

PROMAC[®]

JM-125-DRO

Drilling Milling Machine

Original:

GB

Operating Instructions



TOOL FRANCE SARL

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www.promac.fr

M/P – JM-125-DRO

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CE-Conformity Declaration CE-Konformitätserklärung Déclaration de Conformité CE

Product / Produkt / Produit:

Drilling Milling Machine / Metallbandsäge / Scie à ruban portable
JM-125-DRO

Brand / Marke / Marque:

PROMAC

Manufacturer / Hersteller / Fabricant:

TOOL FRANCE SARL
9 Rue des Pyrénées, 91090 LISSES, France

We hereby declare that this product complies with the regulations
Wir erklären hiermit, dass dieses Produkt der folgenden Richtlinie entspricht
Par la présente, nous déclarons que ce produit correspond aux directives suivantes

2006/42/EC

Machinery Directive
Maschinenrichtlinie
Directive Machines

2014/30/EU

electromagnetic compatibility
elektromagnetische Verträglichkeit
compatibilité électromagnétique
designed in consideration of the standards
und entsprechend folgender zusätzlicher Normen entwickelt wurde
et été développé dans le respect des normes complémentaires suivantes

2011/65/EU

RoHS directive / RoHS-Richtlinie / Directive RoHS

EN ISO 12100:2010

EN 13128:2001+A2:2009/AC :2010

EN 60204-1:2006+AC :2010

EN 61000-6-2 : 2005/AC:2005 / EN 61000-6-4:2007 /A1:2011

Responsible for the Documentation / Dokumentations-Verantwortung / Responsabilité de Documentation:

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TOOL FRANCE SARL



2019-02-15 Christophe SAINT SULPICE , General Manager

TOOL FRANCE SARL

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GB - ENGLISH

Operating Instructions

Dear Customer,

Many thanks for the confidence you have shown in us with the purchase of your new Promac-machine. This manual has been prepared for the owner and operators of a Promac JM-125-DRO Drilling Milling Machine to promote safety during installation, operation and maintenance procedures. Please read and understand the information contained in these operating instructions and the accompanying documents. To obtain maximum life and efficiency from your machine, and to use the machine safely, read this manual thoroughly and follow instructions carefully.

1. Declaration of conformity

On our own responsibility we hereby declare that this product complies with the regulations* listed on page 2. Designed in consideration with the standards**.

2. Warranty

TOOL FRANCE SARL guarantees that the supplied product(s) is/are free from material defects and manufacturing faults.

This warranty does not cover any defects which are caused, either directly or indirectly, by incorrect use, carelessness, damage due to accidents, repairs or inadequate maintenance or cleaning as well as normal wear and tear.

Further details on warranty (e.g. warranty period) can be found in the General Terms and Conditions (GTC) that are an integral part of the contract.

These GTC may be viewed on the website of your dealer or sent to you upon request.

TOOL FRANCE SARL reserves the right to make changes to the product and accessories at any time.

3. Safety

3.1 Authorized use

This **Drilling Milling Machine** centre is designed for milling and drilling machinable metal and plastic materials only. Machining of other materials is not permitted and may be carried out in specific cases only after consulting with the manufacturer.

**Never cut magnesium-
high danger to fire!**

The proper use also includes compliance with the operating and maintenance instructions given in this manual.

The machine must be operated only by persons familiar with its operation and maintenance and who are familiar with its hazards.

The required minimum age must be observed.

The machine must only be used in a technically perfect condition.

When working on the machine, all safety mechanisms and covers must be mounted.

In addition to the safety requirements contained in these operating instructions and your country's applicable regulations, you should observe the generally recognized technical rules concerning the operation of metalworking machines.

Any other use exceeds authorization.

In the event of unauthorized use of the machine, the manufacturer renounces all liability and the responsibility is transferred exclusively to the operator.

3.2 General safety notes

Metalworking machines can be dangerous if not used properly. Therefore the appropriate general technical rules as well as the following notes must be observed.

Read and understand the entire instruction manual before attempting assembly or operation.

Keep this operating instruction close by the machine, protected from dirt and humidity, and pass it over to the new owner if you part with the tool.

No changes to the machine may be made.

Daily inspect the function and existence of the safety appliances before you start the machine.

Do not attempt operation in this case, protect the machine by unplugging the power cord.

Remove all loose clothing and confine long hair.

Before operating the machine, remove tie, rings, watches, other jewellery, and roll up sleeves above the elbows.

Wear safety shoes; never wear leisure shoes or sandals.

Always wear the approved working outfit.

Do **not** wear gloves.

Wear goggles when working

Install the machine so that there is sufficient space for safe operation and work piece handling.

Keep work area well lighted.

The machine is designed to operate in closed rooms and must be bolted to the cabinet stand or a solid work bench.

Make sure that the power cord does not impede work and cause people to trip.

Keep the floor around the machine clean and free of scrap material, oil and grease.

Stay alert!

Give your work undivided attention. Use common sense. Do not operate the machine when you are tired.

Do not operate the machine under the influence of drugs, alcohol or any medication. Be aware that medication can change your behaviour.

Never reach into the machine while it is operating or running down.

Never leave a running machine unattended. Before you leave the workplace switch off the machine.

Keep children and visitors a safe distance from the work area.

Do not operate the electric tool near inflammable liquids or gases.

Observe the fire fighting and fire alert options, for example the fire extinguisher operation and place.

Do not use the machine in a damp environment and do not expose it to rain.

Work only with well sharpened tools.

Always close the chuck guard and pulley cover before you start the machine.

Remove the chuck key and wrenches before machine operation.

Specifications regarding the maximum or minimum size of the work piece must be observed.

Do not remove chips and work piece parts until the machine is at a standstill.

Do not stand on the machine.

Connection and repair work on the electrical installation may be carried out by a qualified electrician only.

Have a damaged or worn power cord replaced immediately.

Never place your fingers in a position where they could contact any rotating tool, chuck or cutting chips.

Secure work piece against rotation. Use fixtures, clamps or a vice to hold the work piece.

Never hold the work piece with your hands alone.

When using a vice, always fasten it to the table.

Never do any works "freehand" (hand-holding the work piece rather than supporting it).

Never move the head while the machine is running.

If a work piece overhangs the table such that it will fall or tip if not held, clamp it to the table or provide auxiliary support.

Check the safe clamping of the work piece before starting the machine.

Remove cutting chips with the aid of an appropriate chip hook when the machine is at a standstill only.

Never stop the rotating chuck or tool with your hands.

Measurements and adjustments may be carried out when the machine is at a standstill only.

Setup work may only be carried out after the machine is protected against accidental starting by pressing the emergency stop button.

Maintenance and repair work may only be carried out after the machine is protected against accidental starting by pulling the mains plug.

Do not use wire wheels or grinding wheels on this machine.

To avoid injury from parts thrown by the spring, follow instructions exactly as given when adjusting the spring tension of the quill.

3.3 Remaining hazards

When using the machine according to regulations some remaining hazards may still exist.

The rotating chuck, tool and cutting chips can cause injury.

Thrown and hot work pieces and cutting chips can lead to injury.

Chips, dust and noise can be health hazards. Be sure to wear personal protection gear such as safety goggles, dust mask and ear protection.

The use of incorrect mains supply or a damaged power cord can lead to injuries caused by electricity.

4. Machine Safety for JM-125-DRO

Description:

★: "Danger", it describes a dangerous state will occur immediately; If not avoided, it will result in death or serious injury.

▲: "Warning", it is a possible danger state; if not avoided, it will result in varying degrees of personal injury or damage to the machine.

△: "Notice", it means this clause should be paid more attention.

1) Machine installation

△: Fully understand installation requirement and procedure in the Manual.

△: During installation, all personnel must communicate with each other.

▲: Check the lifting slings and tools to see if they are complied with the safety standard.

2) Power supply

△: Check the electric cabinet door.

▲: If the machine stops because of power off, turn off the mains immediately.

3) Machine dry run

▲: Every day before processing formally, carry out dry run for warming up.

▲: During dry run, check the function of each device: firstly, check machine mechanical control handles, when they are in middle position if all pressed devices are loosen. Try with hand to see if the movement is smoothly and if there is any abnormal. All electrical operation pieces are in normal positions. Then open the electric door to check all electrical components for any loose. Especially check each terminal screw; if loose, use special tools to tighten it. Check the components for damage, connect power line if everything is normal, and then close the electric door. Turn the power switch to the interlock position; after confirming no obstacle around the machine, energize the machine and have test run.

▲: Take care not to press the wrong button, before operation, check the button switch on operation panel visually;

★: When clamping or unclamping workpiece, the machine should stop running;

4) Device

▲: Check all set values and state of moving parts;

★: When carrying heavy load, use hoisting machinery and crane or multi person cooperative operation;

▲: The work lamp after lighting for a long time will be too hot to touch;

▲: When worktable moves to the longitudinal travel limit, coolant may splash down to the ground, so be careful;

- ★: During machine running, never touch any moving parts;
- ▲: Always unscrew the bolt slowly;
- ▲: Clamp workpiece and tool firmly and safely;
- ▲: Do not put any tool or container on operation panel or other part of machine;

▲: The over beam is out of bed or other machine part, when operation panel is under the beam, mind your head; (See illustration on the right, the warning label is stuck on the left of the machine)

▲: During machine running, to avoid iron chips splash, add protective cover according to the size of cutter; (See illustration on the right, the warning label is stuck in the front of the machine)

5)Auto run

★:Don't lean on the machine when machine is running;

▲: Take care not to press the wrong button, before operation, check the button switch on operation panel visually;

★:Be sure to close all the doors before run automatically;

▲: During auto running, do not touch any moving part.The machine must stop completely before touching it;

▲: Do not touch any switch during auto running;

6)Stop running

★: When failures occur, press down ESP switch to stop the machine quickly;

▲: Fully understand all kinds of machine tool stop states caused by various ways of stop;

★: Check whether the machine is completely shut down;

7) End of processing and shut off the power:

▲: Clean inside of machine;

▲: Stop machine at specified position (X, Y, Z, spindle, etc.) ;

▲: After processing and stop the machine, then turn off the power and turn power control switch to lock state. Take off the key to avoid non machine workers start the machine;

8) Check, maintenance and service

▲: Clear the machine fault condition according to description of operator;

▲: Develop inspection and maintenance procedures and scope of work;

★: During servicing, hang the label of "under repair"around the machine;

★: Turn off the mains switch to prevent external power suddenly switched on and dangerous occur. Place a warning label"do not switch on"on the mains switch;

★: When working inside of the machine, do remember switch off the mains and place a warning label"do not switch on"on the mains switch;

★: Never touch cables, electrics and switches with wet hands;

★: Use a ladder or other safety devices for climbing;

▲: Use standard and special tools;

▲: Do not place any tool or clothes on moving parts;

★: When using lifting machinery, only qualified wire rope, hook and pulley are allowed to be use;

▲: Replace with specified parts.

