

In accordance with Machinery Directive 2006/43/CE



Steelmama

TTRAPZOIDAL ROLL FORMING

MANUAL BOOK

CONFORMITY CERTIFICATIONS



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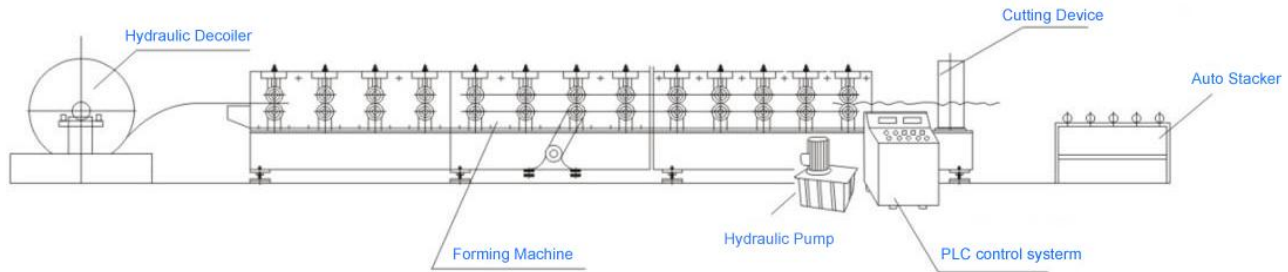
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1. Complete Machine Diagram

1.1 Organizational composition



Our company mainly produces automatic color steel trapezoidal roll forming machines, the production needs to go through the following four steps: **Hydraulic decoiler** → **Guided feeding materials** → **Roll forming** → **Fixed length cutting** → **stacker**, main five steps, its composition is shown below

* The received goods table can be done by customer themselves or our auto stacker

我司生产的全自动彩钢瓦成型机，生产需要经过：开卷→导向进料→辊压成型→定长切断→码垛五个步骤，其组成机构如 1.2 图所示

1.2 Machine Photo



1.3 Equipment placement 设备放置

Basic Requirement:

- The base surface of all equipment should be horizontal and hardened. 所有设备的基面应水平且坚硬。
- The decoiler, roll forming machine, center line of the discharge rack, molding machine and discharge table should be on the same straight line, and the left and right sides should not be inclined.

开卷机、卷成型机、出料架中心线、成型机、出料台应在同一直线上，左右两侧不得倾斜。

- The distance between the discharge rack and the forming host should be 2-3m.

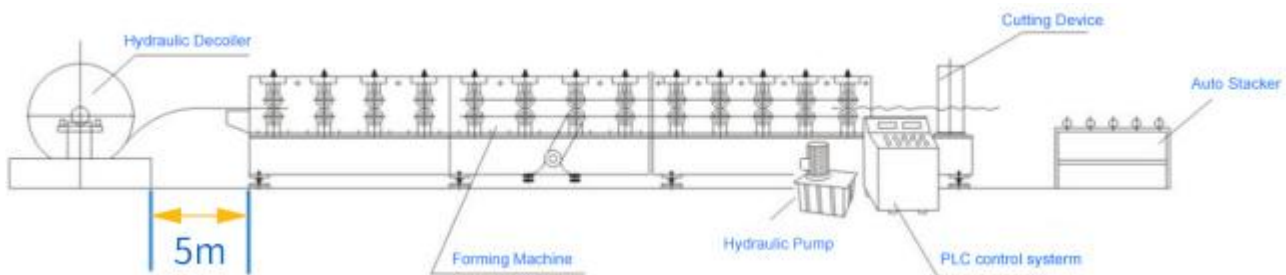
出料架与成型主机的距离为 2-3m。

- After the hydraulic is placed in a stable position, it should be fixed with anchor bolts.

