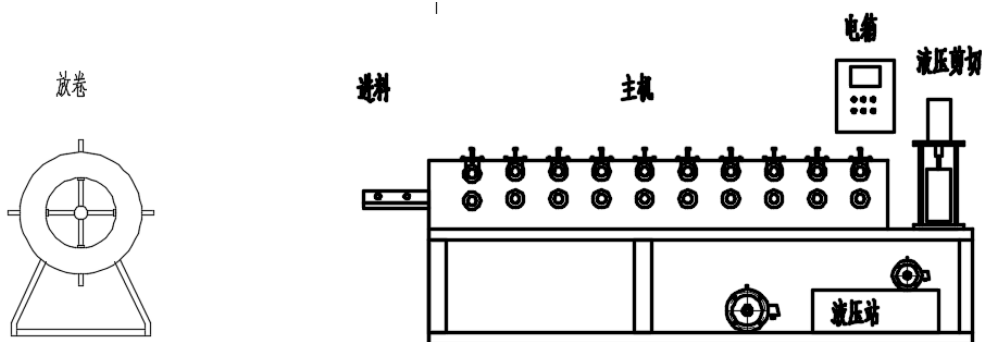


# Purlin Roll Forming Machine

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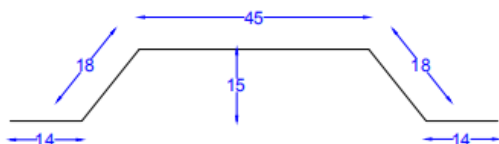
## I、Production Line



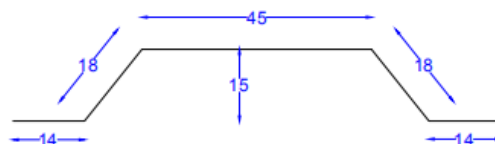
Machine photo for reference only



Desire roll forming machine for making purlin profiels as below drawing.



Steel Thickness = 1mm  
Length = 650 mm  
All dimensions are in mm  
Model : MF300



Steel Thickness = 1mm  
Length = 1008 mm  
All dimensions are in mm  
Model : MF9000

Item		Technology parameter
Material	material	cold-rolled strip or galvanized steel strip
	Material thickness	1mm
	Coil inner diameter	$\Phi$ 360— $\Phi$ 510
Process	Molding speed	0-12m/min
	Processing length	Not limit
Quality	Length accuracy	$L \leq 1000\text{mm} : \pm 0.5 \text{ mm}$
	Straightness; disturbance;	$L \leq 1000\text{mm}$ , bending is not greater than 1mm; disturbance is not greater than 2mm
	Forming section size requirements	As per drawing
	Surface Quality	No obvious wrinkles, irregularities, scratches and other defects

## II、Performance characteristics of the production line

This production line is a special forming equipment for the production of door rib reinforcement. The coil to be processed is manually placed on the unwinding rack, and then corrected and tensioned. The guide is sent to the forming machine to form the workpiece. After the linear speed of 12m enters the shearing part, the product is punched and cut according to the requirements, and then packed and transported by

manual.

### III、Purlin Roll forming machine main technical parameters

#### 1, key accessories brand

No.	Name	Origin
1	Touch screen	Weinview 7 inch
2	Programmable controller (PLC)	Mitsubishi Japan
3	Low voltage circuit breaker	Domestic top
4	AC contactor	Domestic top
5	Frequency converter	Yineng or Yolico
6	Hydraulic solenoid directional valve	Taiwan
7	guide	Taiwan
8	Bearing	Shanghai

#### 2. Loading specifications

- a. Applicable materials: cold rolled coil
- b. Material quality: Domestic GB standard
- c. Tensile strength:  $\delta_b \leq 780\text{Mpa}$  (Max.)
- d. Yield strength:  $\delta_s \leq 510\text{Mpa}$  (Max.)
- e. Material thickness: 1mm (Max.)
- f. Material width: 120mm (Max.)

- g. Inner diameter of steel coil:  $\Phi$  360mm- $\Phi$  510mm
- h. Steel coil outer diameter:  $\Phi$  1250 (Max.)
- i. Steel coil weight: 3 t (Max.)

