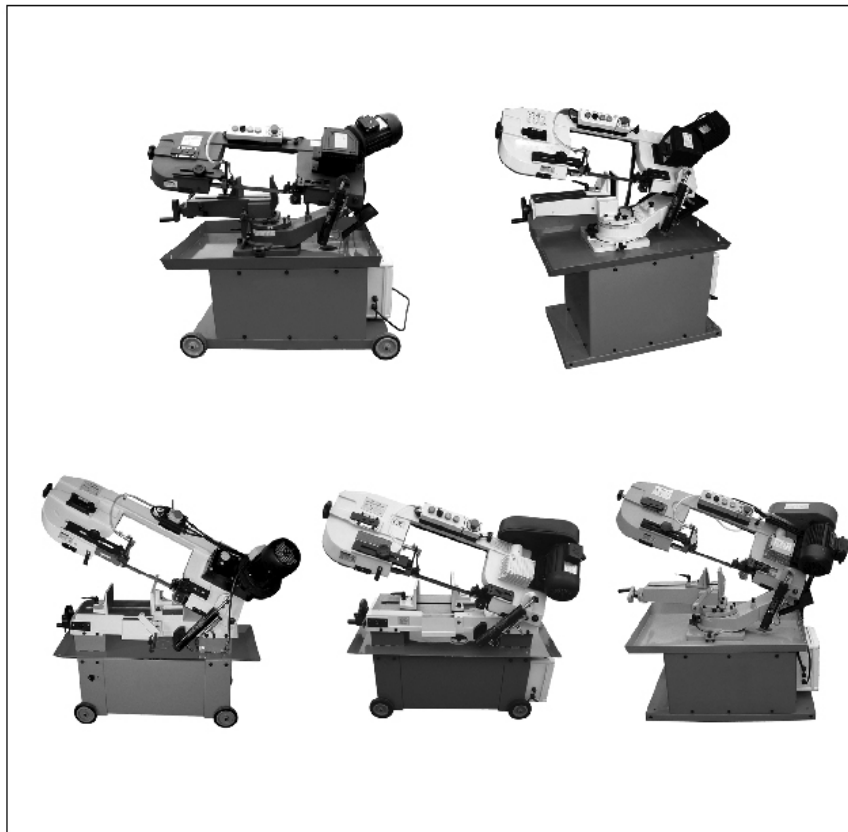


# **METAL CUTTING BAND SAW**

**Model: BS-712N BS-712G**

**BS-712R BS-712GR BS-712GDR**



**Operation Manual**

## **SAFETY INSTRUCTION**

1. Know your bandsaw. Read the operator's manual carefully. Learn the operations, applications and limitation as well as the specific potential hazards peculiar to this band saw.
2. This unit is equipped with a three prong (grounded) plug for your protection against shock hazards and should be plugged directly into a properly grounded three prong receptacle. Where a two prong wall receptacle is encountered. It must be replaced with a properly grounded three prong receptacle in accordance with the National Electrical Code and Local Codes and Ordinance.
3. Use only 3-wire extension cords which have 3-prong grounding type plugs.
4. Replace or repair damage or worn cord immediately.
5. Keep guards in place and in working order.
6. Be especially careful when using band saw in vertical position to keep fingers and hands out of path of blade.
7. Wear ear protection if exposed to long periods of very noisy shop operations.
8. Use safety goggles, hard hat and safety shoes. Also use face or dust mask if cutting operation is dusty.
9. Wear proper apparel. No loose clothing or jewelry to get caught in moving parts. Do not wear a tie or gloves.
10. Don't overreach. Keep your proper footing and balance at all times.
11. Secure work. Always use the vise to hold work. Clamp securely. Never hand-hold the work with saw in horizontal position.
12. Keep work area clean. Cluttered areas and benches invite accidents.
13. Avoid dangerous environment. Do not use the band saw in damp or wet location. Keep work area well illuminated.
14. Don't force tool. It will do the job better and safer at the rate for which it was designed.
15. Disconnect power cord before adjusting and servicing and before changing blade.
16. Safety is combination of operator common sense and alertness at all times when the saw is being used.
17. Never stand on tool. Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.
18. Check damaged parts. Before further use of the tools, a guard or other parts that will operate to assure that it will operate properly
19. And perform its intend function-check for alignment of moving parts; binding of moving parts, breakage of parts, mounting and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
20. If tool is equipped with three-prong plug, it should be plugged into a three-hole electrical receptacle. If an adapter is used to accommodate a two prong receptacle, the adapter plug must be attached to a known ground. Never remove the third prong.
21. When moving the saw, ALWAYS have the head lowered to the horizontal position.

## **ASSEMBLY**

A 3/4 or 1 HP motor split phase or capacitor is recommended for best economical performance. Counter clockwise is required. Note that rotation can be reversed by following directions given on terminal or name plate.

1. Assemble the motor Mounting plate to the head using the long bolt. Note that the flat side of the plate faces up.
2. Assemble the guard plate to the head using the screw and lock washer and the carriage bolt. Washer and wing nut are used to secure the motor mounting plate to the guard plate through the slotted hole in the guard plate. These components also serve to position and lock the motor in place or proper speed/belt adjustment.
3. Place the spacer over the long bolt and secure it with the nut.
4. Secure the motor to the motor mounting plate with the four bolts and nuts. Note that the motor shaft is placed through the large opening in the guard plate and must be parallel with the drive shaft.
5. Assemble the motor pulley, the smaller of the two provided to the motor shaft. Note the larger diameter must be closest to the motor. Do not tighten the set screw.
6. Assemble the driven pulley, the larger off the two provided to the protruding drive shaft. Note the smaller diameter must be closest to the bearing. Do not tighten the set screw.
7. Place the belt into one of the pulley groove and the other end into the respective grooves of the second pulley.
8. Line up the belt and both pulleys so that the belt is running parallel in the pulley grooves.
9. Tighten the set screws of both pulleys in this position.
10. Place the belt into proper pulley combination for proper blade speed.
11. Adjust the position of the motor to obtain approximately 1/2" depression in the belt when applying pressure with your thumb.
12. Tighten the head screw holding the motor mounting plate to the guard plate.
13. Connect the electrical harness to the motor terminal box. The motor should be protected with a time delay fuse or circuit breaker with a rated amperage slightly greater than the full-load amperage of the motor.

## **INSTALLATION**

The saw may be mounted on your own bench or stand. The rear end of the saw must be mounted flush with the rear of the stand or bench to permit vertical operation for this band saw. This stand has punched holes to effect easy assembly to the base using eight standard bolts.

## **OPERATION**

### **WORK SET UP**

1. Raise the saw head to vertical position.
2. Open vise to accept the piece to be cut by rotating the wheel at the end of the base.

3. Place workpiece on saw bed. If the piece is long support the end.
4. Clamp workpiece securely in vise

#### WORK STOP ADJUSTMENT

1. Loosen the thumb holding the work stop casting to the shaft.
2. Adjust the work stop casting to the desired length position.
3. Rotate the work stop as close to the bottom of the cut as possible.
4. Tighten thumb screw.
5. Do not allow the blade to rest on the work while the motor is shut off.

#### CONVERTING FOR VERTICAL USE

Nothing, slitting, contour work may be done with the saw in the vertical position in the following manner:

1. Rotate the head to the vertical position.
2. Assemble a 10"x10" table (an option that may be purchased from your dealer to the guide bar using the screws provided and the guide bar knob.)

#### BLADE SPEEDS

When using your band saw always change the blade speed to best suit the material being cut. The material cutting chart given suggested settings for several materials.

