

# JET

**JMD-1452 TSX  
DRO**

**Milling Machine**

Original:  
GB  
Operating Instructions



**EAC**

**JPW Tool Group Hong Kong Limited**

98 Granville Road, Tsimshatsui East, Kowloon, Hong Kong, PRC

[www.jettools.com](http://www.jettools.com)

**Импортер в РФ: ООО «ИТА Технолоджи»**

105082, Москва, Переведеновский пер., д. 17

[www.jettools.ru](http://www.jettools.ru)

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## 1、 ATTENTION ITEM

Welcome to use our product. For you and this product safety, please read this instrument carefully before you lifting, installation, usage, operation and maintenance.

### Attention item

- Wear the suitable uniform.
- Check if there is obstacle in and around the machine
- Do not touch the machine electrical part using the wet hand.
- Reference to the instrument written the check position, to check, adjusting and maintenance them at regular intervals.
- Do not move, change the safety device or mark and protection device at random.
- It is forbidden to change the speed when the machine is running.

## 2、 MACHINE SAFETY

### Instrument

★: Stand for dangerous, said a kind dangerous will happen at once ,if not avoid, it will lead dead or seriously harmful.

▲: Stand for warning ,said a kind of dangerous situation, if not avoid it will lead human wound or machine damage.

△: Stand for attention, said this item should be double check, be careful.

### 1、 Machine installation

△: Full understanding the installation requirement and procedure in the machine manual.

△: All people must communicate in the installation.

▲: The hoist and tool must be checked and match the relevant standard.

### 2、 Power

△: Check if the cabinet door is open or close.

▲: If the power off cause the machine stop, the main power must be turn off.

### **3、 machine empty running**

▲: Empty running the machine make the machine preheat before every day machining

▲: When machine empty running, check if every device function runs well, First check every hand shank operation is in well condition, and if the press tighten device is loosen. Please feel every axis movement is good. All electrical part run smart and in the right position. And open the electrical cabinet door and check if there is any abnormal electrical device damage in the transportation and if the electrical part get loose in the transportation. Especially check the connection screw. After check the electrical part, if every part is in well condition, open the two doors, turn the switch to linkage position, make sure there is no obstacle around the machine, and then electrical test.

▲: Do not press the wrong button ,before press the button, check the button on the electrical panel.

★: Clamping or unload the workpiece, please attention the machine is in stop position.

### **4、 device**

▲: Check all setting and movement part situation.

★: Carriage the heavy part, please use lifting machine ,crane or many people handle it together.

▲: Do not touch the work light after it is on for long time. It is very hot.

▲: Worktable move to the longitudinal limit position, the coolant liquid could split to ground ,watch out to avoid slid down.

★: When machine is running ,do not touch the moving part.

▲: Loose the bolt slowly.

▲: Tighten the work piece and tool

▲: Don' t put tools and container on the operation panel and other position of the machine.

▲: Ram is out of the column and other part of the machine ,operation panel ,to be careful the head.(see warning sign at the right ,stick on the left side of the machine .

▲: When the machine is running ,to avoid the splash split, please install the protection device according to the mill tool size



pay attention to your head

### 5、 Automatic running

★: Do not lean against the machine

▲: Do not press the wrong button ,before press the button, check the button on the electrical panel.

★: All doors must be closed before the machine move automatically.

▲: Do not touch and movement part when the machine is automatically running, the operator can touch it after the machine stop.

Do not touch any switch when automatically running.

according to the size of milling cutter, install cover to iron scurf splash

### 6、 Stop running

★: Press emergency button to stop the machine when there is emergency happen.

▲: Full know every machine situation that every stop machine way bring

★: Check if the machine stop complete

### 7、 Finish machining and shut down the power

▲: Clean the machine inner part

▲: Stop the machine in the certain position(X、 Y、 Z、 spindle)

▲: When machine finish the machining work, shut down the power and turn the power switch to lock position, in avoid of the other people turn on the machine.

### 8、 Check, maintenance ,keep in good repair

▲: Make sure the machine fault according to information the operator supply

▲: Make the check ,maintenance procedure and work range

★: Put the maintenance sign board around the machine when do the maintenance and repair work.

★: Shut down the power, and put the “don’ t open the switch” board on the main power.

★: Don’ t forget to shut down the main power, and put the “don’ t open the switch” warning board on the main power.

★: Don’ t use the wet hands touch cable, electrical part, switch.

★: Use the ladder and other safety tool when climb to the height place.

▲: Use standard and professional tools

▲: Don’ t put the tools and clothes on the moving part.

★: When use the crane, only allowed to use quality steal rope, hook and pulley wheel.

▲: Changing spare part must use assign part.

If trouble happen in operation, please contact with our company, and tell the manufacture date and serial number, our company will try our best to help you.

### **3、 MACHINE USAGE AND CHARICTER**

JMD-1452 TSX DRO milling machine is metal cutting machine. The spindle can install pillar milling, end miller directly or indirectly by the attachment. Also can in stall rotary table, which realize mill slot and circular arc curve. The milling head can rotate 90 degree leftward and rightward. the ram can rotate 180 degree leveling ,adopt to machine the surface ,angle, slot, hole and gear of medium and small size work piece, it is a good machine for manufacture ,mold, instrument, auto, motorcycle field.

This machine structure advantage, reasonable, smart, easy maintenance, also can install digital readout, can produce lot machining work, the position more accuracy.

Attention: machine in auto elevating feed, take off the handle, in avoid of operator get hurt.

## **4、 MACHINE STRUCTURE**

### **1、 Structure diagram 1**

This machine is composed by body, main transmission, knee, worktable, ram, vertical milling head, coolant, lubrication and electrical part, body is composed by bed and column, the column fixed on the bed; main transmission install in the column, the speed can be adjusted by the three speed change handle on the cover at right side. Feed transmission install in the knee, the servo motor transfer different speed and transfer to longitudinal, cross and elevating screw by gear. knee and column match with swallowtail guide way, knee move up and down along the column guideway. Knee and saddle match with rectangular guideway, worktable and saddle match with swallowtail guide way, worktable is driven by nut and screw longitudinal and cross movement. hung beam is composed by the fixed base, connecting base, ram, connecting plate ,bracket, the fixed base install on the column, connecting base installed on the fixed base, match with ram with swallowtail guideway, bracket install at the end of the ram, connecting plate install at another end of ram, vertical milling head connect with ram through connecting plate, coolant liquid is in the inner part of bed.

Main transmission part adopt mechanical lubrication, feed transmission part adopt Oil-immersed splash lubrication, other move part adopt manual lubrication and cup fix-point lubrication, the electrical cabinet hide in the column, electrical control operate

### **2、 Characteristics**

This machine worktable can longitudinal, cross and vertical manual movement, and also can realize automatic feed. Main transmission and automatic feed all adopt the gear speed changing system, main transmission is three grade gear speed change, the spindle can get 60-1800 rpm 12 grade speed, width speed

change. The worktable longitudinal, cross and elevating feed have 8 different speed. The spindle adopt three supporting structure, make the spindle rigidity better.

## 5、 MACHINE MAIN TECHNICAL SPECIFICATION

parameter	unit	JMD-1452 TSX DRO
spindle taper		vertical: 7:24 ISO40 horizontal: 7:24 ISO50
worktable to horizontal center	mm	50 ~ 450
worktable to vertical spindle end face	mm	200 ~ 650
spindle hole to hang beam	mm	245
spindle rotate spindle speed	r.p.m	vertical: 20 step 58 -5000 (7.5hp) horizontal: 12step 60 -1800
spindle travel	mm	<b><u>140mm</u></b>
spindle feed speed	mm	0.04 (0.0018" ) 0.08 (0.0034" ) 0.15 (0.0056 “)
vertical rotate angle	degree	± 90 °
worktable size	mm	1325 × 360
worktable longitudinal travel	mm	1100
worktable cross travel	mm	290
worktable vertical travel	mm	400
worktable feed step number	step	8
worktable longitudinal feed range	mm/min	30 ~ 750
worktable cross feed range	mm/min	20 ~ 500
worktable vertical feed range	mm/min	15 ~ 375
worktable longitudinal rapid feed speed	mm/min	1200
worktable cross rapid feed speed	mm/min	800



worktable vertical rapid feed speed	mm/min	600
worktable T slot number		3
T slot width	mm	18
T slot distance	mm	70
hung beam travel	mm	550
motor power	Kw	vertical: <b>7.5hp</b> horizontal: 5.5
feed motor torque	Nm	10
coolant pump motor power	W	90
coolant pump flow	L/min	25
machine net weight	Kg	2700
machine size	mm	2520×2100×2500

## **6、 MACHINE TRANSPORT, OPEN THE MACHINE PACKAGE AND INSTALLATION**

### **1、 Transportation**

The machine must be move by the crane slowly according to the mark on the case, any punch and vibration is not allowed.

### **2、 Open case**

If the machine is package by case, please move the case and pallet carefully, in avoid of some damage, if the machine is damage in the transportation, please contact with our agent and the transportation company. After move the case ,it is better to move the machine by forklift, there is certain position for the forklift work, If use crane, refer to the diagram 2 to install lifting rope, before lift, remove the oil collecting plate. The lifting rope is not allowed to touch the surface of the machine, handle, hand wheel, at the same time the there should be wooden plate on the touch point to protect the painting.

### **3、 clean**

Use the suitable clean liquid to clean Rust preventing oil completely, don't move the work table and knee before clean up the Rust preventing oil completely, move the worktable and knee to one direction limit position by manual, clean and lubrication the exposed part. and then move the worktable and knee to another direction limit position by manual ,clean and lubrication the exposed part. Loose the lock bolt of the ram, move the ram forward and backward to lean and lubrication completely.

### **4、 installation**

Bolts put into the foundation, use the concrete to leveling the unevenness, this make sure the reliable foundation. When put the machine on unevenness, use thin spacer to solve the unevenness, refer to diagram 3 machine foundation diagram(suggest fix the machine on the floor, prevent the machine move and tilting)

machine put on the foundation, first step is preliminary leveling, and the use concrete pour the bolts

After concrete solidification, tighten the nut, check the leveling, make the tolerance no more than 0.04/1000 in the longitudinal and cross direction(After leveling adjusting, check if the for conner of the machine touch with the floor, otherwise ,after tighten bolts, the machine is fixed titling)

### **5、 Power connecting**

Connect the power according to following procedure:

(1)、 Check the machine voltage and power voltage, make sure they are the same.

(2)、 Connect machine electrical wire ,make sure if it is conform with the local safety rules.

(3)、 Check the spindle right rotate direction

## **7、 MACHINE LUBRICATION AND COOLANT**

### **1、 Lubrication**

Machine work life depends on if the lubrication is reasonable.

(1) When using machine, must strictly according to machine lubrication request to lubricate, N46# lubrication oil should be clean, no acid, no water and hard pellet and so on.

(2) Main transmission gear should adopt forced lubrication, when main motor work, the lubrication pump works, feed lubrication adopt Oil-immersed splash lubrication. To make sure the lubrication runs well, clean the pump at the regular time. First use, clean it three months one time, and then clean it half a year one time. Please take attention to the lubrication oil volume, it should be made up when the oil is lower than the oil sign center.

(3) Longitudinal cross and vertical screw, gear and guideway are lubricated by the manual lubrication pump at the left side of the saddle and the knee, every work day, at least four times, check the oil system, if there is an obstacle, repair it at once.

(4) Pylon stub arbor bearing lubrication adopts Trickle automatic lubrication, check if the oil system and oil position.

(5) Other lubrication parts install lubrication cup, every work time four times lubrication.

### **2、 Coolant system**

Machine coolant system: one 25L coolant pump supplies the coolant liquid, adjust the coolant water nozzle can adjust the liquid flow. Coolant liquid is in the inner part of the bed, open the cover at the right side of column and can see the coolant pump, fixed on the bed by the support bracket.

