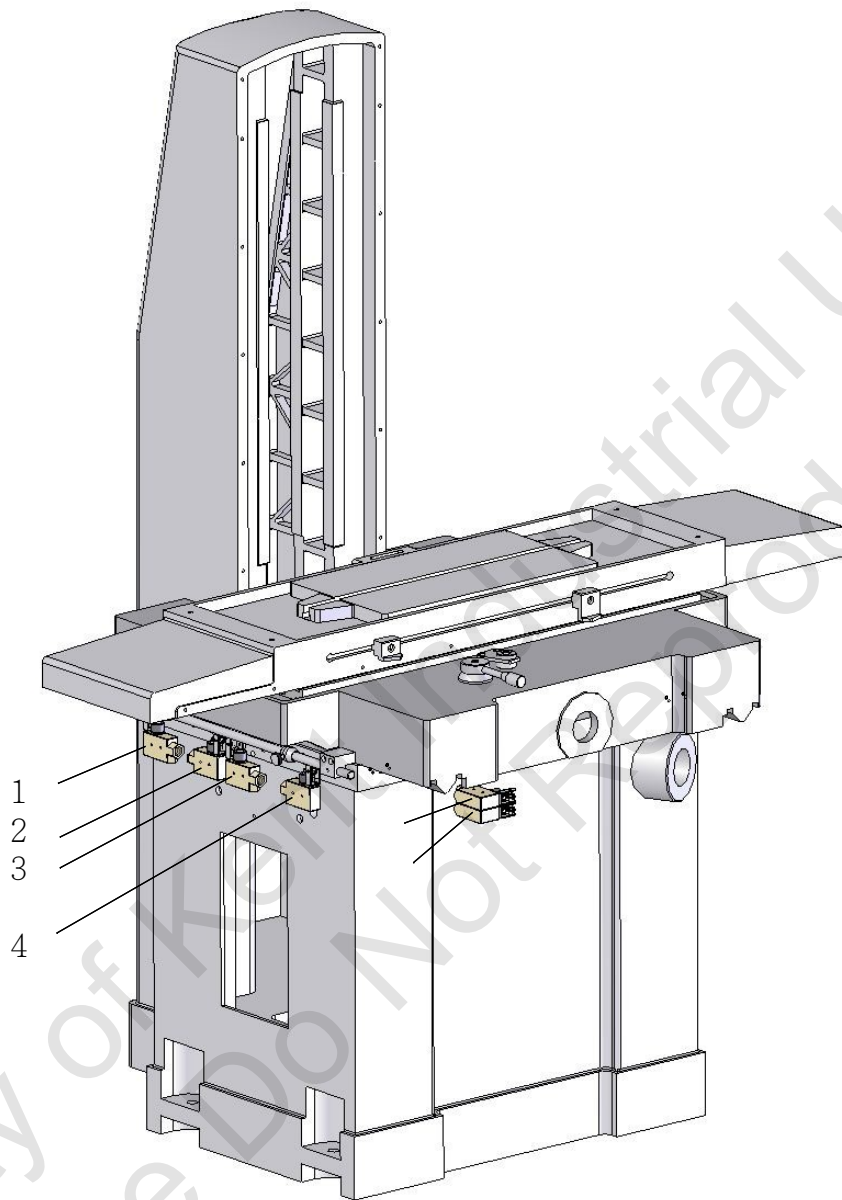
*Fill up the oil tank before starting the hydraulic motor.

*Please ensure that there are no people or objects within the range of the table movement before starting the longitudinal travel.

*Maximum hydraulic pressure: 22 kgs/cm².

*Filter must be cleaned when changing oil. If broken, the filter must be replaced.

(10) .Limit Switch Position



Description :

- (1) . Rear limit:SQ3
- (2) . Front limit:SQ2
- (3) . Rear reversal limit:SQ1
- (4) . Front reversal limit:SQ4
- (5) . Auto.down feed switch:SQ5
- (6) . Auto.cross feed switch:SQ6

For above-mentioned cord no.,please refer to Circuit Diagram.

(11).Balancing the Grinding Wheel

Efficient balancing is essential in eliminating unnecessary stress in the wheel. It can also help obtain high quality surface finishes, grinding accuracy, and extend the life of the grinding wheel. In this case, the grinding wheel has to be balanced carefully. Static balancing can better meet the requirements of machining.

The grinding wheel together with the wheel flange is fitted to balance the arbor and this assembly is then placed on two accurate parallel knife edges of the wheel balancing base, and balancing can be effected as follows: (see Fig.2).

- The wheel balancing base must be leveled (Fig.1)
- Allow the wheel to oscillate to find the center of gravity, which is then marked "S" with chalk (Fig.3)
- Apply the first balancing weight "G" opposite to this point "S" and screw it in. It cannot be moved again (Fig.4)
- Place two correction weight "K" anywhere around the periphery, but at equal distance "a" from weight "G" (Fig 5)
- Turn the wheel 90° at a time and see if it is balanced. If it is not, the correction weight "K" must be moved until the wheel is balanced in any position (Fig. 6)
- After balancing, the wheel must be given a test run of at least five minutes at full working speed before being used or fine balanced.

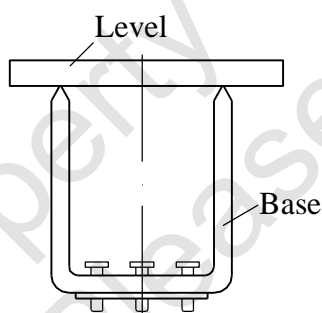


Fig.1

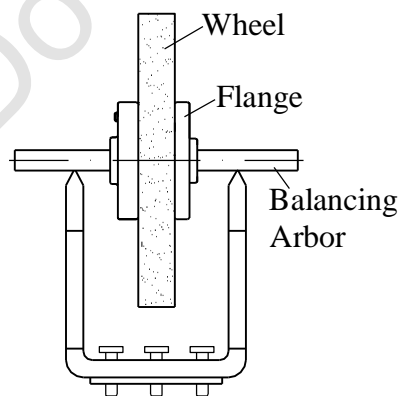


Fig.2

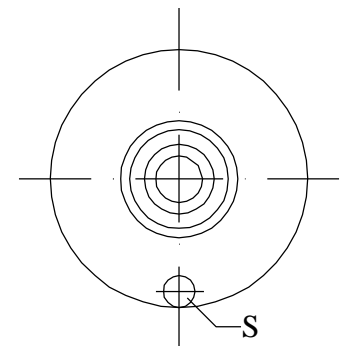


Fig.3

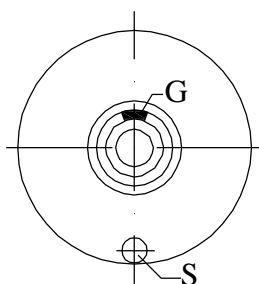


Fig.4

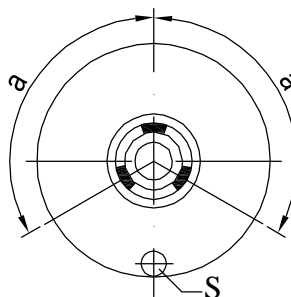


Fig.5

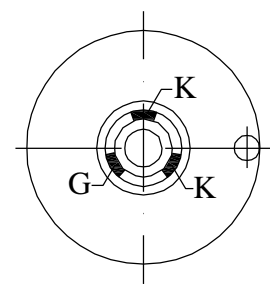


Fig.6

After being balanced for the first time, the wheel must be mounted on the grinding spindle of the machine and dressed. This can be done with the parallel dresser on the spindle carrier or with one fitted on the table. When dressing the wheel from the table, the table must be locked longitudinally and then cross-traversed with the hand-wheel. The wheel must be dressed until it runs dead true. The grinding finish is improved, if any part of the wheel is out-of-truth in the side walls, the wheel is also removed.

After this first balancing, the wheel must be removed from the spindle again and then carefully re-dressed. After being fitted to the spindle again and re-dressed, it is ready for use.

As wear can lead to unbalance, the wheel should be re-checked and if necessary, rebalanced.

Grinding wheel absorbs humidity and coolant, it is therefore advisable not to short the coolant supply when the wheel is stationary, otherwise the wheel will absorb liquid on one side only and will then be out of balance. If the wheel is allowed to stand for any length of time, coolant will collect at the lowest point. Idling is essential to throw-off coolant by centrifugal force.

Prior to placing the flange-mounted grinding wheel to the spindle, the flange bore and spindle taper must be absolutely clean, and the wheel is pushed by hand onto the spindle.

Subsequently, tighten the wheel flange securely with a fixed bolt or nut.(Fig.7 or Fig.9)

Use an extractor to release the wheel flange from spindle taper. (Fig.8 or Fig.10)

General type spindle:

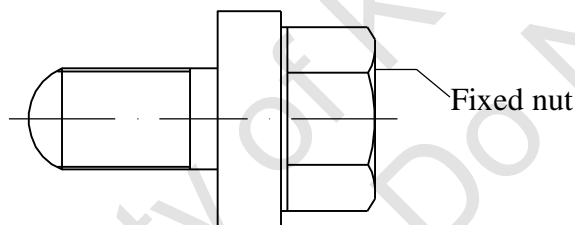


Fig.7

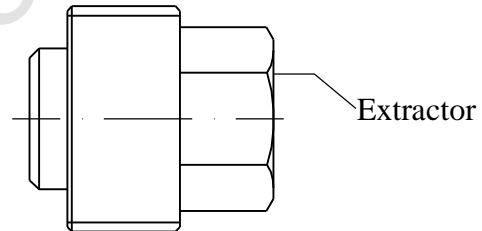


Fig.8

American type spindle:

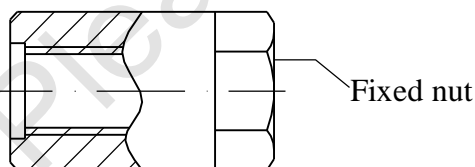


Fig.9

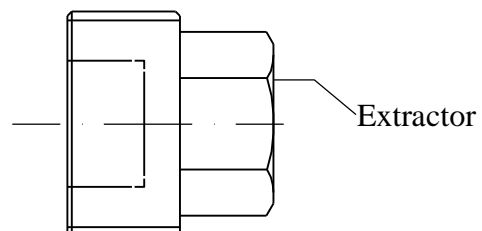


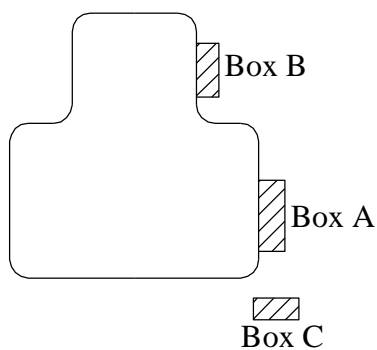
Fig.10

*If various materials have to be grounded, so that the wheel has to be changed frequently, it is more advantageous to change the wheel completely with a flange. It would save you time from removing the wheel from its mount each time to re-balance and re-dress it.

E) Putting The Machine Into Operation

(1).Wiring of power source

Be sure that the wire connection is same as your power source before you power "ON" the machine.

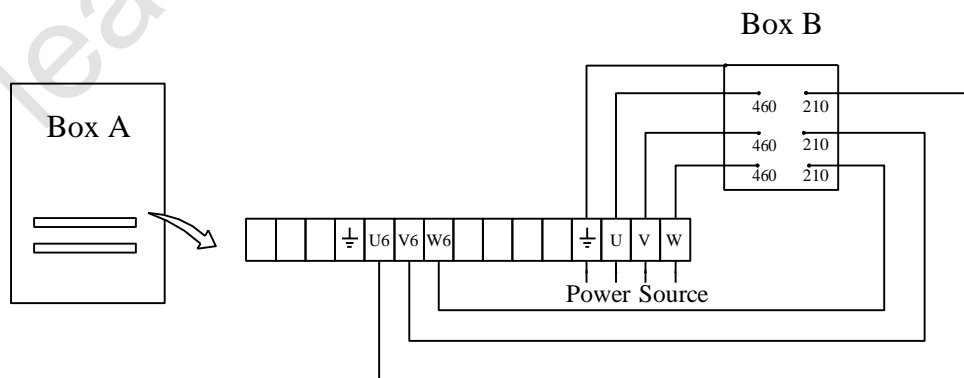


Box A: Electric cabinet
 Box B: Three-phase transformer for:
 1. Cross motor
 2. Solenoid valve
 3. Electromagnetic chuck
 4. Auto lubrication pump
 Box C: Control panel and control circuit

Attention: Following motors must be wired in accordance with power source voltage.

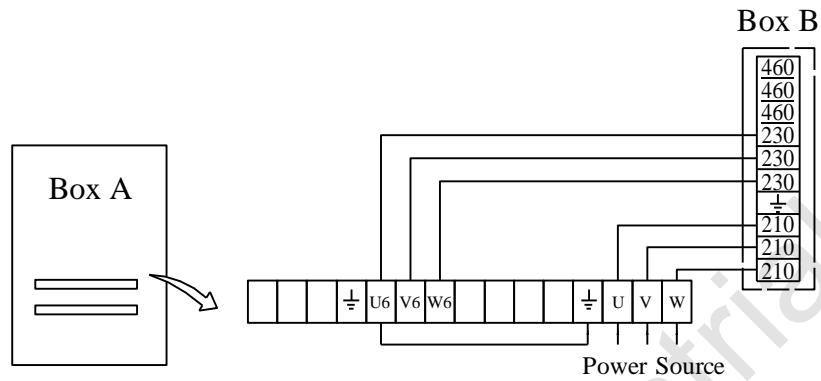
1. Spindle motor
2. Hydraulic motor
3. Coolant or dust-collector motor (Optional accessory)

a. For 440V power source:

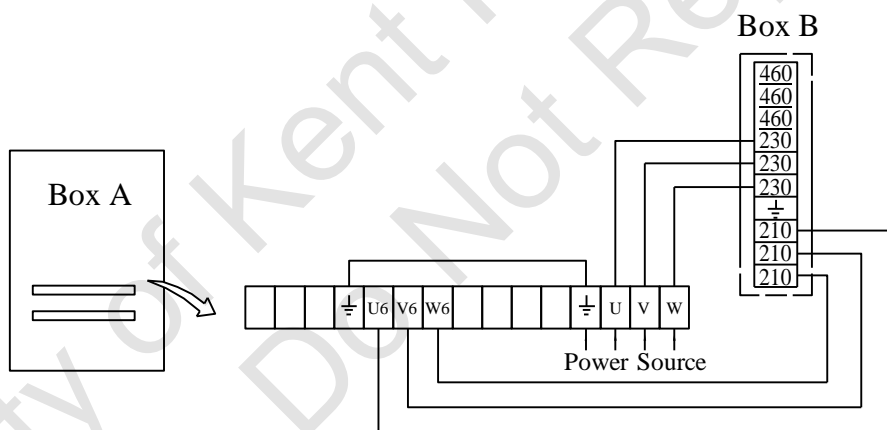


b. For U.S.A area:

