

**OPERATION INSTRUCTION
FOR
MC-275F**

CIRCULAR COLD SAWING MACHINE



SOCO MACHINERY CO, LTD.

7, 14th Road, Taichung Industrial Park,
Taichung, Taiwan, R.O.C.

TEL: 886-4-3591888

FAX: 886-4-3592386

<http://www.soco.com.tw>

E-mail: socomc@tpts7.seed.net.tw

CONTENTS

1. SAFETY PRECAUTION-----	3
2. SPECIFICATIONS AND OUTLINE DRAWING-----	4
2.1 Technical Data	
2.2 Cutting Capacity	
2.3 Accessory	
2.4 Outline Description	
3. INSTRUCTION OF INSTALLATION-----	8
3.1 Unpacking and Inspection	
3.2 Lifting, Moving and Anchoring	
3.3 Connecting Electric Power	
3.4 Filling coolant	
3.5 Procedure to install the stopper	
4. FUNCTION OF CONTROL DEVICES-----	10
5. INSTRUCTION OF OPERATION-----	11
5.1 Preparation for Operation	
5.1.1 Adjustment of Clamping Vise	
5.1.2 Installation of Saw Blade	
5.1.3 Adjustment of Saw Blade Low Stop Position	
5.1.4 Adjustment of Saw Blade Rotating Speed	
5.1.5 Adjustment of Miter Cutting	
5.2 Steps of Operation	
5.3 Daily Inspection and Maintenance	
6. ELECTRICAL SYSTEM DIAGRAM-----	13
7. PARTS DRAWING AND LIST-----	14

1. SAFETY PRECAUTION

- (1) Operator of the machine shall read the operation instruction carefully and understand the safety requirement and the function of all parts of machine thoroughly.
- (2) Only the authorized and dedicated operators are allowed to operate the machine.
- (3) The machine is designed and manufactured to meet the applicable safety regulation of your country. Please do not remove or modify any safety device or parts, such as safety cover and guard of saw blade, emergency stop button, etc.
- (4) Assure the correct electric power, such as capacity of voltage, amperage and protection, is connected to the machine before operation.
- (5) Please wear a pair of goggles when operating the machine.
- (6) Please push the emergency stop button and turn off the main switch immediately when any malfunction or emergency situation should occur.
- (7) Please disconnect the electric power when install, maintain, repair or disassemble the machine.
- (8) Please pay extreme attention to adjust or exam the machine with electric power has been connected.
- (9) Please operate the machine in a bright and clean environment
- (10) Please clean and maintain the machine periodically to assure the machine running in proper condition.
- (11) Do not operate the machine excess its allowable condition.

2. SPECIFICATIONS AND OUTLINE DRAWING

2.1 Technical Data

MC-275F TECHNICAL DATA		
	A-TYPE	B-TYPE
MAIN MOTOR	2/1.4 HP, 2/4 POLE	1.4/1 HP, 4/8 POLE
ARBOR RPM (60 HZ)	120/60	60/30
SAW BLADE TYPE	HIGH SPEED STEEL BLADE	
SAW BLADE SIZE	OD: 250/275 mm	
COOLING PUMP	1/8 HP	
AIR PRESSURE	--	
WEIGHT	200 KG	