## **8、 MACHINE TRANSMISSION SYSTEM**

## **1、 Main transmission**

Main transmission structure install in the inner part of the column, driven by one 5.5KW motor, according to the main transmission rotary sign ,to adjusting the position of the handle, can get 60-1800rpm,12step rotary speed.

## **2、 Feed part**

Feed part is in the knee, adopt gear transmission, driven by one motor realize variable speed, big torque. To choose cross or vertical feed by adjusting handle at the right side of the knee, also can choose derive by manual.

## **3、 Worktable**

worktable install on the top of the knee, connect with the knee by saddle, worktable ,saddle and knee space can be adjusted by the gibs, worktable can realize automatically and manual feed in longitudinal, cross and vertical direction.(DIAGRAM 7a、 7b)

## **4、 Knee**

Knee and column guideway is swallowtail guideway, the space can be adjusted by tighten and loosen gibs, the knee can feed in automatic and manual way, also the up and down is driven by a servo motor.

## **5、 Hung beam**

Hung beam and connecting bracket are match with swallow tail guideway, the space can be adjusted by the gib (7d),the hung device adapt Slotted locking, ram movement is transmission by gear shaft and gear rack, adjust the distance between the hung bracket and spindle end face.

There is slide bearing in the bracket, the lubrication can be adjusted by work need.

## **6、 Vertical head**

Vertical head connect to ram through the connecting plate, vertical head rotate driven by gear shaft and gear. adjust the angle of milling head and worktable.

### 7、Machine transmission part list DIAGRAM 4

item	name	quantity	number	item	name	quantity	number
01	Gear shaft	1	05206	25	longitudinal nut	1	03301
02	gear	1	06204	26	longitudinal nut	1	03302
03	gear	1	06205	27	bevel gear	1	03222
04	Slide gear	1	06202	28	bevel gear	1	03223
05	Slide gear	1	06201	29	gear	1	02224
06	gear	1	06217	30	gear	1	02246
07	gear	1	06218	31	gear	1	02213
08	Slide gear	1	06224	32	gear	1	02214
09	Slide gear	1	06223	33	gear	1	02218
10	cross screw	1	02231	34	Slide gear	1	02216
11	cross nut	1	52K713	35	gear	1	02215
12	bevel gear	1	02210	36	timing wheel	1	02235
13	bevel gear	1	02207	37	timing belt	1	
14	elevating screw	1	02226	38	timing wheel	1	02239
15	elevating nut	1	02304	39	gear	1	02232
16	slide gear	1	06207	40	gear	1	02238
17	slide gear	1	06208	41	gear	1	03213
18	gear	1	06221	42	gear	1	03206
19	gear	1	06219	43	gear	1	03208
20	gear	1	06220	44	gear	1	03207
21	gear	1	06222	45	gear	1	03209
22	bevel gear	1	03204	46	gear	1	03205
23	bevel gear	1	03201	47	bevel gear	2	X52K62-740
24	longitudinal screw	1	03205				

### 8、Machine rolling bearing list diagram 5

item	name	specification	size	QTY
01	tapered roller bearings	GB/T297-1994 30311P5	55 ×120 ×31.5	1
02	tapered roller bearings	GB/T297-1994 32217P5	85 ×150 ×38.5	1
03	Deep Groove Ball Bearings	GB/T276-1994 6309	45× 100 ×25	1
04	Deep Groove Ball Bearings	GB/T276-1994 6308	40× 90 ×23	1
05	Deep Groove Ball Bearings	GB/T276-1994 6209	45 ×85 ×19	1
06	Deep Groove Ball Bearings	GB/T276-1994 6307	35× 80× 21	1

07	Deep Groove Ball Bearings	GB/T276-1994 6308		40× 90× 23	1
08	Deep Groove Ball Bearings	GB/T276-1994 6308		40× 90× 23	1
09	Deep Groove Ball Bearings	GB/T276-1994 6306		30 ×72 ×19	1
10	Deep Groove Ball Bearings	GB/T276-1994 6211-2RS		55× 100 ×21	1
11	Deep Groove Ball Bearings	GB/T276-1994 6005		25 ×47 ×12	1
12	Thrust ball bearings	GB/T301-1995 51207		40× 68× 19	2
13	Deep Groove Ball Bearings	GB/T276-1994 6207		35 ×72× 17	1
14	Deep Groove Ball Bearings	GB/T276-1994 6006		30 ×55 ×13	1
15	Thrust ball bearings	GB/T301-1995 51112		60 ×85 ×17	1
16	Deep Groove Ball Bearings	GB/T276-1994 6006		30× 55 ×13	2
17	Thrust ball bearings	GB/T301-1995 51112		60 ×85 ×17	1
18	Angular Contact Ball Bearings	GB/T292-1994 7006AC		30 ×55 ×13	2
19	Deep Groove Ball Bearings	GB/T276-1994 6205		25 ×52× 15	1
20	Deep Groove Ball Bearings	GB/T276-1994 6204		20 ×47 ×14	1
21	Deep Groove Ball Bearings	GB/T276-1994 6206		30 ×62 ×16	2
22	tapered roller bearings	GB/T297-1994 30206		30 ×62 ×17.25	1
23	tapered roller bearings	GB/T297-1994 30206		30 ×62× 17.25	1
24	Deep Groove Ball Bearings	GB/T276-1994 6005		25× 47 ×12	1
25	Deep Groove Ball Bearings	GB/T276-1994 6005		25 ×47× 12	1
26	Deep Groove Ball Bearings	GB/T276-1994 6205		25 ×52 ×15	1
27	tapered roller bearings	GB/T297-1994 30206		30× 62 ×17.25	2
28	Deep Groove Ball Bearings	GB/T276-1994 6004		20 ×42 ×12	1
29	Deep Groove Ball Bearings	GB/T276-1994 6004		20 ×42× 12	1
30	Thrust ball bearings	GB/T301-1995 51104		20× 35× 10	1
31	Deep Groove Ball Bearings	GB/T276-1994 6005		25× 47× 12	1
32	Thrust ball bearings	GB/T301-1995 51105		25× 42× 11	1
33	Deep Groove Ball Bearings	GB/T276-1994 6005		25× 47× 12	1

### STEP PULLEY HEAD TOP HOUSING

ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO.	PARTS NO.	DESCRIPTION
1	6031	Drawbar for R. 8 Collet	43	6003	Motor Locknut ( 2 Req.)
2	6032	Drawbar Washer	45	6006	Motor Locknut Handle (2 Req.)
3	6041	Upper Bearing Locknut	46	6007	Black Plastic Ball (2 Req.)
4	6042	Bearing Sleeve Locknut	49	6009	Motor Pulley
5	6043	Ball Bearing	50	6078	Gear Housing Cover
6	6044	Upper Bearing Spacer(small)	51	6080	Round HD Screw (5 Req.)
7	6045	Upper Bearing Spacer (large)	55	6079	Oil Cup
8	6043	Ball Bearing	56	6075-1	Bull Gear Key
9	6049	Compression Spring (4 Req.)	57	6075	Splined Gear Hub
10	6249	Socket Set Screw (2 Req.)	58	6074	Splinel Bull Gear Assembly
11	6047	Spindle Pulley Bearing Sleeve	59	6056	Bearing
12	6019	Jam Nut	60	6068	Countershaft
13	6022	External Lock Washer	61	6069	Key
14	6018	Brake Ring Screw (3 Req.)	62	6067	Countershaft Gear
15	6024	Spring ( 2 Riq.)	63	6056	Bearing
16	6025	Machine Screw (4 Req.)	64	6066	Dowel Pin
17	6020	Brake Lock Stud	65	6065	Back Gear Shifter Fork
18	6014	Brake Assembly	66	6050	Gear Housing
19	6048	Spindle Pulley	67	6051	Dowel Pin (2 Req.)
20	6040	Spindle Pulley Hub	68	6052	Roll Pins (2 Req.)
22	6034	'V' Belt	69	6057	Socket Cap Screw (6 Req.)
23	6035	Timing Belt	71	6053	Ball Bearing
24	6072	Timing Belt Pulley Flange	72	6054	Snap Ring
25	6071	Timing Belt Pulley	73	6077	Lockwasher
26	6072	Timing Belt Pulley Flange	74	6076	Bearing Locknut
27	6073	Flat Head Screw	75	6083	Hex Nut Hardened (3 Req.)

28	6070	Hex Jam Nut	76	6081	Vertical Tee Bolt (3 Req.)
29	6038	Black Plastic Ball Handle (2 Req.)	77	6082	Vertical Bolt Washer (3 Req.)
30	6037	Spindle Clutch Lever	78	6060	Back Gear Shift Grank
31	6036	Cam Ring	79	6167	Roll Pin
32	6039	Cam Ring Pin ( 2 Req.)	80	6058	Back Gear Shift Bushing
33	6023	Socket Set screw	81	6168	Shift Crank
34	6016	Brake Lock Handle	82	6171	Black Plastic Ball 1”Dia
35	6021	Brake Lock Pin	83	6069	Gearshift Plunger
39	6008	Hex Jam Nut (2 Req.)	84	6170	Compression Spring
41	6002	Motor Mounting Studs ( 2 Req.)	85	6026	Belt Guard Assembly
42	6013	Belt Housing			

### HEAD PARTS LIST

ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO.	PARTS NO.	DESCRIPTION
1	6141	RD.HD.Screw	61	6164	KP. Set Screw
2	6140	Bevel Pinion Washer	62	6230	Key
3	6139	Feed Bevel Pinion	63	6162	Feed Gear Shift Crank
4	6138	Feed Worm Gear Shaft Sleeve	64	6166	Cluster Gear Shift Crank
5	6137	Worm Cradle Bushing	66	6161	Cluster Gear Cover
6	6123	Set screw	67	6165	Cap Screw (4 Req.)
7	6136	Worm Cradle Spacer( 4 Req.)	68	6169	Gear Shift Plunger
8	6134	Feed Dirve Worm Gear	69	6170	Compression Spring
9	6133	Feed Dirve Worm Gear Shaft	70	6168	Shift Crank
10	6142	Worm Shaft Key	71	6167	Roll Pin
11	6135	Key	72	6171	Black Plastic Ball
12	6150	Locknut	73	6206	Cap Screw (2 Req.)
13	6149	Washer	74	6202	Clutch Ring Pin( 2 Req.)



14	6147	Cluster Gear Key	75	6200	Clutch Ring
15	6148	Feed Reverse Bevel Gear	76	6199	Socket Set Screw
16	6122	Feed Engage Pin	77	6199-1	Brass Plug
17	6121	Worm Gear Cradle	78	6198	Overload Clutch Locknut
18	6126	Worm Gear Cradle Throw-out	79	6197	Safety Clutch Spring
19	6125	Shift Sleeve	80	6194	Overload Clutch
20	6169	Gearshift Plunger	81	6195	Overload Clutch Sleeve
21	6170	Compression Spring	82	6190	Single Spring Washer ( 3 Req.)
22	6128	Roll Pin	83	6189	Round Head Screw (3 Req.)
23	6168	Shift Crank	84	6228	Mock-it Lockscrew
24	6131	Black Plastic Ball	85	6228	Socket Set Screw
25	6132	Cap Screw (3 Req.)	86	6246	Lockscrew
27	6157	Cluster Gear Shaft Upper Bearing	87	6246	Socket Set Screw
28	6153	Cluster Gears Assembly	88	6191	Compression Spring
29	6160	Cluster Gear Key	89	6193	Overload Clutch Lever Spring Plunger
31	6151	Cluster Gear Shaft	90	6186	Quil Pinion shaft Bushing
32	6158	Snap Ring	91	6190	Pinion Shaft Worm Gear Spacer
33	6156	Bevel Gear Bearing	92	6187	Overload Clutch Worm Gear
34	6159	Bevel Gear Thrust Spacer	93	6188	Overload Clutch Ring
35	6151	Feed Reverse Bevel Pinion	94	6188-1	Snap Ring
36	6143	Feed Driving Gear	95	6236-1	Dowel Pin
37	6145	Key	96	6203	Overload Clutch Trip Lever
38	6143	Cluster Gear Input Shaft	97	6201	Overload Clutch WASHER
40	6144	Feed Drive Gear	98	6195-1	Snap Ring
41	6252	Needle Bearing	99	6205	Clutch Arm Cover
42	6227	Bushing	100	6207	Socket Set Screw
43	6225	Worm	101	6208	Chem Blacket Locknut
44	6224	Feed Worm Shaft Bushing	103	6239	Cam Rod