#### 4 SPECIFICATION CHART

Item No.	388006		388008	
Model	BS-712N		BS-712R	
Capacity	Circular	@90° 178mm(7")	178mm(7")	
	Rectangular	@90° 178×305mm(7"×12")	178×210mm(7"×8.25")	
	Circular	@45° 127mm(5")	127mm(5")	
	Rectangular	@45° 120×125mm(4.75"×4.88")	85×140mm(3.33"×5.5")	
Blade speed	@60Hz 27,41,59,78MPM		27,41,59,78MPM	
	@50Hz 22,34,49,64MPM		22,34,49,64MPM	
Blade size	20×0.9×2362mm		20×0.9×2362mm	
Motor power	750W 1PH(3PH), 1.1kW 1.5HP(1PH)			
Drive	V-belt		V-belt	
Packing size	125×45×115cm		132×77×115cm	
N.W./G.W.	170/192kg		190/240kg	

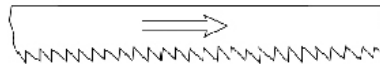
Item No.	388009		388110		388018	
Model	BS-712GR		BS-712GDR		BS-712G	
Capacity	Circular	@90° 178mm(7")	178mm(7")		178mm(7")	
	Rectangular	@90° 178×210mm(7"×8.25")	178×305mm(7"×8.25")		178×305mm(7"×12")	
	Circular	@45° 127mm(5")	127mm(5")		127mm(5")	
	Rectangular	@45° 85×140mm(3.33"×5.5")	85×140mm(3.33"×5.5")		120×115mm(4.75"×4.5")	
Blade speed	@60Hz 34,70,104MPM		34,70,104MPM		34,70,104MPM	
	@50Hz 25,50,87MPM		25,50,87MPM		25,50,87MPM	
Blade size	20×0.9×2362mm		20×0.9×2362mm		20×0.9×2362mm	
Motor power	750W 1PH(3PH), 1.1kW 1.5HP(1PH)					
Drive	Gear		Gear		Gear	
Packing size	132×77×115cm		132×77×115cm		140×56×115cm	
N.W./G.W.	210/245kg		210/260kg		170/194kg	

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### **BLADE DIRECTION OF TRAVEL**

Be sure the blade is assembled to the pulleys so that the vertical edge engages the work piece first.

BLADE MOVEMENT



### **STARTING SAW**

CAUTION: NEVER OPERATE SAW WITHOUT BLADE GUARDS IN PLACE.

Be sure the blade is not in contact with the workpiece when the motor is started. Start the motor, allow the saw to come to full speed, then begin the cut by let the head down slowly onto the work. DO NOT DROP OR FORCE. Let the weight of the saw head provide the cutting force. The saw automatically shuts off at the end of the cut.

### **BLADE SELECTION**

A 8-tooth per inch, general-use blade is furnished with this metal cutting band saw. Additional blades in 4,6,8 and 10 tooth sizes are available. The choice of the blade pitch is governed by the thickness of the work to be cut; the thinner the workpiece, the more teeth advised. A minimum of three teeth should engage the workpiece at all times for proper cutting. If the teeth of the blade are so far apart that they straddle the work, severe damage to the workpiece and to the blade can result.

### **CHANGING BLADE**

Raise saw head to vertical position and open the blade guards. Loosen tension screw knob sufficiently to allow the saw blade to slip off the wheels. Install the new blade with teeth slanting toward the motor as follows:

1. Place the blade in between each of the guide bearings.
2. Slip the blade around the motor pulley (bottom) with the left hand and hold in position.
3. Hold the blade taut against the motor pulley by pulling the blade upward with the right hand which is placed at the top of the blade.
4. Remove left hand from bottom pulley and place it at the top side of the blade to continue the application on the upward pull on the blade.
5. Remove right hand from blade and adjust the position of the top pulley to permit left hand to slip the blade around the pulley using the thumb index and little finger as guides.
6. Adjust the blade tension knob clockwise until it is just right enough so no blade slippage occurs. Do not tighten excessively.
7. Replace the blade guards.
8. Place 2-3 drops of oil on the blade.

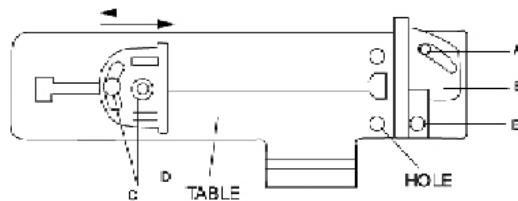
### **USAGE OF THE QUICK VISE**

Your machine is equipped with a quick action vise jaw which allows you to instantly position the movable vise jaw (B). Simply turn hand wheel (A) counter clockwise 1/2 turn and move the vise jaw (B) to the desired position. Then tighten the vise jaw (B) against the workpiece by turning hand-wheel clockwise.



### QUICK VISE ADJUSTMENT FOR ANGLE CUT

1. Loosen the A.B.C. Screw.
2. Adjust rear vise to the threaded hole position. (E)
3. Set the scale to the desired angle.
4. Adjust the front vise (D) to parallel the rear vise (E).
5. Tighten the A.B.C. Screw.



### BLADE GUIDE BEARING ADJUSTMENT

**ATTENTION:** This is the most important adjustment on your saw. It is impossible to get satisfactory work from your saw if the blade guides are not properly adjusted. The blade guide bearing on your Metal Cutting Band Saw is adjusted and power tested with several test cuts before leaving the factory to insure proper setting. The need for adjustment will rarely occur when the saw is used properly. If the guides do get out of adjustment, it is extremely important to readjust immediately. If improper adjustment is maintained, the blade will not cut straight, and if the situation is not corrected it will cause serious blade damage.

Because guide adjustment is a critical factor in the performance of your saw, it is always best to try a new blade to see if this will correct poor cutting before beginning to adjust. If a blade becomes dull on one side sooner than the other, for example, it will begin cutting crooked. A blade change will correct this problem, the guide adjustment will not. If a new blade does not correct the problem, check the blade and guides for proper spacing.

**NOTE:** There should be from 000 (just touching) 001 clearance between the blade and guide bearings, to obtain this clearance adjust as follows.

1. The inner guide bearing is fixed and cannot be adjusted.
2. The outer guide bearing is mounted to an eccentric bushing and can be adjusted.
3. Loosen the nut while holding the bolt with an Allen wrench.

4. Position the eccentric by turning the bolt to the desired position of clearance.
5. Tighten the nut.
6. Adjust the second blade guide bearing in the same manner.

### **BLADE TRACK ADJUSTMENT**

1. Open the blade guard.
2. Remove the blade guide assemblies (top and bottom)
3. Loosen the hex head screw in the tilting mechanism to a point where it is loose but snug.
4. With the machine running, adjust both the set screw and blade tension knob simultaneously to keep constant tension on the blade. The set screw and blade tension knob are always tuned in opposite directions, when one is turned clockwise the other is turned counterclockwise. The blade is tracking properly when the back side just touches the shoulder of pulley or a slight gap appears near the center line of the pulley. Care should be taken not to over tighten the saw blade since this will give a false adjustment and limit life of the blade.
5. Tighten the hex head screw in tilting mechanism.  
**IMPORTANT:** Sometimes for trying to make this critical adjustment it is possible causing the basic setting to be misaligned. Should this occur, proceed as follows:
  - a. Loosen the set screw and back it out as far as it can go and still remain in the threaded hold.
  - b. Turn the hex head screw clockwise until it stop (do not tighten).
  - c. Turn the set screw clockwise to the bottoms, then continue for half a turn and check the tracking by turning on the machine.
  - d. If further adjustment is required, go back to step 4.
6. Turn off power to the machine.
7. Replace the blade guide assemblies - it may be necessary to loosen the blade tension lightly.
8. Adjust the vertical position of blade guide bearing assemblies so that the back side of the blade just touches the ball bearings.
9. Make a final run to check tracking. If required, touch up adjustment (See step 4)
10. Replace the blade guards.

### **MAINTENANCE**

CAUTION: MAKE SURE THAT THE UNIT IS DISCONNECTED FROM THE POWER SOURCE BEFORE ATTEMPTING TO SERVICE OR REMOVE ANY COMPONENT!