2.2 Cutting Capacity

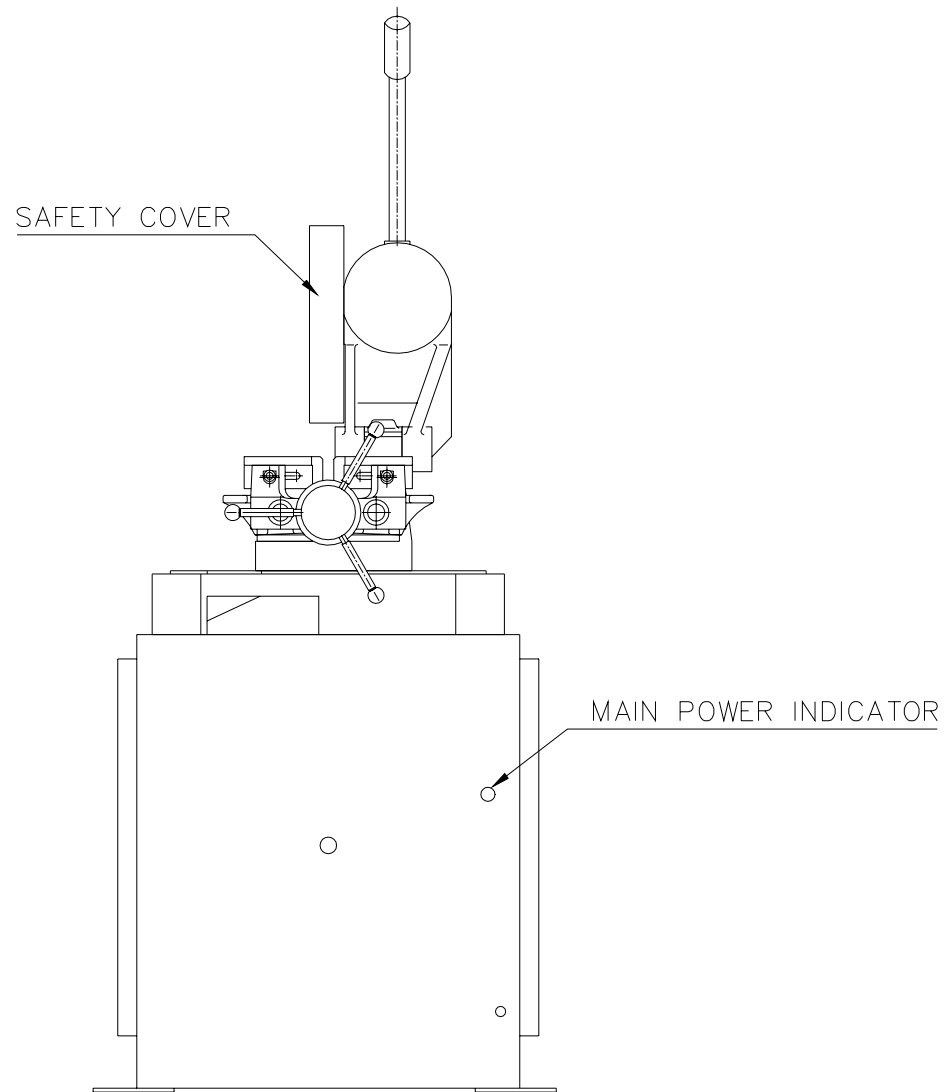
MC-275F CUTTING CAPACITY(USE ϕ 275 BLADE) mm		
FOR MILD STEEL	CUTTING ANGLE	
	90°	45°
ROUND TUBE	ϕ 80	ϕ 60
SQUARE TUBE	75×75	50×50
ANGLE	75×75	50×50
RECTANGLE	75×90	50×60
SOLID ROUND TUBE	ϕ 38	ϕ 25
SOLID SQUARE TUBE	38x38	25x25