If problems occur in use, please do not hesitate to contact us; and inform the factory date and serial number of machine, our company will service for your sincerely.

5.Brief Introduction

3.1 Machine usage:

This series ram type milling machine is general metal cutting machine tool. The spindle bore can fixed all kinds of cylinder mill cutter and end mill cutter directly or by means of attachment. The machine also can mill annular groove and circular arc curve with attachment rotary worktable on. It is suitable for processing all kinds of medium and small parts of plane, groove, inclined plane, hole and gear. It is a ideal processing equipment for machinery manufacturing, mold, instrument, automobile and motor cycle industry.

The machine tool structure is advanced and reasonable. It is flexible to operate and easy to maintain. Equipped with digital display ruler, the batch processing will be more convenient, and can achieve more accurate positioning.

3.2 Environmental requirements

Working condition: temperature -10℃~50℃ ;Humidity 30%~85%; Atmospheric pressure 86~106kpa; good air cleanliness and dust concentration is less than 10mg/m³; without acid,alkali, corrosion and toxic gases;there shall be no explosion danger, no conductive dust;the workshop should be protective from rain or snow; the floor in workshop is neat and clean, without obstacles; plenty of light (or have good lighting conditions) . The machine should be installed far away from shake source, heat source and Heat flow.

3.3 Influence of machine tool on the environment

This machine has no adverse effects on the environment. No harmful gas or liquid discharge; machine working noise ≤85dB (A) .

3.4 Energy sources: Machine tool applied energy is power supply.

6.Machine Structure and Characteristics

6.1 Structure(Fig.1)

The machine tool is composed of bed, main transmission part, lifting platform, worktable, over beam, vertical milling head, cooling part, lubrication system and electrical part. The machine body is composed of base and bed. The bed is fixed on the base;the feed driving device is installed in lifting platform, output feed controlled by a AC servo motor and the power is transmitted to longitudinal,transverse and lifting leadscrew by means of gear respectively; lifting platform and bed are connected by dove-tail guide rail, and lifting platform goes up and down along bed guide rail;lifting platform and slide rest are connected by rectangular guide rail; worktable and slide rest are connected by dove tail. Through leadscrew and nut, worktable can move vertically and horizontally;The ram box is composed of fixed seat, connection seat, ram box. There is a fixing seat on bed, which is connected with ram by dove tail.The connection disc is on the other end of the ram. The vertical mill head is connected with ram by the connection disc; Coolant is installed in base cavity. The feed drive device adopts oil-immersed splash lubrication, and other parts adopt one shot oil pump or oil cup fix-point lubrication; the electric cabinet is in the bed,and electric controls are respectively mounted at right side of the lifting platform, and it is convenient for operation.

6. 2 Characteristics

The machine worktable can feed vertical, horizontal manually and vertical lift;at the same time can achieve longitudinal and transverse rapid feed and automatic lifting vertically. Main transmission and automatic feed adopt gear

transmission structure. Through triple gear transmission, the spindle can get 12 steps of speed during 35~1500rpm. Speed regulation is wide.

7. Main Technical Specifications

Capability	Unit	JM-125-DRO
Table size (L×W)	mm	1370x300
Max. table longitudinal travel	mm	1000
Max. table horizontal travel	mm	360
Max. table vertical travel	mm	400
T-slot number		3
T-slot width	mm	14
T-slot space	mm	80
Spindle taper	rpm	7:24 ISO40
Distance from spindle nose to worktable surface	mm	260-660
Spindle speed range	mm/min	11 step 45-1660
Ram box travel	mm	400
Table feed range(longitudinal, horizontal and vertical direction)	mm/min	-
Table longitudinal rapid feed	mm/min	1335
Table horizontal rapid feed	mm/min	1335
Table vertical rapid feed	mm/min	1000
Main drive motor power	kw	3
3-phase feed servo motor torque	Nm	10
Coolant pump motor power	w	60
Machine net weight	kg	1750
Machine overall dimension	mm	1720x1680x1700

8. Machine Transport, Unpacking and Installation

8.1 Transport

During loading and unloading machine package with hoisting equipment , lift or lower the package according to marked position outside of the case. Do not allow any impact or vibration.

8.2 Unpacking

With packing case, remove the protective case and mat carefully to avoid machine and parts are collided, abraded and damaged. If any damage of machine due to transporting, contact our agency and machine tool transportation company.

After unpacking, it is better to use shovel to transfer the machine tool. There are shovel tooth grooves on the base. If lifting, install hoisting rope according to Machine Lifting Diagram 2. Before lifting, remove the drip tray. And during lifting, the rope is not allowed touch the machine surface and each handle, handwheel. At the same time, to avoid damage oil paint, it is better to use wood block or soft pad.

Warning:

- (1)、After unpacking, check machine condition and accessories. If there is any abnormal, contact our company immediately. Once the machine is used, the manufacturer will take no responsibility.
- (2)、All moving parts are in the clamping state, so if any part need to be moved, loosen the clamping parts.
- (3)、Before lifting, may adjust machine parts position to achieve the ideal state of centre of gravity. Please wipe exposed anti-rust oil on machine surface with cleaning cloth, then moving machine parts and lock these parts.
- (4)、During lifting, the machine should not be lifted too high from the ground, and the action should be slowly.

(5)、Take appropriate measures to deal with packing case to so as not to cause harm to the environment and people.

8.3 Cleaning

Clean protective coating from machine throughly with suitable cleaning solution. In prior to cleaning and lubrication of machine tool, do not move the worktable and lift platform.

Move worktable and lift platform to the limit position at any end by hand, then clean and lubricate the exposed surfaces. Then move the table and platform to the opposite position, clean and lubricate the exposed surface as the same method. Loosen lock bolt of ram, and move forward and backward enough distance for easy cleaning and lubrication(N.B.:It is not recommended that gasoline or other highly inflammable cleaning agents be used).

8.4 Installation

(1) Mount foundation bolt on machine base, then put machine tool on the foundation.

(2) Dismount the handwheel for easy packing, so after unpacking mount them back one by one follow the instructions.

(4) Adopt wedge or iron pad for initial level adjusting.

(5) For fine adjustment of level, the error of level gauge on longitudinal and transverse direction should be less than 0.04/1000.

(6) After adjusting, pour concrete into foundation bolt. To be fully solidified, tighten the bolts evenly. In order to prevent the machine level have change, also need level meter for final correcting.

8.5 Power connection

Only qualified electrician can connect power supply according to the following steps:

(1) Make sure machine required voltage and power supply are compatible..

(2) Connect the power line follow the local safety regulations.

(3) Check for correct spindle rotation direction.

Warning:

(1)Before moving any machine part, do loosen machine lock handle.

(2)Thoroughly clean the anti-rust oil before moving any parts manually; never use metal tools or other rough tools to remove the oil.

(3)Machine level may affect machine accuracy on each direction. So be sure to guarantee the machine level according to the above requirements.

(4)Before powering on, make sure the machine is reliable grounding.

9. Machine Lubrication and Cooling

9.1 Lubrication

The service life of the machine tool depends largely on whether reasonable lubrication.

(1) Lubricate the machine tool according to the requirement strictly. N46# mechanical oil should be clean, no acid, no water and hard particles, etc.

(2) Main transmission part and power feed mechanism adopts oil splash lubrication. Clean and lubricate the oil tank regularly. Clean it every three months for the initial using; after that clean it once a half year.

Check the oil amount in the oil tank. When oil is lower than the mark, replenish oil in time.

(3) Longitudinal, transverse, vertical screw, gear and guide surface are lubricated by one shot on the left of slide rest and on the life platform. The oil is supplied at least fourth each shift. Always check whether the oil line is smooth, if not, repair it as soon as possible.

(4) The rolling bearing in spindle nose is lubricated by #3 molybdenum disulfide lithium-based grease; replace it once a year.

(5) Two pairs of arc bevel gears in spindle nose are lubricated by #9 molybdenum disulfide gear grease; replace it once a year.

(6) Install grease cup for other locations being need lubricated; fill lubricant at least fourth each shift.

9.2 Cooling

The machine cooling system is supplied coolant by a 12L coolant pump. The coolant flow is regulated by nozzle controlled by control knob switch. The coolant is stored in machine base inner chamber; from bed right side cover, the coolant pump could be seen to be fixed on the base by supporting plate.

10. Machine Transmission System

10.1 Main transmission system

Driven by flange type motor at the back of ram type spindle gear box, through sliding gear transmission, the main transmission is passed to spindle by means of two pairs of arc bevel gears. The spindle speed range is of 45~1660r/min. Stop the machine before changing the speed. Change the gears position by turning the three levers of spindle box.