### **LUBRICATION**

Lubricate the following components using SAE-30 oil as noted.

1. Ball-bearing none.
2. Driven pulley bearing 6-8 drops a week.
3. Vise lead screw as needed.
4. The drive gears run in an oil bath and will not require a lubricant change more often than once a year, unless the lubricant is accidentally contaminated or a leak occurs because of improper replacement of the gear box cover. During the first few days of operation, the worm gear drive will run hot. Unless the temperature exceeds 200F, there is no cause for alarm.

The following lubricants may be used for the gear box:  
Atlantic Refinery Co., Mogul Cyl. Oil  
Cities Service Optimus No.6  
Gulf Refinery Co Medium Gear Oil  
Pure Oil co. Park Clipper

### Tools required for assembly

#2 cross point screwdriver Pliers

### Unpacking and clean-up

1. First uncrating the saw. Inspect it for shipping damage. If any damage has occurred, contact your distributor.
2. Unbolt the saw from the skid and place it on a level surface.
3. Clean rust protected surfaces with kerosene, diesel oil. Do not use cellulose based solvents such as paint thinner or lacquer thinner. These will damage painted surfaces.

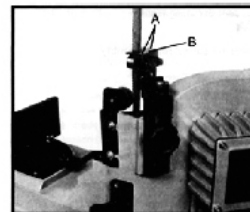
### Vertical cutting plate assembly

Note: these steps are only necessary if using the bandsaw in the vertical mode.

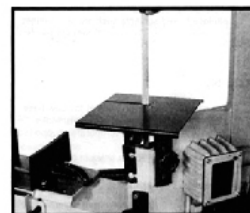
#### **Warning**

Disconnect bandsaw from the power source before making any repairs or adjustments! Failure to comply may cause serious injury!

1. Disconnect the bandsaw from the power source.
2. Raise the arm to the vertical position and lock in place by turning the hydraulic cylinder valve to the off position.
3. Remove two screws (A, Fig. 1) and the deflector plate (B).
4. Guide blade through slot in table and fasten with two screws. See Fig. 2.



**Fig.1**

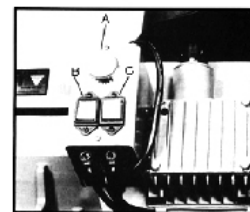


**Fig.2**

### Coolant tank preparation

Use of a water-soluble coolant will increase cutting efficiency and prolong blade life. Do not use black cutting oil as a substitute. Change cutting oil often and follow manufacturers instructions as to its uses and precautions.

1. Disconnect machine from the power source.
2. Remove coolant return hose from tank cover.
3. Slide tank out of saw base and carefully remove lid containing coolant pump.
4. Fill tank to approximately 80% of capacity.
5. Place lid back onto tank and place tank assembly back into base.
6. Replace return hose back into hole in tank lid.



**Fig.3**



### Adjusting blade square to table

1. Disconnect machine from the power source.
2. Place machinist's square on table next to blade as pictured in Fig. 4.
3. Check to see blade contact with square along the entire width of the blade.
4. If adjustment is necessary, loosen bolts and rotate blade guide assemblies slightly in the same direction until blade makes contact with the square along its entire width.
5. Tighten bolts (A).

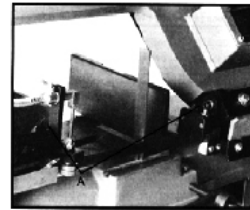


Fig. 4

6. Connect machine to the power source.

Note: If adjustment of square blade to table is necessary, be sure to check blade adjustments again.

1. Disconnect machine from the power source.
2. Place a machinist's square as pictured in figure 5. Square should lie along entire length of vise and blade without a gap.
3. If adjustment is necessary, loosen bolts holding vise and adjust vise so that square lines up properly. Tighten bolts.
4. Connect machine to the power source.

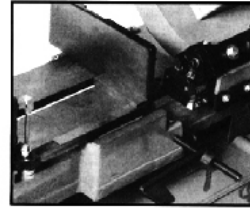


Fig. 5

### Adjusting blade guides

1. Disconnect machine from the power source.
2. Loosen knob (A, Fig. 6) and bolt (B). Slide blade guide assemblies as close as possible to the material without touching with the cut.
3. Tighten knob (A) and bolt (B) and connect machine to the power source.

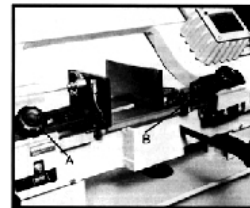


Fig. 6

### Vise adjustment

#### **Warning**

Do not make any adjustments or load/unload material from vise while machine is running!

Failure to comply may cause serious injury!

o set the vise for 0 to 45 degree cutting:

1. Remove bolt assemblies (C, Fig. 7)
2. Position vise and re-install as picture in Fig. 8. Pay particular attention to bolt hole location.
3. Set vise to desired angle, re-install bolts, and tighten nut and bolt assemblies.
4. Adjust movable vise parallel to fix vise by loosening bolt (A, Fig. 8), adjusting to parallel and tightening bolt.

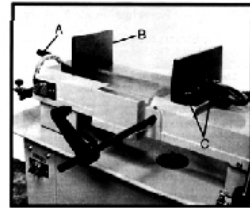


Fig. 7

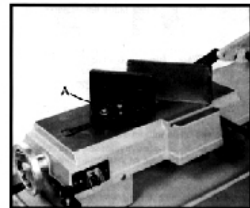


Fig. 8

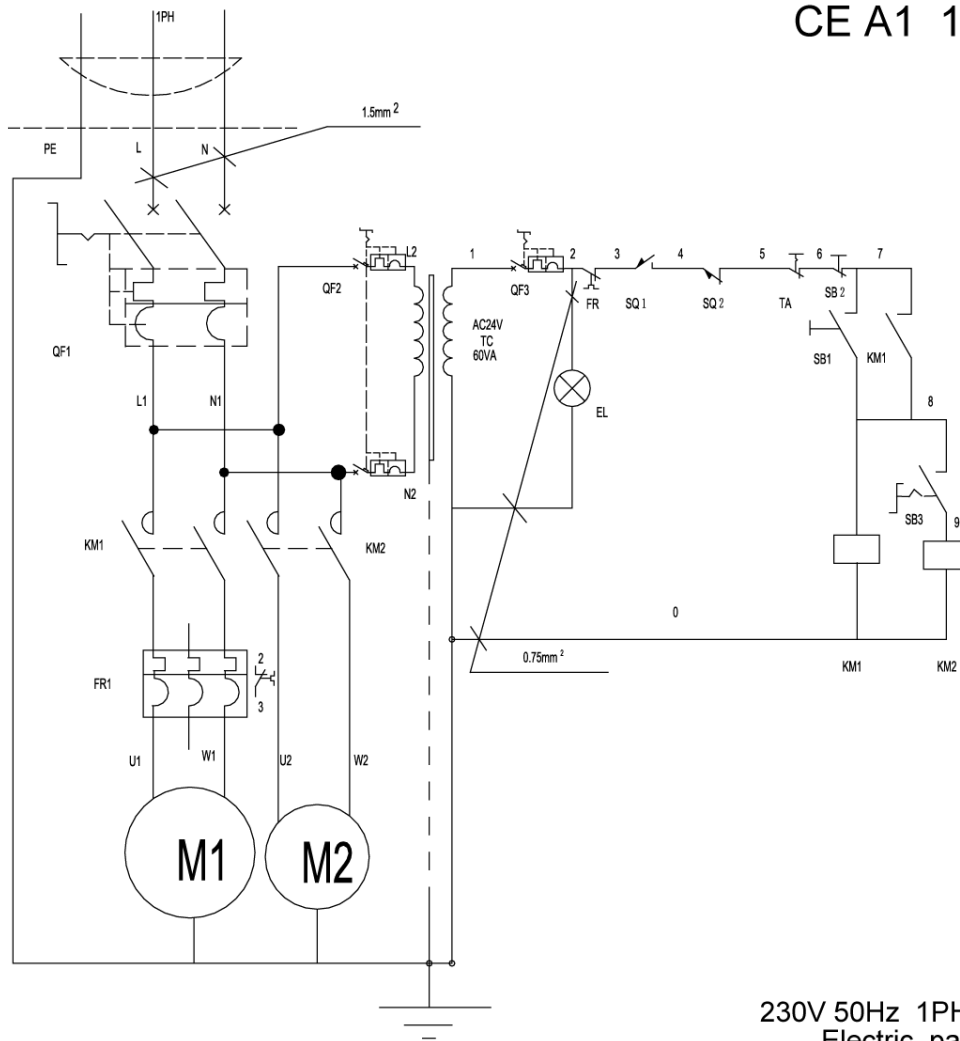
To set vise for maximum width of stock cutting:

1. Remove nut and bolt assemblies.
2. Position vise and re-install bolt assemblies as pictured in Fig 7.

<b>Symptom</b>	<b>Possible Cause (s)</b>	<b>Corrective Action</b>
Excessive Blade Breakage	<ol style="list-style-type: none"> <li>1. Material loose in vise</li> <li>2. Incorrect speed or feed</li> <li>3. Blade teeth spacing too large</li> <li>4. Material too coarse</li> <li>5. Incorrect blade tension</li> <li>6. Teeth in contact with material before saw is started</li> <li>7. Blade rubs on wheel flange</li> <li>8. Misaligned guide bearings</li> <li>9. Cracking at weld</li> </ol>	<ol style="list-style-type: none"> <li>1. Clamp work securely</li> <li>2. Adjust speed or feed</li> <li>3. Replace with a small teeth spacing blade</li> <li>4. Use a blade of slow speed and small teeth spacing</li> <li>5. Adjust where blade just does not slip on wheel</li> <li>6. Place blade in correct withwork after motor is started</li> <li>7. Adjust wheel alignment</li> <li>8. Adjust guide bearings</li> <li>9. Weld again, note the weld skill</li> </ol>
Premature Blade Dulling	<ol style="list-style-type: none"> <li>1. Teeth too coarse</li> <li>2. Too much speed</li> <li>3. Inadequate feed pressure</li> <li>4. Hard spots or scale on material</li> <li>5. Work hardening of material</li> <li>6. Blade twist</li> <li>7. Insufficient blade</li> </ol>	<ol style="list-style-type: none"> <li>1. Use finer teeth</li> <li>2. Decrease speed</li> <li>3. Decrease spring tension on side of saw</li> <li>4. Reduce speed, increase feed pressure</li> <li>5. Increase feed pressure by reducing spring tension</li> <li>6. Replace with a new blade, and adjust blade tension</li> <li>7. Tighten blade tension adjustable knob</li> </ol>
Unusual Wear on Side/Back of Blade	<ol style="list-style-type: none"> <li>1. Blade guides worn</li> <li>2. Blade guide bearings not adjusted properly</li> <li>3. Blade guide bearing bracket is loose</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace</li> <li>2. Adjust as per operators manual</li> <li>3. Tighten</li> </ol>

<b>Symptom</b>	<b>Possible Cause (s)</b>	<b>Corrective Action</b>
Teeth Ripping from Blade	<ol style="list-style-type: none"> <li>1. Tooth too coarse for work</li> <li>2. Too heavy pressure, too slow speed</li> <li>3. Vibrating work piece</li> <li>4. Gullets loading</li> </ol>	<ol style="list-style-type: none"> <li>1. Use finer tooth blade</li> <li>2. Decrease pressure, increase speed</li> <li>3. Clamp work piece securely</li> <li>4. Use coarse tooth blade or brush to remove chips</li> </ol>
Motor running too hot	<ol style="list-style-type: none"> <li>1. Blade tension too high</li> <li>2. Drive belt tension too high</li> <li>3. Gears need lubrication</li> <li>4. Cut is binding blade</li> <li>5. Gears aligned improperly</li> </ol>	<ol style="list-style-type: none"> <li>1. Reduce tension on blade</li> <li>2. Reduce tension on drive belt</li> <li>3. Check oil bath</li> <li>4. Decrease feed and speed</li> <li>5. Adjust gears so that worm is in center of gear</li> </ol>
Bad Cuts	<ol style="list-style-type: none"> <li>1. Feed pressure too great</li> <li>2. Guide bearing not adjusted properly</li> <li>3. Inadequate blade tension</li> <li>4. Dull blade</li> <li>5. Speed incorrect</li> <li>6. Blade guide spaced out too much</li> <li>7. Blade guide assembly loose</li> <li>8. Blade truck too far away from wheel flanges</li> </ol>	<ol style="list-style-type: none"> <li>1. Reduce pressure by increasing spring tension on side of saw</li> <li>2. Adjust guide bearing, the clearance can not be greater than 0.001mm</li> <li>3. Increase blade tension by adjust blade tension</li> <li>4. Replace blade</li> <li>5. Adjust speed</li> <li>6. Adjust guides space</li> <li>7. Tighten</li> <li>8. Re-track blade according with operating instructions</li> </ol>
Bad Cuts (Rough)	<ol style="list-style-type: none"> <li>1. Too much speed or feed</li> <li>2. Blade is too coarse</li> <li>3. Blade tension loose</li> </ol>	<ol style="list-style-type: none"> <li>1. Decrease speed or feed</li> <li>2. Replace with finer blade</li> <li>3. Adjust blade tension</li> </ol>
Blade is twisting	<ol style="list-style-type: none"> <li>1. Cut is binding blade</li> <li>2. Too much blade tension</li> </ol>	<ol style="list-style-type: none"> <li>1. Decrease feed pressure</li> <li>2. Decrease blade tension</li> </ol>