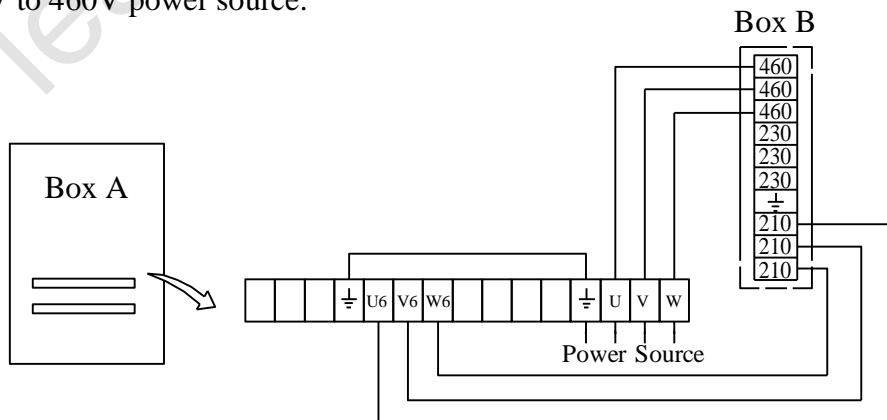
200V to 220V power source:



220V to 240V power source:

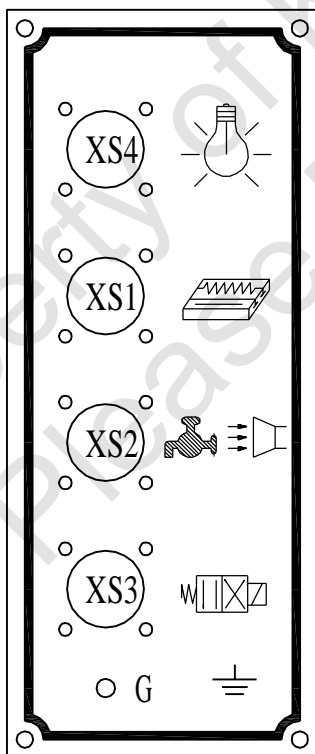
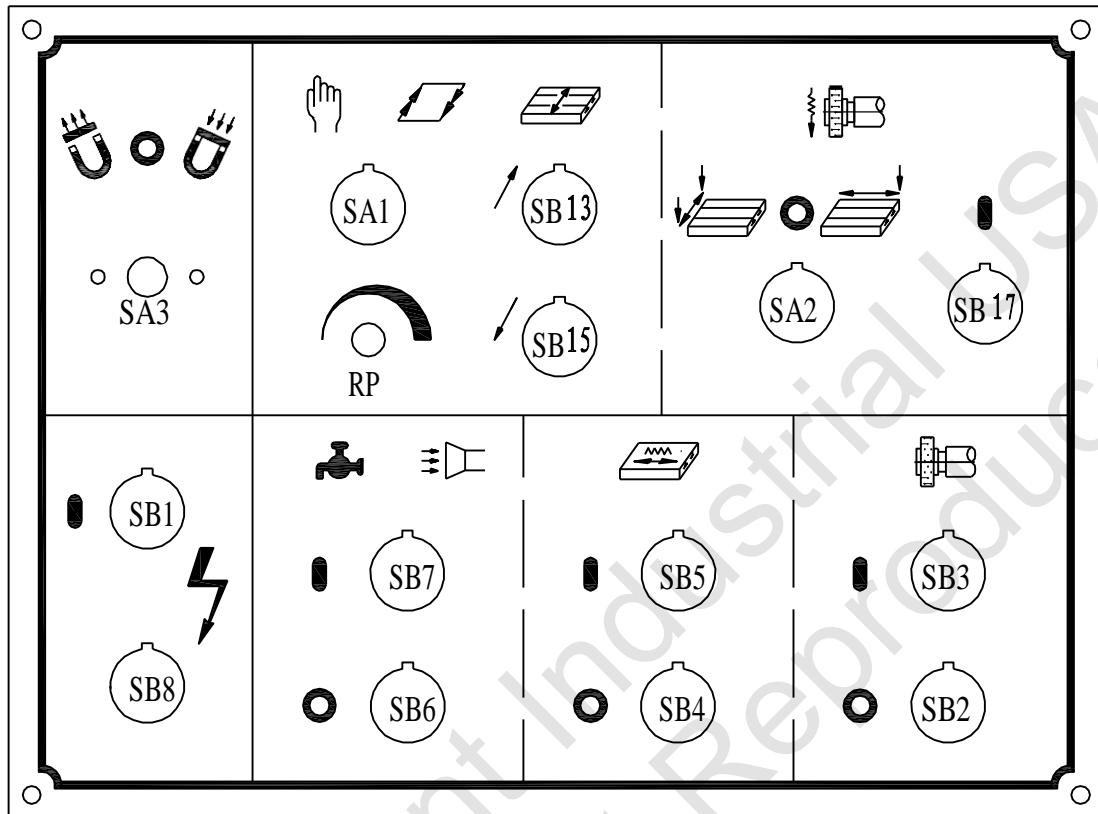


440V to 460V power source:

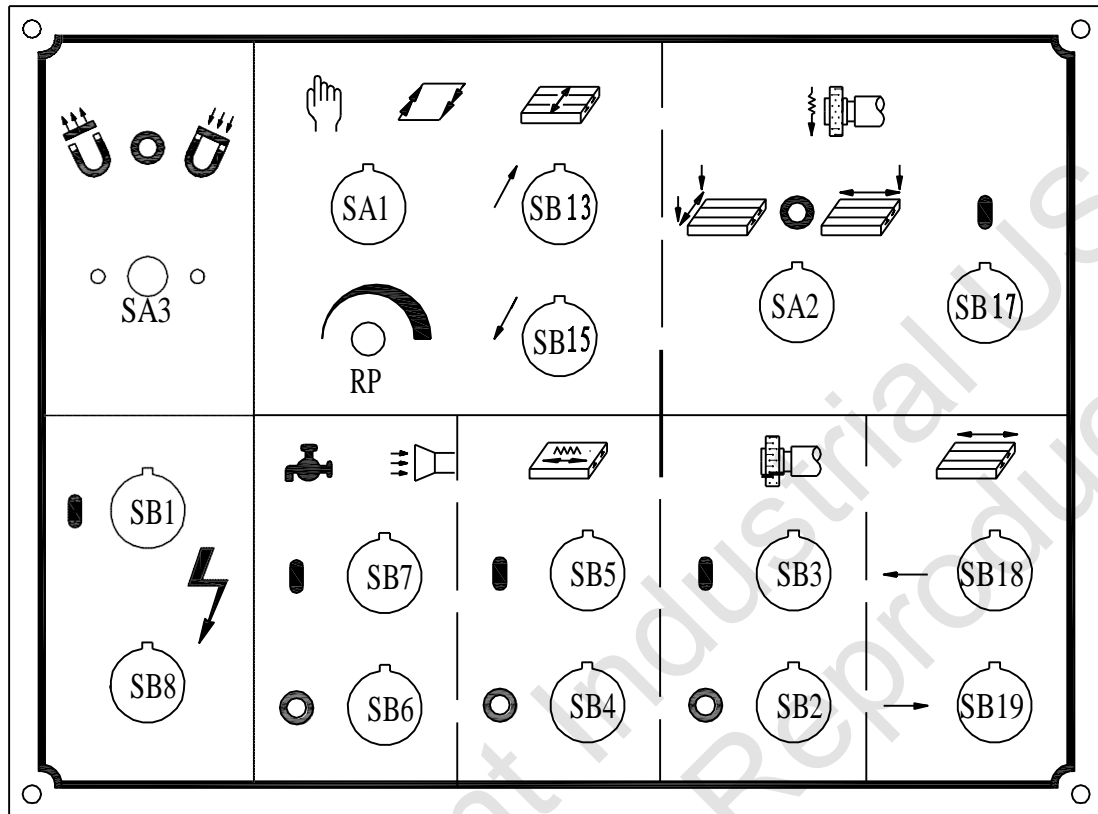


(2).Control Panel &Description

a.KGS1020AH/AHD



- SB1: Power"ON"
- SB2: Grinding wheel spindle "OFF"
- SB3: Grinding wheel spindle "ON"
- SB4: Hydraulic motor "OFF"
- SB5: Hydraulic motor "ON"
- SB6: Coolant motor "OFF"
- SB7: Coolant motor "ON"
- SB8: Emergency pushbutton
- SB13:Crossfeed away from operator "ON"
- SB15:Crossfeed approach to operator "ON"
- SB17:Auto.doenfeed "ON"
- SA1: Selector-switch of auto./man. crossfeed
- SA2: Selector-switch of surface/plunge grinding
- SA3: Selector-switch of Electro-magnetic chuck
- RP: Variable resistant for crossfeed incremental control
- XS4: Socket for lighting circuit
- XS1: Socket for hydraulic pump power source
- XS2: Socket for coolant pump power source
- XS3: Socket for auto.downfeed solenoid valve power source



SB1: Power"ON"

SB2: Grinding wheel spindle "OFF"

SB3: Grinding wheel spindle "ON"

SB4: Hydraulic motor "OFF"

SB5: Hydraulic motor "ON"

SB6: Coolant motor "OFF"

SB7: Coolant motor "ON"

SB8: Emergency pushbutton

SB13:Crossfeed away from operator "ON"

SB15:Crossfeed approach to operator "ON"

SB17:Auto.doenfeed "ON"

SB18:Table move to left

SB19:Table move to right

SA1: Selector-switch of auto./man. crossfeed

SA2: Selector-switch of surface/plunge grinding

SA3: Selector-switch of Electro-magnetic chuck

RP: Variable resistant for crossfeed
incremental control

(3) Operation

a. Before operation

It's only after the following instructions have been fully complied with that the machine can be started:

1. Choice of a location free from vibration.
2. Clean up the machine of those anti-rust oil and grease.
3. Installation of the machine according to lubrication instruction.
4. Lubrication of the machine according to lubrication instruction.
5. Check the spindle(wheel) rotation direction, must be clockwise. Please take off the wheel prior to starting the spindle or it will cause danger if it rotates counter-clockwise.
6. Fill the hydraulic tank with suitable oil.
7. Hydraulic cylinder must be sealed.
8. Adjust the trip dog of the table. The longitudinal trip dog is located on the front side of table. The distance can be adjusted by loosening the screw, sliding the trip dog and fastening the screw again.
9. Caution: Please check that your power source can meet the required capacity of the machine.

b.Operation

1) Power ON & OFF

1. Press "QF" power switch.
2. Press SB1,the electric control box is ready.
3. Press SB8 to cut off power. Re-set SB8 for power "ON".

2) Table longitudinal travel

1. Press SB5 to start hydraulic motor.
2. Turn the flow control lever clockwise until table moves slowly, when it turns 90° it gets the max table speed.
3. If the table starts jerking, there is air in the hydraulic section of the table and it should be operated at max travel reciprocally.

3).Cross travel

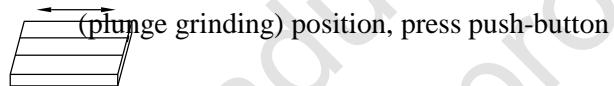
1.Turn SA1 to left, press SB13, saddle moves away from operator continuously; press SB15, saddle moves close to operator continuously. This function is only effective when SA1 is in left position (surface grinding), it can't start in right position for vertical feed grinding.

2.Turn SA1 to right, press SB15 or SB13 and release, adjust RP, the saddle feeds automatically when surface grinding. By adjusting trip dog to change its direction when SA1 changes to left, this function can be interrupted at once. The cross-feed distance can be changed by setting the distance of trip dogs' located on the left side of the machine base.

3.In addition, there are two limit switches on the left side of machine base to limit the maximum cross travel of the saddle. They are also used as a safety device in case of an accident when cross-feed mechanism fails.

4).Automatic downfeed control

1. Turn selector switch SA2 on



SB17 then grinding wheel will auto down-feed when table longitudinal traverse at left end;

turn selector switch SA2 on



(surface grinding) position, press

push-button SB17 then grinding wheel will auto down-feed when table longitudinal traverse at left end; turn selector switch SA2 on (surface grinding) position, press SB17, then grinding wheel will auto down-feed at both ends of cross-feed travel; turn

selector switch SA2 on

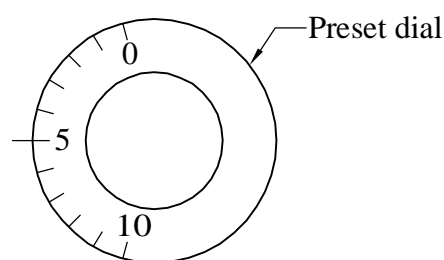
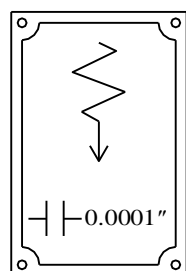


position, grinding wheel will stop auto down-feed.

2. Down-feed increment can be preset by preset dial at

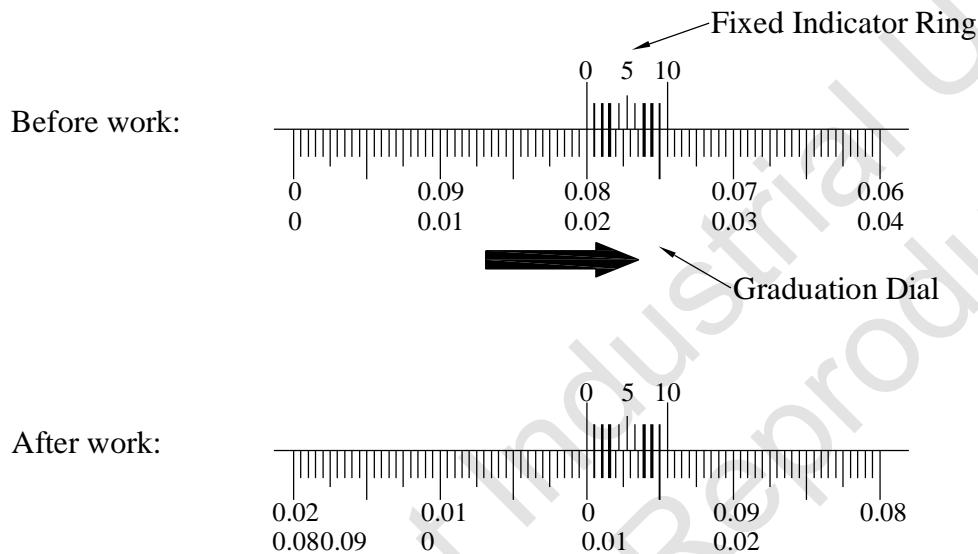
0.0001,0.0002,0.0003,0.0004,0.0005,0.0006,0.0007,0.0008,0.0009,0.001 inch,10 steps.

Figure below is a down-feed increment to be set at 0.0005 inch.



3. For instance, total work piece down-feed removal is 0.02", and auto down-feed increment is to be set at 0.001":

Loosen the set-screw on the graduation dial and turn the dial to let the Scale "0.08" aim at the mark "0" on the fixed indicator ring. (1 revolution of down-feed hand wheel is 0.1" minus total removal 0.02" leaves 0.08") After auto down-feed 20 times at each time 0.001" ($0.001" \times 20 = 0.02"$), the mark "0" of graduation dial will meet "0" of fixed indicator ring and auto down-feed stops.



4. Press SB2, spindle stops running. Press SB4, table longitudinal travel will stop.

Caution: Don't push the auto down-feed button while the table is traveling close to the right end (or when the left stop dog is approaching the direction control arm). The Cylinder might be hit at its left end, especially when the longitudinal traverse is at its maximum distance.

The best time to push the auto down-feed button:

When the direction control arm is near the middle range of the two dogs.

(5) Coolant system (optional accessory)

- Press SB7 to start coolant pump.
- Adjust valve to get suitable coolant pump.

F) Grinding

The grinding results obtained depend to a very large degree on the choice of the correct grinding wheel and suitable operation.