47	6223	Feed Worm Shaft Thrust Washer	104	6234	Trip Handle
48	6220	Bushing	105	6233	Black Plastic Ball
49	6220	Feed Reverse Bevel Gear	106	6231	Feed Trip Bracket
50	6222	Feed Teverse Clutch	107	6232	Cap Screw (2 Req.)
51	6220	Feed Reverse Bevel Gear	108	6219	Socket Set Screw
52	6220	Bushing	109	6229	Key
55	6216	Reverse clutch Rod	110	6214	Feed Reverse Knob Stud
56	6217	Roll Pin	111	6213	Reverse Knob
57	6209	Feed worm Shaft	112	6215	Snap Ring
59	6226	Pin	113	6218	Handwheel Clutch
60	6163	Feed Shaft Rod	114	6255	Steel Ball

### HEAD PARTS LIST (CONTINUED)

ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO..	PARTS NO	DESCRIPTION
115	6219-2	Compression spring	158	6244	Chem Blacked RD. HD. Screws
116	6219-1	Handwheel Clutch Spring Screw			(2 Req.)
117	6237	Roll Pin	159	6243	Micrometer Scale
118	6236	Cam Rod Sleeve Assy	160	6115	Snap Ring
119	6241	Roll Pin	161	6108	Quill Micro - stop Nut
120	6242	Compression Spring	162	6107	Micrometer Nut
121	6240	Trip Plunger	163	6105	Quill Stop Knob
123	6118-1	Trip Plunger Bushing	164	6104	Quill Stop Micro - screw
124	6118	Feed Trip Plunger	165	6106	Screw
125	6210	Handwheel	166	6172	Quill Pinion Shaft
127	6084	Spindle	168	6185	Spring Pin
128	6086	Quill Skirt	169	6180-1	RD. Head Screw( 2 Req.)
129	6090	Locknut	170	6179	Roll Pin
130	6091	Lockwasher	171	6184	Key

131	6092	Bearing	172	6183	Pinion shaft Hub Screw
132	6094	Sleeve	173	6176	Steel Ball
133	6098	Nose - piece	174	6175	Compression Spring
134	6097	Spindle Dirt Shield	175	6178	Rack Feed Handle Hub
135	6093	Bearing	176	6182	Pinion Shaft Hub Sleeve
136	6095	(Bearing Spacer - Large)	177	6180	Spring Vover
137	6096	(Bearing Spacer - Small)	178	6181	Clock Spring(Clock Spring Assy)
138	6093	Bearing			Assy.)
140	6253	Special Socket Set Screw	180	6172	Quill Pinion
141	6254	Collet Alignment Screw	181	6246-1	Socket Set screw
142	6085	Quill	182	6246	Lock screw
144	6113	Socket Set Screw	183	6110	Reverse Trip Ball Lever
145	6111	Feed Trip Lever	184	6109	Feed Reverse Trip Plunger
146	6112	Trip Lever Pin	185	6114	Raverse/Trip Ball Lever Screw
148	6116	Quill lock Sleeve	186	5039	Worm Gear
149	6119	Lock Handle	187	5041	Key
151	6088	Felt Washer	188	5042	Socket Set Screw
152	6117	Quick Lock Bolt	189	5040	ADJ Worm Shaft
153	6116	Quill Lock Sleeve Tapped	190	6174	Pinion Shaft Hub Handle
155	5036	T - Blot Assy	191	6173	Black Plastic Ball Handles
156	6120	Lower Clamping Blot Spacer(2 req)	192	6101	Quill Housing
157	5038	Locknut			

## VARIABLE SPEED HEAD TOP HOUSING

ITEM NO.	DESCRIPTION	ITEM NO.	DESCRIPTION
1	Hex Cap Nut		
2	Vari - Speed Dial		
3	Bronze Bearing		
4	Full Dog Socket Set Screw		
5	Speed Changer Housing		
6	Speed Changer Chip Shield		
7	Machine Screw(2 Req.)		
9	Roll Pin		
9-1	Roll Pin		
9a	Roll Pin		
9b	Speed Change Stud		
9c	Cotter Pin		
10	Speed Changer Chain		
11	Drum Switch		
13	Top Bearing Cap		
14	Soc HD Cap Screw(2 Req.)		
15	Roll Pin		
16	Spring		
17	Bearing		
18	Speed Change Shaft		
19	Handle		
20	Caution Plate		
21	Speed Change Handwheel		
22	Flat Hd. Cap Screw(2 Req.)		
23	Plastic Face Plate		
24	Set Screw		
25	Socket HD Cap Screw(4 Req.)		
30	Worm Gear		
31	Bearing		
33	Speed Changer Spur Gear		
35	Speed Change Chain Drum		
36	Belt		
38	Timing Pulley Clutch Sleeve		
39	Spindle bull Gear Hub		
40	Spindle Bull Gear Assembly		
41	Ball Bearing (2 Req.)		

42	Snap Ring (2 Req.)
43	Bull Gear Bearing Spacer
45	Vert. Tee Bolts(3 Req.)
46	Steel Washer(3 Req.)
47	Hex Jam Nut - Finished HdN:(3 Req.)
48	Ball Bearing Gear Sleeve Washer
49	Fixed Clutch Bracket
50	Socket Set Screw
51	Guide for Clutch Bracket
52	Flat HD Socket Cap Screw(2 Req.)
53	Dowel Pin
54	Oil Cup
55	Compression spring (3 Req.)
56	Bearing Locknut
57	Bearing Sleeve
58	Wave Spring Washer
59	Bull Gear Shift Pinion
60	HI - LOW Detent Plate
61	Hex Nut(3 Req.)
62	Lock Washer(3 Req.)
63	Studs(3 Req.)
64	Socket Set Screw
65	Adjustable Plate
66	HI - LOW Detent Plunger
67	Spring
68	Socket Cap Screw(2 Req.)
69	Bakelite Ball Handle
70	HI - LOW Shift Crank
71	HI - LOW Pinion Block
72	Roll Pin(1 Req.)
72a	Socket HD Cap Screw(2 Req.)
73	Socket Cap Screw(4 Req.)
77	Socket Set Screw
78	Key(2 Req.)
79	Ball Bearing (2 Req.)
80	Bull Gear Pinion Counter shaft
81	Key
82	Wave Spring Washer
83	Bull Gear Pinion
84	Bull Gear Pinion Bearing Cap
85	Socket HD Cap Screw(2 Req.)
86	Timing Belt Pulley
87	Jam Nut

## VARIABLE SPEED HEAD BACK GEAR

ITEM NO.	DESCRIPTION	ITEM NO.	DESCRIPTION
1	Socket Cap Screw(3 Req.)	35	Hex HD. Screw
3	Spring Washer	36	Brake Shoe Pivot Sleeve
4	Ball Bearing	37	Roll Dowel Pin
5	Snap Ring No.	38	Drive Key
6	Socket HD Cap Screw (2 Req.)	39	Key for ADJ Varidisc Motor Shaft
7	Hex Jam Nut	40	Stationary Motor Varidisc
8	Motor7.5HP(complete unit )	41	Socket Set Screw
9	Hex HD Screw(2 Req.)	42	Plastic Insert(2 Req.)
10	Belt Housing	43	Adjustable Motor Varidisc Assembly
13	Speed Change Plate	44	Spring for Varidisc Motor Shaft
14	Drawbar	45	Adjustable Varidisc Spring Collar
15	Cotter Fin	46	Socket HD Cap Screw(2 Req.)
16	Speed Change Plate Pivot Stud	47	Ret. Ring
17	Socket HD Cap Screw(2 Req.)	48	Socket Cap Screw
18	Washer	49	Plastic Key
19	Pivot Sleeve(2 Req.)	51	Key
20	Draw Bar Washer Draw Bar Washer	52	Taper Pin
22	Spindle Pulley Bearing Sliding Housing	53	Belt Housing Base
23	Ball Bearing	54	Motor Pulley Cover
24	Plastic Insert(2 Req.)	55	Socket Cap Screw
25	Adjustable - Driven Varidisc	58	HI - LOW Range Nameplate
26	Snap Ring No.	59	Drive Screw(4 Req.)
27	Belt	60	Taper pin(2 Req.)
28	Stationary Driven Varidisc	61	Quill Feed Nameplate
29	Brake Bearing Cap	62	Rivets(4 Req.)
29a	Socket HD Cap Screw(2 Req.)	63	Gear Housing
30	Ball Bearing	64	Round HD Machine Screw(3. Req.)
31	Brake Spring(2 Req.)	65	Gear Housing Plate
32	Brake Shoe Assembly(2 Req.)	66	Snap Ring
33	Spindle Pulley Spacer	67	Brake Finger Pivot Stud
34	Spindle Pulley Hub	68	Brake Operating Finger

69	Bakelite Ball Handle	74	Brake Lock Shaft
70	Brake Lock Handle	75	Brake Lock Cam
71	Brake Lock Pin	76	Roll Pin
72	Socket Set Screw	77	Socket Set Screw
73	Sleeve for Brake Lock Shaft		

## 9、 machine operating

### 1、 operating (DIAGRAM 1)

(1)When use this machine, must read the operation manual carefully, know the inner structure, every handle function, coolant, lubrication and electrical system and operating button switch function.

(2)Check every lock system tighten or not, electrical power source and earthing wire right or not before use the machine.

(3)Connect to the power source, check every switch, button smart and reliable. power source switch 17 connect and cut power, when connecting, the light 19 on or off. Press spindle button 18, press it ,spindle run, no press, spindle stop, use this button when changing speed. Switch 8 is feed switch, it is variable speed adjusting switch, choose different feed rate, motor can get different speed and then get different feed rate. Switch 2 is spindle clockwise rotate, switch 4 is spindle anticlockwise rotate, button 3 is spindle stop button, switch 6 is coolant pump on and off switch. handle 10 is work table feed direction handle, button 7 is worktable inching button, emergency button 5 make all move of the machine stop, when there is accident, press the button.

(4)Change spindle speed, first stop the machine, according to the indicator, adjust the three handle 20 to A、 B I 、 II 、 III and M、 L position can realize.

(5) Knee elevating, adjust the worktable to spindle position. First loose lock handle 13, if manual drive, rotate shank handle 12, if automatic, take off handle 12, put handle 15 to elevating position, jogging button 7 move the worktable to the right position, if need the accuracy position, need use the shank hand 12 micro-adjusting, and then lock handle 13 can work.

Attention: take off the handle 12 in avoid of the handle rotate with the motor when automatic feed, only when the handle take off, the protection switch 13 connect, the elevating motor start work.



(6) Worktable cross feed ,loose the handle 11,if manual drive ,handle 15 in the position “0”,turn the hand wheel 14,if automatic feed, turn handle 15 in the position “cross”, and then adjust feed rate switch 8 to choose the speed.

(7)Worktable longitudinal feed ,loose the handle 16,if manual drive ,handle 27 in the position “manual”, turn the hand wheel 9,if automatic feed, turn handle 15 in the position “longitudinal”, and then put the handle 27 to automatic position, adjust feed rate switch 8 to choose the speed

Attention: loose the lock system of the guide way that need to move, the guide way that do not need move should be locked, increase the machine rigidity.

(8) Hung beam move back and front movement, loose two locking bolt21,turn gear shaft 22 can realize, adjusting the position ,and then lock the two bolt can start work.

Attention; when adjust the worktable longitudinal, cross and elevating feed speed, the feed rate switch turn from small to big, don't adjust the speed too high, in avoid of the trouble happen.

## **2 Vertical milling head operating**

(1)belt shifting and tension control 3 loose this lever, move the motor forward, and can choose the require speed, and then lock this lever. when lock and loose the draw bar, the spindle must be locked first.