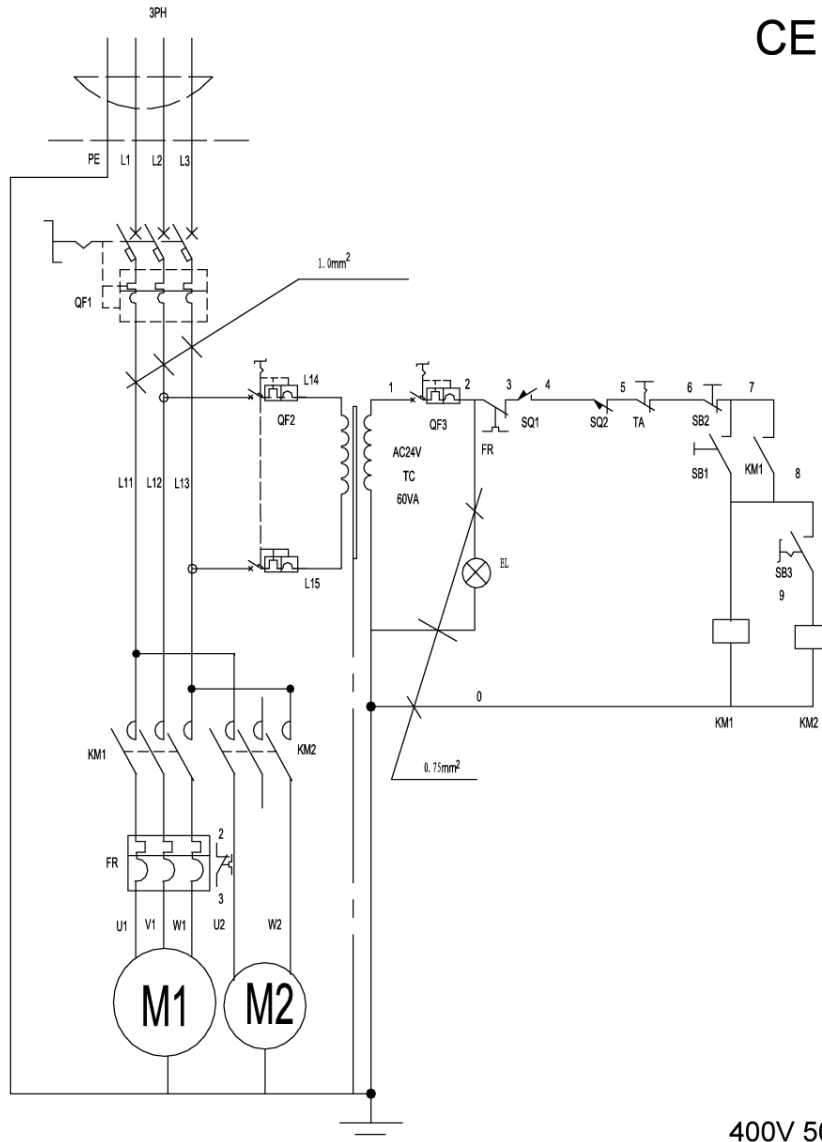
# CE A1 1PH



230V 50Hz 1PH A1  
Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	50HZ 1420r/min 1.1kw 1PH	1
2	Coolant pump	M2	400/230V 50HZ 40W	1
3	Transformer	TC	AC400,230/24V	1
4	Current Breaker	QF	DZ47-63 3P 5A,DZ47-63 2P 2A,DZ47-63 1P 1A	1,1,1
5	E.S.P.	TA	XB2-BX542	1
6	Indicator light	EL	XB2-BVD3	1
7	Contactors	KM	CN-6 AC24V 50HZ	2
8	Heat relay	FR	RHM-5N 5.5-8.5A	1
9	Limit switch	SQ1	QKS7 250V 10A	1
10	Interlocking switch	SQ2	QKS8 250V 10A	1
11	Start	SB	XB2-BE101	1
12	Stop	SA1	XB2-BE102	1
13	Start	SA2	XB2-ED21	1

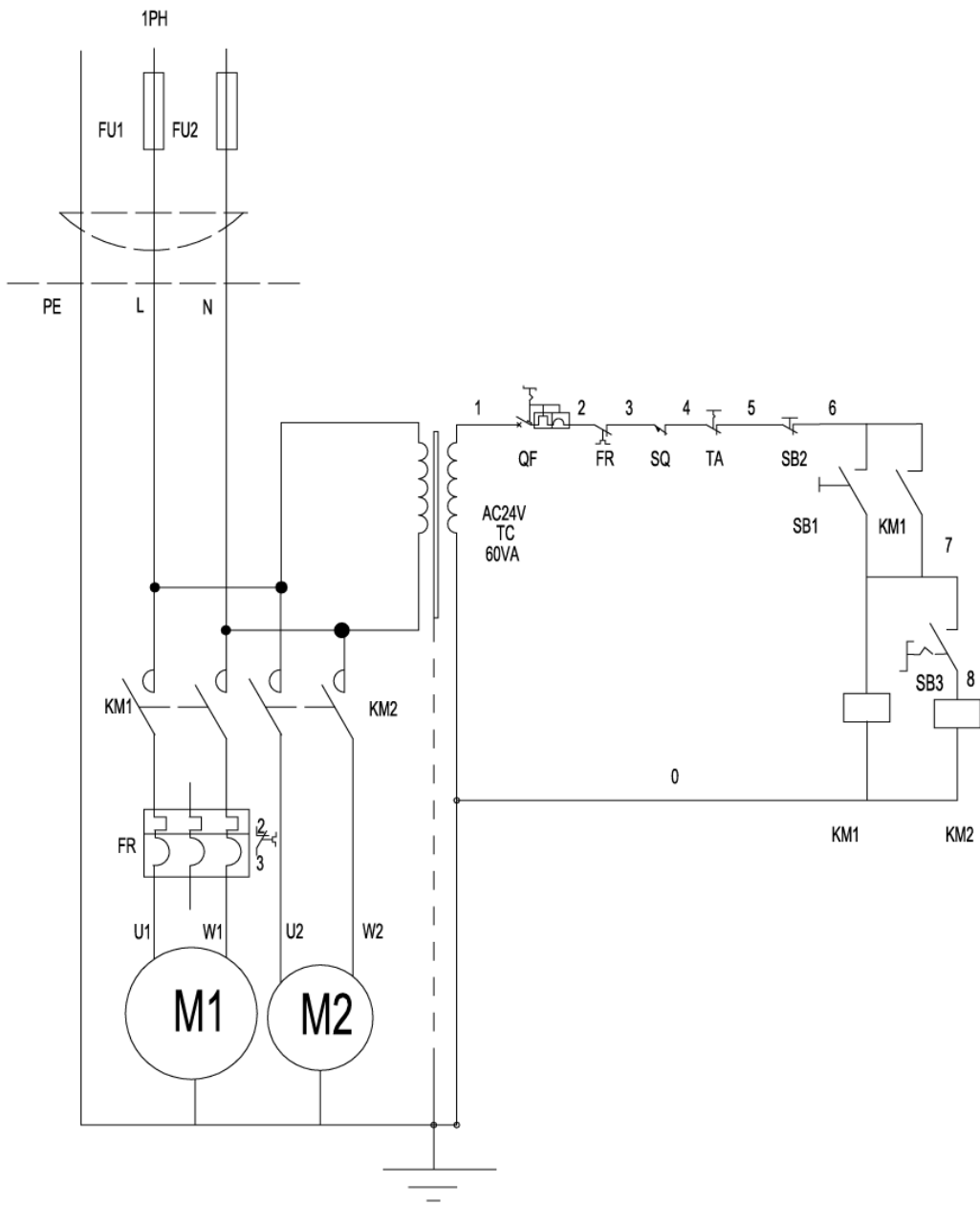
# CE A2 3PH



400V 50Hz 3PH A2  
Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	50HZ 1420r/min 0.75kw 1PH	1
2	Coolant pump	M2	400/230V 50HZ 40W	1
3	Transformer	TC	AC400,230/24V	1
4	Current Breaker	QF	DZ47-63 2P 10A , DZ47-63 2P 2A, DZ47-63 1P 1A	1,1,1
5	E.S.P.	TA	XB2-BX542	1
6	Indicator light	EL	XB2-BVD3	1
7	Contactor	KM	CN-6 AC24V 50HZ	2
8	Heat relay	FR	RHN-5M 2.4-3.6A	1
9	Limit switch	SQ1	QKS7 250V 10A	1
10	Interlocking switch	SQ2	QKS8 250V 10A	3
11	Start	SB	XB2-BE101	1
12	Stop	SA1	XB2-BE102	1
13	Start	SA2	XB2-ED21	1