2.3 Accessory

- (1) One set simple adjustable length stopper
- (2) One package of hand tool

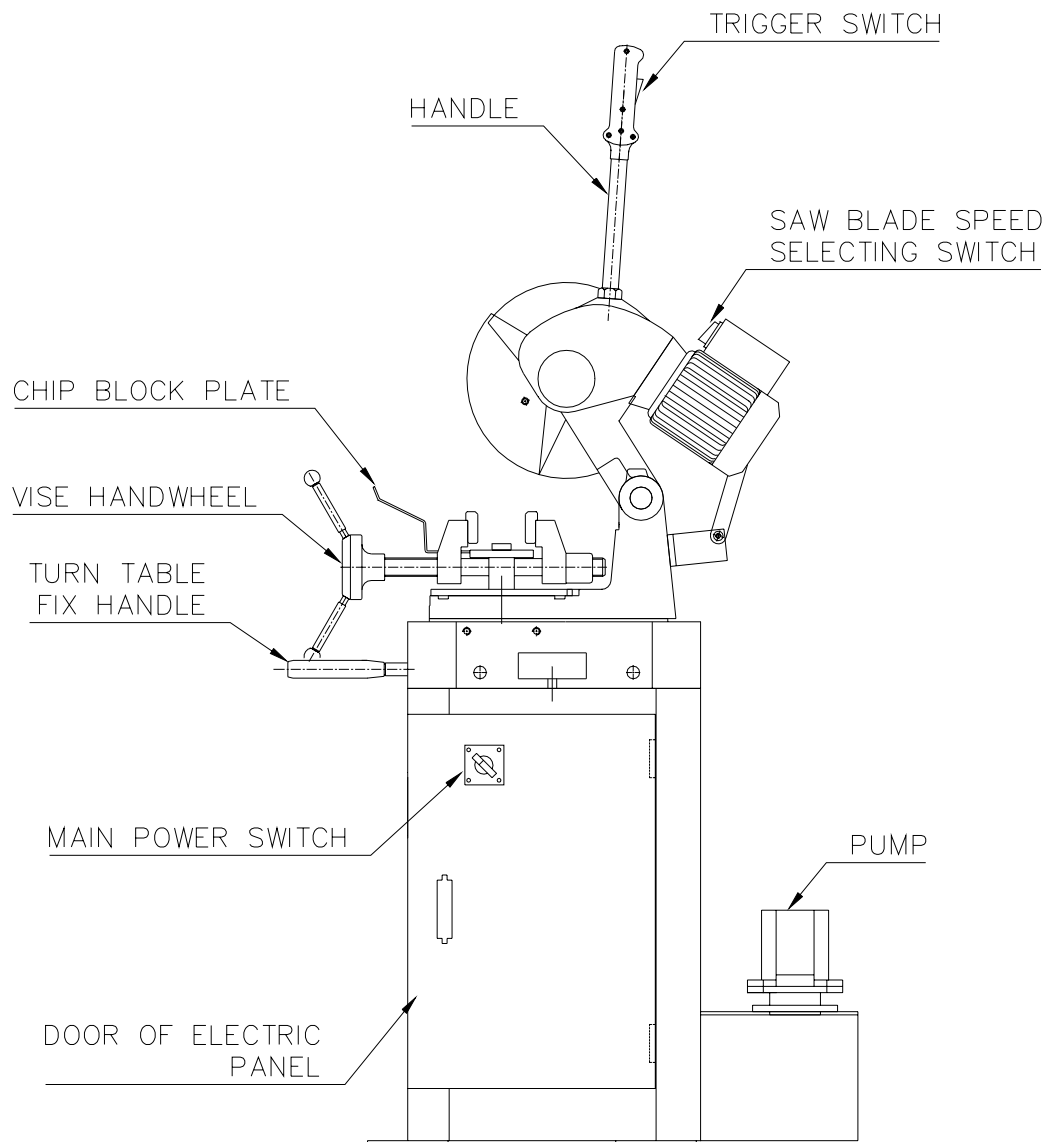
2.4 Outline Description

(1) Front View



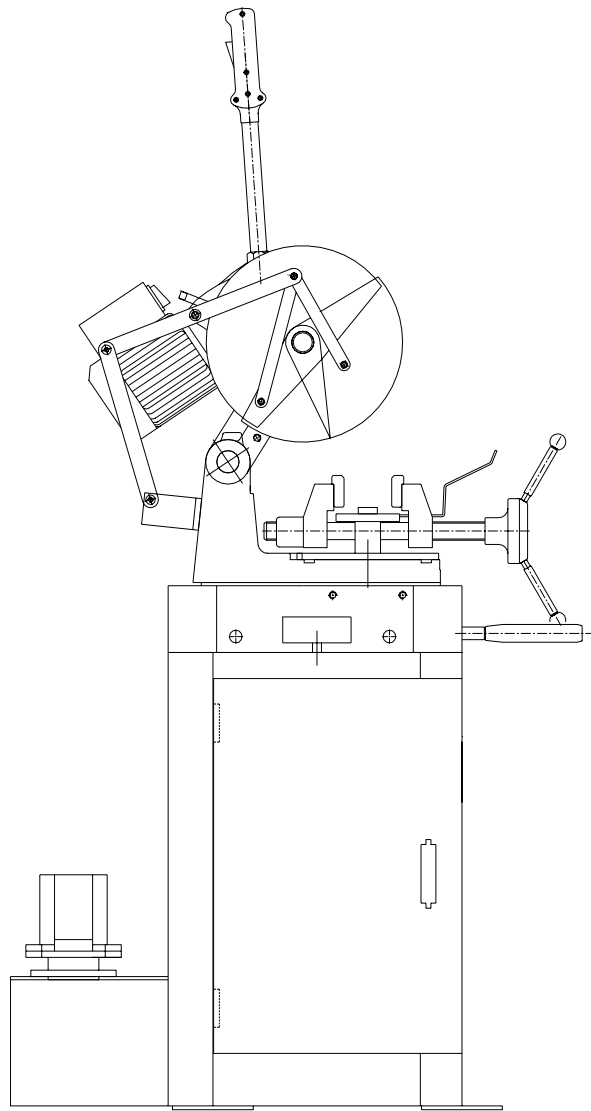
FRONT VIEW

(2) Right Side View



RIGHT SIDE VIEW

(3) Left Side View



LEFT SIDE VIEW

3. INSTRUCTION OF INSTALLATION

Note: Please read the instruction carefully before installation.

If having any question please contact your dealer for prompt service.

3.1 Unpacking and Inspection

- (1) Check if there is any damage on the wooden case or the plastic bag that used to pack the machine. Should any damage be found on the machine, please claim for the damage against the delivery or insurance company.
- (2) Check the machine and accessories against the packing list. Should any shortage, please contact your dealer.

3.2 Lifting, Moving and Anchoring

- (1) Lifting eyebolts have been mounted on the machine. Please use hoist and sling devices with enough capacity to lift and move the machine.
- (2) Slots, designed at the bottom of the machine, can be used by forklift to move the machine.
- (3) Please watch over the obstacle or personnel that may be on the way of moving the machine.
- (4) Place the machine on a horizontal foundation. Use anchor bolt and nut to fix the machine.

3.3 Connecting Electric Power

Note:

- (1) Assure the main power switch is at “OFF” position and the saw blade motor speed select switch is at “OFF” position before connecting the machine to electric power source**
- (2) Do not install saw blade on the main shaft when checking the rotational direction of the main shaft.**

- (1) Only qualified electrician can connect electric power.
- (2) The voltage, amperage and protection capacity of the power source shall meet the requirement of the machine.

- (3) Check the rotation of the saw blade shaft (arbor). Change over two conductors in junction box if the direction of rotation does not consist with the direction of the label on the saw blade safety cover.

3.4 Filling coolant

- (1) Pour the diluted sawing oil on the table of the machine. The solution will flow into the coolant tank.
- (2) The dilute ratio (water: oil) is 5:1 for hard or high alloy steel and 10:1 for mild steel.

3.5 Procedure to install the stopper

- (1) Mount the stopper arm at the “0” point on the stopper support beam as illustrated on following figure1.
- (2) Put the stopper support beam into the hole in the base plate.
- (3) Fix the stopper support beam when the stopper is just touching the sawblade as illustrated on following figure2.