10.2 Feed part:

Feed part is mounted inside the lift platform, with gear transmission; variable speed regulation is controlled by a DC speed regulation motor; it has compact structure and large torque. When feeding, the first elevator on the right to adjust the handle to select Longitudinal infeed or vertical feed, can also choose to manually (ie neutral) gear, manual operation.

10.3 Worktable

The worktable is above the lift platform; it is connected with platform by means of slide rest. The clearance in worktable, slide rest and lift platform is adjusted by wedge. And worktable can realize longitudinal & transverse lifting, automatic or manual feed. (see Fig. 7a, 7b)

10.4 Lift platform

The platform is connected with bed by dove-tail guideway. Their clearance is adjusted by wedge (see Fig. 7c). The platform can both manual control or automatic control. Their speed both are regulated by the same AC servo motor.

10.5 Ram box

Ram box is connected with connection seat by dove tail. Their clearance is adjusted by wedge (Fig. 7d); front rack adopts slotted locking mode. Over beam is moved by means of pinion shaft and rack, so as to adjust the relative position of tool shank and spindle end face.

10.6 Vertical mill head

Vertical mill head is connected to ram box by connection disc. Vertical mill head rotation is realized as follows: ram box spline sleeve drives spline in mill head to rotate; then driven by two pairs of bevel gears to make spindle rotate.

10.7 Transmission parts list

No.	Part No.	Description	Module	Teeth
1	Q622801206a	Gear	2	64
2	XQ622801207a	Gear	2	22
3	XQ622801208a	Gear	2	40
4	X622501210a	Gear	2	51
5	X622505225	Gear	2	35
6	XQ622801213a	Gear	2	46
7	XQ622801215a	Gear	2	64
8	XQ622801216a	Gear	2	22
9	XQ622801217	Gear	2	22
10	XQ622801218	Gear	2	51
11	XQ622801205	Gear	2	35
12	XQ622801219	Gear	2	32
13	XQ622801204	Gear	2	54
14	XQ622801220	Gear	2	62
15	X622506204	Bevel gear	3.5	36
16	X622506205	Bevel gear	3.5	36
17	X622506208	Bevel gear	3.5	36
18	X622506209	Bevel gear	3.5	36
19	XQ622801203a	Gear	2	24
20	X603002216	Gear	2.5	32
21	X603002213	Gear	2.5	27
22	X603002214	Gear	2.5	32
23	X603002210	Gear	2.5	21
24	X603002209	Gear	2.5	42
25	X603002302	Lift screw nut	6	
26	X603002222	Lift leadscrew	6	
27	X612503303	Horizontal screw	4	
28	X603002223	Horizontal leadscrew		
29	X6005206a	Gear shaft	2	
30	X612503301	Longitudinal screw nut	4	
31	X603003202	Logitudinal leadscrew	4	
32	X612503213	Gear	2.5	26
33	X603003204	Gear	2.5	26
34	X603003208	Gear	2.5	18
35	X603003206	Gear	2.5	18
36	X613003201	Gear	2.5	18
37	X603002224	Gear	2.5	32
38	X603002237	Gear	2.5	20
39	X603002236	Gear	2.5	20
40	X603002228	Gear	2.5	20
41	X603002218	Timing pulley		42
42	X603202239-1	Timing pulley		28
43	X603002230	Gear	2.5	27
44	X603002234	Gear	2.5	24
	X612503219	Clutch		7
45	X612503220	Clutch		7

10.8 Rolling bearing list

No.	Description	Size	Qty
1	Deep groove ball bearing	6004	20×42×12
2	Tapered roller bearing	30205	25×52×16.25
3	Tapered roller bearing	30205	25×52×16.25
4	Thrust ball bearing	51205	25×47×15
5	Thrust ball bearing	51205	25×47×15

6	Deep groove ball bearing	6205	25×52×15
7	Angular ball bearing	7204AC	20×47×14
8	Angular ball bearing	7204AC	20×47×14
9	Deep groove ball bearing	6004	20×42×12
10	Deep groove ball bearing	6004	20×42×12
11	Tapered roller bearing		30×55×17
12	Deep groove ball bearing	6004	20×42×12
13	Deep groove ball bearing	6005	25×47×12
14	Deep groove ball bearing	6005	25×47×12
15	Deep groove ball bearing	6005	25×47×12
16	Deep groove ball bearing	6004	20×42×12
17	Deep groove ball bearing	6004	20×42×12
18	Deep groove ball bearing	6005	25×47×12
19	Deep groove ball bearing	6004	20×42×12
20	Tapered roller bearing	32006	30×55×17
21	Deep groove ball bearing	6204	20×47×14
22	Deep groove ball bearing	61804	20××32×7
23	Deep groove ball bearing	61804	20××32×7
24	Deep groove ball bearing	6006	35×55×13
25	Deep groove ball bearing	6204	20×47×14
26	Deep groove ball bearing	61903	17×30×7
27	Deep groove ball bearing	61903	17×30×7
28	Deep groove ball bearing	6008	40×68×15
29	Deep groove ball bearing	6008	40×68×15
30	Angular contact ball bearing	7006AC	30×55×13
31	Angular contact ball bearing	7006AC	30×55×13
32	Angular contact ball bearing	7005AC	25×47×12
33	Angular contact ball bearing	7209AC	45×85×19
34	Angular contact ball bearing	7209AC	45×85×19
35	Angular contact ball bearing	7005AC	25×47×12
36	Dual-row cylinder bearing	NN3012K	60×95×26
37	Deep groove ball bearing	6205	25×52×15
38	Deep groove ball bearing	6007	35×62×14

11. Machine Operation

11.1 Operation(Fig.1)

(1) Before operation, read this Operation Manual carefully and fully understand machine structure, functions of all handles, cooling system, lubrication system, electrical system, knob and switches.

(2) Before start the machine, check the locking mechanism to see if it is locked, and if electrical power and grounding wires are correct and reliable.

(3) After powering on, check the knobs, buttons, switches for flexibility and reliability. Switch on or cut off the power by power switch 10. When the power is turned on, the power indicator 3 lights, otherwise the lamp is not lit. Spindle JOG switch 22 is used for speed changing. Switch 1 is the feed rate switch, namely speed control switch, which can get different feeding quantity. Handle 14 is a table feed direct-reverse switch. Button 4 is for spindle forward; button 6 is spindle reverse, and button 5 is spindle stop. push button 7 is the knob of cooling pump; the cooling pump motor is turned on or off by this button. Switch 2 is worktable rapid move button; emergency stop button 8 can stop all the actions of the machine tool; use this button when an accident occurs.

(4) Before choosing spindle speed, stop the machine. According to speed label, turn the three speed shift lever 19 to O, A, B, C, I, II, III, M, L and H different speed ranges.

(5) Adjust the worktable relative position to the spindle: loosen locking handle 16; in manual mode, turn to crank 15. If in auto mode, crank 15 is removed; end teeth is disengaged, then turn handle 17 in lifting position, and jog button 2 or turn switch 1 to make table to the desired position. For precise positioning, manual fine-turning is need through crank 15. Finally lock the handle 16.

Warning: During digital readout installation, the worktable is near the limit position of column. When the lift platform close to or reach the upper limit position, please note the position of digital readout with spindle nose and hard limit for lifting to prevent interference to damage the DRO.

N.B.: After manual operation, remove crank 15 to prevent crank 15 following rotation in auto operation. That may hurt people. And only after removing the crank, the protection switch is turned on, lift motor can start to work.

(6) For table transverse feed, loosen locking lever 13; In manual mode, handle 17 under the "0", turn the handwheel 18 to complete feeding; In auto mode, put handle 17 in "horizontal" first, then choose appropriate feed speed by adjusting override switch 1.

(7) For worktable longitudinal feed, loosen lock lever 11 firstly; in manual mode, lever 12 is in "Manual" position, and turn handwheel 9; in auto mode, put lever 17 to "longitudinal", and make lever 12 in "auto" position. After that adjust the override switch 1 to select suitable feed rate.

N.B.: Loosen locking device for moving the rail, if the guideway is not be moved temporarily, lock it well to enhance the rigidity of the machine.

(8) The table of rotary serial sliding rest milling machine has upper part and lower part. The upper part is called rotary disc; the lower part is saddle. These two parts are connected by a circle which is fixed on saddle. The rotary disc with table together rotate around the circle relative to the saddle. The max. rotary angle is 45° leftward and rightward. The rotary disc can be fixed to a desired angle by four T-form screws.

(9) For over beam moving forward and backward, loosen two lock screws 21 and turn gear shaft 20 to achieve these movement. After adjusting their relative position, lock the two screws 21 and start to work.

N.B.: When adjusting worktable feed rate, override switch should be adjusted from small to large. Do not adjust the speed too large so as to avoid the slow reaction and unnecessary trouble or damage.

11.2 Adjustment

(1)、Spindle bearing clearance adjustment

Spindle bearing clearance should be adjusted in the factory. Spindle bearing natural wear and the clearance increases due to frequent use of machine tool, it is should be adjusted by qualified personnel. The adjustment method are as follows:

When adjusting, remove the end cover (or flange) 1, 4, 7 and take out washer 6 then adjust round nut 5. Due to spindle taper of journal is 1: 12, so suppose that 0.01mm radial clearance need to be eliminated, the adjustable pad 6 should be cut off 0.12mm of thickness. The upper bearing shaft may have clearance due to adjusting radial clearance of lower bearing, so release round nut 4 and adjust round nut 2 for eliminating the clearance. After adjusting, lock nut 4 and amount all removed parts as shown on the figure.