# B1 1PH



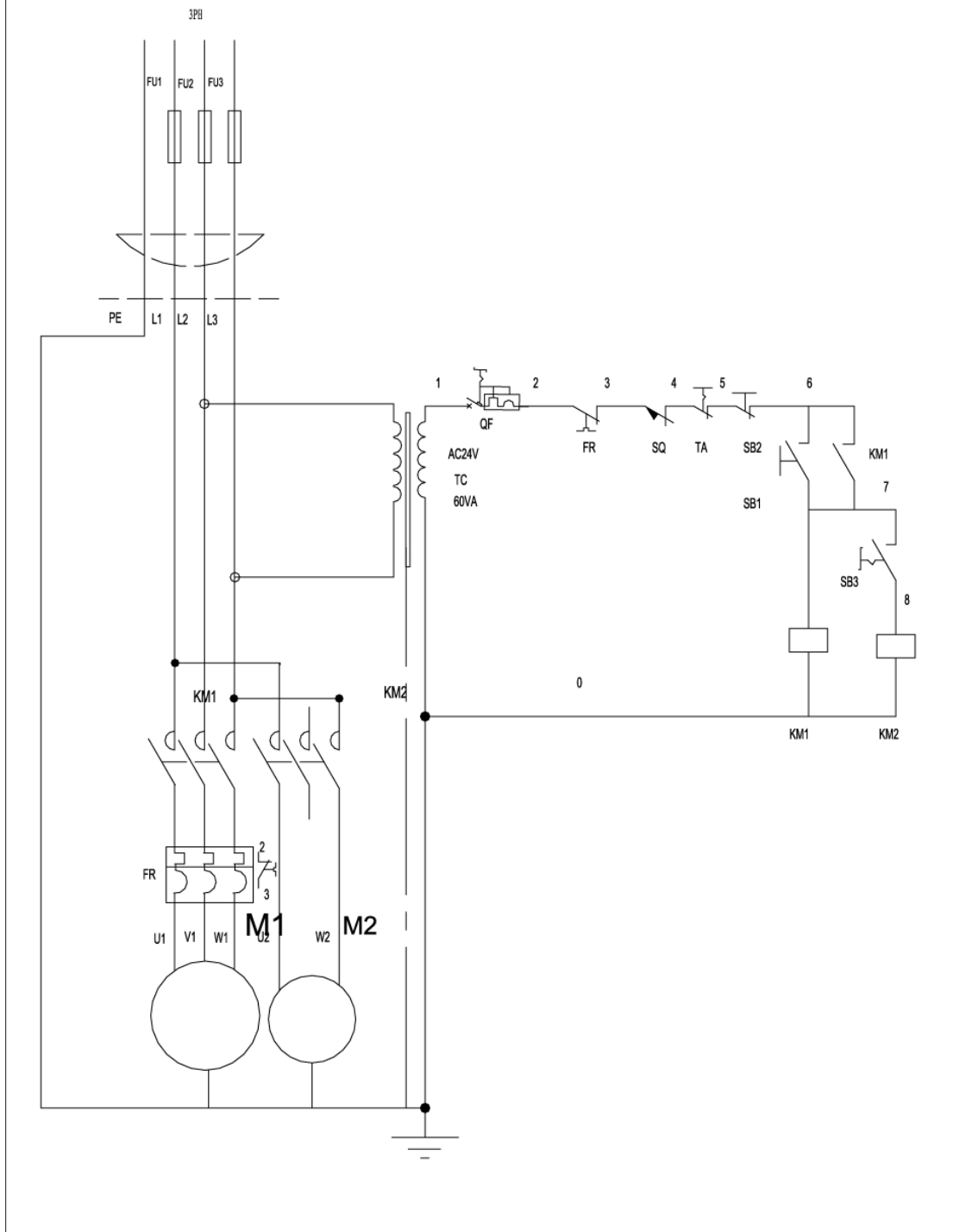
### 230V 50Hz 1PH B1 Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	50HZ 1420r/min 1.1kw 1PH	1
2	Coolant pump	M2	400/230V 50HZ 40W	1
3	Transformer	TC	AC400,230/24V	1
4	Current Breaker	QF	DZ47-63 1P 1A	1
5	E.S.P.	TA	XB2-BX542	1
6	Stop	SA1	XB2-BE102	1
7	Contactora	KM	CN-9 AC24V 50HZ	2
8	Heat relay	FR	RHN-5M 5.5-8.5A	1
9	Limit switch	SQ1	QKS7 250V 10A	1
10	Start	SA2	XB2-ED21	1
11	Start	SB	XB2-BE101	1

### 110V 60Hz 1PH B1 Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	60HZ 1700r/min 1.1kw 1PH	1
2	Coolant pump	M2	220/110V 60HZ 40W	1
3	Transformer	TC	AC220,110/24V	1
4	Current Breaker	QF	DZ47-63 1P 3A	1
5	E.S.P.	TA	XB2-BX542	1
6	Stop	SA1	XB2-BE102	1
7	Contactora	KM	CN-9 AC24V 50HZ	2
8	Heat relay	FR	RHN-5M 8.5-12.5A	1
9	Limit switch	SQ1	QKS7 250V 10A	1
10	Start	SA2	XB2-ED21	1
11	Start	SB	XB2-BE101	1

# B2 3PH





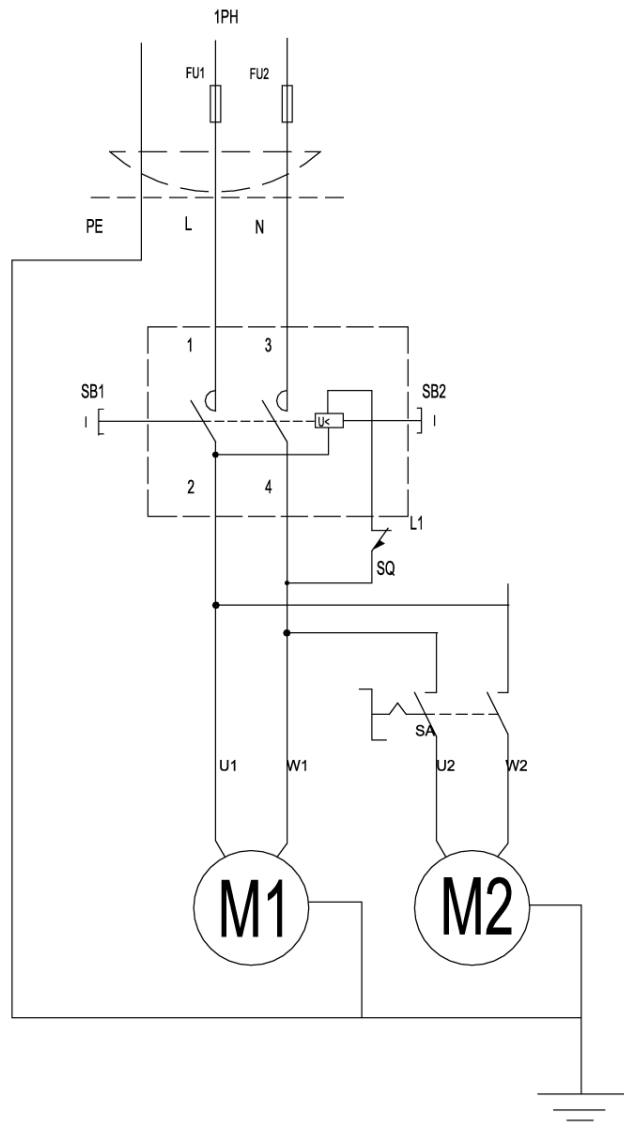
## 220V 60Hz 3PH B2 Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	60HZ 1700r/min 0.75kw 3PH	1
2	Coolant pump	M2	220V /110V 60HZ 40W	1
3	Transformer	TC	AC220/110V /24V	1
4	Current Breaker	QF	DZ47-63 1P 1A	1
5	E.S.P.	TA	XB2-BX542	1
6	Stop	SA1	XB2-BE102	1
7	Contactora	KM	CN-9 AC24V 50HZ	2
8	Heat relay	FR	RHM-5N 2.4-3.6A	1
9	Limit switch	SQ1	QKS7 250V 10A	1
10	Start	SA2	XB2-ED21	1
11	Start	SB	XB2-BE101	1

## 400V 50Hz 3PH B2 Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	50HZ 1420r/min 0.75kw 3PH	1
2	Coolant pump	M2	400V /230V 50HZ 40W	1
3	Transformer	TC	AC400/230V /24V	1
4	Current Breaker	QF	DZ47-63 1P 1A	1
5	E.S.P.	TA	XB2-BX542	1
6	Stop	SA1	XB2-BE102	1
7	Contactora	KM	CN-9 AC24V 50HZ	2
8	Heat relay	FR	RHM-5N 2.4-3.6A	1
9	Limit switch	SQ1	QKS7 250V 10A	1
10	Start	SA2	XB2-ED21	1
11	Start	SB	XB2-BE101	1

