ELECTRIC SLIP ROLL MACHINE

Model: W11F- 4 X1600

OPERATION INSTRUCTION

Contents

1. GENERAL INTRODUCTION

The machine is a **3-roll mechanical and asymmetric** type, so called **Slip Roll**. It is designed for light and medium gauge sheet bending job. it is capable of round rolling and pre-bending. And it's an economic solution, featuring easy for operation and maintenance. Referring to Fig.1.

Upper lower rolls are driven by motor by means of reducer, chain and gears.

Upper roll position is un-adjustable. And lower roll is moved vertically to pinching the sheet, while the side roll is adjustable and moved upper and down at an angle for bending sheet at different diameter. And it is driven by a **hand wheel and /or motor** with screw jacks.

Unique designed rear roller motorized adjusting system with digital display, for high effective production. Digital readout to track the position of the back roll for increased accuracy and less waste.

Top roll release mechanism to release the finished work that has been wrapped around the top roll. It can be swung out manually at non-driven side for moving out finished work piece, and locked with cam device when rolling

Optional coning attachment for creating conical bends

Core grooves for wire rolling are available upon request.

Remote and mobile operating console with double foot-switch and a digital display for quick setting of side roll position is equipped for the motorized adjusting

A safety device is designed and equipped around the machine base for keeping machine away from **contingency**.

This machine is widely used in the fields of boilers, ship manufacturing, patrols and so on.

Fig. 1. Machine Outlook

2. MAIN SPECIFICATION

MODEL	**W11F-** 4 **X1600**
Max rolling width	1620mm
Max rolling thickness	4mm
Roll diameter	Upper φ130 mm, down & rear roll φ130
Rotate speed	5 rpm
Main Motor Power	2 . 2 kw
Rear roll adjusting motor	0.75 kw
Overall dimension	250x80x130cm

Remark: The last letter "E" in the model is indicated as rear roll motor driven adjusting and Digital display equipped。

3. SAFETY INSTRUCTIONS

Save this manual： You will need the manual for the safety warnings and precautions, assembly instructions, operating and maintenance procedures, parts list and diagram. Keep your invoice with this manual. Keep the manual and invoice in a safe and dry place for future reference.

WARNING:
FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY. There are certain hazards involved with operation and use of the machine. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result.

This machine was designed and constructed for roll forming metal plate and some similar material. We strongly recommend that this machine SHOULD NOT be modified and/or used for any application other than for which it was designed. If you have any questions about its application, do not use the machine until you contact with us and we have advised you.

Read all instructions before using this tool!

3.1 MACHINERY GENERAL SAFETY WARNINGS

1) Misuse of this machine can cause serious injury. For safety, machine must be set up, used and serviced properly. Read, understand and follow instructions in the operator's and parts manual which will be shipped with your machine.
2) Wear proper apparel. No loose clothing or jewelry which can get caught in moving parts. Gloves and rubber soled footwear is recommended for best footing.
3) Do not overreach. Failure to maintain proper working position can cause you to fall into the machine or cause your clothing to get caught — pulling you into the machine.
4) Keep guards in place and in proper working order. Do not operate the machine with guards removed.
5) Avoid dangerous working environments. Do not use stationary machine tools in wet or damp locations. Keep work areas clean and well lighted
6) Avoid accidental starting. Make sure Power switch is in **"OFF"** position before plugging in power cord
7) Never leave the machine running while unattended. Machine shall be shut off whenever it is not in operation.
8) Disconnect electrical power before servicing. Whenever changing accessories or general maintenance is done on the machine, electrical power to the machine must be disconnected before work is done.
9) Machinery must be anchored to the floor.
10) Use the right tool. Know the tool you are using — its application, limitations, and potential hazards. Don't force a tool or attachment to do a job it was not designed for.
11) Stay alert Watch what you are doing; use common sense. Do not operate any tool when you are tried. Keep hands in sight and clear of all moving parts and rolling surfaces.
12) Keep children away. Children must never be allowed in the work area. Do not let them handle machines, tools, or extension cords.
13) All visitors should be kept at a safe distance from the work area. Make workshop completely safe by using padlocks, master switches, or by removing starter keys.
14) Store idle equipment. When not in use, tools must be stored in a dry location to inhibit rust. Always lock up tools and keep out of reach of children.
15) General Electrical Cautions: This machine should be grounded in accordance with the National Electrical Code and local codes and ordinances. This work should be done by a qualified electrician. The machine should be grounded to protect the user from electrical shock.

3.2 TRANSPORTATION (CRANE OR FORKLIFT IS RECOMMEND)

• Transportation before un-packing

1) The steel wire rope of crane should be capable of lifting weight over 1000 kgs.
2) The steel wire rope must be arranged properly as per cavity center of wooden box.
3) The crane (or forklift) operator should be a qualified & trained person.