液压器放置在稳定位置后，应用地脚螺栓固定。

- The best distance between the uncoiler and the forming machine is 5m

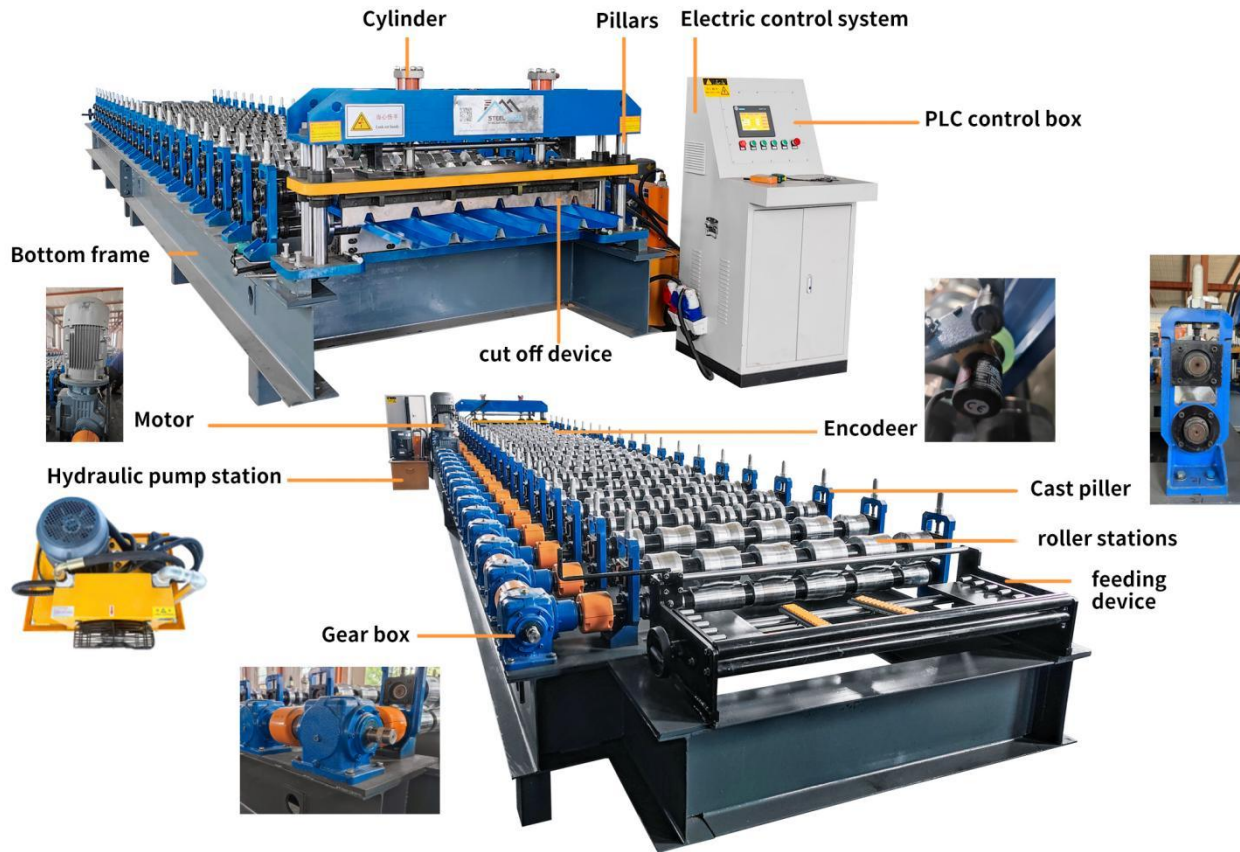
开卷机与成型机的最佳距离为 5m



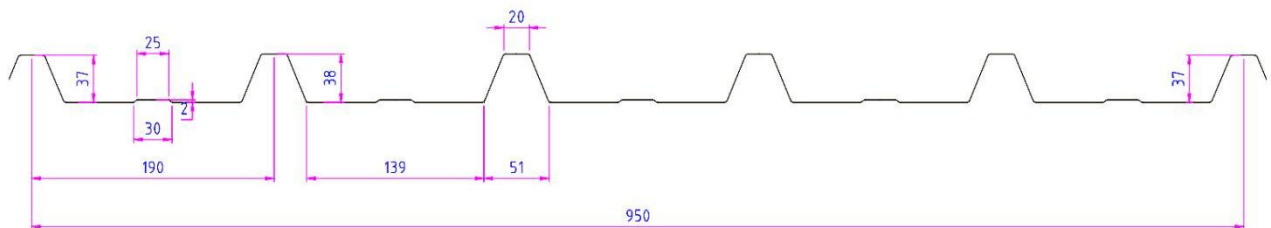
1.4 Working conditions

Machine size	10m x 2.1m x 1.44m (L x W x H)
Machine weight	8590kg
IBR Power supply	5.5+5.5KW
Frequency	50-60HZ
Voltage	380v
Phase	3 Phase
Hydraulic decoiler power	7.5+5.5kw
Hydraulic Loading capacity	10000kg
Wires/cables	4-6mm ² (length according to workshop)
Labor cost	2 workers
Tools	Spanners and screwdriver
Lift device	5-10t forklift or crane
Working size	22m x3.1m(L X W)

2.IBR machine component 机器组成



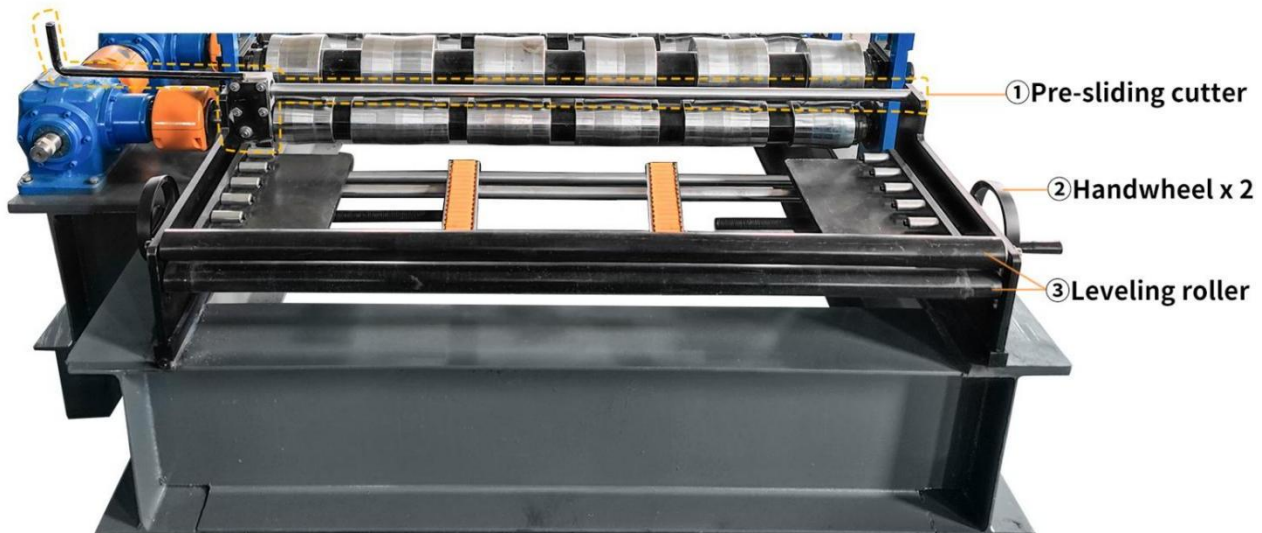
2.1 Profile drawing



2.2 Feeding device and Pre-sliding cutter 进料和切断

The feeding device is used for smoothly feeding material. Put the raw material(steel plate) through the beach to manufacture and process, it can guarantee that the products are neat, parallel and everything is uniformity.

将原材料(钢板)经过进料架制作加工，可以保证产品整齐、平行，均匀。



① Pre-sliding cutter

Slide left and right to cut the steel coil, which can stop feeding the steel coil and replace other steel coils.

② Handwheel x 2

The handwheels is easy adjust rollers distance,for feeding different thickness material.

③ Leveling roller

It is used for leveling and conveying steel coils.