# C 1PH



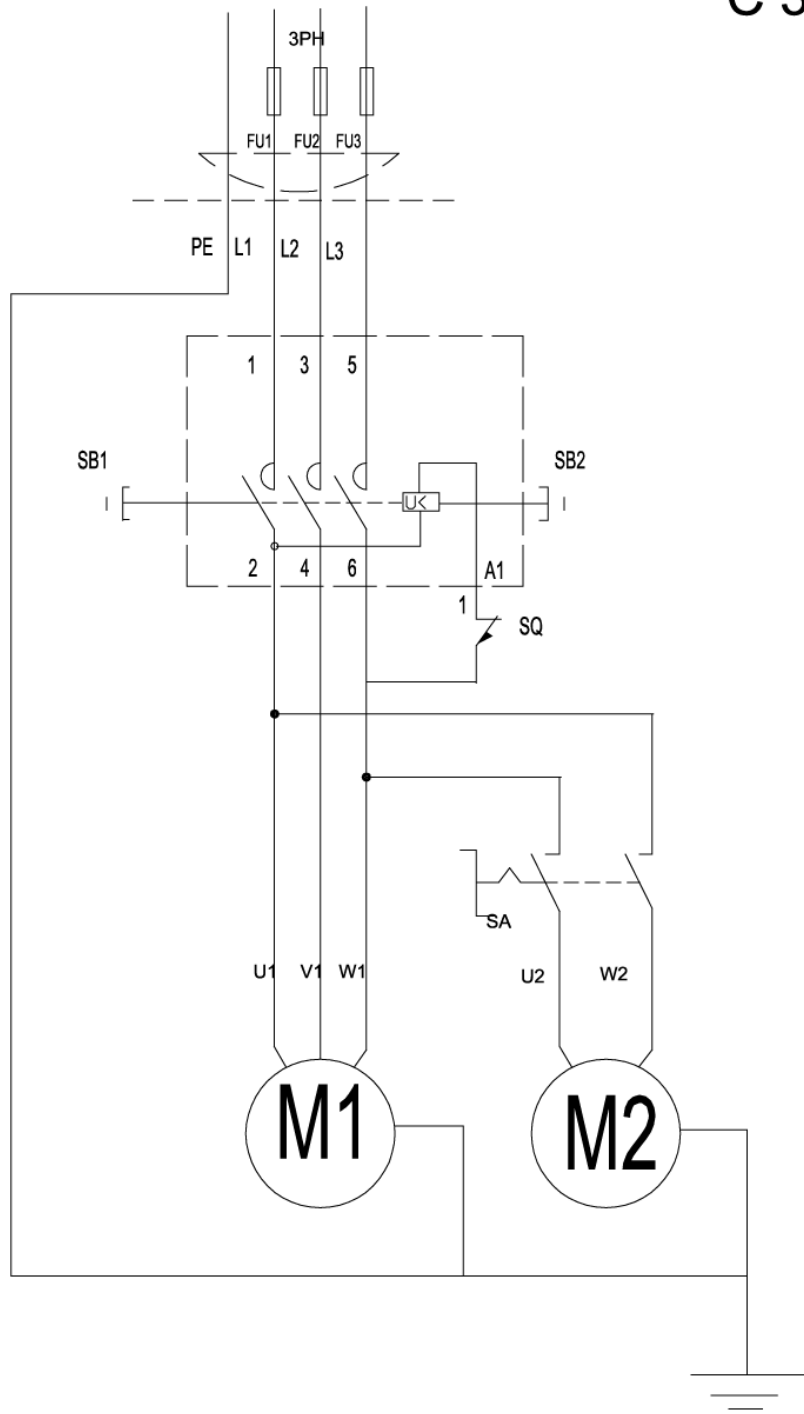
230V 50Hz 1PH C Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	50HZ 1420r/min 1.1kw 1PH	1
2	Coolant pump	M2	400/230V 50HZ 40W	1
3	Electromagnetic switch	SB	CK5	1
4	Start	SA	XB2-ED21	1
5	Limit switch	SQ1	QKS7 250V 10A	1

110V 60Hz 1PH C Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	60HZ 1700r/min 1.1kw 3PH	1
2	Coolant pump	M2	220/110V 60HZ 40W	1
3	Electromagnetic switch	SB	CK5	1
4	Start	SA	XB2-ED21	1
5	Limit switch	SQ1	QKS7 250V 10A	1

# C 3PH



### 220V 60Hz 3PH C Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	60HZ 1700r/min 0.75kw 3PH	1
2	Coolant pump	M2	220/110V 60HZ 40W	1
3	Electromagnetic switch	SB	CK31	1
4	Start	SA	XB2-ED21	1
5	Limit switch	SQ1	QKS7 250V 10A	1

### 575V 50HZ 3PH C Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	50HZ 1420r/min 0.75kw 3PH	1
2	Coolant pump	M2	575V 500HZ 40W	1
3	Push button switch	SB	NP5-230	1
4	Start	SA	XB2-ED21	1

### 400V 50Hz 3PH C Electric part list

No.	Name	Designation	Type&Specifications	Quantity
1	Main motor	M1	50HZ 1400r/min 0.75kw 3PH	1
2	Coolant pump	M2	400/230V 50HZ 40W	1
3	Electromagnetic switch	SB	CK31	1
4	Start	SA	XB2-ED21	1
5	Limit switch	SQ1	QKS7 250V 10A	1

<b>Part No.</b>	<b>Description</b>	<b>Qty</b>	<b>Part No.</b>	<b>Description</b>	<b>Qty</b>
1	Upper board of bottom pan	1	43	Support	1
2	Leg B	1	44	Bolt M6X16	1
3	Leg A	1	45	Acme screw	1
4	Board B	1	46	Pin	1
5	Board A	1	47	Spring screw	1
6	Foot wheel $\phi$ 125X $\phi$ 12	4	48	Bolt M5X8	1
7	Pin 3X25	4	49	Seat of stop switch	1
8	Foot wheel shaft	2	50	Stop switch	1
9	Bolt M10X30	2	51	Washer 6	2
10	Flat washer 10	2	52	Bolt M6X12	1
12	Column 12X70	1	53	Handle assembly	1
13	Support for cylinder	1	54	Handle seat	1
14	Hydraulic cylinder	1	55	Handle shaft	1
15	Bolt M10X35	1	56	Bolt M8X16	2
16	Flat washer 10	1	57	Washer 8	2
11	Screw M10	2	58	Screw M8	1
17	Bolt M6X16	6	59	Safety board	1
18	Washer 6	6	60	Bolt M8X30	1
19	Screw M6	6	61	Bottom seat	1
20	Bolt M8X16	8	62	fixed handle M10X80	1
21	Flat washer 8	16	63	Bolt M10X35	1
22	Screw M8	8	64	Washer 10	2
23	Bolt M6X20	1	65	Moving vise	1
25	filter sieve	1	66	Bolt M12X40	2
26	Screw M6	1	67	Washer 12	2
27	Bolt M8X30	7	68	Fixed vise	1
28	Washer 8	7	69	Bolt M10X20	1
29	Screw M8	7	70	Washer 10	1
30	Coolant switch assembly	1	71	Screw M10	2
31	Coolant box	1	72	Set rack	1
32	Aleak hose	1	73	Bolt on Spring	1
33	Coolant pump	1	74	Spring	1
34	Bolt M6X16	4	75	Bolt M10X40	1
35	Coupler	1	76	Screw M10	1
36	Hose clamp	1	77	Bolt M10X35	2
37	Hose	1	78	Mat	1
38	Turning handle M8X63	1	79	Pivot arm	1
39	Hand wheel $\phi$ 125X $\phi$ 15	1	80	Rotor	1
40	Bolt M6X6	1	81	Sleeve	2
41	Key 5X20	1	82	Washer 16	2
42	Screw	1	83	Screw M10	2