(2) Spindle brake lever:2 spindle brake lever turn to any direction the spindle can be stop(attention: before start the motor, the spindle brake should be loosen, otherwise the motor will be damage.

(3) Reversing switch :4 this is motor rotation direction changing switch, also can change high and low speed.

(4) high-low speed lever:15 this lever is used to control the spindle directly drive or backgear drive, rotate the spindle by hand to facilitate meshing of clutch or gears.(attention: high-low speed lever must use with clutch together, motor rotate, don't shift the high-low speed lever.

(5)power feed engagement crank 14 this crank is use to mesh in and out the feed worm gear. when lever is in right hand hole, the power feed worm gear is engaged,

to disengage worm gear, pull knob out and crank handle in clockwise or down direction and move to opposite position.

Attention: don't use power feed when the spindle speed is above 2700rpm when do not use power feed, please mesh out the worm gear to avoid the damage to warm)

(6) Quill feed selector: 5 this crank is used for selecting the three feed: 0.04mm, 0.08mm and 0.13mm, It is shifted by pulling knob out and turning from one position to the other. Feeds are stamped on the cover at the left side of the indentation hole.

(7) Feed reversing knob: 6 this knob position decide the quill movement direction, when the knob pull out, quill downward feed, when this knob push in, the quill upward, the knob in the middle position the quill stop, if need hand wheel feed, install a hand wheel in the feed position (it is suggested that the handle should be left in the neutral position when not in use)

(8) Feed control lever: 7 when this lever in the left position, over-load clutch engages on pinion shaft, and keep engage until either quill stop comes in contact with micrometer adjusting nut, forcing feed control lever to drop out automatically, or released manually by engaging lever to right

Note: according to the machining requirement, adjusting the micro adjusting nut. When the spindle quill block touch the adjusting nut, feed control lever disengage, quill feed stop .

(9) Spindle quill feed lever: 13 this lever is used to manual feed, realize fast and big feed (it is suggest that the feed lever should be taken off when automatic feed)

(10) Quill stop block 12 It is used to disengage automatic feed in either direction as well as the setting point from working to given depths

(11)、Micrometer nut 11 it is used for setting of depths, Each graduation on nut indicate 0.01mm. The machining depth can be adjusted by adjusting the position of the micrometer nut and quill stop block

(12)、Spindle quill lock lever 10 this is used to lock the spindle quill, it is suggested that lock the spindle quill when don't move the spindle quill.

(13)、 Ram position adjusting: loose the 2 ram fixing bolts on the turret, and the push the ram to the position, after finishing the adjusting, lock the ram ,if do the heavy cutting work, it is better to make the milling head close to the column, the machine can have the best rigidity.

(14)、 operation suggestion

① When do the milling cutting, should operate according to the machine work rules.

② Power feed can machine the hole no more than 8mm,when the hole diameter more than 8mm,should use manual feed.

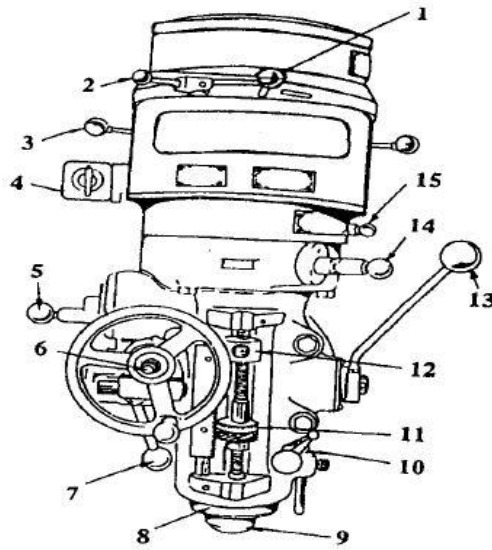
③ hi-low speed choose

this machine has two speed range, you can see the list at the milling head.

(LOW)		(HIGH)	
341	3000	683	6000
216	1866	433	3733
141	1283	283	2566
91	791	183	1583
58	500	116	1000

Choose high speed, turn the clutch lever to the spindle brake direction, high -low speed shifting lever put to the right hole make the clutch engage. If the lever to high speed position, but the clutch not mash, don't turn lever, can rotate the spindle front end till clutch mesh well.

Choose low speed, should turn the clutch lever to the direction away from the spindle brake. high -low speed shifting lever put to the left hole make the backgear engage. If the lever in low speed position, but the backgear not engage, don't turn lever, can rotate the spindle front end till clutch mesh well. the machine come into low speed range.



NO.	name	NO.	name
1	High-low speed clutch control	9	spindle
2	spindle brake	10	quill lock
3	belt shifting and tension control	11	micrometer adjusting nut
4	reversing switch	12	quill stop block
5	quill feed selector	13	quill feed handle
6	feed reversing knob	14	power feed engagement crank
7	feed control lever	15	high-low speed lever
8	spindle quill		

(15)removing the motor

- ①disconnect the power
- ②Loose the two motor fixing lever and can lift the motor.

(16)change the belt wheel

Loose the two nut on the motor base lifting motor a little can change the belt

(17)attention

- ①When spindle brake is in lock condition, don't start the motor.

② When spindle speed is in the high speed, don't use the quill power feed.

### 3 adjusting

(1) spindle bearing space adjusting

The spindle bearing space has been adjusted to a suitable position, if the bearing space get larger because the normal grind, should find professional repair person, first move the right side cover 1, adjust round nut 2, adjusting the space, after finishing, install the cover diagram 6

(2) Worktable longitudinal, cross and vertical guide way and ram gibs adjusting. the space of the guide way is very big, the machining work can not reach the accuracy, the gib should be adjusted.

Longitudinal gib adjustment: first loose the bolt 1 of small end of the gib, adjust big end bolt 2 to suitable position, and then lock the bolt 2 7a

Cross gib adjustment: first move the chip wiper guard 1, loose the bolt 2 of small end of the gib, adjust big end bolt 3 to suitable position, fix the chip wiper guard. 7b

vertical gib adjustment: first move the chip wiper guard 1, loose the bolt 2 of small end of the gib, adjust big end bolt 3 to suitable position, and then lock the bolt 2, fix the chip wiper guard. 7c

Ram gib adjustment: adjust bolt 1 can realize. 7d

(3) screw and nut space adjustment

Screw and nut space can influence the machining accuracy and surface roughness. the longitudinal and cross screw set the space adjusting bolt, first loose bolt 1, adjust bolt 2 to suitable position, use bolt 1 lock bolt 2. Diagram 8

(4) milling head alignment

For the normal cutting work, use the scale on the milling machine to alignment, it is enough to satisfy the accuracy. If the precision milling work, it need the milling head perfectly square to worktable, can according to the following method, first loose the four bolts, but remain the little lock force for the micro adjusting, and then adjust the worm shaft to adjust the milling head, make the milling head and worktable. perfectly square. Diagram `15

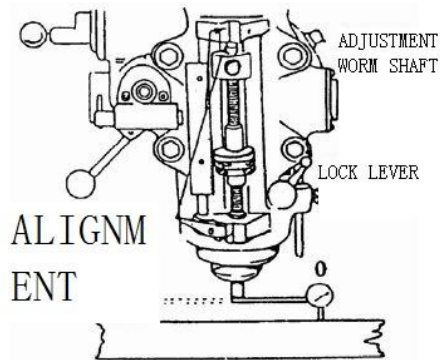


DIAGRAM 15

#### 4、 trail run

- (1) Before trial run ,loose the lock bolts on three direction.
- (2) Wipe antirust oil all parts of the machine, do not use hard tool which can scratch the surface of the part , after wiping the exposed metal surface, coat with a thin lubricant oil.
- (3)According to lubrication oil requirement, pump into lubrication pump, lubrication every lubrication point and check.
- (4)Check every manual operating handle, wheel ,if all is smart and reliable.
- (5)The machine connect to power, check spindle rotate direction, worktable feed and kneed elevating direction if the direction is the same with sign marked.
- (6) Trial running, first inching, check longitudinal, cross and vertical axis limit correct or not, every grade speed normal and then let the machine empty run in lowest speed at least 30 minute, and increase speed gradually to test each rotation speed and speed change structure is smart and reliable.

#### 5、 maintenance and keep in good repair

machine daily carefully keep in good repair is very important to machine accuracy and ability.

- (1) According to machine use frequency and machine lubrication condition, add lubrication oil to oil tank and lubrication point at regular time.
- (2)Change the clamping area often in avoid of partial wearing.

(3)The workpiece must be clamped tighten, also the tool should be clamped tighten.

(4)Check the electrical part safety and reliable at regular time, coolant system normal or not, if every lock handle is in the position, and each axis limit is reliable and do the repair work well timely.

## 10 、 machine electrical part

1、 The machine main power supply is 400 V, 50 Hz 3PH AC power supply ,feed power supply is single phase feed 220V, 50HZ AC power, after customer approval the power , turning on the machine, pay attention: The machine must be grounded.

2、 The machine has a main power switch, short circuit and overload, zero-voltage protection, emergency stop and other protective measures

The main power switch, power indicator light and spindle jog button (convenient spindle speed changing) set at the right side of the machine column. Spindle running, cooling control, table feed inching movement install on the hung up bracket machine at the left of machine, also the emergency stop button install on this, when an unusual situation occurs, immediately press the button, spindle, cooling, feed all movement should immediately stop. After exclude fault, if need machine starts again, you should turn the emergency button clockwise direction at an angle to make it reset firstly, and then restore the control knob to zero position and then can continue to run the machine.

Machine electrical system maintenance, the people must be professional .Please pay attention to detach the machine out of external power supply.

### 5、 Electrical components list

item	code	name	specification	quantity	remark
1	M1	Servo motor	QS130A100B15-4EL	1	
2	M2	Triple-phase asynchronous motor	3PH 400V 50HZ 5.5KW	1	

3	M3	Triple-phase asynchronous motor	3PH 400V 50HZ 90W	1	
4	M4	Triple-phase asynchronous motor	3PH 400V 50HZ 5HP	1	
5	QF1	circuit breaker	D:3P-16A	1	
6	QF2	circuit breaker	D:3P-16A	1	
7	QF3	circuit breaker	D:3P-16A	1	
8	KM1 、 KM2	AC contactor	CJX1-22 3TB43 AC24V	2	
9	KM3	AC contactor	CJX1-9 3TB40 AC24V	1	
10	KA1 、 KA2	relay	HH52P 、 AC24V	2	
11	TL1	transformer	BK-100 In:AC380V To:24V	1	
12	TL2	rectifier	In:AC220V 、 To:DC10V	1	
13	TL3	Three-phase isolation transformer	In:AC380V 、 To:220V 2KVA	1	
14	FR	thermal relay	JR36-20 13A	1	
15	EL	power light	AD16-24V	2	
16	SB	emergency switch	LA42	1	
17	SB1	push-button switch	GREEN LAY3	1	
18	SB2	push-button switch	LA42 ( RED )	1	
19	SB3 、 SB4	push-button switch	GREEN LA42	3	
20	SA1 、 SA2	sensitive switch	LXW5-11G2	2	
21	SA3 、 SA4	Knob button	LA42	1	
22	QS	power switch	HZ12-40/04	1	
23	RA	Potentiometer	WX T2 6	1	
24	SQ1	limit switch	JW2-112/L	1	
25	SQ2345	limit switch	JW2-112/3	2	
26	XT	terminal block	XT20/07 、 +15/26	1	
27	HS8L	servo driver	HS8L 04---3KW	1	
28	SA1	Universal switch	LW5-16 55SN/6 500V 16A	1	
29	QF4	circuit breaker	DZ47-63 C16A	1	



## 11、 FAULT RESOLVE

item	Fault phenomenon	Fault reason	Fault resolve
1	motor not run	incorrect power source incorrect connection wire terminal block loose	input correct power check the correct connection 3.tighten the terminal block
2	spindle work abnormal	main transmission speed change gear grade shift not in the position cutting overload motor 4spindle mechanical part damage	check main transmission speed change box use the machine according to the cutting rule check the motor 4.check the mechanical part manual
3	spindle temperature over the normal	1.bearing damage2.lock nut too tight	1.Change bearing2.adjust lock nut
4	spindle accuracy not good	bearing damage or adjusting not so well spindle inner hole wear spindle temperature too high cause heat deformation 4.lock nut get loose	1.Change bearing or adjusting 2.change spindle 3.adjusting bearing 4.tighten lock nut
5	spindle speed changing box no speed change impulse	Spindle motor impulse line contact failure	Check electrical wire ,adjusting impulse shaft tail end bolts,reach the impulse contact
6	feed box high noise	transmission gear not in the position or loose 2.motor noise	1.check every transmission gear 2.check motor
7	Feed box no feed movement	feed motor not connecting with power or damage 2.feed electrical clutch can not pull on	check electrical part wire connection and electrical unit failure and exclude
8	movement part sound abnormal	foreign matter fall into the inner part 2.screw and nut connecting part loose	1.clean the foreign matter 2.tighten the bolts
9	movement part	screw and nut connection loose screw bearing bracket loose. 3.screw and nut space too large.	1.tighten the loosen bolts 2.tighten the bearing bracket 3.adjusting the screw and nut space.
10	movement part	guideway not be fully lubricated 2.no lubrication	1.check the pipe jam or not,oil distributor damage,lubrication system abnormal 2.lubricate the machine as operation manual.
11	motor damage	Water or oil into the electrical wire,circuit get short-circuit 2 wire damage cause short circuit.	1.contact with manufacture 2.eliminate the problem and change the motor.