2.3 Roll Forming machine





- Material Thickness: 0.25-0.8mm PPGL and GI, The most commonly used thickness is 0.6mm
- Motor Power: 5.5KW / Siemens

2.3.1 Drive Type : gear box



2.3.2 Roller and Shaft

Diameter of shaft: 80mm



2.3.3 casting pillar



2.3.4 Bottom frame

Bottom frame: 350*175*8mm H steel



350 H steel



ST220809
Thickness: 8mm(Real 9mm)



Width: 175mm

2.3.5 Motor power

Motor Power: 5.5KW / Siemens



2.3.7 Encoder



2.4 Hydraulic Cutting device



- Material for Cut-Off Modular: Cr12 steel after treatment
- Hardness for Heat Treatment: HRC58 – 62°
- Cut-Off Type: Mould cutting
- Motor for Hydraulic Stand: 5.5KW / Siemens
- Punching die material: Cr12 steel after treatment

We calculate the life time according to the cutting times, not by time, not by length, not by tons, Our cutting blade can cut at least 100 thousand times, and if it is not sharp, you can polish the blade by grinding machine, like the scissors processing

There is 2 kinds of situation:

A: after you use machine for long time, you need polish the blades by grinding machine, like scissors

机器使用时间长了，需要用磨床把刀片打磨一下，比如剪刀

B: if you just get machine, cutting can not work(we have tested it in our factory), you need adjust upper blade and down blade gap

如果你刚拿到机器，切割不能工作(我们在工厂测试过)，你需要调整上刀片和下刀片的间隙

Maintenance 维护过程

Oil for Lubricating 润滑油

2.4.1 Cylinder



2.4.2 limit switch



2.5 Hydraulic pump station





- ① Oil pipe
- ② Electric motor
- ③ Oil entry
- ④ Hydraulic valve
- ⑤ Oil clock
- ⑥ Oil back pipe
- ⑦ Cooling Fan
- ⑧ Pressure clock

Oil type	46# hydraulic oil
Pump brand	China brand
Motor power	5.5kw
Solid valve	single
Cooling way	fan

2.6 PLC control box



2.7 Electric control box



3.Preparation before connecting the machine

3.1 Add oil

1) Hydraulic pump oil : # 46 hydraulic pump oil, The amount of oil is about 2/3.

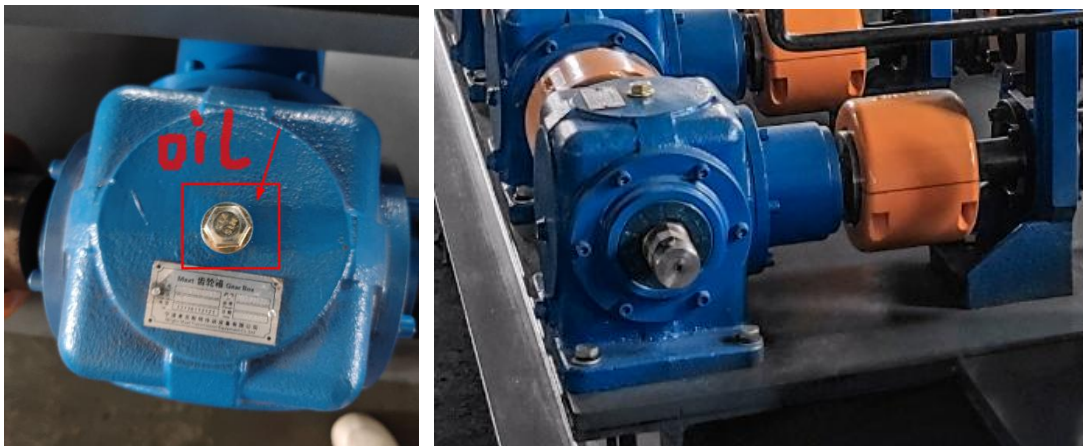
Anti-wear hydraulic oil according to local brand choose similar this kind anti-wear hydraulic oil, reference follow picture:抗磨液压油, 根据当地的牌选择此类的液压油, 参考如图:



2) Gear box oil: gear oil

A. Add gear oil into gear box, with the tools to open the red marked nuts. When you see from the gear box oil table, oil is full, then fasten the nut

向齿轮箱中加入齿轮油, 用工具打开标有红色标记的螺母。当你从齿轮箱油表上看到油已经满了, 然后拧紧螺母。



Gear box oil table



3.2 Power Cable

Power cable: 3 live wires 电源线:3 根火线

3.3 Air compressor

Air compressor:0.9M³/8Mpa(=237US gal/116PSI)

空气压缩机:0.9M³/8Mpa(=237US gal/116PSI)

3.4 steel coil

Steel coils: width is about 1250mm, Thickness is 0.3-0.8mm

4. Equipment connection 设备链接

4.1 Connect wire

Machine electrical source is three live wire and one zero line.