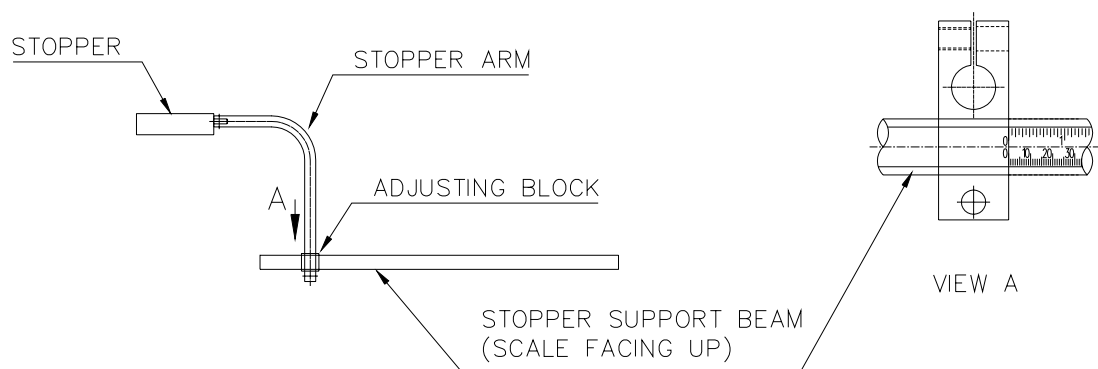


FIGURE 1

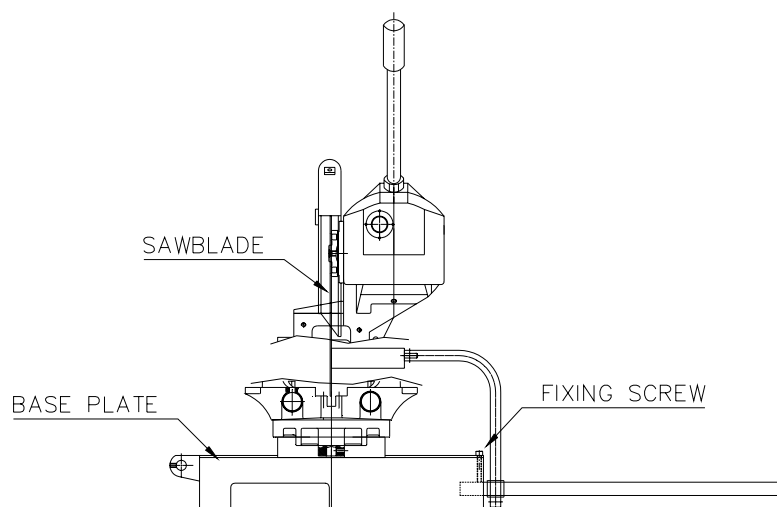


FIGURE 2

4. FUNCTION OF CONTROL SWITCHES

(1) Trigger Switch

This is an "ON-OFF" two-position trigger switch on the handle to connect or disconnect power to the machine. The main (saw blade) motor and coolant motor run when this switch is pressed. The above motors stop when this switch is released.

(2) Saw Blade Motor Speed Select Switch

This is a "LOW-OFF-HI" three-position level switch on the top of motor for selecting a suitable speed for the saw blade to cut material.

5. INSTRUCTION OF OPERATION

5.1 Preparation for Operation

5.1.1 Adjustment of the Clamping Vise

- (1) Release the handle.
(Cutting head shall be at up position)
(Saw blade motor shall stop.)
- (2) Turn the vise hand wheel counter-clockwise to open the vise.
- (3) Put a work piece into the clamping area of vises.
- (4) Turn the vise hand wheel clockwise to close the vise and fasten a work piece.
- (5) Turn the vise hand wheel 1/2 (half) turn counter-clockwise to open the vise slightly.
This is the ready position to take in or remove a work piece.

5.1.2 Installation of the Saw Blade

- (1) Release the handle.
- (2) Turn off the saw blade motor speed select switch.
- (3) Open saw blade safety cover.
- (4) Remove the clamping flange from the saw arbor.
- (5) Clean the clamping surfaces of flange and arbor free from any dirt or chips.
- (6) Clean the clamping area of the saw blade.
- (7) Mount saw blade on the arbor. Align the pinholes of saw blade and arbor. Put the clamping flange on the saw blade, and tighten the center bolt.
Note: The rotation of saw blade shall be **counter-clockwise** while looking at the mounting surface. There is a directional mark labeled on the protection cover.
- (8) When lock the center bolt, **keep the front part of saw blade downward** to eliminate the gap between pin and pinhole.
- (9) Close the saw blade safety cover.