12	machine noise beyond standard	1.transmission gear loose 2.foreign matter fall into the machine	1.Retighten the loosen gear 2.clean foreign matter
13	lubrication oil Quick consumption	1.oil pipe damage 2.oil distributor damage	Change oil pipe 2.change oil distributor
14	guide screw lubrication not enough or no lubrication	oil distributor damage or oil is not enough, lubrication break off or pipe block no lubrication 4.machine oil outlet block up	1.change the lubrication pipe joint. 2.change oil pipe. 3.fill up the lubrication oil. 4.repair the ou-let hole.
15	No coolant liquid	Coolant liquid is too dirty coolant filter filter mesh block, coolant pipe leak or fold 3.nozzle get block	1.Clean filter mesh and change clean coolant liquid 2.change pipe 3.clean nozzle.
16	Coolant pump fault	Longtime work,voltage too high coolant pump block up,motor too hot. coolant pump damage. thermal relay burn out wrong motor rotation direction.6 no coolant liquid	pull on thermal relay clean coolant pump,pull on thermal relay. change coolant pump motor. change thermal relay. 5 reconnection 6.fill up the coolant liquid
17	Vibration when cutting	1.Cutting parameter is unreasonable2.spindle bearing loose3.machine gibs wear and lead the guide space big.4.workpiece is not be clamped tighten or unreasonable clamping method	1.Adjusting the cutting parameter 2.repair the spindle box 3.repair the gibs 4.tighten the workpiece
18	machined workpiece surface Large corrugated and roughness exceed the tolerance	1.Workpiece is not be tighten clamped. 2.transmission part have space or preload is insufficient 3.cutting feed is not correct.	1.tighten the workpiece 2.adjust the guideway space 3.change the cutting parameter.

## 12、 MACHINE CONSUMBAL PART LIST

item	code	name	quantity	remark
1	X603202304	Elevating nut	1	
2	X603203301	Longitudinal nut	1	
3	X603203302	Longitudinal nut	1	
4	X6005301	sleeve	1	
5	X52K713	cross nut	1	

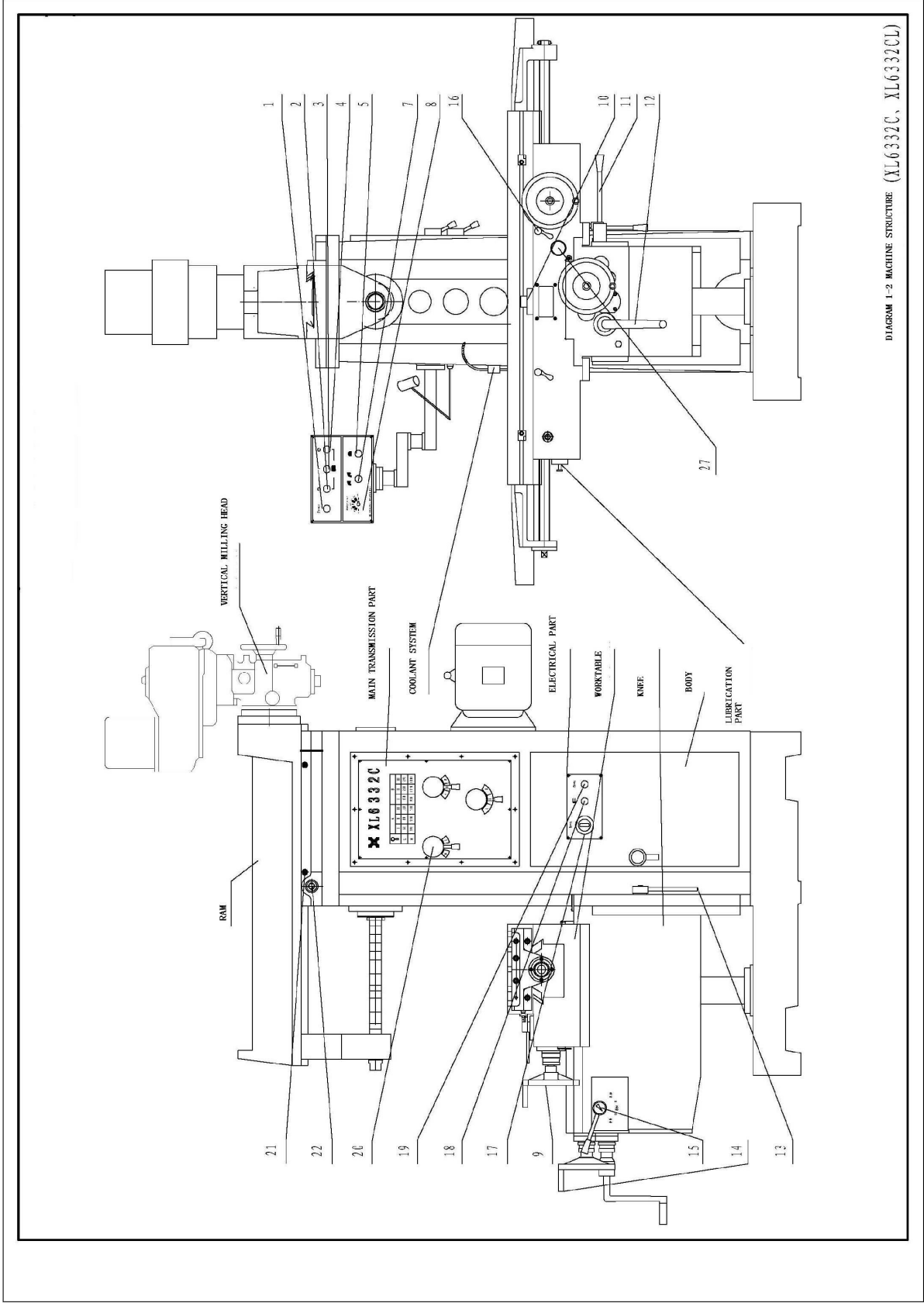


DIAGRAM 1-2 MACHINE STRUCTURE (XL6332C, XL6332CL)