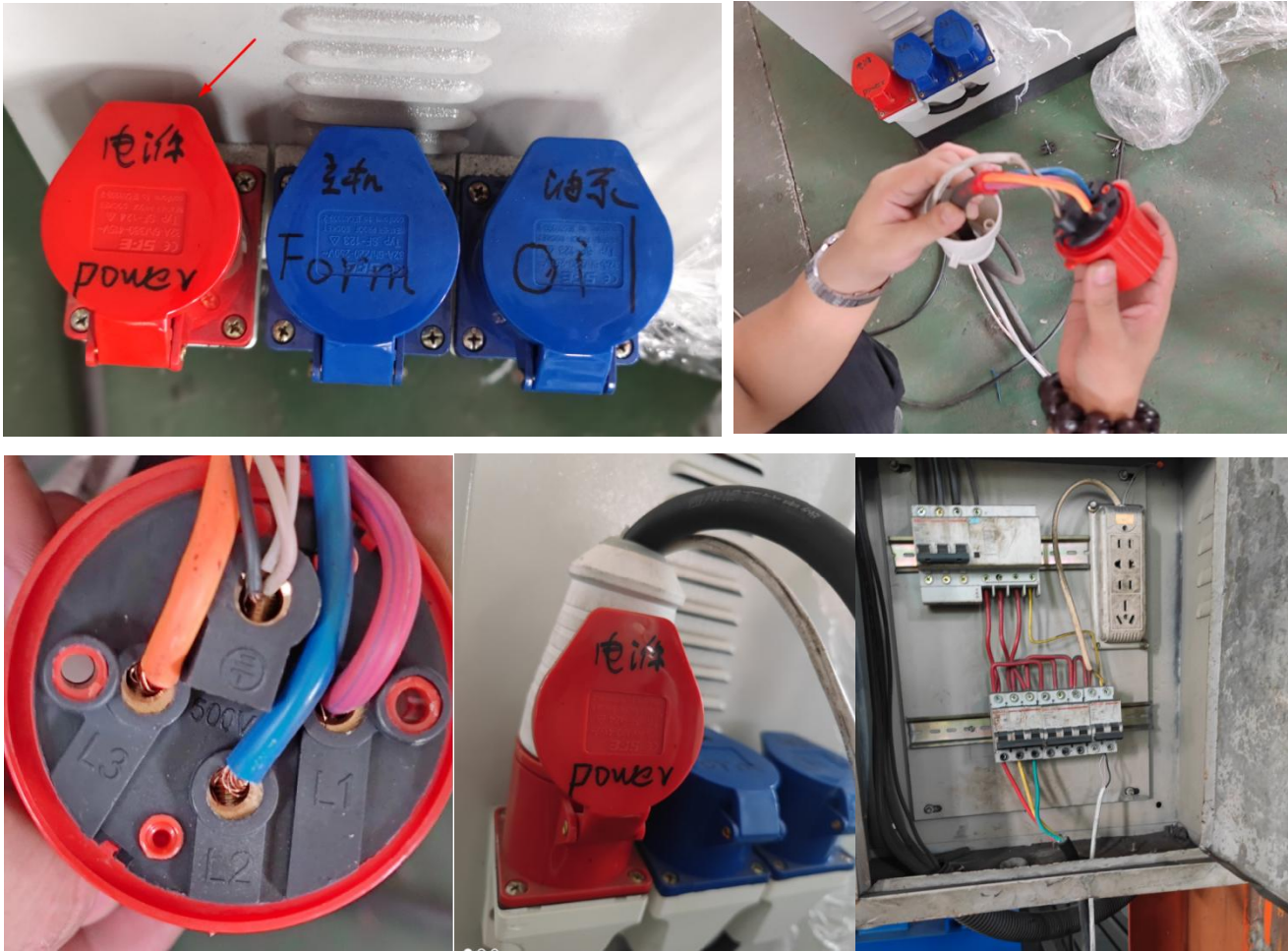
- Three live wires are respectively connected with row L1, L2, L3,
- zero line with N besides electromagnetism clique public zero line.
- U, V, W connected with electrical engine of roll forming machine.
- U1, V1, W1 with oil pump electrical engine.
- dropping reamer electromagnetism clique control line with K1(11).
- ascending reamer electromagnetism clique control line with K2(12).