Note: The following Charts of " Number of Saw Blade Tooth Selection " are for reference.

Number of Saw Blade Tooth (T) for Mild Steel Solid Bar Cutting					
Wall Thickness of Tube (mm)	Diameter of Saw Blade (mm)				Remark
	Φ250	Φ275	Φ300	Φ350	
0.6~0.8	T=280	280	300	320	For Tube

0.8~1.0	240	280	280	320	Diameter D ≥ 10 mm
1.0~1.2	220	240	240	280	
1.2~1.6	200	220	240	240	
1.6~2.0	180	200	220	220	
2.0~2.5	150	180	180	200	D ≥ 15 mm
2.5~3.5	120	150	150	180	D ≥ 20 mm
3.5~4.5	90	120	120	150	D ≥ 25 mm
4.5~5.5	80	80	90	120	D ≥ 30 mm
5.5~7.0	64	64	80	90	D ≥ 40 mm

For Wall Thickness ≥ 2 mm, the Formula for Number of Tooth **T** is as following

$$T = 2 \times (\text{Diameter of Saw Blade} \times 3.14) \div (\text{Wall Thickness of Tube})$$

Number of Saw Blade Tooth (T) for Mild Steel Solid Bar Cutting					
Size of Bar (mm)	Diameter of Saw Blade (mm)				
	Φ250	Φ275	Φ300	Φ350	
6~10	T =180	200	200	220	
10~14	160	160	180	200	
14~18	150	160	160	180	
18~22	120	150	150	160	
22~28	90	90	120	160	
28~35	80	80	90	120	
35~45	70	70	80	90	
45~50	64	64	70	80	

For Size of Bar ≥ 38 mm, the Formula for Number of Tooth **T** is as following

$$T = 4 \times (\text{Diameter of Saw Blade} \times 3.14) \div (\text{Size of Bar})$$

1. For stainless steel, the number of tooth is one grade more than mild steel.
2. For aluminum and copper, the number of tooth is one grade less than mild steel.
3. For 45° miter cutting, the number of tooth is one grade less than 90° cutting.

5.1.3 Adjustment of the Saw blade Low Stop Position

- (1) Pull down the handle to the position that the saw blade just breaks through the work piece.
- (2) Adjust the bolt and lock nut that is under the saw head to just stop the saw head going down.

5.1.4 Adjustment of the Saw Blade Rotating Speed

Turn the saw blade speed-selecting switch to one of "LOW", "HI" or "OFF" position.

5.1.5 Adjustment of the Miter Cutting

- (1) Push the turning table fixing handle leftward.
- (2) Turn the turning table to the required angle.
- (3) Push the fixing handle rightward.

5.2 Steps of Operation

- (1) Prepare the machine as states in Section 5.1.
 - (2) Put a work piece into vise.
 - (3) Turn the vise hand wheel clockwise to clamp the work piece.
 - (5) Pull down the handle and press trigger switch.
 - (6) The saw blade starts rotating. The coolant starts flowing out of nozzle.
 - (7) Continue to pull down the handle until the saw blade cuts off the work piece.
 - (8) Release the trigger switch and let the saw head moves up slowly.
 - (9) Turn the vise hand wheel 1/2 (half) turn counter-clockwise to release the work piece.
- Repeat step (2) through (9) to finish the job.

NOTE: Release the trigger switch immediately if any malfunction or abnormal situation happens.

5.3 Daily Inspection and Maintenance

5.3.1 Gear Box of Cutting Head

- (1) Change gear oil (SAE 140) every six months.
- (2) Check temperature of the gearbox during continuous operation.

5.3.2 Chip Collecting Tray

Remove chip from collecting tray everyday.

6. ELECTRICAL SYSTEM DIAGRAM

7. PARTS DRAWING AND LIST

- (1) Head and Spindle Shaft Assembly
- (2) Motor Assembly
- (3) Feeding Handle Assembly
- (4) Rotary Support Assembly
- (5) Vise Assembly
- (6) Table Assembly
- (7) Saw Blade Protective Cover and Safety Guard Assembly
- (8) Base Assembly