4) Machine should be loaded at the cavity center of truck to avoid any sliding.
5) After loading onto truck, use steel wire to fix the machine body on truck and ensure to fasten it firmly before transportation.

3.3 POSITIONING & CLEANING

• Site : When select site, ensure there is free space for material handing around the machine.

• Foundation: The machine requires a plane & stable ground to have an excellent bending performance. It is better to fix it on 100 mm reinforced concrete ground.

• Leveling: Four sheet shims are placed under the adjusting bolt of foot plate, the machine is leveled by level gauge.

• Cleaning: Use a liquid solvent such as kerosene or white spirit to remove the protective coating and any dirt from the up-painted surface of the machine. Don't disturb any moving parts until all surface has been cleaned.

3.4 ELECTRIC CONNECTION

•Before connecting machine into local 3-phase AC electric power source at your plant, please double check voltage and phase as the same as machine required.

• Connect the AC power source to the machine with power cable which has 4 wires(3 live wires and 1 ground wire), correctly, the ground wire must to be connected with ground.

• After connecting AC power source, you may check motor rotation direction as per the arrow on the motor.

• If wrong direction, please immediately stop motor to avoid motor damage. Please correct your connecting at AC power source until motor rotation direction is in correct direction.

4. OPERATION

4.1 HOW TO ROLL AND FORM SHEET INTO CYLINDER

1) Sheet Length ---- Length is the 1st consideration to form the designed diameter cylinder. To calculate approximate length of material need, using the formulary "C= π x ID" (C is Circumference; π is 3.1416; ID is Internal Diameter of cylinder).
   For example: To roll a cylinder ID=200 mm, operator need to prepare material length approximate 628.32mm.
2) Cut a few pieces of metal sheet to the measured length for testing by roll forming. The sheet might need to be lengthened or shortened depending upon the testing result.
3) Lower bottom roller by adjusting with hand wheel to open an enough space between upper roll and bottom roller which allow operator to insert the sheet in, then rise the bottom roll by hand wheel to clamp sheet in proper pressure.
4) Set the rear roller to same height of bottom roller, to allow sheet passing.

5) Power on the foot switch to pinch and move sheet forward, to ensure the sheet passing through the top of rear roller. (As step No.01 shown in Fig.2)
6) Ensure the rear end of sheet to reach between the upper roller and bottom roller. (As step No.02 shown in Fig.2)
7) Raise the rear roller to bend the end of sheet to designed angle/arc to complete the **pre-bending at the rear end of sheet.** (As step No.03 & 04 shown in Fig.2). Remember/Note down the rear roll position read-out.
   Remark: As per experience, it is recommended to prepare a Templet with desired circular arc cutting from paper or wood board, for checking the pre-bending arc.
8) Take off the sheet which has been completed pre-bending at rear end, and feed it into upper and bottom rollers by turning around to pre-bend the front end of sheet.
9) Pre-bend the frontal end-side material of sheet, repeating above operation 3)-7) (As step No.5-6 shown in Fig.2). It is easy for achieve the same arc by using the same position of rear roller.
10) Lower the rear roller as soon as frontal end pre-bending done. And double checking the pre-bending circle whether is desired. (As step No.7 shown in Fig.2)
11) Raise the rear roller step by step when the upper roller and bottom roller to form the material to be circular between frontal and rear end-side. (As step No.8 & 9 shown in Fig.2)
12) If the trial sample is not long enough or if the formed part is not the proper diameter, additional samples will have to be made. Thousands of identical parts can be precisely duplicated when proper adjustments of the roller have been made.
13) Get the correct modifying and forming after trial run of the few pieces to file your record for formal forming production.
14) The same diameter as the diameter of the rolls and slightly larger can be formed.
    To make the adjustment for the material thickness and to determine the material length needed and the illustration given under above-mentioned step No.1-9 shown in Fig.2.