<b>Part No.</b>	<b>Description</b>	<b>Qty</b>	<b>Part No.</b>	<b>Description</b>	<b>Qty</b>
84	Support	1	123	Nozzle support	1
85	Bolt M10X40	1	124	Coolant switch assembly	1
86	Screw M10	1	125	Bolt M8X30	1
87	Bolt M10X35	2	126	Screw M10X1	4
88	Washer 10	2	126.1	Washer 10	4
89	fixed board for cylinder	1	127	Shaft	2
90	Bolt M8X30	3	128	Bolt M4X6	2
91	Shaft on cylinder	1	129	Bearing 608-2Z	2
92	Bolt M8X16	2	130	Shaft	2
	Big washer 8	2	131	Eccentric shaft	2
93	Bolt M10X45	1	132	Bearing 608-2Z	8
94	Washer 10	1	133	Washer 8	4
	Screw M10	1	134	Bolt M5X12	2
95	Bolt M8X16	2	135	Safety board	1
96	Washer 8	2	136	Bolt M8X30	1
97	Blade guard	1	137	Front adjustable seat	1
97.1	Board	1	137.1	Rear adjustable seat	
98	Bolt M8X16	4	138	Front adjustable support	1
99	Washer 8	4	139	Thicker washer 10	2
100	Bolt M8X20	1	140	Bolt M10X40	1
101	Big washer	1	141	Bolt M5X10	2
102	Bearing 6203-2Z	2	142	Stand of Brush	1
103	Idle wheel	1	143	Brush	1
103.1	Steering wheel	1	144 -1	Sleeve 1	1
104	Blade 2362X0.9X20	1	144 -2	Sleeve 2	1
105	Sleeve	1	144 -3	Sleeve 3	1
106	Saw bow	1	145	Spring	1
107	Stellate handle M10X35	1	146	Bolt M6X6	1
108	Spring	1	147	Switch box	1
109	Board	2	148	Bolt M10X25	1
110	Washer 6	4	149	Washer	1
111	Bolt M6X16	4	150	Key 6X25	1
112	Shaft	1	151	Sleeve	1
113	Shaft seat	1	152	Gear box	1
114	Pin 4X20	1	152.1	Bolt M8X16	1
115	Moving board	1	153	Bearing 6005-2Z	3
116	Bolt M8X16	1	154	Washer 47	2
117	Bolt M8X35	2	155	Seal $\phi$ 47X $\phi$ 25X7	1
118	Washer 8	2	156	Mat	1
119	Rear adjustable stand	1	157	Output shaft	1
120	Stellate handle M10X35	1	157.1	Key 6X25	1
121	$\phi$ 6 Copper tube	1	158	Washer 25	2
122	Bolt M6X6	1	159	Worm wheel	1

<b>Part No.</b>	<b>Description</b>	<b>Qty</b>	<b>Part No.</b>	<b>Description</b>	<b>Qty</b>
160	Seal mat	1	203	Vertical table	1
161	Cover for gear box	1	204	Gear box assembly	
162	Washer 6	4	205	Vertical motor	1
163	Bolt M6X20	4	206	Bolt M6X25	5
164	Bolt	1	207	Bolt	1
165	Upper seat for cylinder	1	208	Bearing 6201-2Z	5
166	Washer 10	2	209	Timing gear	1
167	Bolt M10X20	2	210	Output shaft	1
168	Fixed seat for cylinder	1	211	Key 5X80	1
169	Washer 8	3	212	Key	1
170	Bolt M8X30	3	213	Washer 25	3
171	Bolt M4X12	3	214	Bearing 6205-2Z	2
172	Cover for bearing	1	215	Mat	1
173	Washer 17	1	216	Set board	1
174	Bearing 6003-2Z	3	217	Bolt M4X8	3
175	Seal $\phi$ 35X17X7	1	218	Conical pin	1
176	Sleeve	1	219	Poking board	1
177	Worm	1	220	Pin	1
178	Shield leathern	1	221	Spring	1
179	Washer 6	2	222	Handle	1
180	Bolt M6X12	2	223	O-ring 6X1.8	1
181	Seating board for motor	1	224	Shaft	1
182	Bolt M8X40	1	225	Bolt M5X20	1
183	Screw M8	1	226	Seal $\phi$ 30X $\phi$ 42X7	1
184	Washer 8	3	227	Gear box	1
185	Bolt M8X20	3	228	Gear shaft	1
186	Bolt M8X50	2	229	Gear shaft	1
187	Screw M8	2	230	Key 6X20	1
188	Motor seat A	1	231	Worm gear	1
189	Motor	1	232	Washer 20	1
190	Bolt M8X25	4	233	Seal mat	1
191	Washer 8	8	234	Column pin 6X25	2
192	Screw M8	4	235	Cover for gear box	1
193	Key 6	1	236	Worm	1
194	Stellate handle	1	237	Shaft	1
195	Belt cover	1	238	Bolt M6X20	1
196	Bolt M8X10	2	239	Turning handle M8X63	1
197	Worm pulley	1	240	Screw M10	1
198	Bolt M8X10	1	241	Handle	1
199	Motor pulley	1	242	Bolt M6X12	1
200	Belt	1	243	Pin 5X25	2
201	Washer 6	2	244	Speedy fixed block	1
202	Bolt M6X12	2	245	Speedy moving block	1

<b>Part No.</b>	<b>Description</b>	<b>Qty</b>	<b>Part No.</b>	<b>Description</b>	<b>Qty</b>
246	Bolt M8X30	2	288	Screw M10	1
247	Washer 8	2	289	Bolt M6X25	2
248	Bearing 51101	1	290	Seat	1
249	Mat 14	1	291	Bottom tray	1
250	Spring	1	292	Bolt M8X25	4
251	Handle pole	1	293	Tray	1
252	Handle cover M12X60	1	294	Upper plate of stand	1
253	Screw	1	295	Block	1
254	Adjustive screw	1	296	Screw M8	1
255	Vice	1	297	Bolt M8X40	1
256	Moving vise	1	298	Shaft	1
257	Washer 10	2	299	Fixed seat	1
258	Adjustable fixed handle M10X80	1	300	Bolt M8X25	1
259	Bolt M10X35	1	301	Washer 8	2
260	Fixed vise	1	302	Middle plate of stand	2
261	Washer 8	3	302.1	Middle plate of stand	1
262	Bolt M8X30	3	303	Washer 8	4
263	Bolt M10X30	4	304	Stretchy washer 16	4
264	Washer 10	4	305	Bolt M8X25	4
265	Bolt M8X16	1	306	Lower plate of stand	1
266	Key 8X100	1	307	Screw M8	22
267	Bolt M8X25	6	308	Washer 8	44
268	Sleeve	2	309	Bolt M8X16	22
269	Rotative tray	1	310	Foot wheel	4
270	Bolt M16X65	1	311	Foot wheel shaft	2
271	Bolt 12X16	4	312	Pin 3X25	4
272	Spring	4	313	Bolt M8X16	2
273	Shaft	4	314	Big washer 8	2
274	Rotative sleeve	1	315	Shaft	1
275	Stretchy washer 16	1	316	Screw M12	1
276	Washer 16	1	317	Bolt M12X60	1
277	Capper	1	318	Breakwater	1
278	Rotation	1	319	Bolt M6X12	2
279	Spring	1	320	Washer 6	2
280	Bolt for spring	1	321	Sleeve	1
281	Screw M10	2	322	Handle seat	1
282	Fixed board	1	323	Handle shaft	1
283	Bolt M8X20	1	324	Key 5X20	1
284	Adjustable fixed handle M10X80	1	325	Screw	1
285	Board	1	326	Vice	1
286	Scale	1	327	Key 8X70	1
287	Bolt M10X40	1	328	Rotative tray	1