机器电源为 3 火 1 零, 3 根火线分别接接线排 L1、L2、L3, 零线接 N(10), 接电磁阀公用零线, U、V、W(4、5、6)接压瓦机电机, U1、V1、W1(7、8、9)接油泵电机, 落刀电磁阀控制线接 K1(11), 升刀电磁阀控制线接 K2 (12) 。

***NOTE:** For the sake of safety, technical people should be responsible for connecting, and all the equipment must be connected to ground line.

接线时要有专人负责, 注意安全, 设备接安全地线。

4.11 Three live wires (Three fire wires) 三颗火线了 L1、L2、L3



4.12 Main motor of roll forming machine 主电机



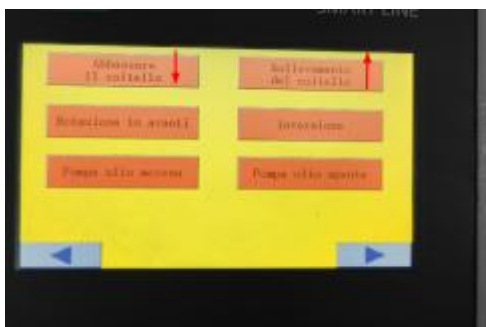
4.13: Hydraulic pump motor 液压泵站

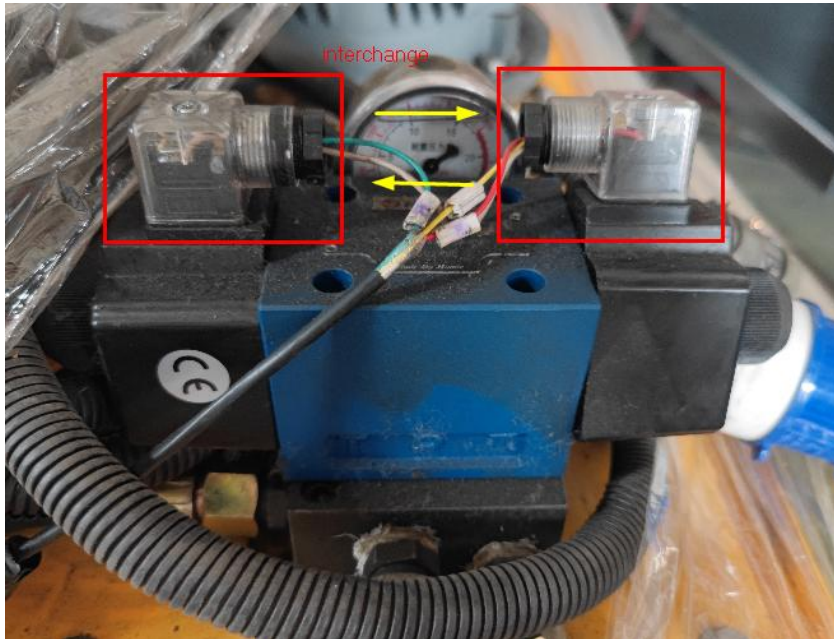


4.14 Cutter down solenoid valve 刀降电磁阀: K1, Cutter up solenoid valve 刀升电磁阀: K2

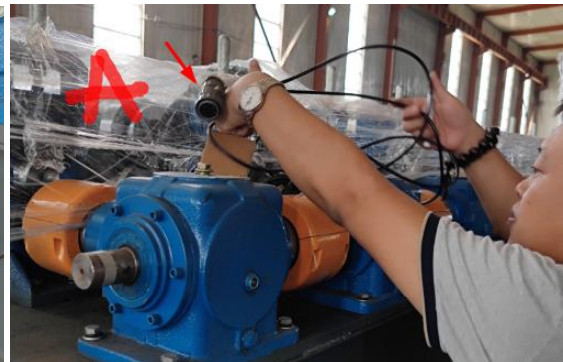
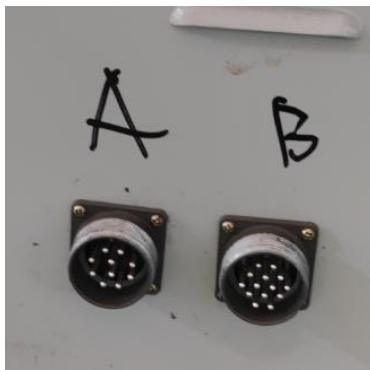


If, when testing the machine, the lifting direction of the cutting blade is opposite to the key mark, and the solenoid valve (K1, K2) needs to be exchanged, the blade lifting can be modified

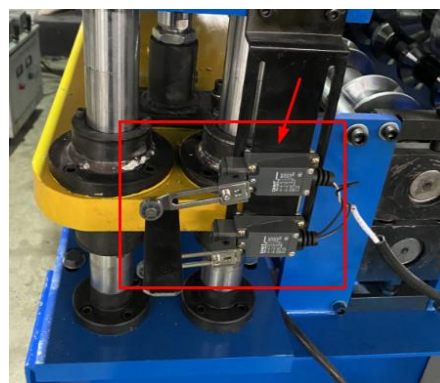




4.15 Encoder wheel and Limited switch 计数器 and 行程开关



Encoder wheel



Limited switch

4.2 Hydraulic Pump connection and oil adding

4.21 Hydraulic pump oil pipe connection 液压泵连接:

For this machine it is very simple, there is no mark on the oil pipe.

Connect firstly, when testing, if machine goes right, then it is ok.

If not, change each to the other, then it is ok.

4.22 oil adding