(1) Stock removal efficiency

For intensive stock removal, a coarse grain (about 30-36) should be used. The wheel is dressed by passing the diamond over quickly so that the surface of the wheel is roughed and bites well.

(2) Surface finish required If fine finish is to be produced, a finer grain wheel is required (40-80). The diamond in this case is passed slowly over the wheel to break up the grain.

(3) Distortion of the workpiece

If the workpiece shows too much distortion when being ground, this means that the stock removal was too great and the longitudinal and cross movements of the table were too slow, or the grinding wheel is "clogged".

(4) Undesirable burns and grinding cracks If burn marks and grinding cracks appear, this means that the wheel is too hard, or the wheel is "clogged".

G) Wheel Inspection

It is absolutely essential to fully comply with the following safety rules.

These are intended to protect the operator against danger.

Wheel inspection and fitting:

Prior to fitting any grinding wheel, it should always be tested. Sounding the wheel is a generally accepted test method. The wheel should be suspended from a mandrel secured to its bore and should then be lightly sounded with a wooden hammer. Even wheels with hair cracks not visible with the bare eye will produce a distorted sound in comparison with a perfect wheel where the sound is clear. Defective grinding wheel must not be used.

There are two pieces of paper washer on both faces of the wheel, which serve as plastic packing between the wheel and mounting flange.

The packing washer must not be removed. When mounting the wheel, it should slide onto the flange easily by hand without the need for force. The wheel flange must be absolutely clean, especially on the clamping and location surface in the spindle bore and thread.

H) Dressing The Wheel And Correct Treatment Of Dressing Diamond

The diamond is inserted in the dressing device. The sleeve of the device is arranged at an angle of about 5° , so that, when the diamond loses its keenness, it can be turned in the sleeve, along with its holder, thus ensuring that there is always a sharp diamond edge available. Various degrees of roughness can be produced in the ground component by varying the speed at which the diamond is passed over the grinding wheel.

If there is only about 0.2mm to 0.3mm stock removal, it is advisable to roughen the grinding wheel. This is done by feeding the diamond in about 0.03mm and turning the hand-wheel rapidly, so that the dressing diamond moves quickly over the wheel. This makes the wheel bite well and the stock removal is good.

If the component is to be finish ground to size with the same grinding wheel, the wheel must be dressed again, this time slowly in two or three passes, with the diamond fed in only about 0.01mm.

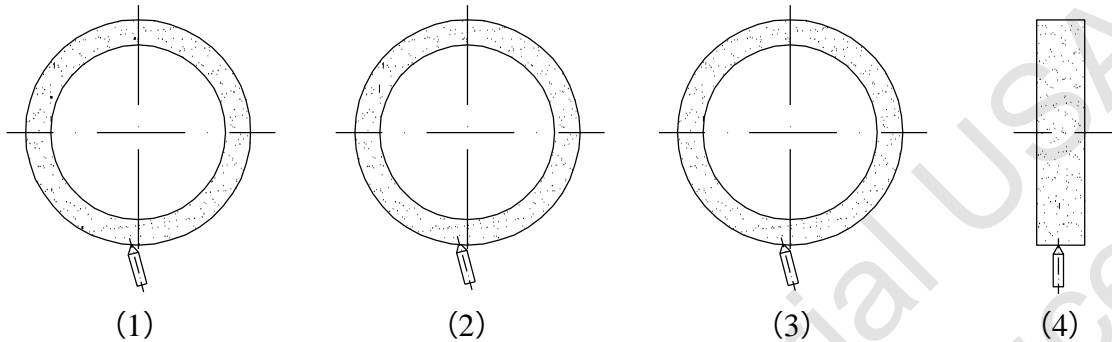
Frequent light dressing is better for life of the grinding wheel and the diamond than a heavy cut.

When dressing, the diamond should always be cooled, if possible, but sudden cooling is dangerous, as it can lead to the diamond being split.

As the diamond is very brittle because of its extraordinary hardness and sensitivity to even the slightest knock, it cracks easily.

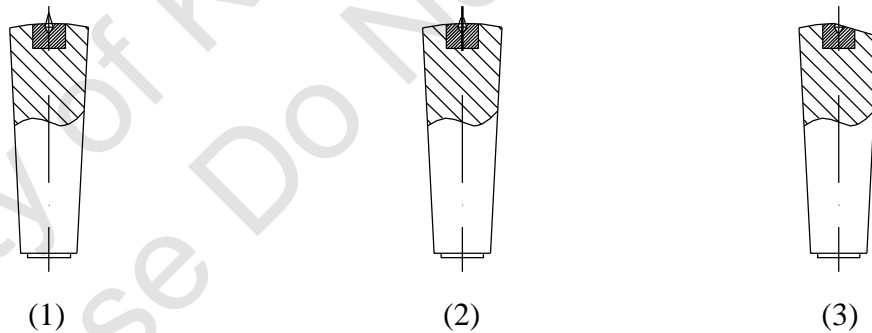
When dressing, begin in the center as the edges are usually worn down more. If dressing is begun at the worn edges, there is danger of the higher pressure in the center over stressing the diamond and shattering it.

Experience has shown that with highly accurate grinding, dressing with the hand operated dressing device on the spindle carrier is inadequate. The hand operation causes slight undulations to the surface of the wheel.



- (1) The new diamond is inclined at the correct angle to the wheel.
- (2) As a face has formed on the diamond, it must be turned about its axis.
- (3) The new point acts like a new diamond again.
- (4) Begin in the middle of the width.

After a certain time, the diamond must be changed in its holder. It must be reset to ensure economical operation. This resetting should be under taken in time before any of the holder itself has been ground off. Firstly, there is the risk of breaking the diamond off and losing it. Secondly, there is risking it being too small to be reset. This is really false economy.



- (1) The new diamond.
- (2) The diamond needs to be reset at this point.
- (3) Too late. The diamond can no longer be reset, as it has no more holder. Resetting should be done by specialists only.

I) Storage of Grinding Wheel

The wheels should be kept in special racks in a dry place and must be protected from knocks and jolts, especially when they are being transported.

As a rule, they should be stood on edge, but thin wheels and wheels with a sharp edge must be laid flat on an even surface.

Grinding wheels must not be allowed to come into contact with oil or grease. An oil soaked wheel loses its bite and its application is very limited.

J) Selection of Suitable Grinding Wheels

Grinding wheel markings: For instance WA 46K8V

WA: Kind of abrasive

46: Grain size

K: Grade

8: Structure

V: Bond type

(a).Kinds of abrasive

A: For common steel grinding

WA: For higher hardness material grinding, such as heat-treated steel, alloy steel, etc.

H: Suitable for higher hardness material, particularly high speed steel

C: For cast iron and non-ferrous grinding

GC: For super hard grinding such as tungsten carbide steel

(b).Grain size

Coarse:10,12,14,16,20,24

Medium:30,36,46,54,60

Fine:70,80,90,100,120,150,180

Grinding condition	Grade	Coarse	Fine
Feed increment		much	little
Surface roughness		coarse	fine
Works hardness		soft	hard
Surface contacted		wide	narrow
Dia. of the wheel		big	small

(c) Grade: It indicates the strength of the bond which hold abrasiveness.

Soft: A to H

Medium: I to P

Hard: Q to Z

Grinding condition	Grade	Soft	Hard
Workpiece hardness		hard	soft
Surface contacted		wide	narrow
Movement of work		slow	quick
Wheel speed		quick	slow

(d) Structure: The structure number of a wheel refers to the relative spacing of the grains of abrasiveness; the larger the number, the wider the grain spacing.

Close:0,1,2,3,4,5

Medium:6,7,8,9

Loose:10,11,12

Grinding condition	Grade	Loose	Close
Surface roughness		coarse	fine
Surface contacted		wide	narrow
Workpiece hardness		soft	hard

(e).Bond

V:vitrified,
S:silicate,
B:Besinoid,
R:Rubber,
E:shellac.

K) Wheel to Be Recommended

Wheel diameter Material be ground		Under 205mm	205 to 355mm
Carbon steel	Under HRC25°	WA 46K A	WA 46J A
	Above HRC25°	WA 46J	WA 46I
Alloy steel	Under HRC55°	SA 46J WA	SA 46I WA
	Above HRC55°	SA 46H WA	SA 46G WA
Tool steel	Under HRC60°	SA 46I WA	SA 46H WA
	Above HRC60°	SA 46H WA	SA 46H WA
Stainless steel		SA 46I WA	SA 46H WA
Cast iron		C 46J	C 46I
Brass		C 30J	C 30I
Aluminum alloy		C 30J	C 30I
Tungsten Carbide		GC 60H-100I	GC 60H-100I
Cast iron		C 60K	C 60K
Marble		C 36M GC	C 36M GC

L) Choice of The Grinding Condition

(1).Down feed of grinding wheel

Work material Finish	Down feed			Cross feed
	Cast iron,Soft steel ,Hardened steel	Stainless & Heat Resistant steel	Tool steel	
Fine	0.0002-0.0004" 0.005-0.01mm		0.0002-0.0006" 0.005-0.015mm	under 1/4 of wheel thick- ness
Rough	0.0006-0.0012" 0.015-0.03mm	0.0008-0.0012" 0.02-0.03mm	0.0008-0.0012" 0.02-0.03mm	under 1/2 of wheel thick- ness

Down feed	Great	Small
Grinding resistance	great	small
Heat produced	much	less
Surface finish	rough	fine
Wheel worn out	much	little

(2).Cross feed

Cross feed	Great	Small
Grinding resistance	great	small
Heat produced	much	less
Surface finish	rough	fine
Wheel worn out	much	little

(3).Longitudinal feed

Table traverse	Quick	Slow
Grinding resistance	great	small
Heat produced	less	much
Surface finish	rough	fine
Wheel worn out	much	little

Suitable speed of the table traverse

Workpiece material	Soft steel	Heat treated steel	Tool steel	Cast iron
Speed:m/min	6-15	20-25	6-25	16-20

(4).Range of spindle speed:1200-1800m/min

Spindle speed Condition	Quick	Slow
Grinding resistance	small	big
Heat produced	much	less
Surface finish	fine	rough
Wheel worn out	small	great
Safety	bad	good

Material	Range speed
Steel	20-30m/s
Cast iron	18-20m/s
Tungsten carbide	8-18m/s
Zinc alloy and light metal	25-30m/s

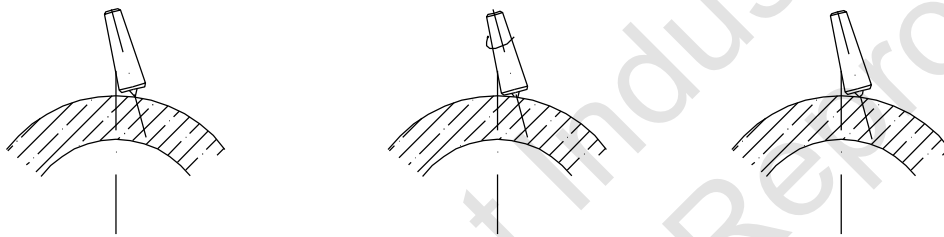
M) Use of the Optional Attachment

(1).Parallel Dressing Attachment

The wheel can be dressed either by diamond tool on the chuck or on the parallel dressing attachment which is mounted on spindle carrier.

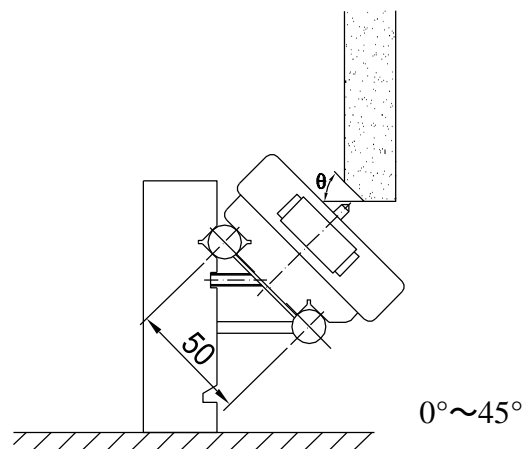
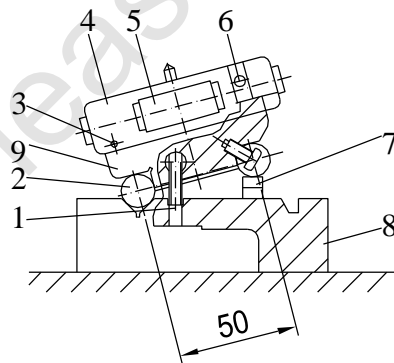
The diamond tool is arranged at an angle to the center line of the wheel as shown in the figure, so that when the diamond tool is arranged at an angle, it ensures that there is always a sharp diamond edge available.

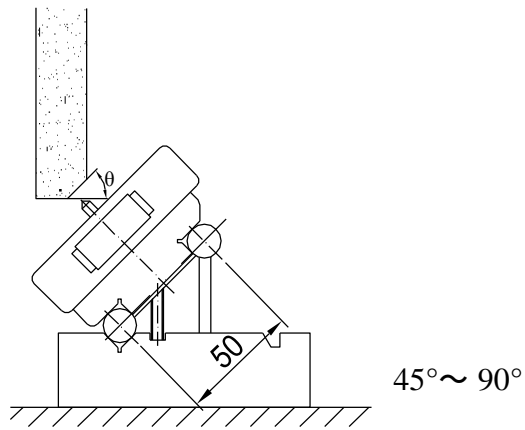
The dressing method and points are the same as "Dressing the Wheel." Experience has shown that, with highly accurate grinding, dressing with the diamond, which is mounted on a magnetic chuck is better than that on the spindle carrier (the former is more stable than latter) as the latter condition will cause slight undulation in the surface of the wheel.



(2).Brief Introduction to Attachment

- Let the attachment be attracted to the magnetic chuck, keeping a 90° right angle between the attachment and the wheel. The magnetic chuck should be kept leveled.
 - The value in question will be the Sine of the angle times 50. That is $B = \sin \theta \times 50$
 - Get a block gauge the thickness of which equals that of B (or make one).
 - Put this Block gauge under the base of the Sine Bar stands.
- Fix with the fastening bolts and the forming is done.