Ensure the verticality of spindle to worktable and horizontal accuracy of table, when turret is in horizontal or vertical position, the front and rear shell may be positioned by taper pin. Each taper pin matches with its special position hole. It is used for positioning once.

(2) Worktable longitudinal, transverse, vertical guideway and ram gib adjustment.

Too big guideway gap will cause the work machine precision is not up to the requirements, so the following adjustments should be done: Longitudinal gib adjustment: loose screw 1 on small end of gib, and adjust screw 2 on large end to proper position; at last lock screw 1. See Fig.7a.

Transverse gib adjustment: remove scraper covers 1 on both ends, and loose screw 2 on small end, then adjust screw 3 on large end. At last lock screw 2 and fix scraper cover. See Fig.7b.

Vertical gib adjustment: loosen nut 1 and 4, make gib 2 to proper position by adjusting bolt 3; then lock nut 1 and 4. See Fig.7c.

Ram gib adjustment: this adjustment is realized through adjusting screw 1. See Fig. 7d.

(3) Leadscrew & nut clearance adjustment

Too big clearance between leadscrew and nut will affect parts machining accuracy and surface roughness. The machine longitudinal screw pair has clearance adjusting screw. During adjusting, loose screw 1, and adjust screw 2 properly; at last lock screw 1 and screw 2. (Fig.8a)

(4) Axial clearance adjustment to longitudinal leadscrew(Fig. 8b)

For climb milling, not only eliminate the transmission gap between the screw and nut, but get minimum fit clearance between leadscrew axis and worktable. Shown as Figure 8b, worktable left end leadscrew structure. For clearance adjustment, first remove cover 1; and loosen washer 2 for clamping nut 3; adjust the clearance by nut 3. After adjusting, clamp washer 2 and put the cover back.

11.3 Universal rotary head adjustment

(1) Spindle horizontal position and vertical position (Fig.10)

①When the front and rear shell of milling turret are all at 0°, spindle is in horizontal position.

②When front shell rotates to 180°, spindle is in vertical position.

③When spindle is in horizontal position, through rear shell rotating to 180° to increase machine operation scope. To e

(2) spindle left and right offset

Turn rear shell 90° clockwise or counter clockwise, the spindle can get displacement adjustment (leftward or rightward) from normal position to expand machine vertical operation scope. (Fig. 11)

N.B.: During changing the angle, do not loosen the nut on each junction surface to much to avoid milling head falling.

(3) spindle adjustment in horizontal plane

When spindle is equipped with tool shank support, turning adjustment can be done within horizontal plane. So it will increase tool shank rigidity (normally adopted during left/right helical milling). For this adjustment, front and rear shell will rotate in different directions (Fig.12). Now the spindle angle will be decided by adjustment angle of front and rear shell. The front and rear shell adjustment angle could be got by calculation or table lookups.

rear shell 24° 28' 11" (CCW)

front shell 65° 31' 49" (CW)

②30° left-handed milling

rear shell 15° 32' 32" (CW)

front shell 42° 56' 29" (CCW)

The following table lists the control values of θ and β 、 α in 0~90°. It is easy for reference.

spindle revolution angle θ	front case revolution angle β	back case revolution angle α	spindle revolution angle θ	front case revolution angle β	back case revolution angle α
1°	1°24'51"	0°30'00"	24°	34°11'56"	12°18'20"
2°	2°49'43"	1°00'00"	25°	35°38'52"	12°48'31"
3°	4°14'35"	1°30'02"	26°	37°05'58"	13°20'53"
4°	5°39'29"	2°00'05"	27°	38°33'17"	13°53'28"
5°	7°04'24"	2°30'09"	28°	40°00'48"	14°26'15"
6°	8°29'21"	3°00'15"	29°	41°28'32"	14°59'17"
7°	9°54'20"	3°30'24"	30°	42°56'29"	15°32'32"
8°	11°19'22"	4°00'35"	31°	44°24'41"	16°06'02"
9°	12°44'28"	4°30'50"	32°	45°53'07"	16°39'48"
10°	14°09'37"	5°01'09"	33°	47°21'50"	17°13'49"
11°	15°35'50"	5°31'32"	34°	48°50'48"	17°48'08"
12°	17°00'08"	6°01'59"	35°	50°20'04"	18°22'44"
13°	18°25'28"	6°32'32"	36°	51°49'38"	18°57'38"
14°	19°50'56"	7°03'10"	37°	53°19'31"	19°32'52"
15°	21°16'29"	7°33'54"	38°	54°49'44"	20°08'27"
16°	22°42'08"	8°04'45"	39°	56°20'17"	20°44'22"
17°	24°07'54"	8°35'42"	40°	57°51'12"	21°20'39"
18°	25°33'46"	9°06'47"	41°	59°22'30"	21°57'20"
19°	26°59'46"	9°38'00"	42°	60°54'10"	22°34'23"
20°	28°25'54"	10°09'21"	43°	62°25'10"	23°11'52"
21°	29°52'11"	10°40'51"	44°	63°58'50"	23°49'48"
22°	31°18'36"	11°12'31"	45°	65°31'49"	24°28'11"
23°	32°45'12"	11°44'20"	46°	67°05'17"	25°07'03"

Formula is : $\cos \beta = 2 \cos \theta - 1$

$$\operatorname{tg} \alpha = \frac{\sqrt{2}}{2} \operatorname{tg} \frac{\beta}{2}$$

Formulation: θ —the included angle between spindle center line and worktable cross transverse

β —front shell angle

α —rear shell angle

E.g.: ①45° left-handed milling

spindle revolution angle θ	front case revolution angle β	back case revolution angle α	spindle revolution angle θ	front case revolution angle β	back case revolution angle α
47°	68°39'15"	25°46'24"	69°	106°27'18"	43°24'55"
48°	70°13'44"	26°26'17"	70°	108°25'08"	44°26'37"
49°	71°48'47"	27°06'42"	71°	110°25'04"	45°30'13"
50°	73°24'24"	27°47'42"	72°	112°27'20"	46°35'50"
51°	75°00'38"	28°28'17"	73°	114°32'08"	47°43'41"
52°	76°37'30"	29°11'30"	74°	116°39'43"	48°53'57"
53°	78°15'02"	29°54'22"	75°	118°30'23"	50°05'52"
54°	79°53'17"	30°37'56"	76°	121°04'29"	51°22'41"
55°	81°32'17"	31°22'13"	77°	123°22'25"	52°41'47"
56°	83°12'04"	32°07'16"	78°	125°44'42"	54°04'30"
57°	84°52'40"	32°53'06"	79°	128°44'53"	55°31'17"
58°	86°34'10"	33°39'47"	80°	130°44'45"	57°02'43"
59°	88°16'35"	34°27'22"	81°	133°24'12"	58°39'30"
60°	90°	35°15'51.8"	82°	136°11'28"	60°22'33"
61°	91°44'28"	36°05'21"	83°	139°08'09"	62°13'04"
62°	93°30'02"	36°55'54"	84°	142°16'26"	64°12'40"
63°	95°17'47"	37°47'33"	85°	145°39'30"	66°23'44"
64°	97°04'48"	38°40'21"	86°	149°22'17"	68°49'50"
65°	98°54'11"	39°34'25"	87°	153°33'02"	71°36'58"
66°	100°45'01"	40°29'49"	88°	158°27'58"	74°56'51"
67°	102°07'23"	41°26'38"	89°	164°49'02"	79°49'34"
68°	104°31'26"	42°24'57"	90°	180°	90°

11.4 Commissioning

- (1) Before machine commissioning, loosen locking handles or screws on three directions.
- (2) Remove anti-rust oil on machine parts; during cleaning, do not use any hard tools may scratch the surface of parts. Then metal exposed surfaces should be coated with a thin layer of lubrication oil.
- (3) Pour into lubrication oil according to the requirement; filling each lubrication point once and carry out inspection.
- (4) Check the manual feed handle, hand wheel for flexibility and reliability.

13. Quick-wear part

Machine quick-wear part list

No .	Dwg No.	Description	QTY	Remarks
1	X603002301	Copper sleeve	1	
2	X603002302	Lifting screw nut	1	
3	X603003301	Vertical screw nut	1	
4	X612503303	Horizontal screw nut	1	
5	X612503221	Key	1	

14. Simple fault resolution

(5) After powering on, check whether spindle rotation direction, worktable feed and platform lifting direction are consistent with the directions shown on the label.

(6) During commissioning, first jog and check whether longitudinal, transverse and vertical travel limit is correct. At the beginning, the machine tool runs at the lowest speed more than 30 minutes, and then increase the speed gradually to test speed operation on each level and flexibility of the transmission mechanism.

11.5 Maintenance

Routine maintenance is extremely important for maintain good machine accuracy and performance.

(1) According to use frequency and lubricating condition of machine, add lubrication oil to oil tank and lubrication point regularly.

(2) In order to avoid local wear of worktable surface, it is recommended to change workpiece clamping position on the table often.

(3) Cutting parts and tools should be clamped well.

(4) Always check electrical equipment, cooling system, all locking handles and each travel limit for their reliability.

12. Electrical Part

12.1 This machine tool main power supply is of AC 400V, 50Hz. Feed power supply is of 3-phase AC 220V, 50Hz. After approving power supply, the machine tool can be switched on.

12.2 This machine is provided with a main switch, power supply short circuit, overload, emergency stop and other protective measures.

12.3 The buttons of spindle running, cooling control and worktable feed jog are installed on over beam bracket at the left front of machine. Also the emergency stop button is on here. Any emergency occurs, press down this button to make machine spindle, cooling and feed stop. After removing the fault, and start the machine again, turn ESB clockwise to an angle for resetting; After the restoration of all control knobs to the zero position, may continue to operate the machine.