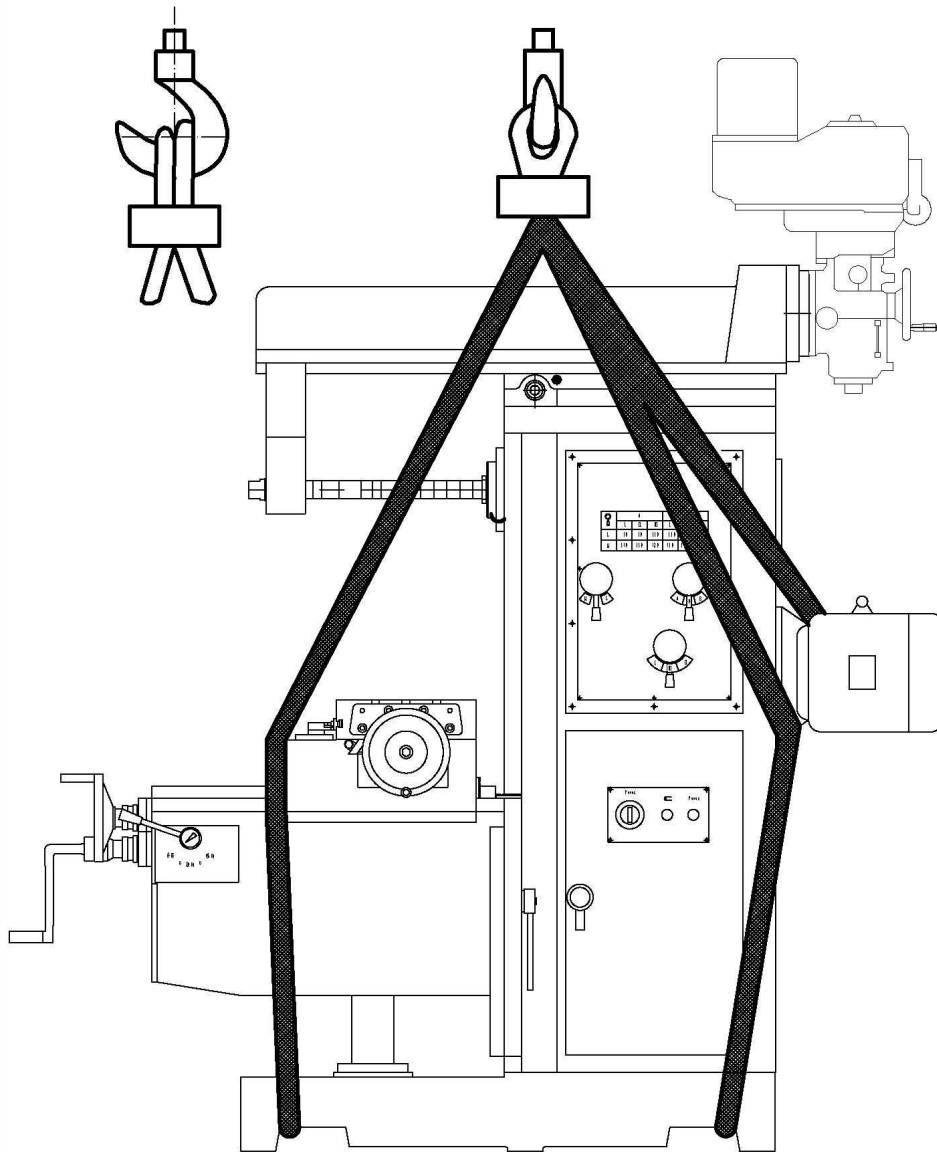


DIAGRAM 2 MACHINE LIFTING

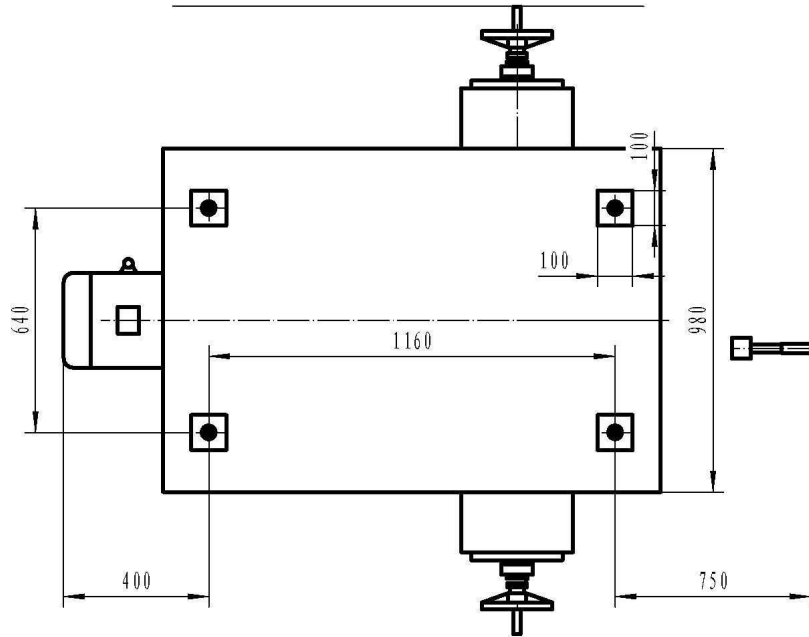
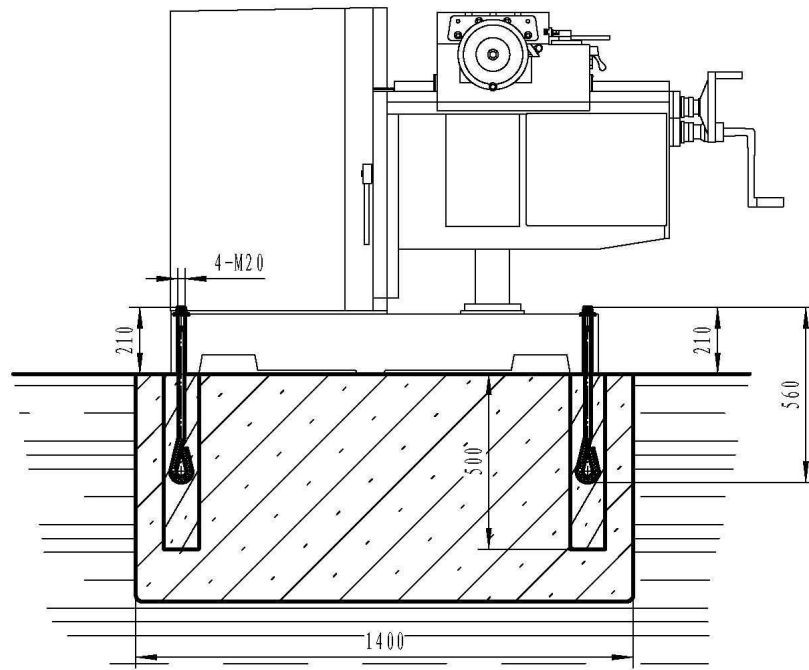
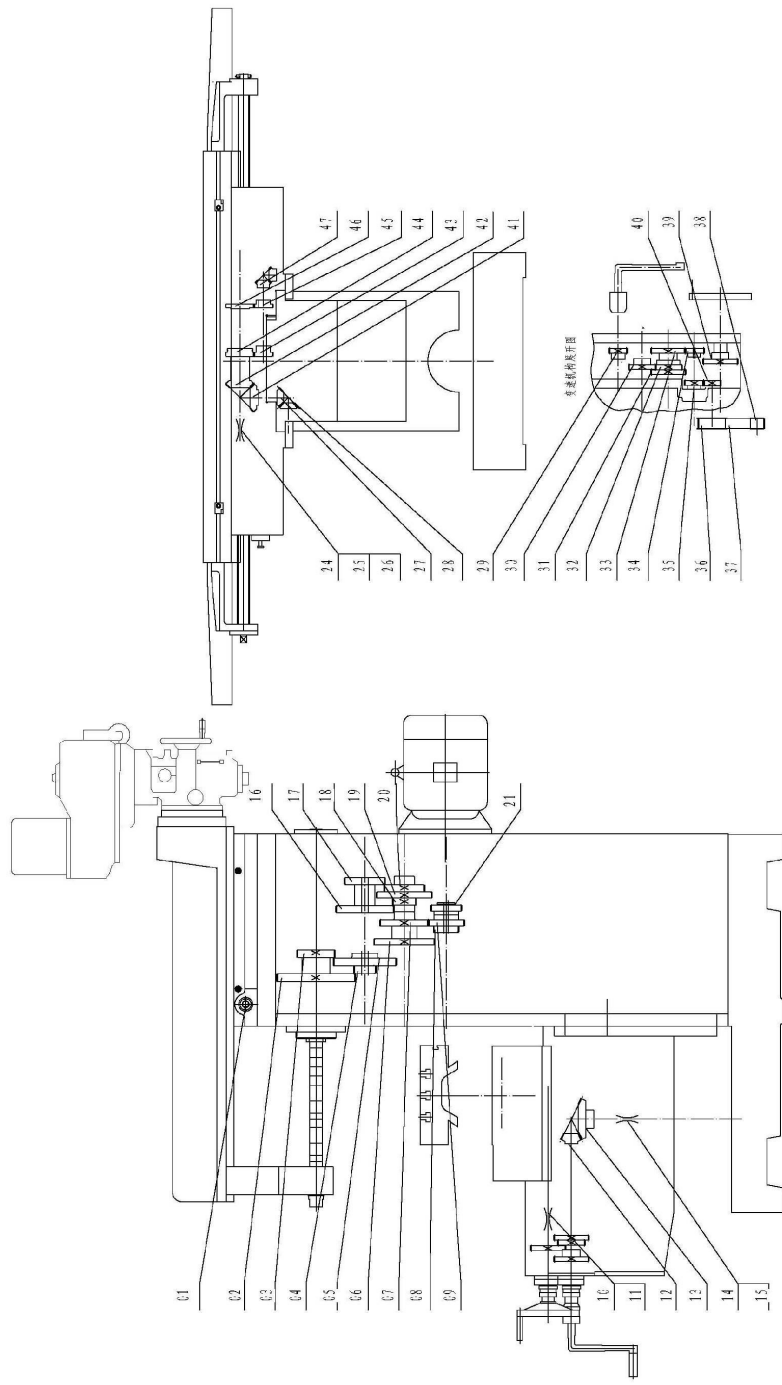


DIAGRAM 3 MACHINE FOUNDATION



DAIGRAM 4-3 MACHINE TRANSMISSION (XL6332C, XL6332CL)

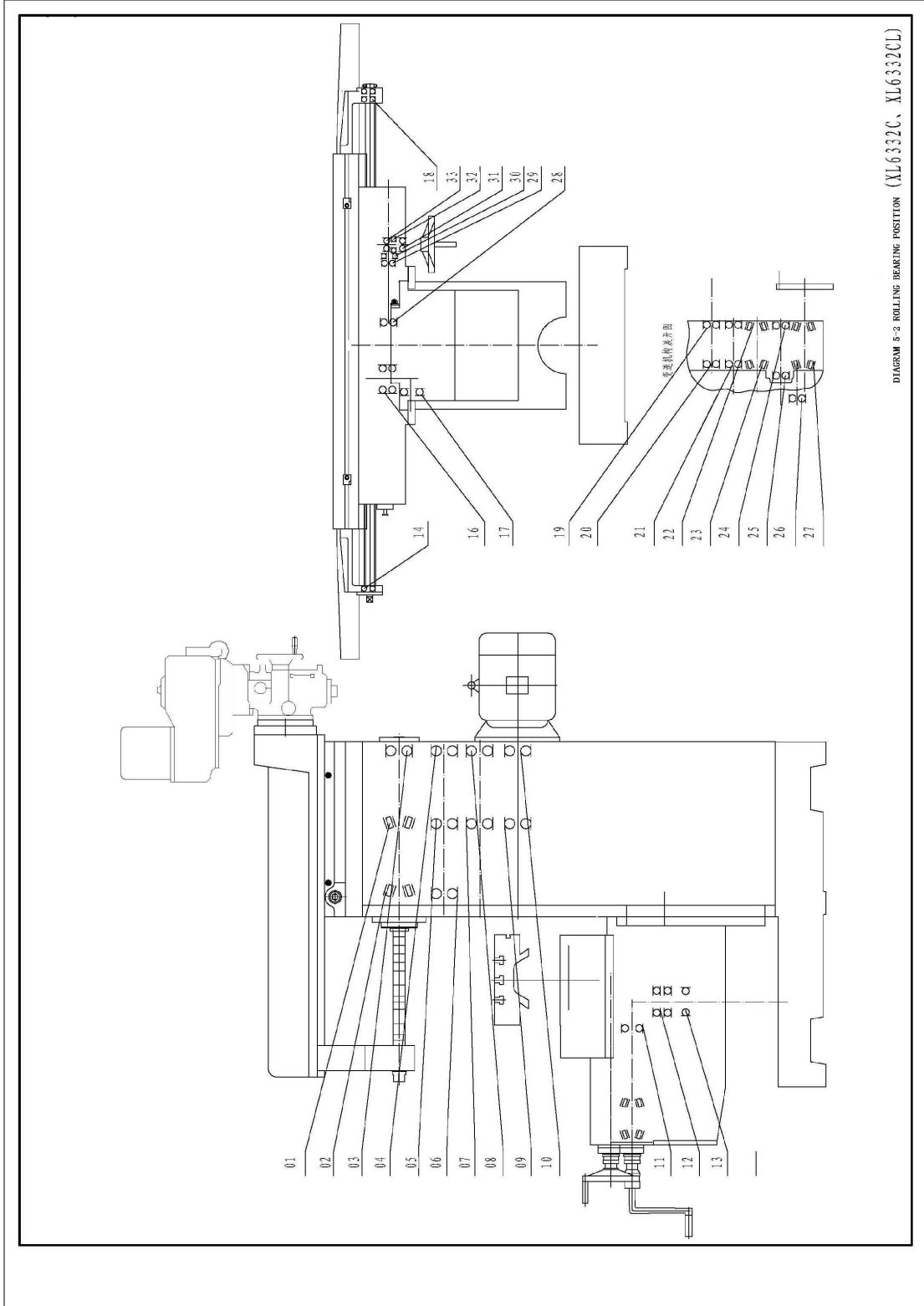
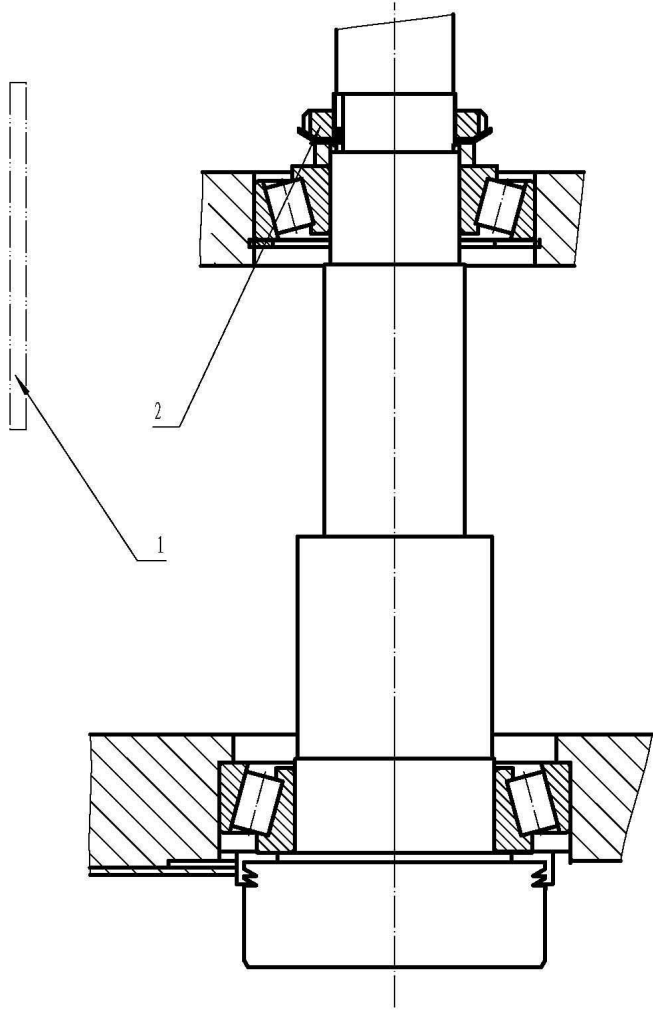
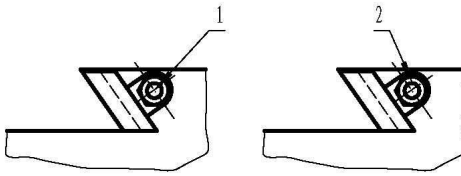