### 3. Molding parameters

- a. Number of forming groups: 8 groups
- b. Spindle specification:  $\Phi$ 50mm 40Gr steel material quenching and tempering treatment
- c. Roller material: Gr12 die steel heat treatment
- d. Integral arch: made from 18mm steel plate, the hole pitch error is less than 0.1mm
- e. Thickness of bottom plate: 20mm

### 4. Forming ability

- a. Outer diameter of the coil:  $\Phi$  1250mm (Max.)
- b. Material forming thickness: 1mm
- c. Product width 160mm

### 5. Speed parameters of forming unit

- a. Linear speed 0 — 12m / min
- b. Acceleration time <30 seconds

### 6. Forming accuracy

- a. Shear length tolerance:  $\leq \pm 1\text{mm} / \text{m}$
- b. Width tolerance:  $\leq \pm 1\text{mm}$
- c. Sickle bending:  $\leq 2\text{mm} / \text{m}$

d. Burr:  $\leq 0.1\text{mm}$  (new blade cutting ordinary carbon steel plate at reasonable clearance)

e. Height tolerance:  $\leq \pm 1\text{mm}$

The above tolerances are based on the first-grade steel coil with flat edgeless waves.

## 7. Other equipment parameters

a. Power supply: 380V / 50HZ / 3PH

b. Installed capacity: about 5Kw

c. Molding speed: 0-10m / min

d. Shearing method: stop forming shear

e. Drive motor:

Forming host motor 2.2Kw

Hydraulic system motor 3KW

f. Floor area (approximately): length 8m × width 1m (host size 3.5mX1m)

g. Direction of the production line: from left to right (facing the unit at the console).

h. Equipment color: (customer's choice)

i. Unit equipment design can meet 12 hours of continuous production

j. Operating environment:

1: Power supply voltage:  $380\text{V} \pm 10\%$  / three-phase four-wire, frequency: 50HZ total power: about 5KW

2: Ambient temperature:  $0-40^{\circ}\text{C}$ , relative humidity: 60-95% RH.

#### **IV、Equipment composition**

1. Uncoiler and manual tensioning device
2. Forming line
3. Hydraulic cutting machine (including cutting mold)
4. 1 set of hydraulic system
5. Electrical automation equipment
6. Security protection

#### **V、Roll forming equipment structure and system configuration**

Overview, The production line is mainly composed of the uncoiler, roller station, the hydraulic cutting part, the electrical control part and the safety protection part.

1. Uncoiler, It is used to store unwinding material and provide sheet material to the forming part. The 3 ton unpowered unwinder is manually tensioned and can work independently.

2. Forming Line, the main machine base of this production line is welded with 100X50X3 square tube, the frame adopts integral fixed archway, the side plate adopts 25mm steel plate, the surface is finely ground, the hole distance is guaranteed by the processing center, the error is less than 0.1mm, and the supporting part is made of high quality The bearing adopts a roller type for feeding, and the material is adjusted by twisting up and down. The main machine has good rigidity and stable structure.

B, Roller station , **8 sets** of rollers are formed by high-quality **Gr12** die steel, HRC up to 56 ~ 60° are processed by precision CNC machine tools, precision is 6 ~ 7, surface roughness is over 0.8 Accurate dimensions, no scratches on the surface of the shaped workpiece.

C: Transmission part: It is the conveying part of the forming power of the production line. Its power is transferred from the main motor to the reduction box, and then from the reduction box to the driving wheel through the sprocket. The driving wheel is driven by the gears to make the upper and lower rolling wheels rotate synchronously.

3. Fixed length cutting part: It is composed of fixed length device and shearing mechanism. The fixed-length device fixes the length through the encoder. When the formed sheet material reaches the fixed-length, the product is cut off by hydraulic pressure and the punching is completed, and the host machine stops running.

4. Electronic control system: The entire production line adopts centralized control, the components adopt imported and domestic high-quality products, or are designated by customers, and the pneumatic components adopt Taiwan brands. The installation of the electrical control components of the equipment complies with national regulations, the wire number is clear, the ministries are reasonable, the control panel is neat and the signage is clear.

5. Safety protection: a protective cover is installed on the host drive transmission, and warning signs are set up in the parts related to personal safety. The electrical appliances have reliable safety grounding, and the maximum degree of protection protects personal safety.