12.4 Only professional can repair electrical system. Please note that the machine should be away from the external power supply.

12.5 Attachment: Electrical components list and electrical schematic diagram

N.B.: This machine is of 3-phase, 4-conductor; among which the black wire is firewire, and yellow-green wire is earthing wire.

No.	Fault	Analysis Of Causes	Solving method
1	No power while machine starts	(1) power input fault (2) wire connection wrong (3) wire connection loose	(1) input right power (2) check wire connection (3) tight wire connection
2	Spindle not work	(1) main drive variable gear changing wrong (2) over load cutting (3) motor fault (4) spindle mechanical damage	1. checking the main drive speed changing box 2. operation machine according to manual 3. checking motor 4. referring to mechanical manual
3	Spindle temperature rise under standard	(1) bearing damage (2) locking screw much tight	(1) bearing change (2) locking screw adjusting
4	Spindle accuracy under standard	(1) bearing damage or misadjustment (2) spindle hole wearing down (3) spindle temperature rise too much ,cause thermal deformation (4) locking screw loose	(1) change bearing or adjusting (2) change spindle (3) adjust bearing (4) locking nut tight
5	Spindle gearbox no speed changing	Spindle motor line connector no respond	Check electrical circuit, check adjusting screw to get connection
6	Feeding box much noise	(1) drive gear wrong location or loose (2) motor noise	(1) check all of the drive gear (2) check motor noise
7	Feeding box no feeding	(1) feeding motor no connect or damaged (2) feeding electromagnetic clutch no actuation	Check the electrical wiring and electrical components fault and solve it
8	Moving parts sound abnormal	(1) foreign matter in (2) screw nut loose	(1) clean the foreign matter (2) tight the screw
9	Moving parts moved	(1) screw and nut connect loose (2) bearing bracket screw loose (3) screw nut much space	(1) fix tight the loosen screw (2) tight the bearing bracket (3) change
10	Moving parts creep	(1) guide lubrication not enough (2) No guide lubrication	(1) check if the pipe jamed or distributor damage, lubricating device is normal (2) Regularly fueling it according to the manual
11	Motor damaged	(1) the peripheral circuit Connected with have oil or water infiltration, caused a short circuit (2) Wire damaged, caused a short circuit	(1) connect with machine producer (2) After circuit fault resolved, replace the motor
12	Machine noise under standard	(1) drive gear loose (2) Foreign matter in	(1) re tight the loose gear (2) Clean the foreign matter
13	Oil running out fast	(1) lubricating oil pipe damaged (2) Distributor damaged	(1) change the lubricating oil pipe (2) Change the lubricator
14	Guide screw no lubrication or not enough	(1) Distributor damaged (2) Lubricating pipe break off or jamed (3) No lubricating oil (4) Oil -out jamed	(1) change the lubricating point (2) Change the oil pipe (3) Get enough oil (4) Fix oil-out hole
15	No cooling liquid	(1) cooling liquid dirty cause filter jam (2) Pipe water leakage or tube damage (3) outlet jam	(1) clean the filter ,change new cooling liquid (2) change tube (3) clean oil outlet
16	Cooling pump fault	(1) working too much time , pressure too high (2) Cooling pump jam,motor too heated (3) Cooling pump damaged (4) Thermo relay burned (5) Motor turning direction wrong (6) No cooling liquid	(1) close the Thermo relay (2) Clean cooling pump,then close the Thermo relay (3) Change cooling pump (4) Change the Thermo relay (5) Re- wire (6) Cooling liquid in
17	Vibrate when cutting	(1) cutting Parameter is not reasonable (2) Spindle gear box drive bearing loose (3) Gib wearing out,cause guide space larger (4) Workpiece not clamped or not tight	(1) modify the Parameter (2) Fix the spindle box (3) Fix the gibs (4) Clamping workpiece tight
18	Workpiece surface rough	(1)Workpiece not clamped or not tight (2)Drive parts not clamping tight (3)Cutting travel not right	(1)clamping workpiece tight (2)Fix space between guides (3)Modify the cutting Parameters

15. Environmental protection

Protect the environment.

Your appliance contains valuable materials which can be recovered or recycled. Please leave it at a specialized institution.



This symbol indicates separate collection for electrical and electronic equipment required under the WEEE Directive (Directive 2012/19/EC) and is effective only within the European Union.

16. Available accessories

Refer to the **PROMAC**-Price-list

17. Exploded View for Manual Product description

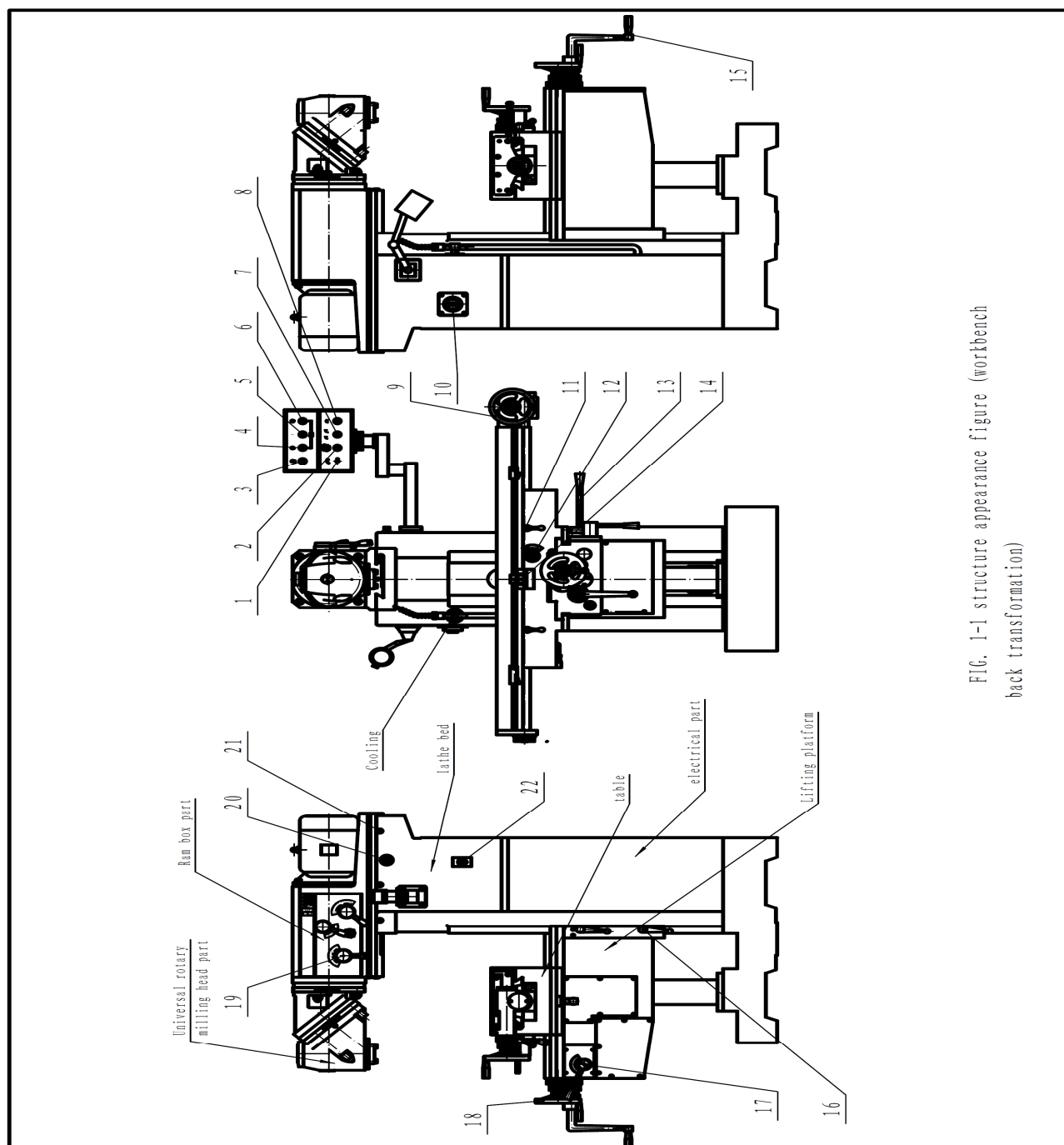
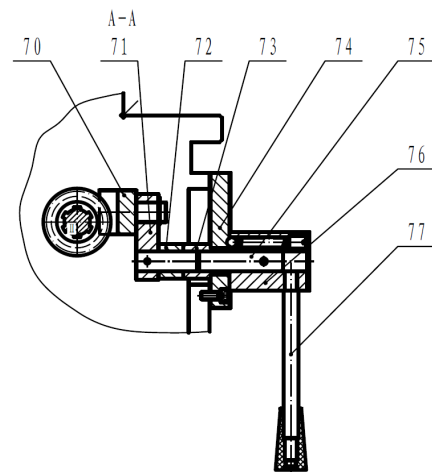
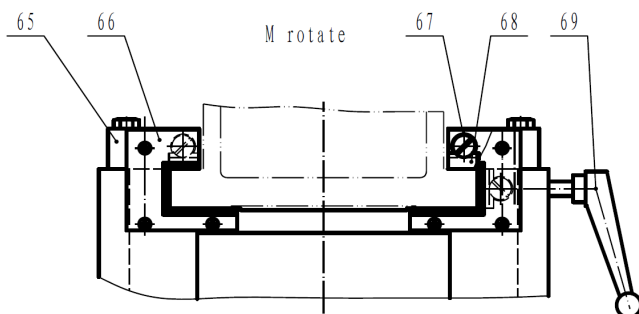
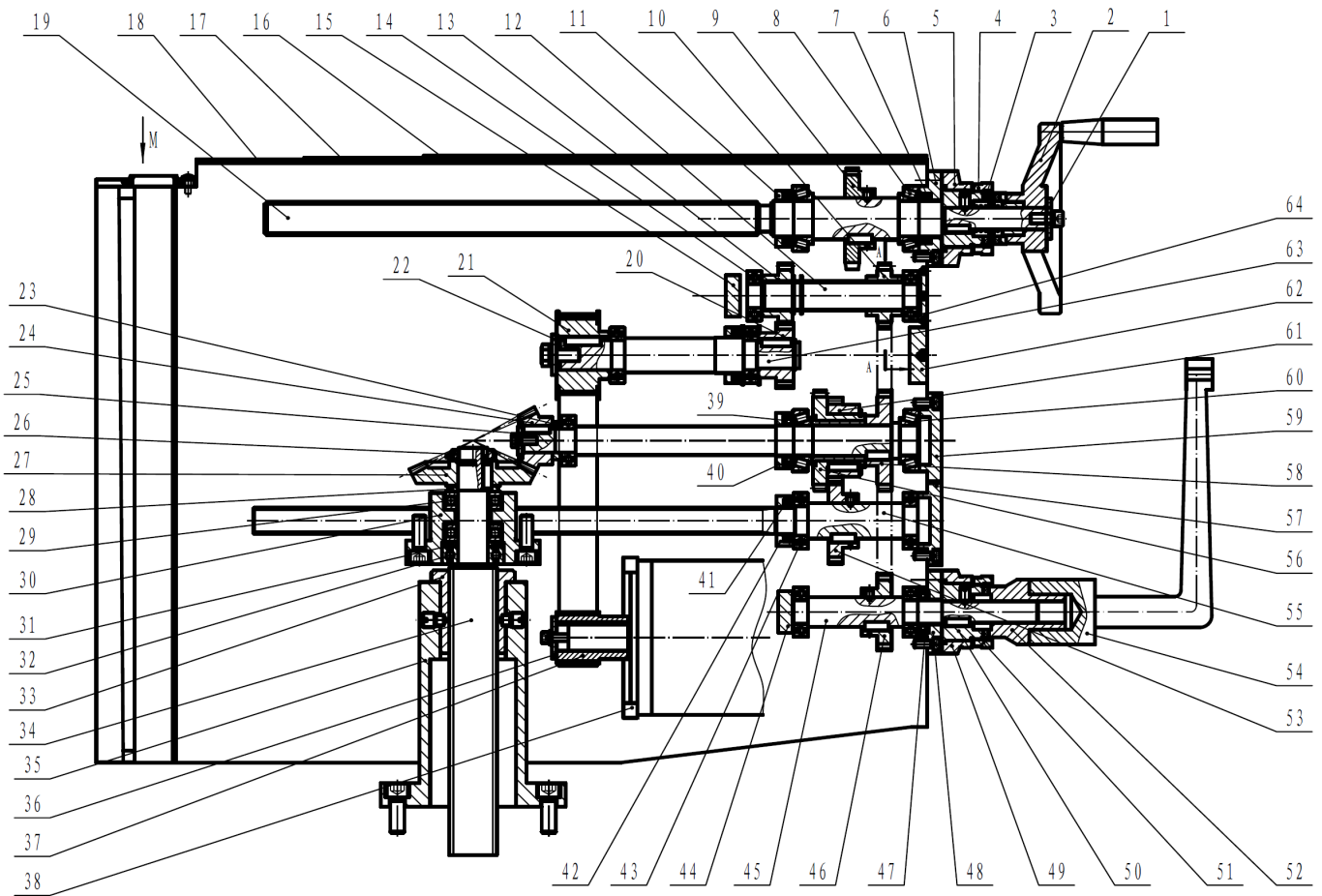