- 1.Fastening bolt
- 2.Mandrel
- 3.Slide adjustment bolt
- 4.Slide base
- 5.Handle
- 6.Diamond fixed hole
- 7.Block gauge
- 8.Build-in base

e. Conversion table of degree and block gauge thickness

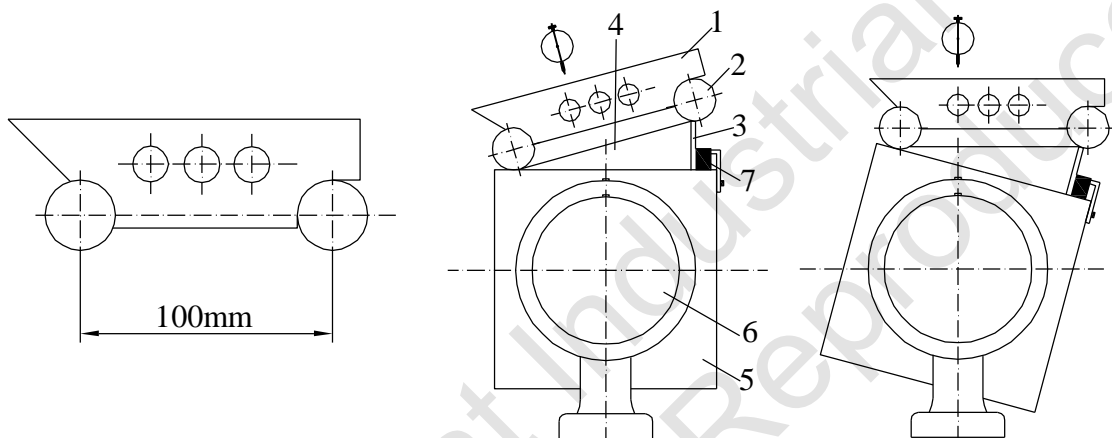
Deg.	Sin.	Block gauge thickness	Deg.	Sin.	Block gauge thickness	Deg.	Sin.	Block gauge thickness
1°	0.0175	0.875	18°	0.3090	15.450	35°	0.5736	28.680
2°	0.0349	1.745	19°	0.3256	16.280	36°	0.5878	29.390
3°	0.0523	2.615	20°	0.3420	17.100	37°	0.6018	30.090
4°	0.0698	3.490	21°	0.3584	17.920	38°	0.6157	30.785
5°	0.0872	4.360	22°	0.3746	18.730	39°	0.6293	31.465
6°	0.1045	5.225	23°	0.3907	19.535	40°	0.6428	32.140
7°	0.1219	6.095	24°	0.4067	20.335	41°	0.6561	32.805
8°	0.1392	6.960	25°	0.4226	21.130	42°	0.6691	33.455
9°	0.1564	7.820	26°	0.4384	21.920	43°	0.6820	34.100
10°	0.1736	8.680	27°	0.4540	22.700	44°	0.6947	34.735
11°	0.1908	9.540	28°	0.4695	23.475	45°	0.7071	35.355
12°	0.2079	10.395	29°	0.4848	24.240			
13°	0.2250	11.250	30°	0.5000	25.000			
14°	0.2419	12.095	31°	0.5150	25.750			
15°	0.2588	12.940	32°	0.5299	26.495			
16°	0.2756	13.780	33°	0.5446	27.230			
17°	0.2924	14.620	34°	0.5592	27.960			

*The value of Block gauge thickness must times 2 when applying this table to Sine Bar attachment.

(3).Sine Bar

The Sine Bar is used to chuck the inclined angle of the magnetic chuck when the angle forming surface is large.

- The value in question equals the Sine of the angle times 100, $B = \sin \theta \times 100$
- Get a block gauge the thickness of which equals that of B.
- Put this gauge at one end of the Sine Bar and let it be attracted to the inclined magnetic chuck. This Sine Bar shall be kept parallel to the longitudinal direction of the machine.
- Press the dial gauge against the surface of the Sine Bar and meanwhile turn the cross-feed hand-wheel, so that the saddle moves back and forth for the checking of the accuracy of the magnetic chuck.



1.Mandrel

2.Sine Bar

3.Block gauge

4.Application of the trigonometry

5.Inclined Magnetic Chuck

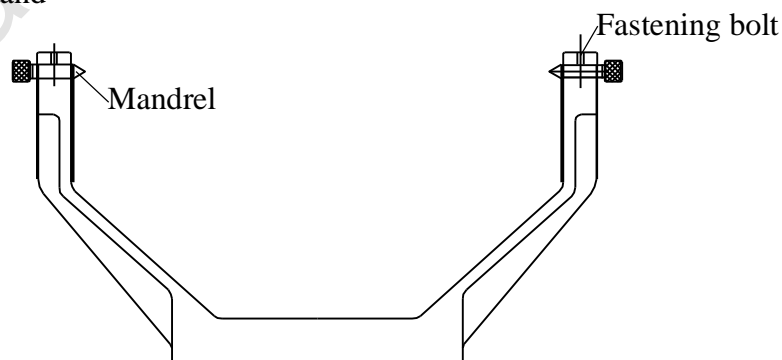
6.Mandrel of the Magnetic Chuck

7.Stop block

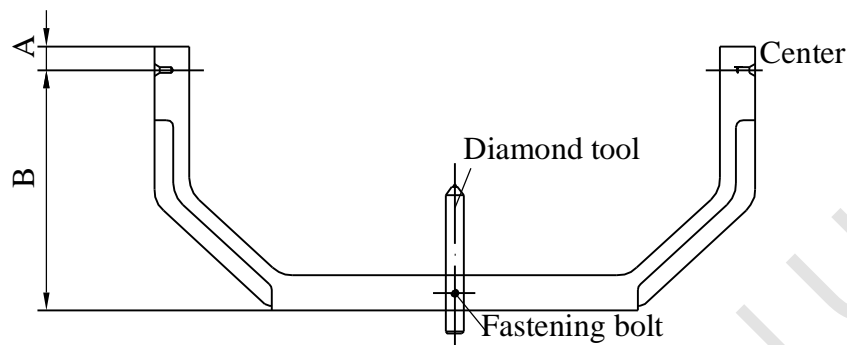
(4).Radius Forming Attachment

The radius Forming Attachment is composed of a main stand, several swing rods and a diamond tool.

- Main Stand



b. Swing rod and diamond tool



Name plate is attached to swing rod with the A and B to mean:

A: the distance between the upper rim and the center

B: the distance between the bottom rim and the center

The R forming is the adjustment of the distance between the diamond tool and the swing rod center so that the R shaping results.

c. To determine the concave and convex R:

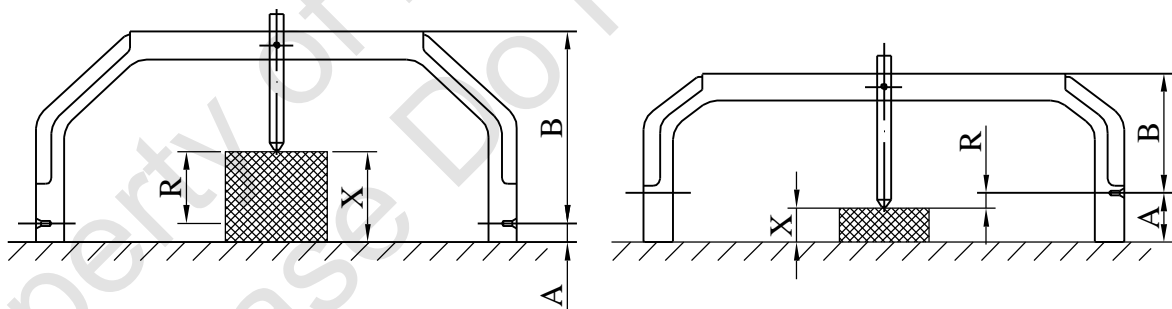
1. If the tool is parallel to the center line, it equals OR.

2. To determine the convex R: Put the swing rod on a place disk.

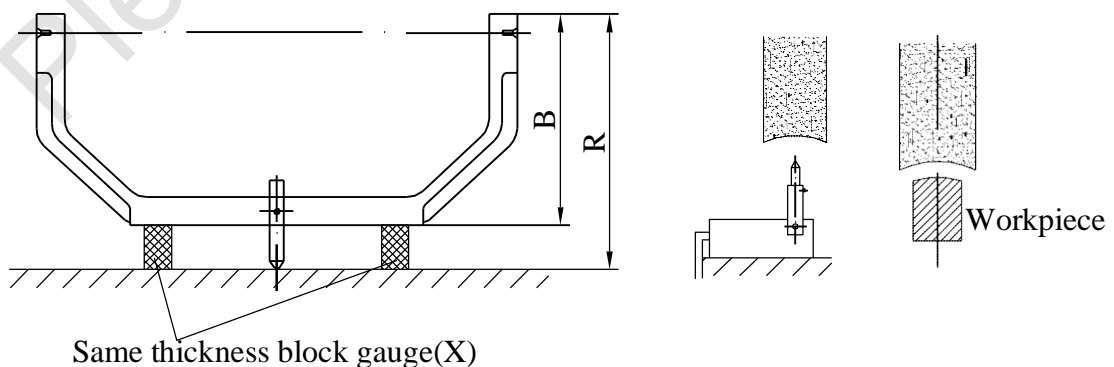
Put a block gauge of proper thickness under the diamond tool.

Then $R = X - A$

3. To determine the small concave, $R = A - X$



d. To determine the big concave R: $R = B + X$

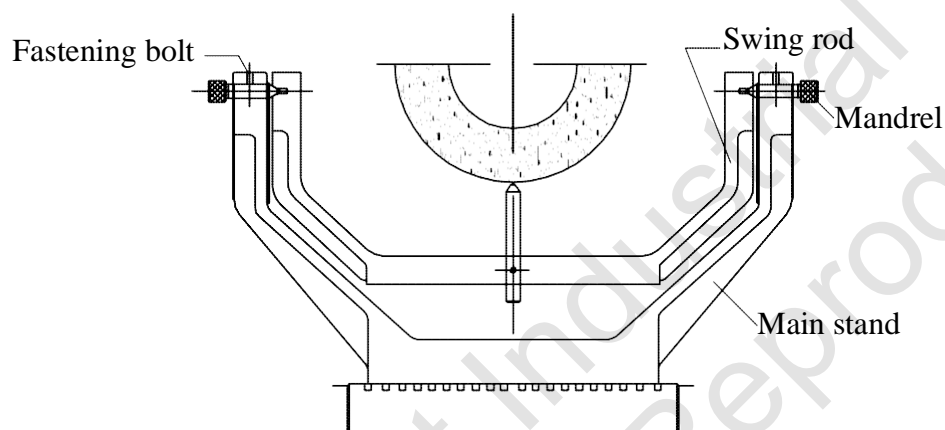


e. Note:

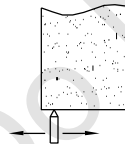
1. The base and side of the grinding wheel shall be well-dressed.
2. The Radius Forming Attachment shall be parallel to the grinding wheel.
3. The diamond tool shall be parallel to the Radius Forming Attachment.

f. Operation of the Radius forming attachment:

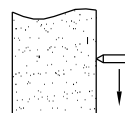
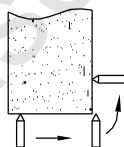
1. Find the center of the grinding wheel, then fix the work table.



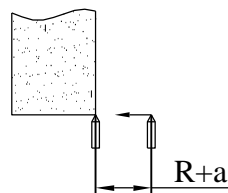
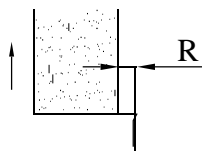
2. Turn the down-feed hand-wheel at $\frac{1}{3}$ of the width of the wheel so that the wheel cuts into 0.02mm of the diamond tool. Now turn the cross-feed hand-wheel to dress the grinding wheel, and turn the calibration reading on the down-feed back to zero.



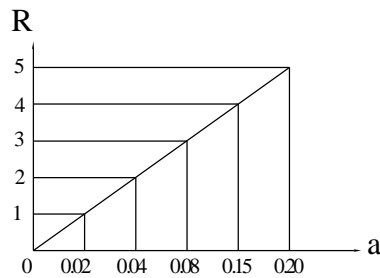
3. Turn the diamond tool over an angle 90° and elevate it into a proper position (greater than the R size in question).



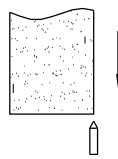
4. Elevate the grinding wheel so that it goes away from the diamond tool and the wheel in such a position that the distance between the side of the wheel and the center of the diamond tool is just R.



5. Move the diamond tool ($R+a$) leftward, with "a" found in the following table.



6. Turn the down-feed hand-wheel so that the grinding wheel approaches the diamond tool.



7. Turn the swing rods 90° each time, moving 0.05mm till the R is determined.



8. The wheel finally becomes the following shape.



(5) Coolant System

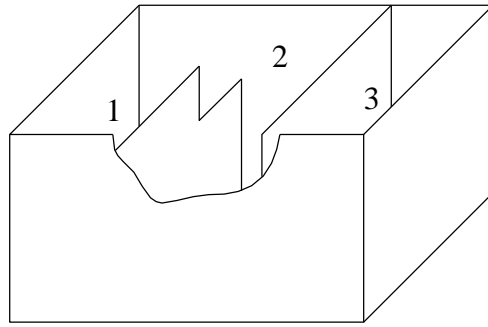
Insert the power source plug into the socket (at the rear side of electric control box).

Press the push-button switch to start the coolant pump. The pump should rotate in clockwise direction, if not, interchange any two cords of three-cord electrical cable. Adjust coolant flow by turning the ball valve to suitable rate.

Cooling water is collected from table and returns to coolant tank through return hose then filtered in the coolant tank by turns of cabinet #1,2,3.

*Coolant tank capacity:46 liters

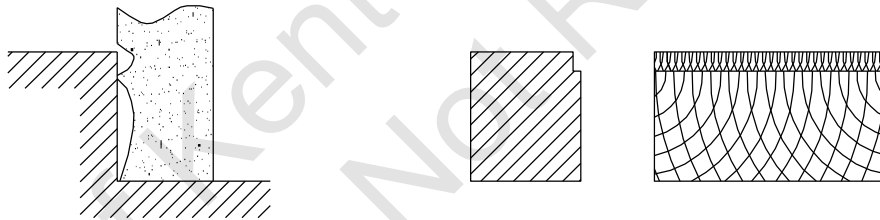
*Coolant pump:90Wx2P



(6).Common cases in Side Grinding



In the case shown in the figure above, the side-grinding wheel and the work have a smaller contact surface, in which case the efficiency is higher, and the surface roughness is better.



In the figure above, the wheel and the work have two sections of contact, and the surface of grinding is bad. The surface has to be corrected into the shape shown in 1.



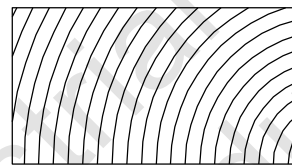
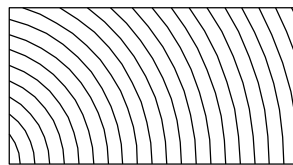
The wheel did not cut to "Relief Angle," thus it contacts the whole face of the work, causing the surface of processing to be rough and rugged. Also, the greater face of contact will cause burns and cracks.



The "Relief Angle" of the wheel is lower than the surface of the work, so that the work face becomes two sections, the upper section resembling that in 3 and the lower section in 1.

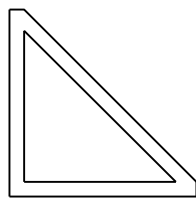
Now it is necessary to enlarge the "Relief Angle" part so that it will be higher than the face of the work.

e. If the spindle does not constitute a right angle with the work table surface, the machined surface will turn out to be as shown.

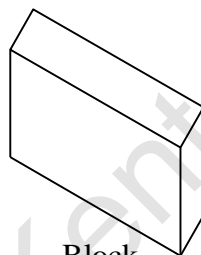


(7).Right Angle Grinding

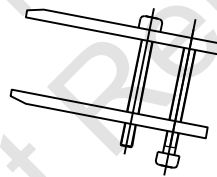
a.Tools



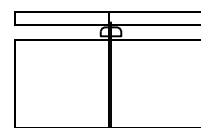
Angle gauge



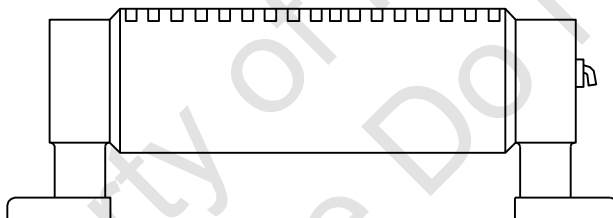
Block



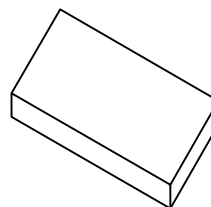
Clamp



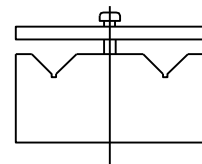
Clamp



Inclinable Magnetic Chuck



Block gauge



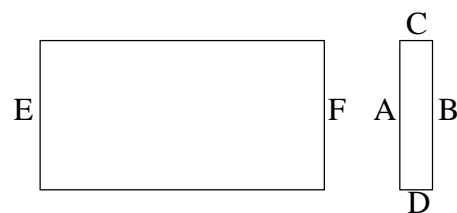
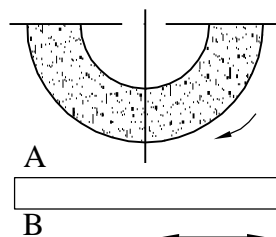
Clamp

b. Use of the jigs and tools: take the grinding of the block of six faces A, B, C, D, E, F.