DIAGRAM 5-2 ROLLING BEARING POSITION (XL6332C, XL6332CL)

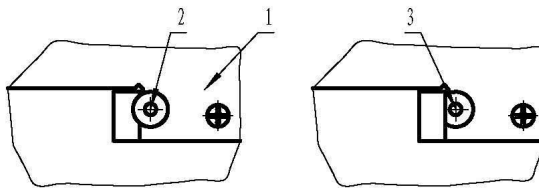


DAIGRAM 6 SPINDLE SPACE ADJUSTMENT

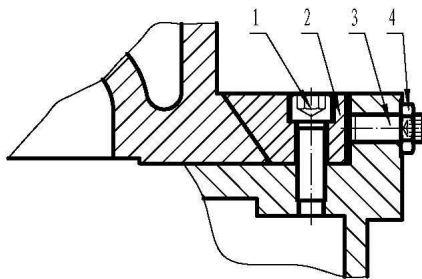




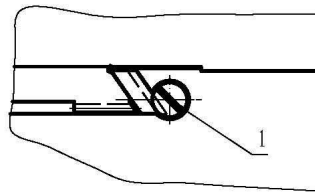
7a WORKTABLE



7b SADDLE

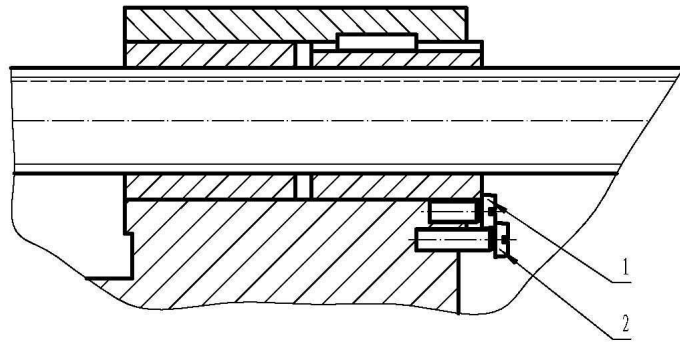


7c KNEE



7d RAM

DIAGRAM 7 GIBS SPACE ADJUSTMENT



LONGITUDINAL

DIAGRAM 8 SCREW, NUT SPACE ADJUSTMENT

STEP HEAD TOP PART

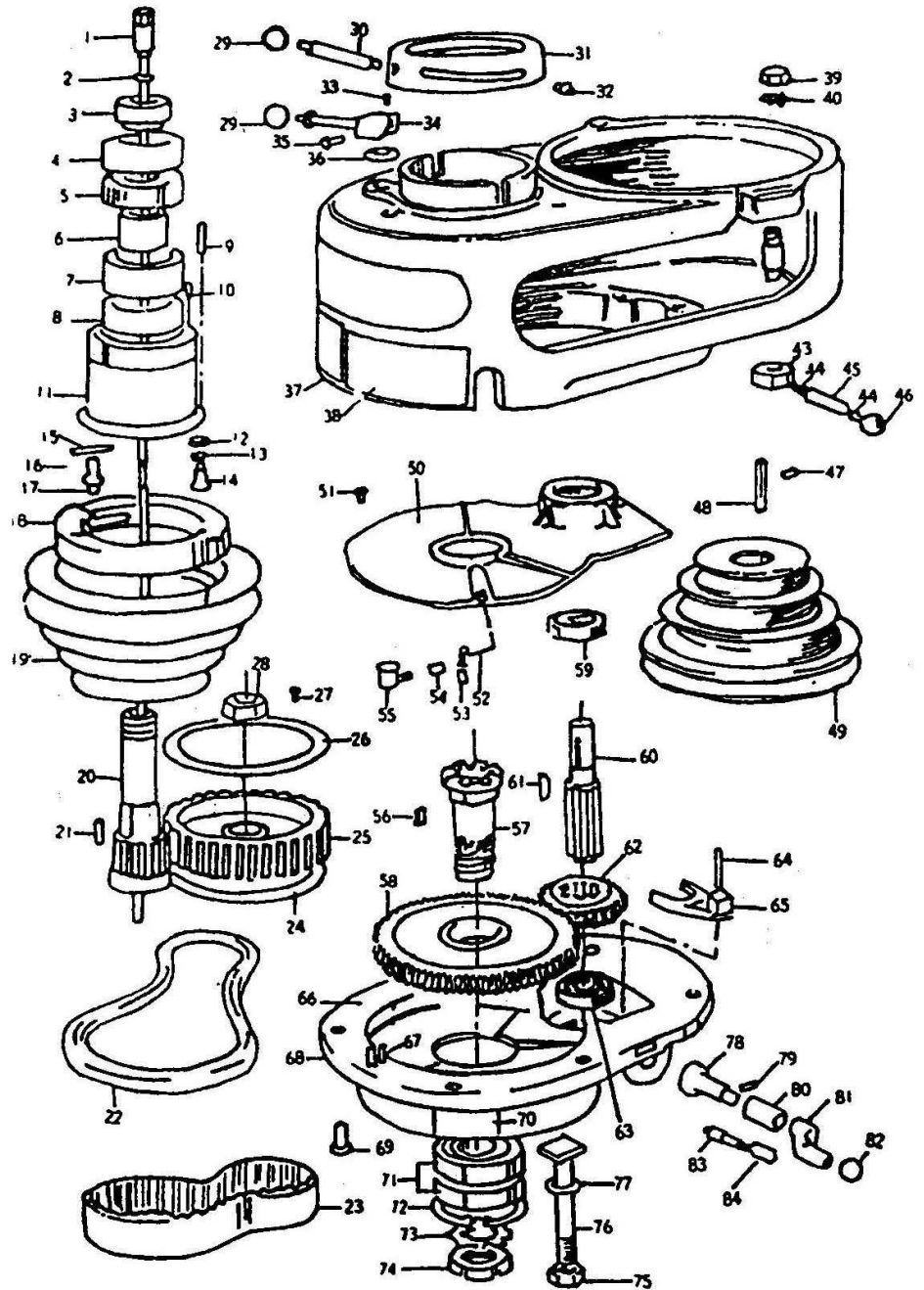


DIAGRAM 10

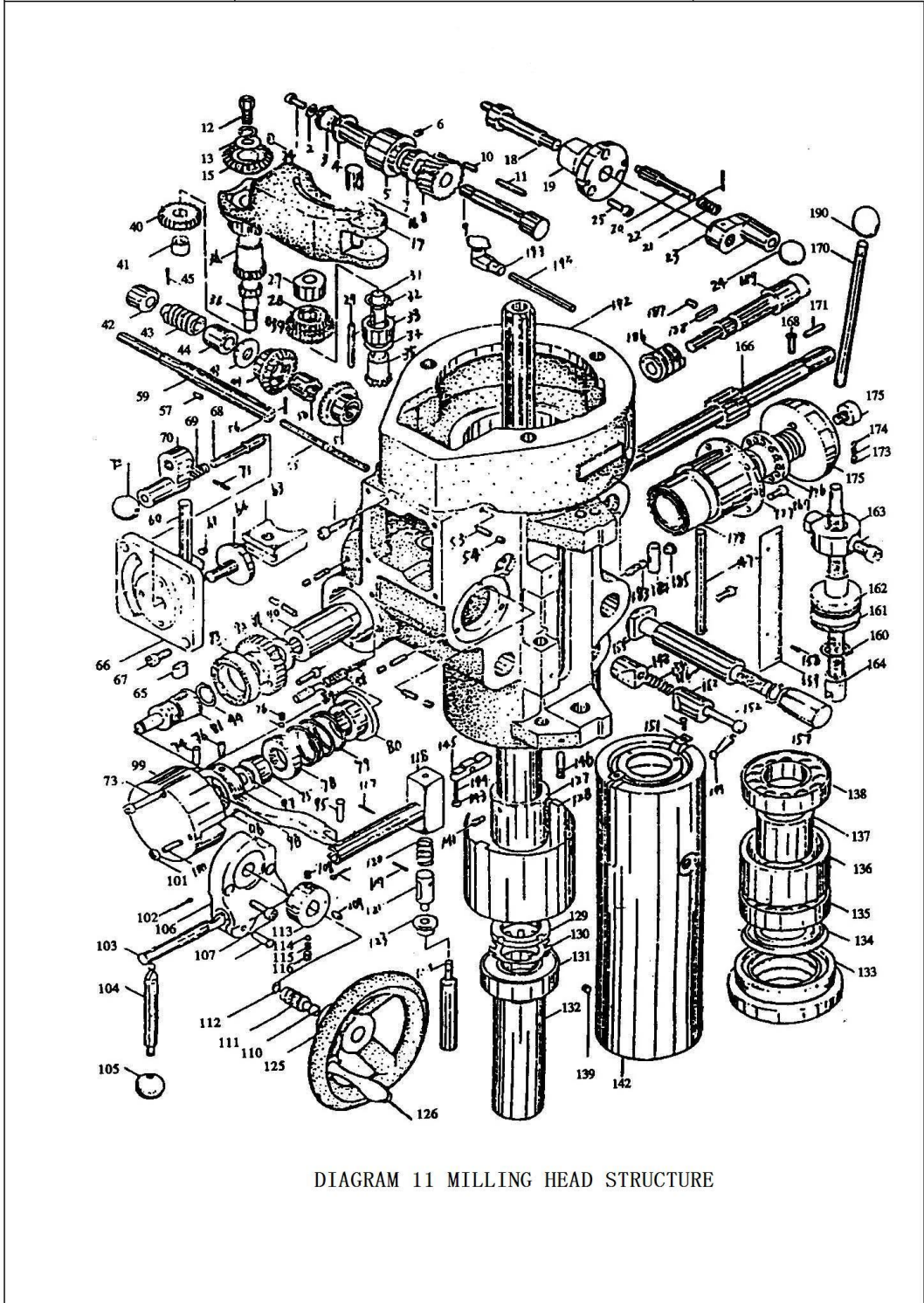
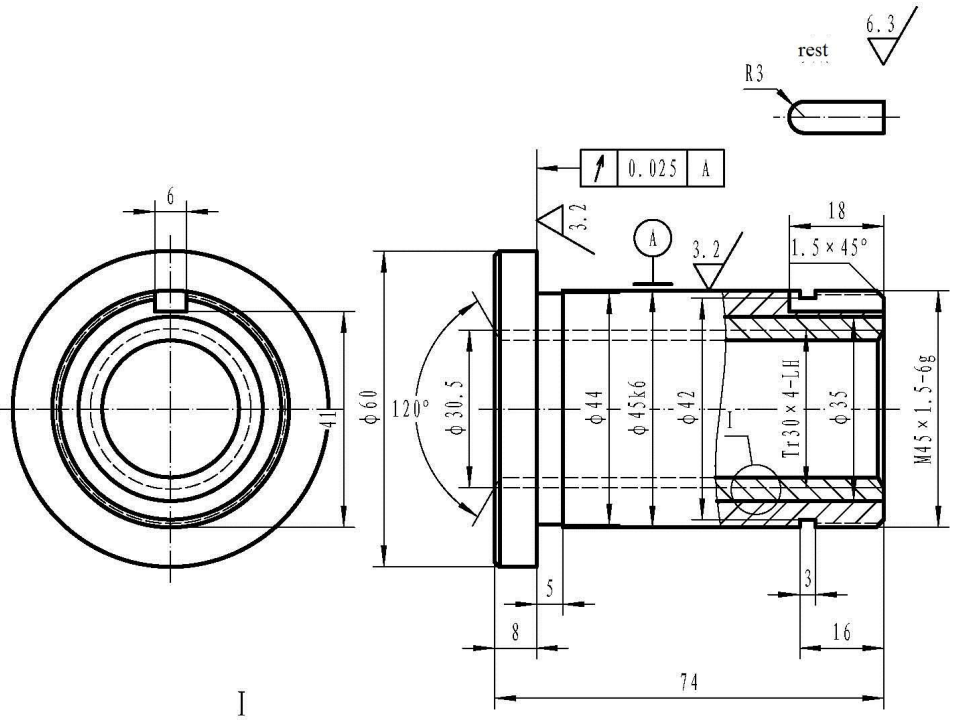
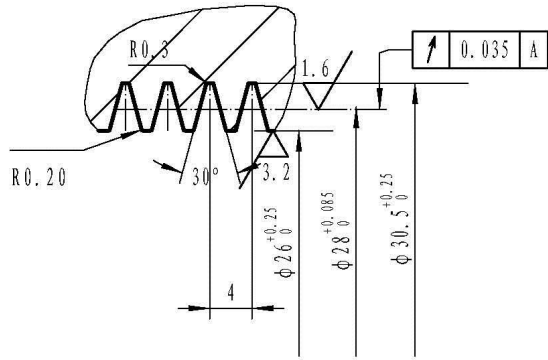