FIG. 1-1 structure appearance figure (workbench
back transformation)

18. Exploded View & Part List

Exploded View for JM-125- DRO Drill Milling Machine – Elevator table Assembly A



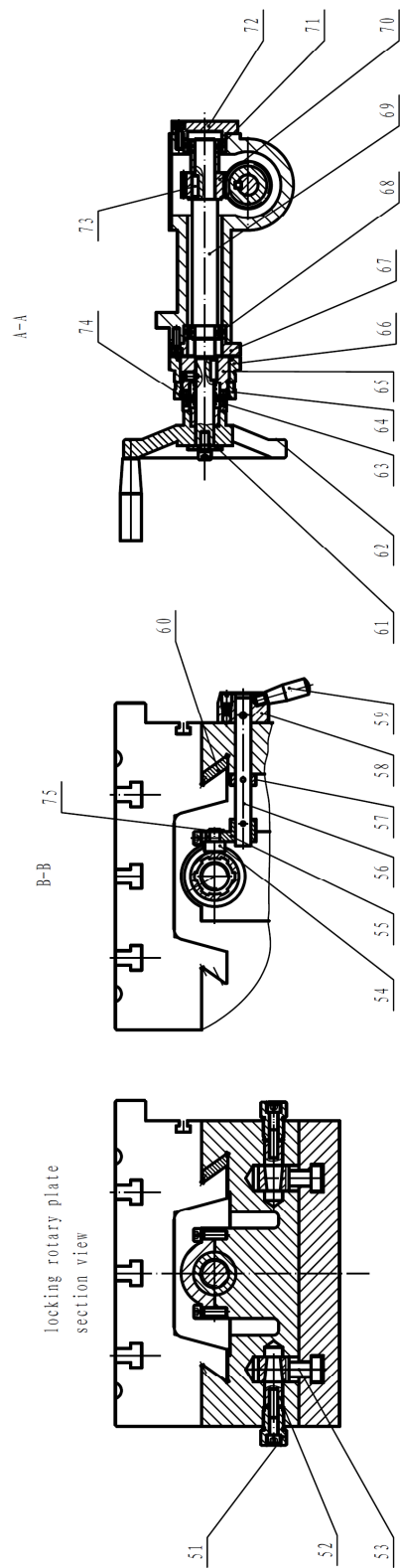
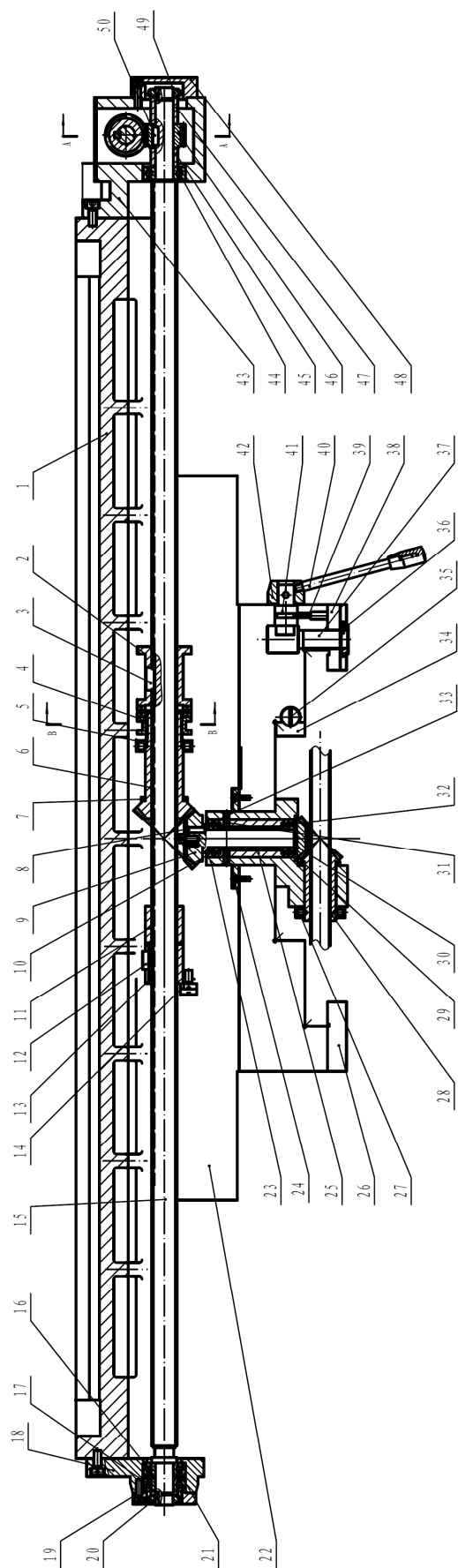
Part List for JM-125- DRO Drill Milling Machine – Elevator table Assembly A