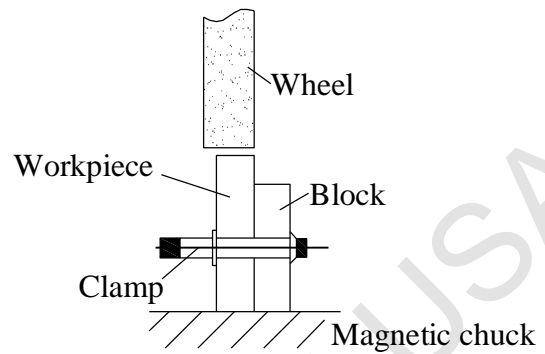
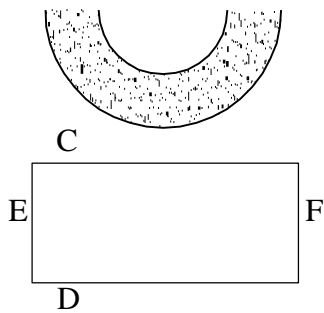
For example:

1. Under 200mm:

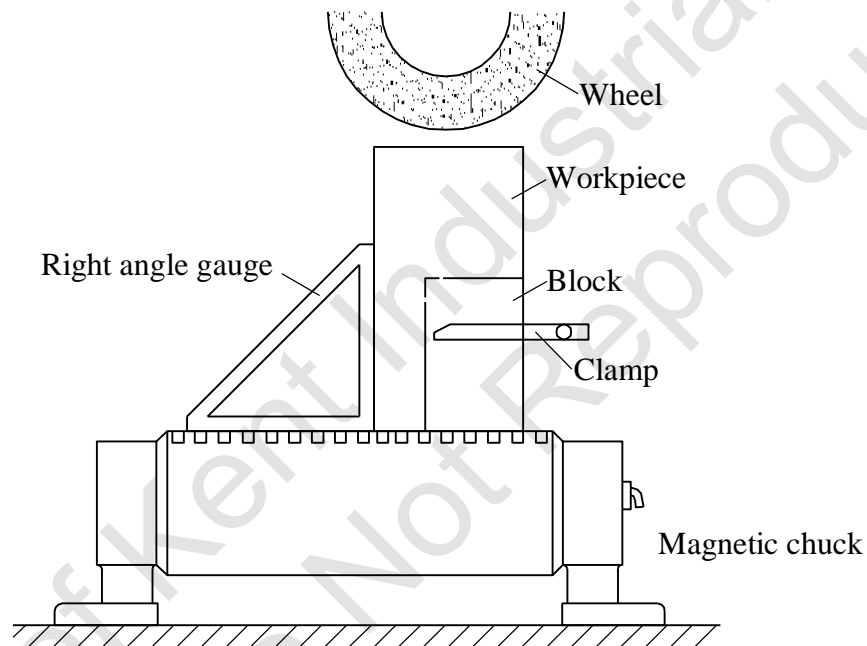
*Grinding of the first basic face, or the surface grinding of A and B.



*Grinding of C and D



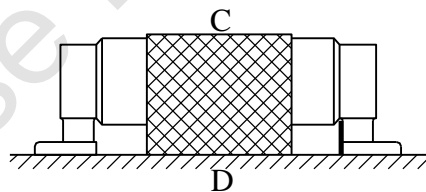
*Grinding of E and F



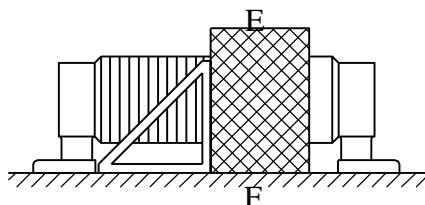
1. Over 200mm:

*Grinding of the first basic face A

*Grinding of C and D



*Grinding of E and F



c. Precaution: The grinding of the right angle depends on the patience and clever mindedness of the operator for its precision. For instance, whether the burrs after grinding is done well, whether the tools are kept clean, whether the work table are kept clean, the accuracy of the angle gauge, etc. all will have a direct influence on the precision of the product.

N) Complete Knock Down Drawings & Parts Lists

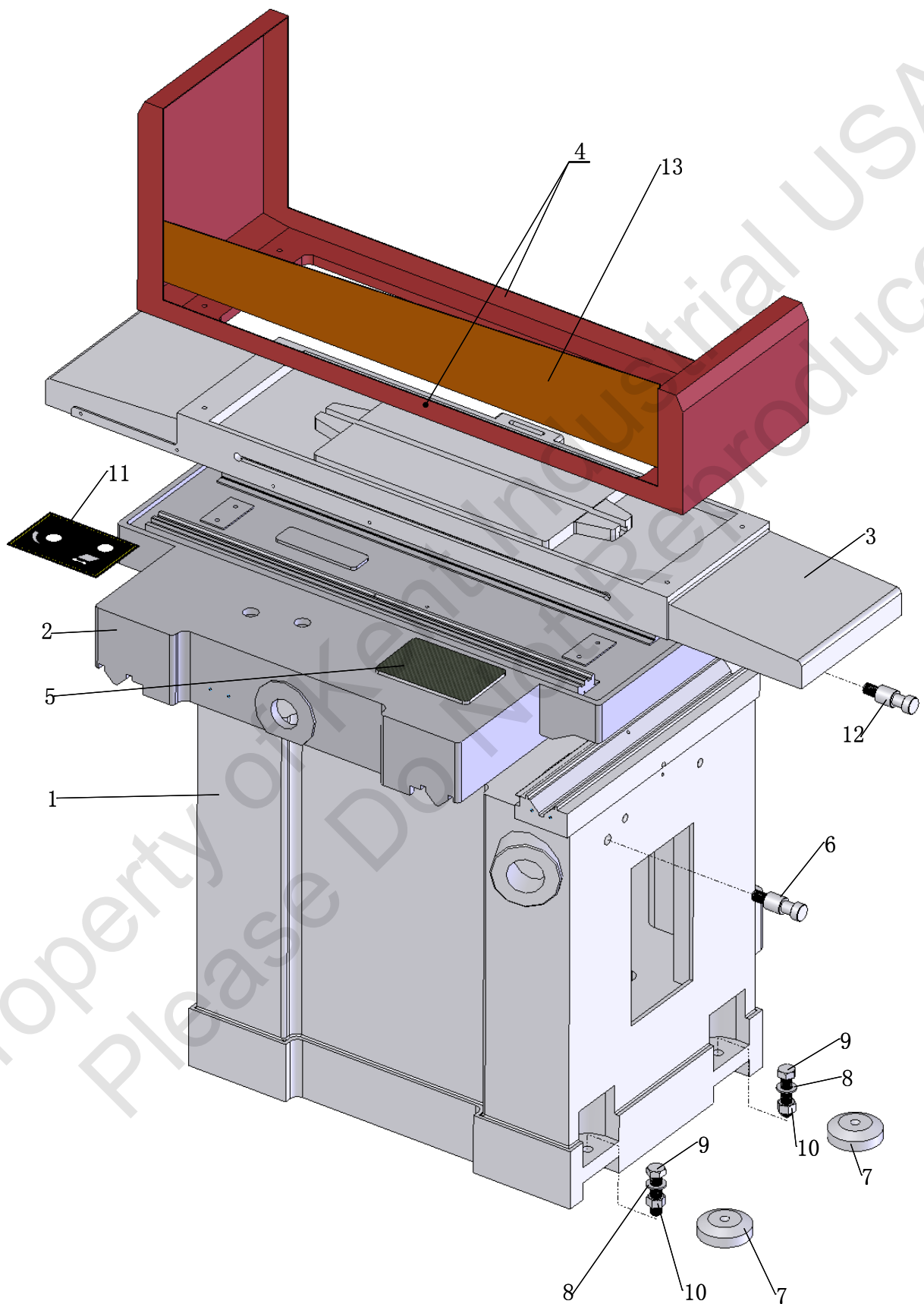
WHEN ORDERING PARTS,PLEASE MENTION: 1.MACHINE MODEL & SERIAL
NUMBER INDEX NUMBER

PARTS NO.AND PARTS NAME

4.QUANTITY

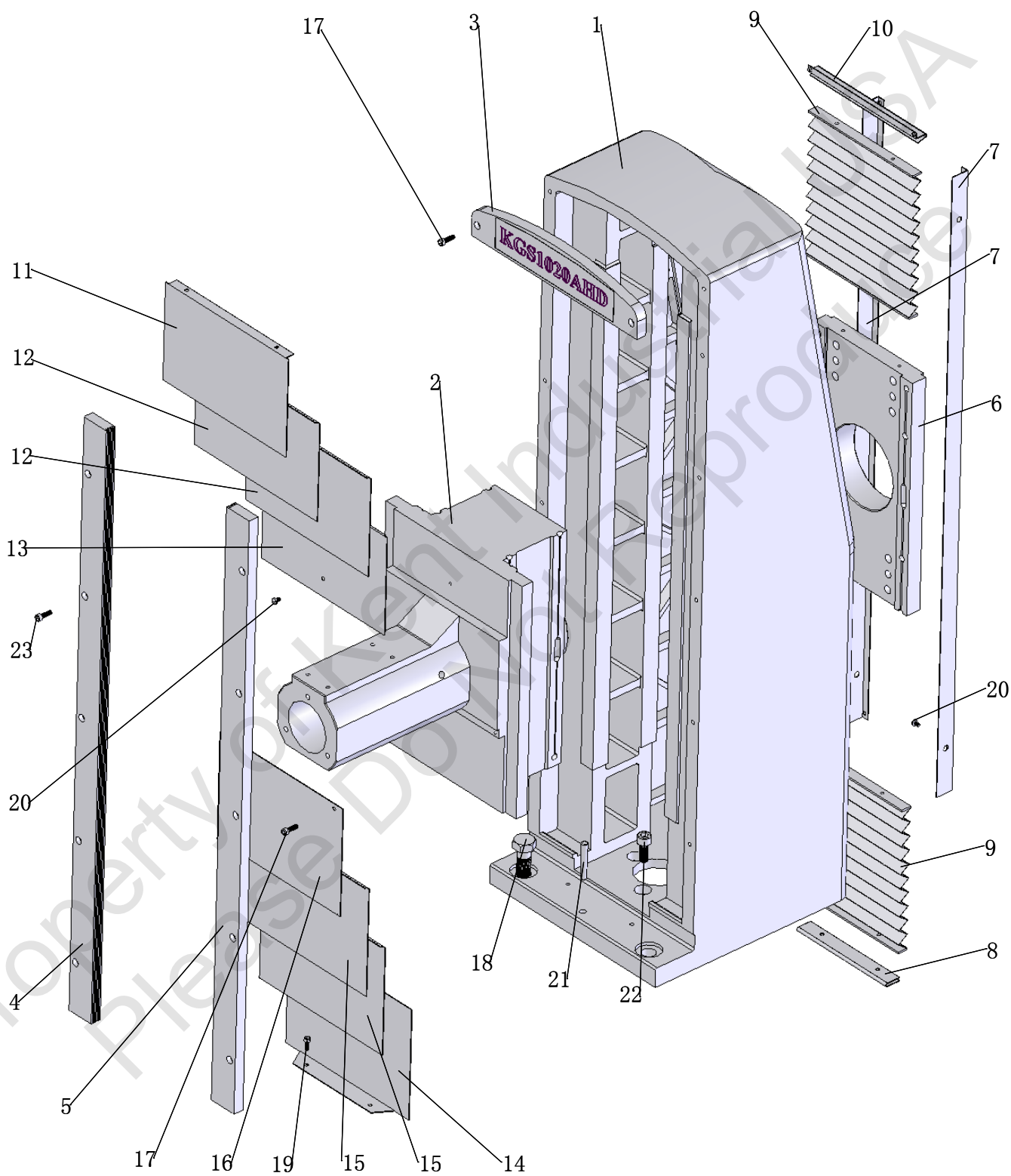
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BED, SADDLE , TABLE ASS'Y
(KGS818AH/AHD,KGS1020AH/AHD)

	Parts No.			
Index No.	KGS818AH/AHD	KGS1020AH/AHD	Parts Name	Q'ty
1	KGS818AHD-1011	KGS1020AHD-1011	Bed	1
2	KGS818AHD 2011	KGS1020AHD-2011A	Saddle	1
3	KGS818AHD 2012	KGS1020AHD-2012A	Table	1
4	KGS818AHD 2105A	KGS1020AHD-5110B	Splash Guard	1
5	KGS1020AHD-2303		Rubber Plate	1
6	KGS1020AHD-1108		Lifting Bolt	2
7	KGS1020AHD-1015		Levelling Pad	5
8	GB97.1-85/20		Washer	5
9	KGS1020AHD-1112		Levelling Screw	5
10	GB6170-86/M20		Hexagnol Nut	5
11	—	KGS1020AHD-2202	Indicating Plate	1
12	KGS1020AHD-1110	KGS1020AHD-1110	Lifting Bolt	2
13	KGS618-5104A/5105A	KGS1020AHD-5108B	Splash Guard	2



COLUMN ASS'Y
(KGS818AH/AHD,KGS1020AH/AHD)

Index No.	Parts No.		Parts Name	Q'ty
	KGS818AH/AHD	KGS1020AH/AHD		
1	KGS618-3011	KGS1020AHD-3011	Column	1
2	KGS618-4011	KGS1020AHD-4011	Spindle Holder	1
3	KGS618-3201	KGS1020AHD-3103	Upper Cover of Column	1
4	KGS618-3013	KGS1020AHD-3104	Shield Dust Guide Rail	1
5	KGS618-3013	KGS1020AHD-3102	Shield Dust Guide Rail	1
6	KGS618-4012	KGS1020AHD-4012	Motor Bracket	1
7	KGS618-3108	KGS1020AHD-3108	Shield Guide	2
8	KGS618-3107	KGS1020AHD-3107	Shield Guide	1
9	KGS618-3301	KGS1020AHD-3301	Dust Protection Fold Fabric	2
10	KGS618-3109	KGS1020AHD-3109	Upper Hold Plate	1
11	KGS618-3101	KGS1020AHD-3101	Shield Dust	1
12	KGS618-3102	KGS1020AHD-3102	Shield Dust	2
13	KGS618-3103	KGS1020AHD-3103	Shield Dust	1
14	KGS618-3104	KGS1020AHD-3106	Shield Dust	1
15	KGS618-3105	KGS1020AHD-3105	Shield Dust	2
16	KGS618-3106	KGS1020AHD-3104	Shield Dust	1
17	GB70-85/M6×20		Socket Head Cap Screw	12
18	GB5782-86/M20×60		Hexagonal Head Screw	4
19	GB70-85/M5×15		Socket Head Cap Screw	13
20	GB818-85/M5×8		Flat Head Machine Screw	5
21	GB118/φ10×70		Taper Bolt	1
22	GB70-85/M12×30		Socket Head Cap Screw	3
23	GB70-85/M16×20		Socket Head Cap Screw	10