Quantity for Hydraulic oil, there is a filter in pump, the oil up

surface not over filter is ok, the quantity about two-third of

pump capacity. 液压油的数量，每一个泵站里面都有一个滤网，

只要油上表面不超过滤网就行，加油数量大概为油泵容量的三分之二。

- Open this cap to fill in the hydraulic oil

- Quantity is up to 2/3 of the scale



5. Hydraulic Decoiler 液压开卷机

5.1 Component

- Max. Width: 1250mm
- Inner Diameter: $\Phi 450 - \Phi 550$ mm
- Out Diameter: 1500 mm
- Max. Loading Capacity: 10000 kgs
- Motor brand: Siemens
- Main Power: 7.5kw
- Hydraulic Power: 4kw



5.2 Equipment placement and connection

① Put the guiderail under the hydraulic decoiler core



② Put the oil pipes(item2) through the protect chain (Item 1) and put protect chain and the coil car on the guiderail. 将油管 (项目 2) 穿过保护链 (项目 1) , 并将保护链和卷材车放在导轨上。



③ Connect the Oil pipes as below picture (The factory is already connected)

the same number for oil pipes and Solenoid valve ends to connect together.

连接油管如下图所示：相同编号的油管与电磁阀端部连接在一起。

Eg: D1 connect D1.....

For Solenoid valve caps,1-1,2-2.....6- 6

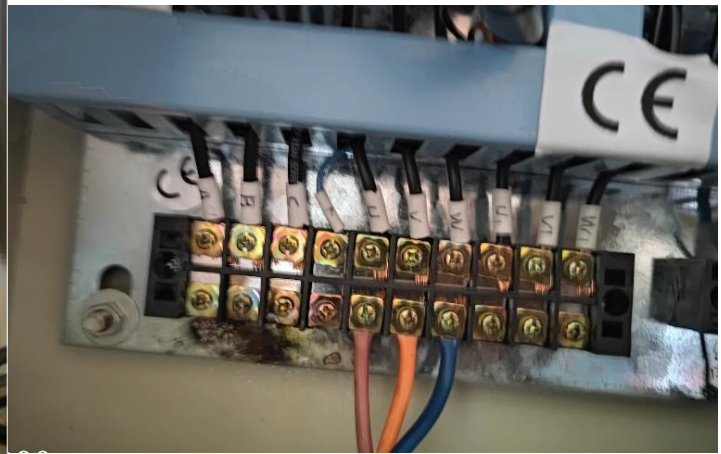


Solenoid valve cap connection



Oil pipes at the top of the decoiler

④ Connect the power



⑤ Put the proximity switch in the middle of decoiler and IBR machine

Function: When the steel coil accumulates too much, it will automatically sense and control the uncoiler to stop working.