DIAGRAM 11 MILLING HEAD STRUCTURE

item	X52K713	name	cross nut	material	outer sleeve 45 inner sleeve TSnZnPb6-3
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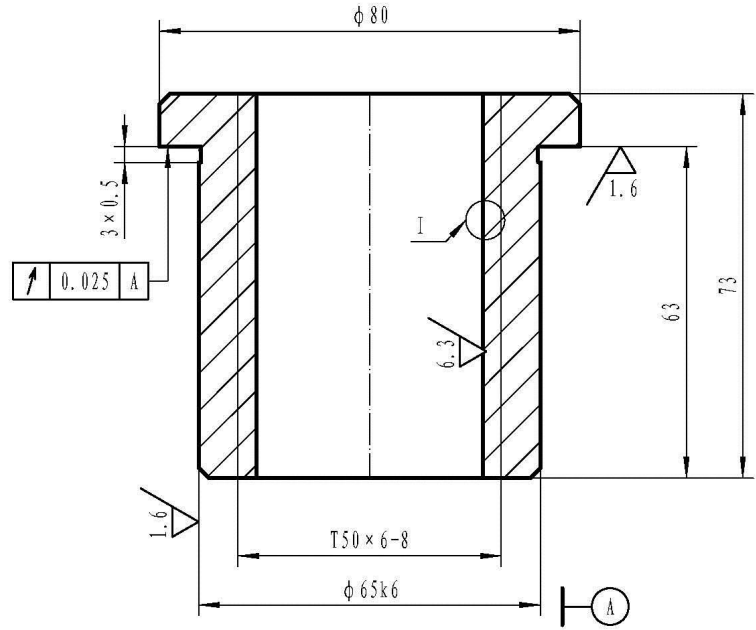
I  
2:1



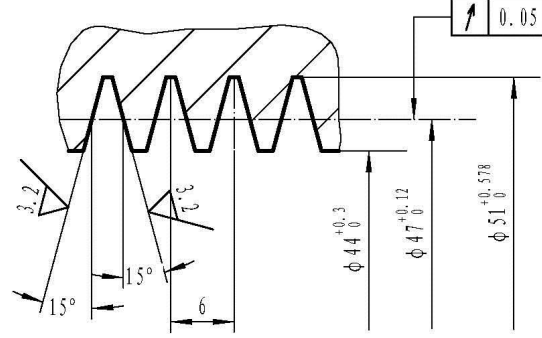
- Technical requirement
1. castings no casting defects.
  2. Undeclared chamfer 1\*45°
  3. Execution Standard JB2886-92, control according to 8 degree.
  4. Thread can be processed with the screw.

item	X603202304	name	elevating nut	material	ZQSn6-3-3
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12.5/



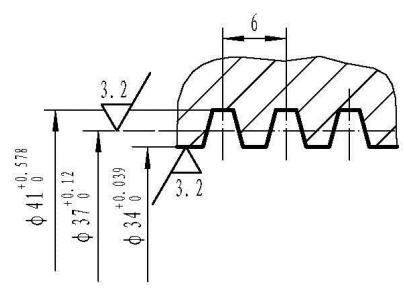
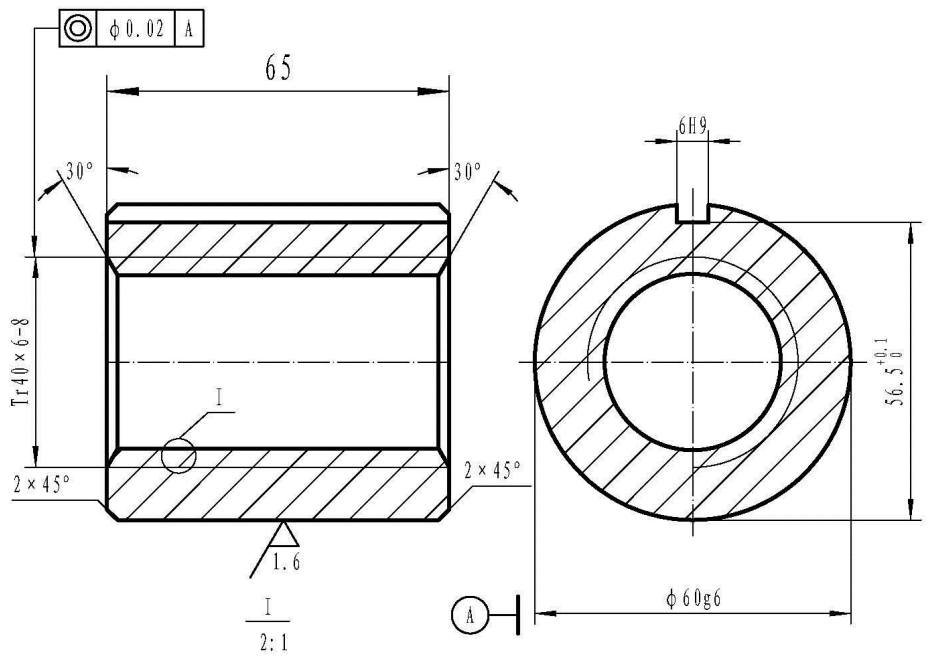
I enlarge  
2:1



- Technical requirement
1. Casting no casting defects
  2. undeclared chamfer  $1^{\circ}45'$
  3. Execution Standard: JB2886-92, control according to 8 degree.
  4. Thread can be processed matching with the screw .

item	X603203301	name	longitudinal nut	material	ZCuSn5Pb5Zn5
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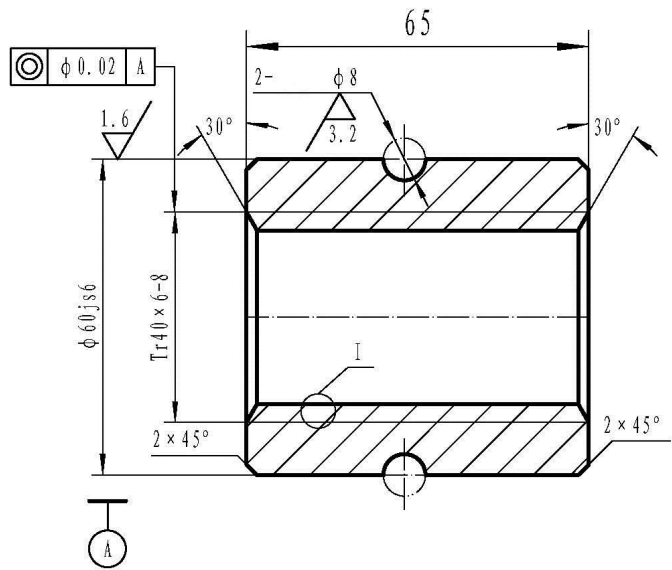
rest  $\sqrt{6.3}$



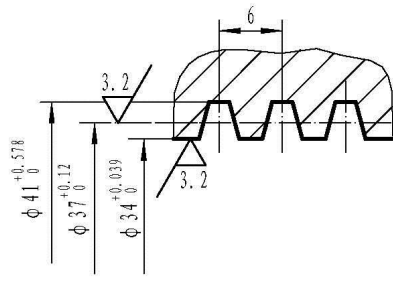
Technical requirement  
 1. Execution Standard JB2886-92, control according to 8 degree.  
 2. proceed with part 03302 together and then cut, after finished the thread machining, entering warehouse with screw 03205.

item	X603203302	name	longitudinal nut	material	ZCuSn5Pb5Zn5
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rest  $\sqrt{6.3}$



$\frac{I}{2:1}$



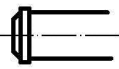











Technical requirement

- 1.Execution Standard JB2886-92,control according to 8 degree.
- 2.proceed with part 03301 together and then cut,after finished the thread machining,entering warehouse with screw 03205.





Operating instruction symbol			
item	symbol	name	remark
1		spindle forward	
2		spindle reversal	
3		horizontal spindle	
4		rectangular worktable	
5		coolant pump	
6		main button	
7		stop	
8		Danger! Electric Shock Risk	
9		electrical grounding	
10		vertical feed	
11		cross feed	
12		longitudinal feed	

## ACCURACY TEST LIST

NO.	inspection item	tolerance	test data	
1	knee vertical movement straightness	a in the transverse vertical plane	a 0.05/300	
		b in the longitudinal vertical plane	b 0.05/300	
2	perpendicularity of worktable to column vertical guideway	a in the transverse vertical plane	a 0.05/300 a $\leq 90^\circ$	
		b in the longitudinal vertical plane	b 0.05/300	
3	worktable surface flatness	0.04/500		
4	worktable to worktable movement parallelism	a cross	a 0.05/300	
		b longitudinal	b 0.03/300 max tolerance 0.06	
5	spindle axial moving	0.02		
6	spindle taper hole axial line radial runout	a close to spindle end face	a 0.01	
		b 300 mm away from the spindle end face	b 0.03	
7	the parallelism of spindle rotate axial line to worktable	0.05/300only downward		
8	the parallelism of spindle rotate axial line to worktable cross movement	a in vertical plane	a 0.05/300only downward	
		b in horizontal plane	b 0.05/300	
9	perpendicularity of worktable cross movement to worktable longitudinal movement	0.04/300		
10	the parallelism of the ram guideway to spindle rotate axial line	a in vertical plane	a 0.05/300only downward	
		b in horizontal plane	b 0.05/300	
11	overlaprator of arbor bracket hole axial line to spindle rotation axial line	a in vertical plane	a 0.03only downward	
		b in horizontal plane	b 0.03	
12	perpendicularity of spindle rotation axial line to worktable	a in the transverse vertical plane	a 0.03/300 a $\langle 90^\circ$	
		b in the longitudinal vertical plane	b 0.03/300	
13	perpendicularity of spindle quill movement to worktable	a in the transverse vertical plane	a 0.02/300 a $\langle 90^\circ$	
		b in the longitudinal vertical plane	b 0.02/300	
14	Spindle radial run out	0.01		
15	The spindle shaft support surface run out	0.02		
16	Spindle taper hole axial line radial run out	close to spindle end face	0.01	
		300 mm away from the spindle end face	0.03	

# PACKING LIST

NO.	Name	Specification	QTY
1	Milling Machine	JMD-1452 TSX DRO	1
2	7:24 sleeve	7:24 ISO50/MS4	1
3	Allen key	5、 10	1
4	Single ended open jaw spanner	S14-17	1
5	Single ended open jaw spanner	S27-30	1
6	Single ended open jaw spanner	S36-41	1
7	Machine Vise		1
8	Milling Arbor	ISO50-Φ27	1
9	Milling Arbor	ISO50-Φ32	1
10	Draw-bar	M24	1
11	Nut	M24	2
12	Spacer		2
13	Operation Manual		1
14	Certificate		1
15	PACKING LIST		1
16	EP1C serial AC servo driver operation manual		1