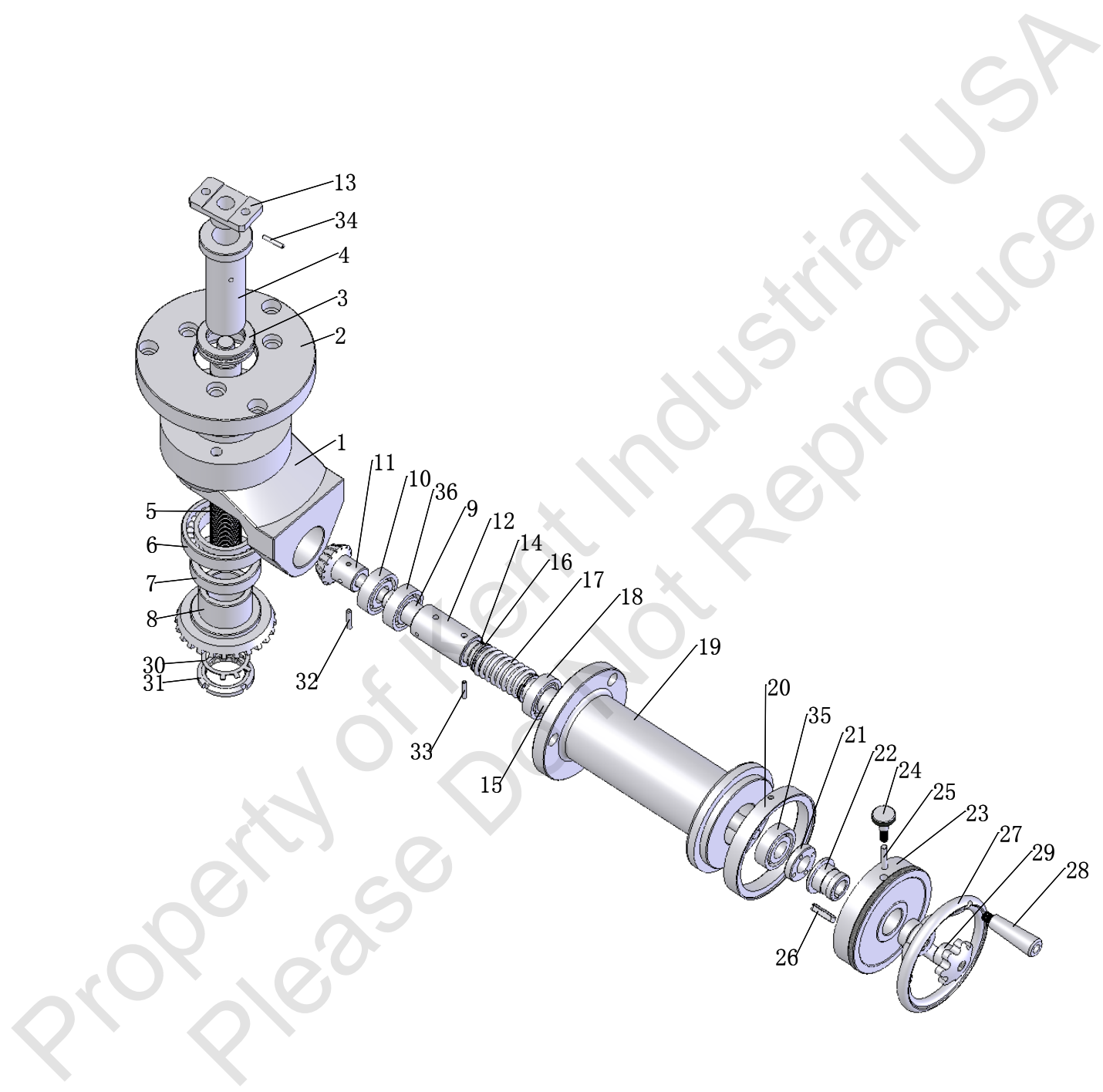
DOWN FEED ASS'Y
(KGS818AHD,KGS1020AHD)

Index No.	Parts No.		Parts Name	Q'ty
	KGS818AHD	KGS1020AHD		
1	KGS1020AHD-1016		Gear Box	1
2	KGS1020AHD-1116		Shaft	2
3	GB894.1-86/25		Snap Ring	1
4	KGS1020AHD-1103		Washer	2
5	KGS1020AHD-1104		Spring	1
6	GB1096-89/6×30		Key	1
7	KGS1020AHD-1117		Clutch	1
8	KGS1020AHD-1137		Clutch	1
9	KGS1020AHD-1136		Gear	1
10	GB70-85/M5×10		Socket Head Cap Screw	4
11	6006-2Z		Bearing	1
12	KGS1020AHD-1018		Holder	1
13	KGS1020AHD-1134		Holder	1
14	GB70-85/M6×45		Socket Head Cap Screw	1
15	6204-2Z		Bearing	1
16	KGS1020AHD-1129		Nut	1
17	GB1096-89/6×50		Key	1
18	KGS1020AHD-1130		Ring	1
19	KGS1020AHD-1133		Graduation Dial	1
20	KGS1020AHD-1132		Graduation Dial	1
21	KGS1020AHD-1131		Screw	1
22	KGS1020AHD-1159		Flange	2
23	KGS1020AHD-1155		Cylinder	2
24	KGS1020AHD-1158		Half Link	2

Index No.	Parts No.		Parts Name	Q'ty
	KGS818AHD	KGS1020AHD		
25	KGS1020AHD-1160		Flange Cover	2
26	ZBJ22002-88/2.8×20		O-ring	2
27	KGS1020AHD-1120		Bracket	1
28	6300-2Z		Bearing	3
29	KGS1020AHD-1127		Shaft	1
30	GB879-86/2.5×12		Sping Pin	1
31	KGS1020AHD-1119		Small Gear	1
32	KGS1020AHD-1118		Collar	1
33	6005-2Z		Bearing	1
34	KGS1020AHD-1019		Transmission Arm	1
35	KGS1020AHD-1124		Spacer	1
36	GB1096-89/5×15		Key	1
37	KGS1020AHD-1125		Ratcher Gear	1
38	KGS1020AHD-1128		Bracket	1
39	KGS1020AHD-1126		Spacer	1
40	KGS1020AHD-1154		Piston	2
41	ZBJ22002-88/2.8×14.7		O-ring	2
42	KGS1020AHD-1156		Guiding Sheath	2
43	KGS1020AHD-1157		Spring	2
44	KGS1020AHD-1303		Collar	2
45	KGS1020AHD-1206		Extremity Flange	2
46	KGS1020AHD-1153		Pawl Shaft	1
47	GB93-87/M8		Spring Washer	2
48	GB6170-85/M8		Hexagonal Nut	2
49	KGS1020AHD-1150		Spring	2
50	KGS1020AHD-1149		Transmission Claw	1

	Parts No.			
Index No.	KGS818AHD	KGS1020AHD	Parts Name	Q'ty
51	KGS1020AHD-1121		Pin	1
52	KGS1020AHD-1123		Set Screw	1
53	KGS1020AHD-1122		Collar	1
54	608-2Z		Bearing	1
55	KGS1020AHD-1147		Fixed Screw	1
56	KGS1020AHD-1152		Pin	1
57	GB70-85/M6×15		Socket Head Cap Screw	5
58	KGS1020AHD-1151		Spring	1
59	KGS1020AHD-1143		Bush	1
60	KGS1020AHD-1144		Pre-set Dial	1
61	KGS1020AHD-1145		Spring	1
62	φ4		Steel Ball	1
63	KGS1020AHD-1140		Bevel Gear(Half)	1
64	KGS1020AHD-1142		Pin	1
65	GB879/5×28		Spring Pin	1
66	KGS1020AHD-1141		Bevel Gear	1
67	GB879/4×10		Pin	1
68	GB879/4×6		Pin	1
69	GB78-85/M6×8		Set Screw	1
70	GB70-85/M6×40		Socket Head Cap Screw	2
71	GB70-85/M6×35		Socket Head Cap Screw	2
72	KGS1020AHD-1139		Spring	1
73	JB/T7273.5-94		Hand Wheel	1
74	GB4141.29-84B/M12×50		Hand Wheel Nut	1
75	HY8310.4-1/M10×80		Grip	1
76	KGS1020AHD-1146		Pin	1

	Parts No.			
Index No.	KGS818AHD	KGS1020AHD	Parts Name	Q'ty
77	KGS1020AHD-1017		Cover	2
78	GB70-85/M6×20		Socket Head Cap Screw	8
79	6201-2Z		Bearing	1
80	GB70-85/M5×20		Socket Head Cap Screw	1



MANUAL DOWN FEED ASS'Y
(KGS818AH,KGS1020AH)

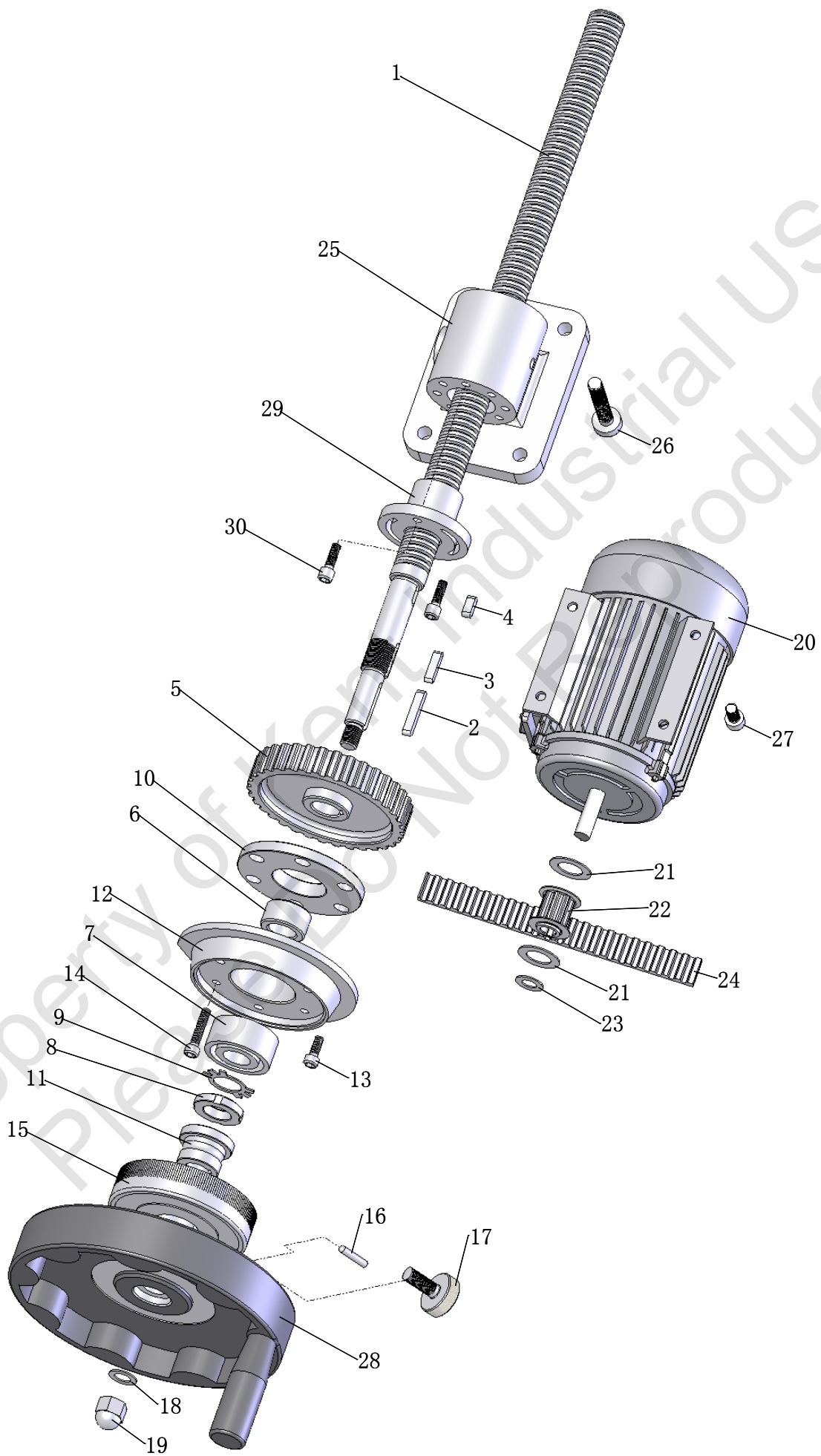
Index No.	Parts No.		Parts Name	Q'ty
	KGS818AH	KGS1020AH		
1	KGS618-1015	KGS1020AHD-1013	Screw Stand	1
2	KGS618-1113	KGS1020AHD-1101	Connecting Plate	1
3	D51108		Bearing	1
4	KGS618-1202	KGS1020M-1201	Screw Nut	1
5	KGS618-1102	KGS1020M-1101	Lead Screw	1
6	D51111	6011	Bearing	1
7	KGS618-1118	KGS1020AHD-1114	Ring	1
8	KGS618-1112	KGS1020AHD-1105	Gear	1
9	KGS618-1103A	KGS1020AHD-1107	Shaft	1
10	6204-2Z		Bearing	1
11	KGS618-1111	KGS1020AHD-1106	Gear	1
12	KGS1020AHD-1107-1		Cover	1
13	KGS1020AHD-1014		Prop Stand	1
14	25 GB94.1		Split Baffle Ring	1
15	KGS618-1110	KGS1020M-1116	Shaft	1
16	KGS618-1105	KGS1020AHD-1103	Ring	2
17	KGS618-1104	KGS1020AHD-1104	Spring	1
18	D1205	6005-2Z	Bearing	1
19	KGS618-1013	KGS1020M-1013	Bearing Housing	1
20	KGS618-1106B	KGS1020M-1102	Graduation Dial II	1
21	M25 GB812	KGS1020AHD-1129	Nut	1
22	KGS618-1109	KGS1020AHD-1130	Bushing	1
23	KGS618-1108B	KGS1020M-1103	Graduation Dial	1
24	KGS618-1107	KGS1020AHD-1147	Bolt	1

	Parts No.			
Index No.	KGS818AH	KGS1020AH	Parts Name	Q'ty
25	KGS618-1205	KGS1020AHD-1146	Pin	1
26	6×45 GB1096		Key	1
27	φ200 JB/T7273.5		Hand Wheel	1
28	M10×80 JB/T7270.6		Grip	1
29	M12×50 GB4141.29		Hand Wheel Nut	1
30	40 GB58		Ratchet Washer	1
31	M40×1.5 GB812		Hexagonal Nut	1
32	5×30 GB879	5×24 GB879	Pin	1
33	4×36 GB879		Pin	2
34	4×32 GB879		Pin	1
35	D1205	6204-2Z	Bearing	1
36	—	6204-2Z	Bearing	1



SPINDLE ASS'Y
(KGS818AH/AHD,KGS1020AH/AHD)