Index No.	Part No.	Description	Size	Qty.
1	JM125-A-001	Cushion		1
2	JM125-A-002	Hand Wheel		1
3	JM125-A-003	Coupling		1
4	JM125-A-004	Nut		1
5	JM125-A-005	Calibration Loop		1
6	JM125-A-006	Flange Plate		1
7	JM125-A-007	Skeleton Oil Seal	FB30x42x7	3
8	JM125-A-008	Tapered Roller Bearing	32006	2
9	JM125-A-009	Gear		1
10	JM125-A-010	Gear		1
11	JM125-A-011	Sheath		1
12	JM125-A-012	Spline Shaft		1
13	JM125-A-013	Gear		1
14	JM125-A-014	Deep Groove Ball Bearing	6004	5
15	JM125-A-015	Block		1
16	JM125-A-016	Splash Guard		1
17	JM125-A-017	Splash Guard		1
18	JM125-A-018	Splash Guard		1
19	JM125-A-019	Horizontal Screw		1
20	JM125-A-020	Gear		1
21	JM125-A-021	Synchronous Pulley		1
22	JM125-A-022	Cushion		1
23	JM125-A-023	Cushion		1
24	JM125-A-024	Bevel Gear		1
25	JM125-A-025	Cushion		1
26	JM125-A-026	Round Nut	M24x1.5	1
27	JM125-A-027	Bevel Gear		1
28	JM125-A-028	Cushion		1
29	JM125-A-029	Thrust Ball Bearing	51205	2
30	JM125-A-030	Flange Plate		1
31	JM125-A-031	Cushion		1
32	JM125-A-032	Deep Groove Ball Bearing	6205	1
33	JM125-A-033	Lifting Nut		1
34	JM125-A-034	Lifting Screw		1
35	JM125-A-035	Sleeve		1
36	JM125-A-036	Cushion		1
37	JM125-A-037	Synchronous Pulley		1
38	JM125-A-038	Flange Plate		1
39	JM125-A-039	Skeleton Oil Seal	FB25x40x7	1
40	JM125-A-040	Sheath		1
41	JM125-A-041	Skeleton Oil Seal	FB22x35x7	
42	JM125-A-042	Sheath		1
43	JM125-A-043	Deep Groove Ball Bearing	6005	4
44	JM125-A-044	Block		1
45	JM125-A-045	Axis	FB20x35x7	1
46	JM125-A-046	Gear		1
47	JM125-A-047	Skeleton Oil Seal		1
48	JM125-A-048	Flange Plate		1
49	JM125-A-049	Calibration Loop		1
50	JM125-A-050	Coupling		1
51	JM125-A-051	Nut		1
52	JM125-A-052	Coupling		1
53	JM125-A-053	Gear		1
54	JM125-A-054	Lifting Crank		1
55	JM125-A-055	Axis		1
56	JM125-A-056	Gear		1
57	JM125-A-057	Flange Plate		1
58	JM125-A-058	Gear		1

Part List for JM-125- DRO Drill Milling Machine – Elevator table Assembly A

Index No.	Part No.	Description	Size	Qty.
59	JM125-A-059	Flange Plate		1
60	JM125-A-060	Tapered Roller Bearing	30205	2
61	JM125-A-061	Gear		1
62	JM125-A-062	Block		1
63	JM125-A-063	Axis		1
64	JM125-A-064	Block		1
65	JM125-A-065	Pressing Plate		2
66	JM125-A-066	Scraping Crumbs Plate		2
67	JM125-A-067	Screw		3
68	JM125-A-068	Rack		3
69	JM125-A-069	Lock Handle		2
70	JM125-A-070	Shifting Block		1
71	JM125-A-071	Swing Arm		1
72	JM125-A-072	Bush		1
73	JM125-A-073	Sheath		1
74	JM125-A-074	Cover		1
75	JM125-A-075	Axis		1
76	JM125-A-076	Handle Seat		1
77	JM125-A-077	Handle		1

Exploded View for JM-125- DRO Drill Milling Machine – Table Assembly B



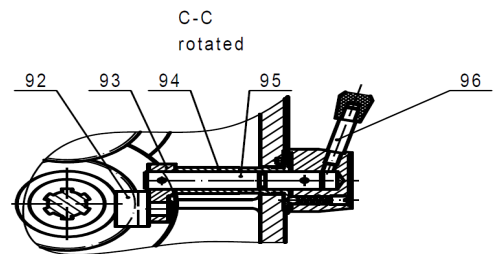
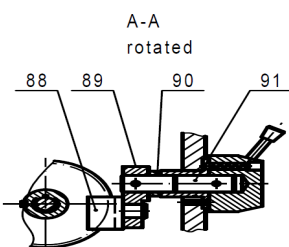
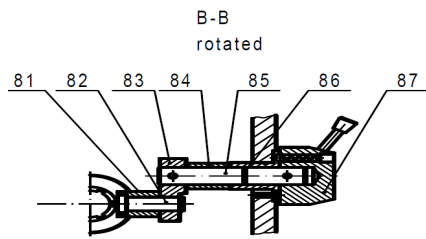
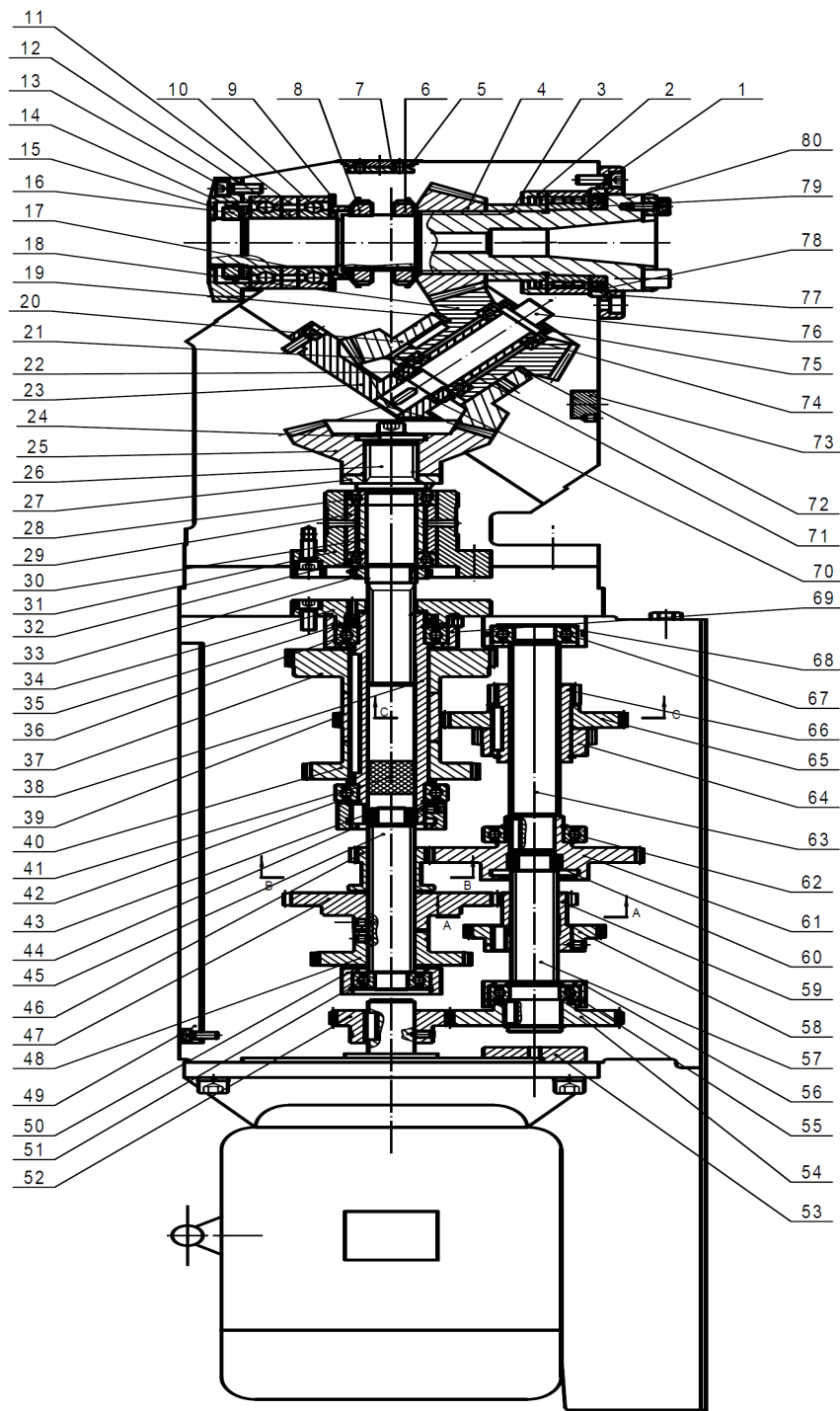
Part List for JM-125- DRO Drill Milling Machine – Table Assembly B

Index No.	Part No.	Description	Size	Qty.
1	JM125-B-001	Work Table		1
2	JM125-B-002	Clutch		1
3	JM125-B-003	Keyway		1
4	JM125-B-004	Clutch		1
5	JM125-B-005	Sheath		1
6	JM125-B-006	Bevel Gear		1
7	JM125-B-007	Adjustable Pad		1
8	JM125-B-008	Pad		1
9	JM125-B-009	Bevel Gear		1
10	JM125-B-010	Deep Groove Ball Bearing	6004	1
11	JM125-B-011	Vertical Nut		1
12	JM125-B-012	General Flat Key	6x20	1
13	JM125-B-013	Vertical Screw		1
14	JM125-B-014	Screw		2
15	JM125-B-015	Vertical Screw		1
16	JM125-B-016	Angular Contact Ball Bearing	7204AC	1
17	JM125-B-017	Angular Contact Ball Bearing	7204AC	1
18	JM125-B-018	Bracket		1
19	JM125-B-019	Flange Plate		1
20	JM125-B-020	Round Nut	M20x1.5	1
21	JM125-B-021	Pad		1
22	JM125-B-022	Rotary Disk		1
23	JM125-B-023	Bracket		1
24	JM125-B-024	Flange Plate		1
25	JM125-B-025	Bush		1
26	JM125-B-026	Platen		1
27	JM125-B-027	Sheath		1
28	JM125-B-028	Bevel Gear		1
29	JM125-B-029	Adjustable Pad		1
30	JM125-B-030	Bevel Gear		1
31	JM125-B-031	Taper Pin	A6x16	2
32	JM125-B-032	Deep Groove Ball Bearing	6004	1
33	JM125-B-033	Adjustable Pad		1
34	JM125-B-034	Lateral Rack		1
35	JM125-B-035	Screw		1
36	JM125-B-036	Round Nut	M20x1.5	1
37	JM125-B-037	Locking Shaft		1
38	JM125-B-038	Platen		1
39	JM125-B-039	Slotted Set Screws With Long Dog Point	M5x16	
40	JM125-B-040	Handle Shaft		1
41	JM125-B-041	Eccentric Shaft		1
42	JM125-B-042	Handle Seat		1
43	JM125-B-043	Bracket		1
44	JM125-B-044	Deep Groove Ball Bearing	6204-2RZ	1
45	JM125-B-045	Bush		1
46	JM125-B-046	Helical Gear		1
47	JM125-B-047	Bush		1
48	JM125-B-048	Flange Plate		1
49	JM125-B-049	Round Nut	M20x1.5	1
50	JM125-B-050	General Flat Key	A6x20	1
51	JM125-B-051	Lock Nut		4
52	JM125-B-052	Axis Pin		4
53	JM125-B-053	Locking Shaft		4
54	JM125-B-054	Shifting Block		1
55	JM125-B-055	Rocker Arm		1
56	JM125-B-056	Axis		1
57	JM125-B-057	Sheath		1
58	JM125-B-058	Handle Seat		1