4.2 PROCESS DRAWING OF ROLL FORMING

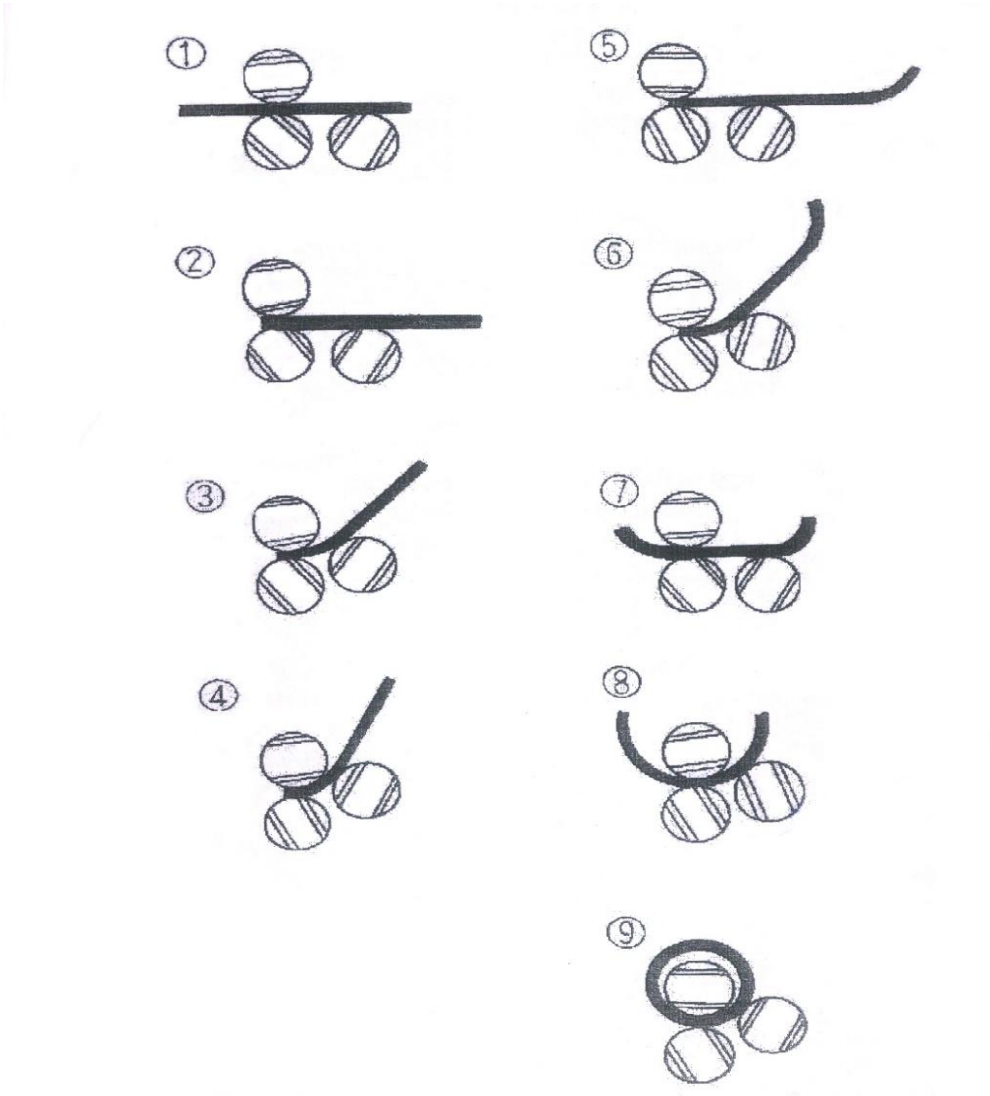

Fig. 2 Rolling Process Steps

4.3 ADJUSTING THE PINCHING (BOTTOM) ROLLER & REAR ROLLER

1) An adjusting handwheel is mounted on the right-hand side frame of the machine construction, which is for adjusting the bottom roller to clamp material tightly.
2) **Motor driven rear roll adjusting device** is equipped. And a handwheel is mounted on right-hand side frame of machine construction for hand operating too. The operator can to raise or lower the rear roll by pressing buttons on the console, or by hand wheel. A **digital meter** is equipped for display the roll position.

4.4 REMOVE OUT THE FINISHED PRODUCTS

Lift clamp handle and slide the support lever handle to the right. The pinch roll will rise. Slide the finished product off the roll.

5. ELECTRIC SYSTEM

5.1 Preparation: An **Air break switch** and power cable should be prepared based on the installed capacity of the machine, in compliance with local Standards and Regulations. The earth-line should be connected with the earth-plate.

5.2 Operation of the machine

Combine the breaker in the electric appliance box and turn right the power switch. At this time the indicator lighted, which means the machine had been connected with power correctly. Pedal down the right starting pedal, the machine rolls clockwise continuously until loosen the pedal. Pedal down the left starting pedal, the machine rolls on the contrary of the above direction. If there is some wrong with the machine, push the emergency switch on the handle to stop the machine. After the trouble is solved, turn off the switch to work.

5.3 Maintenance of the machine

The machine has a compact structure. It is easy to be operated and maintained. Some problems maybe exist as follows:

1) The indicator lights, the machine can’t work when pedal down the starting pedal, then turn off the emergency switch on the handle.
2) The indicator doesn’t light, then combine the breaker in the electric appliance box.
3) The indicator lights and the spindle works, but motor doesn’t work, that means the connecting wire is loose or disconnected.

5.4 Electric principle drawing (refer to the attached drawing)

5.5 Main electric appliance list

Electrical schematic Diagram