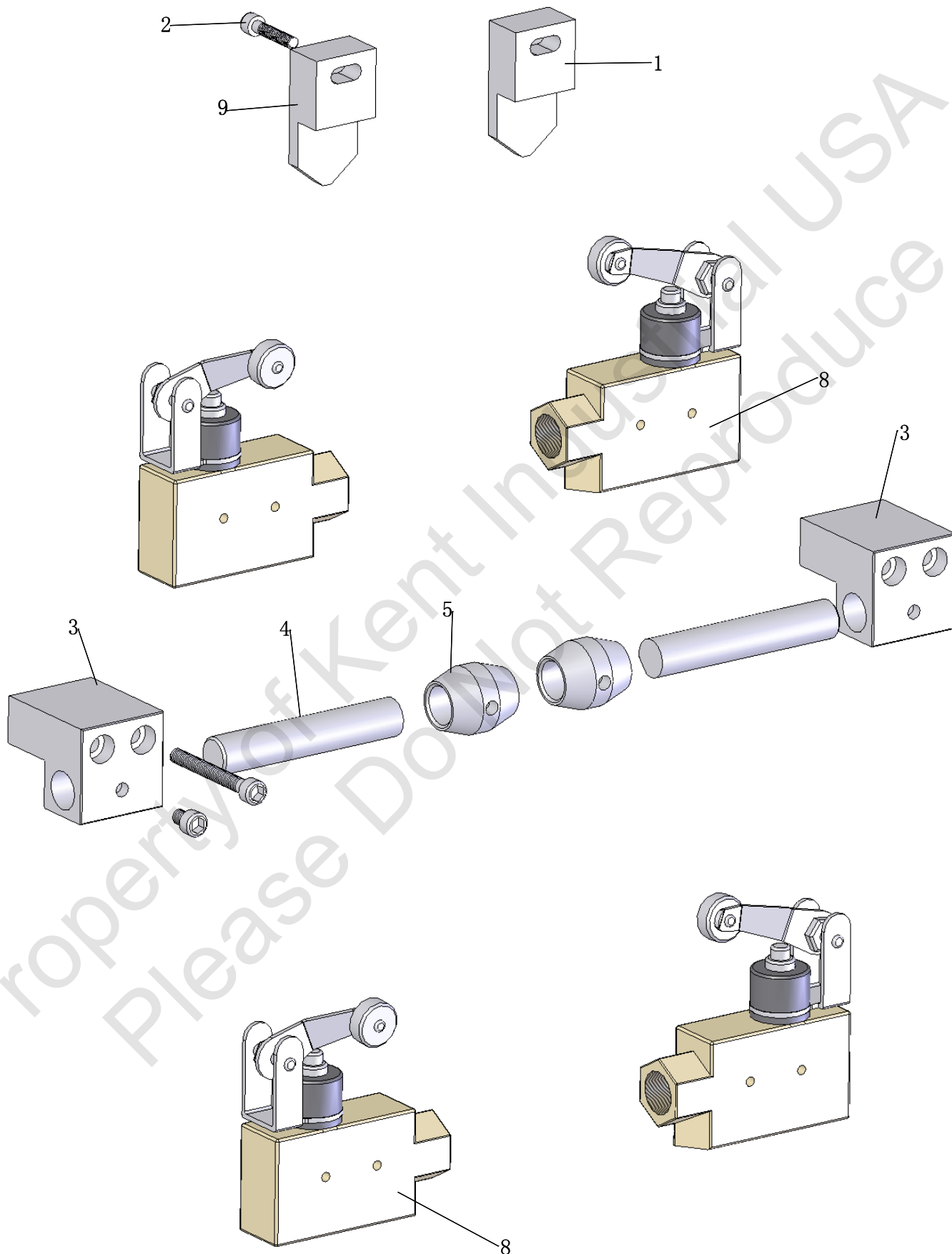
Index No.	Parts No.		Parts Name	Q'ty
	KGS818AH/AHD	KGS1020AH/AHD		
1	YUZC90L-A/B5		Spindle Motor	1
2	KGS1020AHD-4118A		Coupling	2
3	GB1096-90/8×25		Key	1
4	KGS1020AHD-4302		Rubber Coupling	1
5	KGS618-4102	KGS1020AHD-4111	Spindle Shaft	1
6	KGS1020AHD-4115		Spindle Cover	1
7	KGS1020AHD-4114		Spindle Cover	1
8	7206 CTYSUL P4		Angular Contact Bearing	4
9	KGS1020AHD-4109		Spacer	2
10	KGS1020AHD-4110		Spacer	2
11	KGS1020AHD-4103A		Spindle Nut	1
12	KGS1020AHD-4102B		Spindle Cover	1
13	KGS618-4103	KGS1020AHD-4112A	Spindle Housing	1
14	KGS1020AHD-4101B		Spindle Cover	1
15	KGS1020AHD-4013A		Installation Link	1



CROSS FEED ASS'Y
(KGS818AH/AHD,KGS1020AH/AHD)

Index No.	Parts No.		Parts Name	Q'ty
	KGS818AH/AHD	KGS1020AH/AHD		
1	KGS818AHD-2107	KGS1020AHD-2105	Cross Feed Leadscrew	1
2	GB1096-79/5×35		Key	1
3	GB1096-79/4×25		Key	1
4	GB1096-79/5×16		Key	1
5	KGS1020AHD-2016		Timing Belt Pulley	1
6	KGS1020AHD-2106		Spacer	1
7	3204-2Z		Bearing	1
8	GB812-88/M20×1.5		Hexagonal Nut	2
9	GB858-88/φ20		Ratchet Washer	1
10	KGS1020AHD-2113		Bearing Retainer	1
11	KGS1020AHD-2114		Bush	1
12	KGS1020AHD-2112		Bearing Holder	1
13	GB70-85/M6×16		Socket Head Screw	3
14	GB70-85/M6×30		Socket Head Screw	3
15	KGS1020AHD-2107		Graduation Dial	1
16	KGS1020AHD-2201		Pin	1
17	GB835-88/M6×25		Adjusting Screw	1
18	GB97.2/12		Washer	1
19	GB804/M12		Nut	1
20	JW5626/60W		Crossfeed Motor	1
21	GB894.1-86/18		Snap Ring	2
22	KGS1020AHD-2118		Small Timing Belt Pulley	1
23	GB894.1-86/11		Snap Ring	1

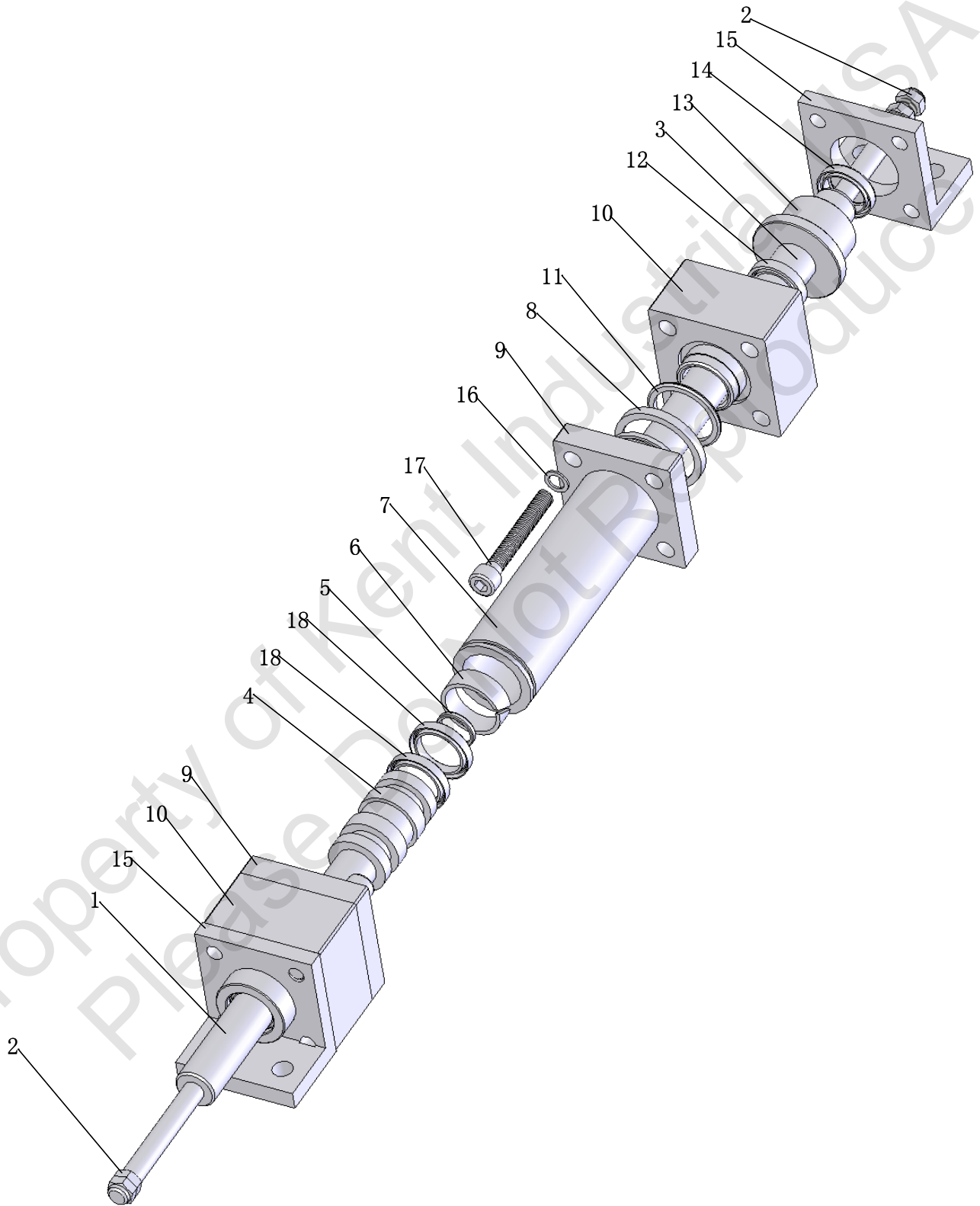
	Parts No.			
Index No.	KGS818AH/AHD	KGS1020AH/AHD	Parts Name	Q'ty
24	GB13487-92/187L075		Timing Belt	1
25	KGS1020AHD-1012		Crossfeed Nut Base	1
26	GB70-85/M10×55		Socket Head Screw	4
27	GB70-85/M8×15		Socket Head Screw	4
28	JB/T7273.5/φ200		Hand Wheel	1
29	KGS1020AHD-1207		Leadscrew Backlash Adjust	1
30	GB70-85/M8×20		Socket Head Screw	4



CROSSFEED CONTROL LIMIT SWITCH

(KGS818AH/AHD,KGS1020AH/AHD)

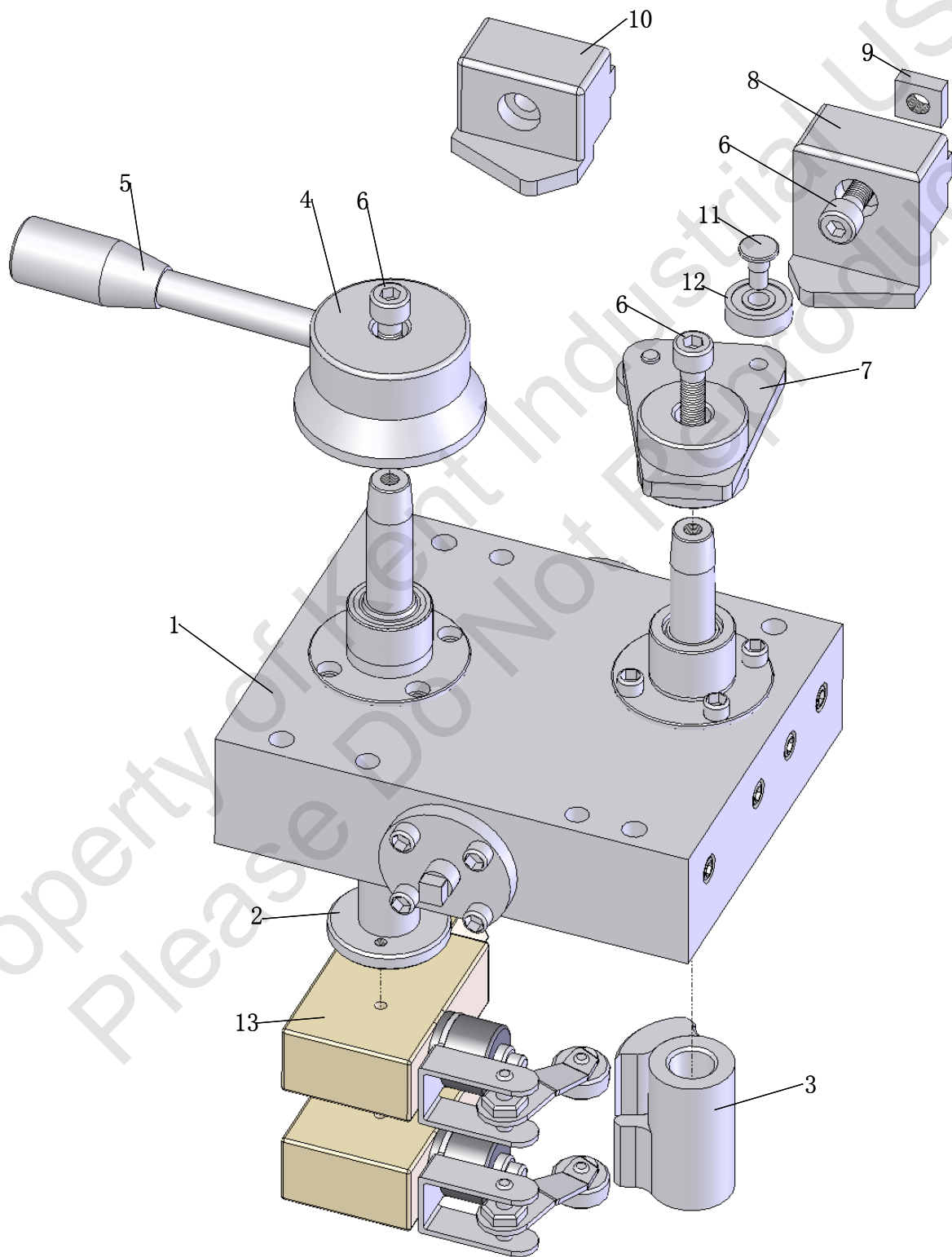
Index No.	Parts No.		Parts Name	Q'ty
	KGS818AH/AHD	KGS1020AH/AHD		
1	KGS1020AHD-2127		Dog	1
2	GB70-85/M5×25		Socket Head Screw	2
3	KGS1020AHD-2123		Mounting Bracket	2
4	KGS1020AHD-2124		Pad Rod	1
5	KGS1020AHD-2125		Dog	2
6	GB70-85/M6×50		Socket Head Screw	4
7	GB70-85/M6×8		Socket Head Screw	4
8	ZE-NA2-2		Limit Switch	4
9	KGS1020AHD-2126		Dog	1



CYLINDER

(KGS818AH/AHD,KGS1020AH/AHD)

	Parts No.			
Index No.	KGS818AH/AHD	KGS1020AH/AHD	Parts Name	Q'ty
1	KGS818AHD-7101	KGS1020AHD-7115	Piston Rod	1
2	GB6170/M8		Nut	4
3	KGS818AHD-7101	KGS1020AHD-7111	Piston Rod A	1
4	KGS818AHD-7012	KGS1020AHD-7012	Piston	1
5	—	1.8×φ15.8	O-Ring	1
6	KGS1020AHD-7308		Wear-resisting Ring	1
7	KGS818AHD-7102	KGS1020AHD-7113	Cylinder	1
8	KGS1020AHD-7114		Tight Ring	2
9	KGS1020AHD-7112		Cylinder Clamper	2
10	KGS818AHD-7011	KGS1020AHD-7011	End Cover	2
11	3.1×φ30		O-Ring	2
12	USH-20CU0212K0		Dust Seal	2
13	KGS1020AHD-7201		Sustaining Sheath	2
14	LSH-20 CL0017C0		Dust Seal	2
15	KGS1020AHD-7116		Cylinder Bracket	2
16	GB97.2/φ8		Washer	8
17	GB70/M8×55		Socket Head Screw	8
18	USH-22.4CU0260K0		Dust Seal	2