Part List for JM-125- DRO Drill Milling Machine – Table Assembly B

Index No.	Part No.	Description	Size	Qty.
59	JM125-B-059	Handle Bar		1
60	JM125-B-060	Rack		1
61	JM125-B-061	Pad		1
62	JM125-B-062	Hand Wheel		1
63	JM125-B-063	Clutch		1
64	JM125-B-064	Hand Wheel		1
65	JM125-B-065	Clutch		1
66	JM125-B-066	Calibration Loop		1
67	JM125-B-067	Flange Plate		1
68	JM125-B-068	Deep Groove Ball Bearing	6004-2RZ	1
69	JM125-B-069	Axis		
70	JM125-B-070	Helical Gear		
71	JM125-B-071	Deep Groove Ball Bearing	6004-2RZ	1
72	JM125-B-072	Flange Plate		
73	JM125-B-073	General Spring	A6x20	1
74	JM125-B-074	Compression Spring		1
75	JM125-B-075	Retainers For Shaft-A-Type	10	
59	JM125-B-059	Handle Bar		1
60	JM125-B-060	Rack		1
61	JM125-B-061	Pad		1
62	JM125-B-062	Hand Wheel		1
63	JM125-B-063	Clutch		1
64	JM125-B-064	Hand Wheel		1
65	JM125-B-065	Clutch		1
66	JM125-B-066	Calibration Loop		1
67	JM125-B-067	Flange Plate		1
68	JM125-B-068	Deep Groove Ball Bearing	6004-2RZ	1
69	JM125-B-069	Axis		
70	JM125-B-070	Helical Gear		
71	JM125-B-071	Deep Groove Ball Bearing	6004-2RZ	1
72	JM125-B-072	Flange Plate		
73	JM125-B-073	General Spring	A6x20	1
74	JM125-B-074	Compression Spring		1
75	JM125-B-075	Retainers For Shaft-A-Type	10	

Exploded View for JM-125- DRO Drill Milling Machine – Tool RAM & Milling Head Assembly C



Part List for JM-125- DRO Drill Milling Machine – Tool RAM & Milling Head Assembly C

Index No.	Part No.	Description	Size	Qty.
1	JM125-C-001	Conical double row cylindrical bearings	NN3012K/P5	1
2	JM125-C-002	cushion		1
3	JM125-C-003	sheath		1
4	JM125-C-004	bevel gear		1
5	JM125-C-005	cover		1
6	JM125-C-006	cushion		1
7	JM125-C-007	round nut	M52x1.5	1
8	JM125-C-008	round nut	M52x1.5	1
9	JM125-C-009	hole collar	85	1
10	JM125-C-010	angular contact ball bearing	7209AC/P5	1
11	JM125-C-011	cushion		1
12	JM125-C-012	cushion		1
13	JM125-C-013	cushion		1
14	JM125-C-014	cushion		1
15	JM125-C-015	angular contact ball bearing	7209AC/P5	1
16	JM125-C-016	round nut	M45x1.5	1
17	JM125-C-017	flange plate		1
18	JM125-C-018	bevel gear		1
19	JM125-C-019	adjustable cushion		1
20	JM125-C-020	bevel gear		1
21	JM125-C-021	angular contact ball bearing	7005AC	1
22	JM125-C-022	round nut	M25x1.5	1
23	JM125-C-023	flange plate		1
24	JM125-C-024	cushion		1
25	JM125-C-025	bevel gear		1
26	JM125-C-026	spline shaft		1
27	JM125-C-027	cushion		1
28	JM125-C-028	angular contact ball bearing	7006AC	1
29	JM125-C-029	sheath		1
30	JM125-C-030	sheath		1
31	JM125-C-031	flange plate		1
32	JM125-C-032	angular contact ball bearing	7006AC	1
33	JM125-C-033	round nut	M30x1.5	1
34	JM125-C-034	flange plate		1
35	JM125-C-035	skeleton oil seal	FB40x55x8	1
36	JM125-C-036	deep groove ball bearing	6008	1
37	JM125-C-037	spline housing		1
38	JM125-C-038	drip pan		1
39	JM125-C-039	deep groove ball bearing	6009	1
40	JM125-C-040	gear		1
41	JM125-C-041	gear		1
42	JM125-C-042	gear		1
43	JM125-C-043	block		1
44	JM125-C-044	deep groove ball bearing	6008	1
45	JM125-C-045	deep groove ball bearing	61903	2
46	JM125-C-046	internal gear		1
47	JM125-C-047	spline shaft		1
48	JM125-C-048	gear		1
49	JM125-C-049	gear		1
50	JM125-C-050	gear		1
51	JM125-C-051	sheath		1
52	JM125-C-052	deep groove ball bearing	6204	1
53	JM125-C-053	cover		1
54	JM125-C-054	gear		1
55	JM125-C-055	block		1
56	JM125-C-056	gear		1
57	JM125-C-057	deep groove ball bearing	6006	1
58	JM125-C-058	sheath		

Part List for JM-125- DRO Drill Milling Machine – Tool RAM & Milling Head Assembly C

Index No.	Part No.	Description	Size	Qty.
59	JM125-C-059	spline shaft		
60	JM125-C-060	gear		
61	JM125-C-061	gear		
62	JM125-C-062	deep groove ball bearing	61804	2
63	JM125-C-063	gear		1
64	JM125-C-064	deep groove ball bearing	6007	1
65	JM125-C-065	spline shaft		1
66	JM125-C-066	gear		1
67	JM125-C-067	gear		1
68	JM125-C-068	gear		1
69	JM125-C-069	deep groove ball bearing	6205	1
70	JM125-C-070	sheath		1
71	JM125-C-071	oil flinger		1
72	JM125-C-072	sheath		1
73	JM125-C-073	block		1
74	JM125-C-074	cushion		1
75	JM125-C-075	sheath		1
76	JM125-C-076	cushion		1
77	JM125-C-077	block		1
78	JM125-C-078	angular contact ball bearing	7006AC	1
79	JM125-C-079	adjustable cushion		1
80	JM125-C-080	axis		1
81	JM125-C-081	flange plate		1
82	JM125-C-082	cushion		1
83	JM125-C-083	cushion		1
84	JM125-C-084	spindle		1
85	JM125-C-085	shifting block		1
86	JM125-C-086	axis		1
87	JM125-C-087	swing arm		1
88	JM125-C-088	sheath		1
89	JM125-C-089	axis		1
90	JM125-C-090	sheath		3
91	JM125-C-091	handle seat		3
92	JM125-C-092	shifting fork		1
93	JM125-C-093	swing arm		1
94	JM125-C-094	sheath		1
95	JM125-C-095	axis		1
96	JM125-C-096	shifting fork		1
97	JM125-C-097	swing arm		1
98	JM125-C-098	sheath		1
99	JM125-C-099	axis		1
100	JM125-C-100	handle		3

Wiring Diagram for JM-125-DRO (400V 3PH)

Enclosure : Test Chart

No.	Inspection Items		Tolerance(mm)	Rem
1	Straightness of platform vertical movement	a. In transverse vertical plane	a 0.05/300	
		b. In longitudinal vertical plane	b 0.05/300	
2	Verticality of table surface & machine vertical guide surface	a. In transverse vertical plane	a 0.05/300 $\alpha \leq 90^\circ$	
		b. In longitudinal vertical plane	b 0.05/300	
3	Worktable surface flatness		0.04/500	
4	Parallelism of table surface & table movement	a Transverse	a 0.05/300	
		b Longitudinal	b 0.03/300 Max. tolerance 0.06	
5	Spindle axial play		0.02	
6	Radial run out of spindle taper axis	a . close to spindle nose	a 0.01	
		b . 300 from spindle nose	b 0.03	
7	Parallelism of spindle rotation axis & worktable surface		0.05/300(only concave)	
8	Verticality of spindle rotation axis & worktable surface	a. In transverse vertical plane	a 0.03/300(only concave)	
		b. In longitudinal vertical plane	b 0.03/300	
9	Verticality of worktable lateral movement & longitudinal movement		0.04/300	
10	Parallelism of worktable longitudinal movement to benchmark T-slot		0.03/300 Max. Torlerance 0.08	

Packing List --Main machine, accessories and tools

No.	Description	Size	Qty.	Remarks
1	Main machine		1	
2	Allen wrench	5	1	
3	Allen wrench	6	1	
4	Allen wrench	10	1	
5	Allen wrench	12	1	
6	Wrench	17×19	1	
7	Wrench	22×24	1	
8	Wrench	32×36	1	
9	Lifting crank		1	
10	Plain vice	QB136	1	
11	Milling chuck	7:24 ISO40	1	
12	ISO40 taper shank type cutter bar	Φ27	1	
13	Pull rod		1	
14	Guide rod		1	
15	Bracket		1	
16	Operation Manual	Electronic edition	1	
17	Certificate of Quality		1	
18	Manual & Packing List		1	