VALVE
(KGS1020AH/AHD)

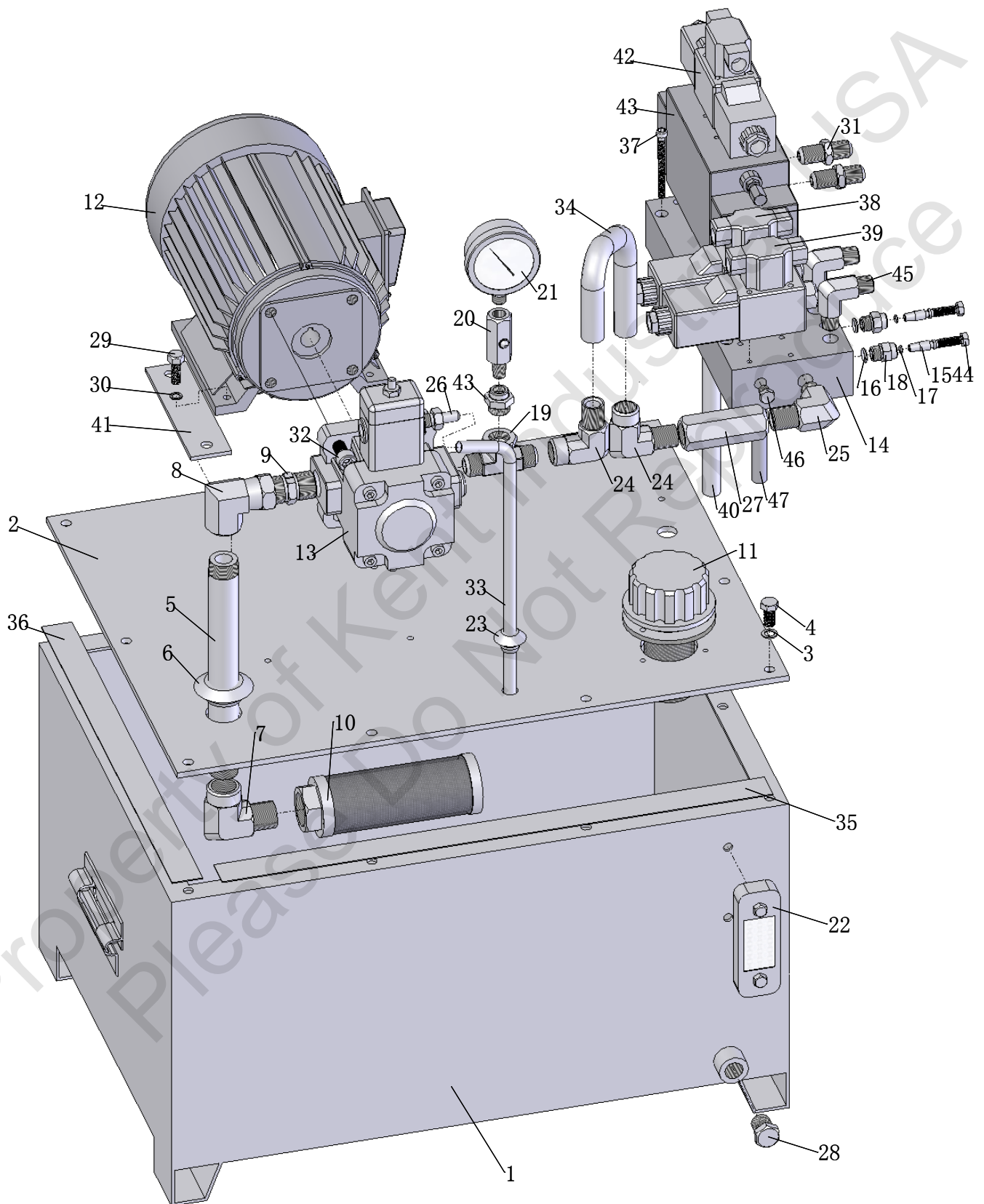
Index No.	Parts No.	Parts Name	Q'ty
	KGS1020AH/AHD		
1.	3K25	Flow Control Valve	1
2.	KGS1020AHD-2117	Limit Switch Mounting Bracket	1
3.	KGS1020AHD-2116	Cam	1
4.	KGS1020AHD-2110A	Flow Control Knob	1
5.	KGS1020AHD-2111	Flow Control Lever	1
6.	M8×30	Socket Head Cap Screw	1
7.	KGS1020AHD-2015	Direction Control Arm	1
8.	KGS1020AHD-2018	Dog	1
9.	KGS1020AHD-2108	Nut	2
10.	KGS1020AHD-2017	Dog	1
11.	KGS1020AHD-2109	Small Shaft	2
12.	627-2Z	Bearing	4
13.	ZE-NA-2	Limit Switch	2

HYDRAULIC TANK

(KGS1020AH/AHD)

	Parts No.			
Index No.	KGS1020AHD	KGS1020AH	Parts Name	Q'ty
1	KGS1020AHD-7107		Hydraulic Tank	1
2	KGS1020AHD-7101		Hydraulic Oil Inlet Cap	1
3	GB97.2		Washer	7
4	GB5871/M10×16		Hexagonal Head Screw	7
5	KGS1020AHD-7102		Oil Inlet Pipe	1
6	KGS1020AHD-7301		Dust Seal	1
7	3/4PT-3/4PT		90°Elbow	1
8	3/4PT-3/4H-90°		90°Connector	1
9	3/4H-3/4PT		Connector	1
10	MF-08		Oil Filter	1
11	HS-1163		Oil Filter	1
12	2HP-4P-3-J-V		Hydraulic Motor	1
13	VCM-SF-30B-20		Pump	1
14	KGS1020AHD-7104	KGS1020AH-7104	Valve Body	1
15	WE42-G02-B9A-A220	—	Solenoid Valve	1
16	KGS1020AHD-7106	—	Adjust Screw	2
17	φ11.8×φ2.5	—	O-Ring	2
18	φ6×φ2	—	O-Ring	2
19	KGS1020AHD-7105	—	Adjust Nut	2
20	3-1/2PT		Joint Pipeline	1
21	GCT-02		Switch of Pressure Gauge	1
22	W2½-70		Pressure Gauge	1
23	LS-3"		Oil Gauge & Thermometer	1

	Parts No.			
Index No.	KGS1020AHD	KGS1020AH	Parts Name	Q'ty
24	KGS1020AHD-7302		Dust Seal	1
25	1/2PT-1/4PT		90°Connector	1
26	1/2PT-3/8PT		90°Connector	1
27	1/4PT-φ10		Joint Pipeline	1
28	CIT-04 1/2PT		Sequence Valve	1
29	Z1/2		Plug	1
30	GB5781/M8×25		Hexagonal Head Screw	4
31	GB97.2/φ8		Washer	4
32	3/8H-3/8PT		Connector	4
33	GB70-85		Socket Head Screw	4
34	φ10		Copper Pipe	1
35	1/2H L=440mm		Nylon Tube	1
36	KGS1020AHD-7304		Rubber Gasket	2
37	KGS1020AHD-7305		Rubber Gasket	2
38	WE42-G02-B2-A220	—	Solenoid Valve	1
39	GB70-85/M6×70		Socket Head Screw	2
40	KGS1020AHD-7103		Oil Return Pipe	1
41	KGS1020AHD-7303		Rubber Gasket	1
42	R1/2"×14-Rc1/4"×19		90°Connector	1

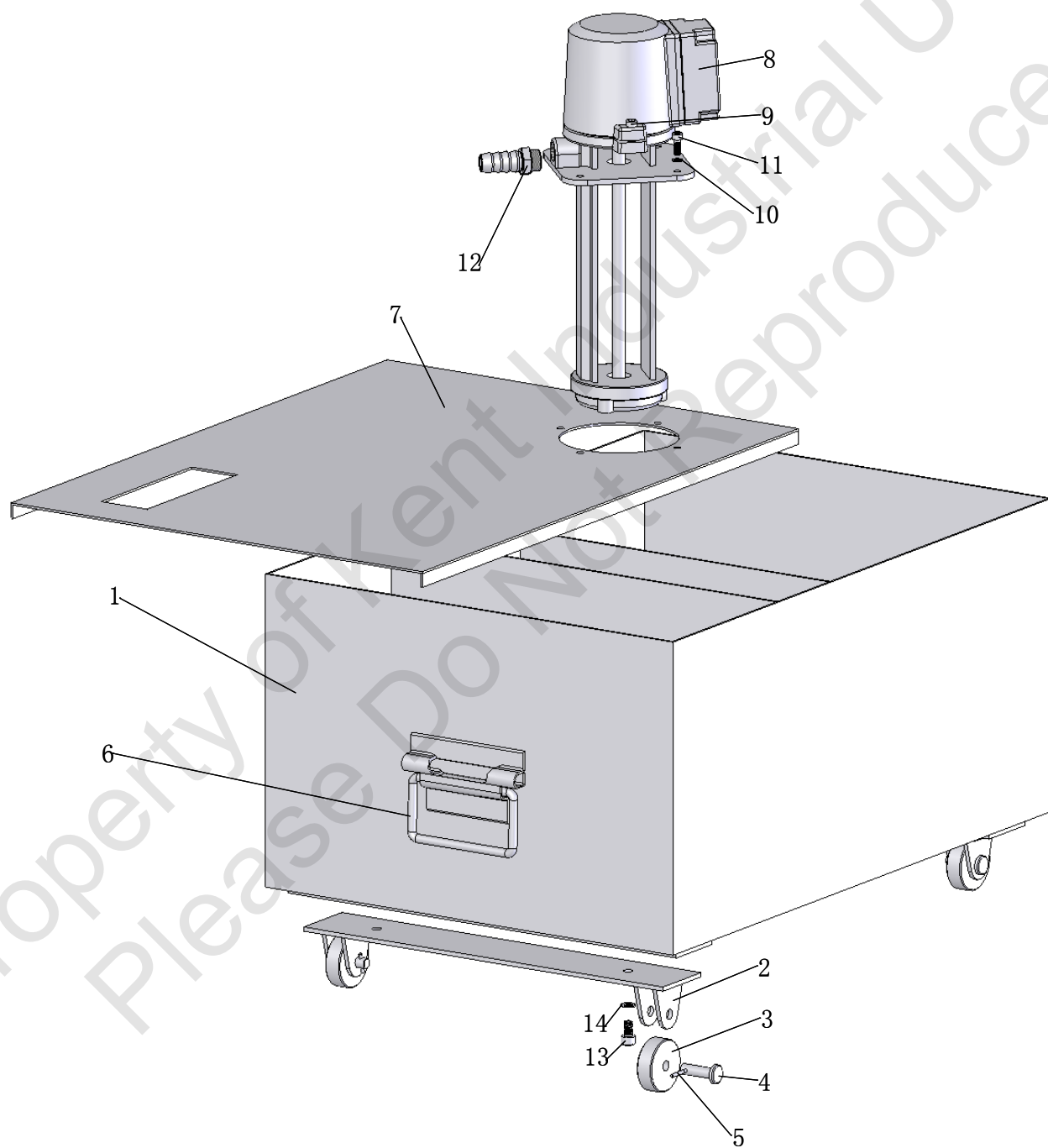


HYDRAULIC TANK

(KGS818AH/AHD)

Index No.	Parts No.		Parts	Q'ty
	KGS818AHD	KGS818AH		
1	KGS1020AHD-7107		Hydraulic Tank	1
2	KGS818AHD-7101	KGS818AH-7101	Hydraulic Oil Inlet Cap	1
3	GB97.2		Washer	7
4	GB5871/M10×16		Hexagonal Head Screw	7
5	KGS1020AHD-7102		Oil Inlet Pipe	1
6	KGS1020AHD-7301		Dust Seal	1
7	3/4PT-3/4PT		90°Elbow	1
8	3/4PT-3/4H-90°		90°Connector	1
9	3/4H-3/4PT		Connector	1
10	MF-08		Oil Filter	1
11	HS-1163		Oil Filter	1
12	2HP-4P-3-J-V		Hydraulic Motor	1
13	VCM-SF-30B-20		Pump	1
14	KGS818AHD-7104	KGS818AH-7105	Valve Body	1
15	KGS1020AHD-7106	—	Adjust Screw	2
16	φ11.8×φ2.5	—	O-Ring	2
17	φ6×φ2	—	O-Ring	2
18	KGS1020AHD-7105	—	Adjust Nut	2
19	3-1/2PT		Joint Pipeline	1
20	GCT-02		Switch of Pressure Gauge	1
21	W2½-70		Pressure Gauge	1
22	LS-3"		Oil Gauge & Thermometer	1
23	KGS1020AHD-7302		Dust Seal	1

	Parts No.			
Index No.	KGS818AHD	KGS818AH	Parts	Q'ty
24	1/2PT-1/4PT		90°Connector	2
25	1/2PT-3/8PT		90°Connector	1
26	1/4PT-φ10		Joint Pipeline	1
27	CIT-04 1/2PT		Sequence Valve	1
28	Z1/2		Plug	1
29	GB5781/M8×25		Hexagonal Head Screw	4
30	GB97.2/φ8		Washer	4
31	3/8H-3/8PT		Connector	4
32	GB70-85		Socket Head Screw	4
33	φ10		Copper Pipe	1
34	1/2H L=440mm		Nylon Tube	1
35	KGS1020AHD-7304		Rubber Gasket	2
36	KGS1020AHD-7305		Rubber Gasket	2
37	GB70-85/M6×50		Socket Head Screw	6
38	WE42-G02-B9A-DC24	—	Solenoid Valve	1
39	WE42-G02-B2-DC24	—	Solenoid Valve	1
40	KGS1020AHD-7103		Oil Return Pipe	1
41	KGS1020AHD-7303		Rubber Gasket	1
42	WE43-G02-C4-DC24		Solenoid Valve	1
43	SOL-04		Direction Control Valve	1
44	GB6176/M8×1	—	Nut	2
45	3/8PT-3/8PT-90°	—	90°Connector	2
46	Z1/4		Plug	1
47	KGS818AHD-7102	—	Oil Return Pipe	1



COOLANT SYSTEM

(KGS818AH/AHD,KGS1020AH/AHD)

	Parts No.			
Index No.	KGS818AH/AHD	KGS1020AH/AHD	Parts Name	Q'ty
1	KGS618-5101	KGS1020AHD-5101	Coolant Tank	1
2	—	KGS1020AHD-5101/3	Support Coolant Tank	2
3	—	KGS1020AHD-5101/5	Wheel	4
4	—	KGS1020AHD-5101/4	Shaft	4
5	—	GB91-86	Pin	4
6	KGS618-5101/1	KGS1020AHD-5101/2	Handle	2
7	KGS618-5102	KGS1020AHD-5102A	Coolant Tank Cover	1
8	AB-25TH90W		Coolant Pump	1
9	GB6170/M6×25		Socket Head Screw	4
10	GB93-86/φ6		Washer	4
11	GB70-85/M6×14		Socket Head Screw	4
12	G72-1/ G1/2		Connector	1
13	—	GB70-85/M8×14	Socket Head Screw	4
14	—	GB93-86/φ8	Washer	4