5.3 Test machine



Please test the machine before loading the steel coil

- (1) Start oil pump button
- (2) Test the positive and negative button
- (3) Test tension/loosen button
- (4) Test pressure wall open
- (5) Test car before or after
- (6) Test car up or down

5.4 Operation

Operation as per the video (IBR machine hydraulic decoiler video1)

6.Test and check IBR Machine

6.1 Check the machine connection,Manual operation

检查机器连接是否正常，手动操作

①Turn on the power.

②.Check the hydraulic pump

Press oil pump start-up button. Notice turnaround of oil pump electrical engine.

按下油泵启动按钮，注意油泵电机转向。



If the fan spins clockwise,it is ok.如果风扇顺时针旋转，即为正常√。

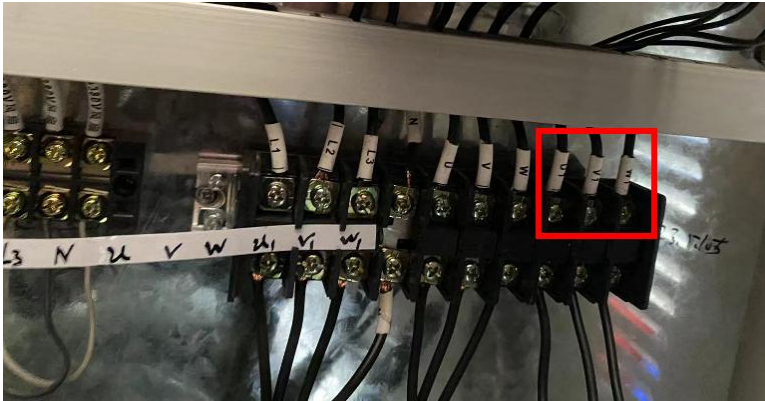
If the fan spins turn counterclockwise,exchange any two wires of U2,V2,W2.如果风扇逆时针旋转，跟换任意两根

③.Check the main motor

Press “Forward” and “backward” button,to check if machine goes forward and backward accordingly, if ok, then connection is ok 按下“前进”和“后退”按钮，检查机器是否相应地前进和后退，如果正常，则连接正常



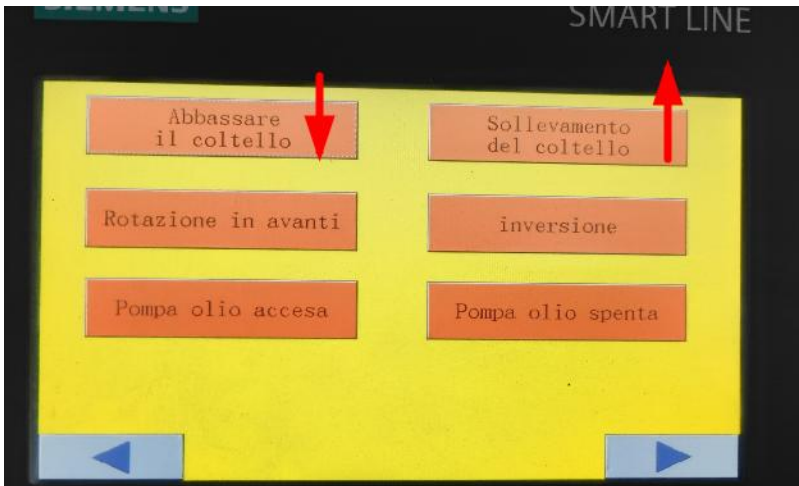
If machine goes conversly, exchange any two wires of U1,V1,W1



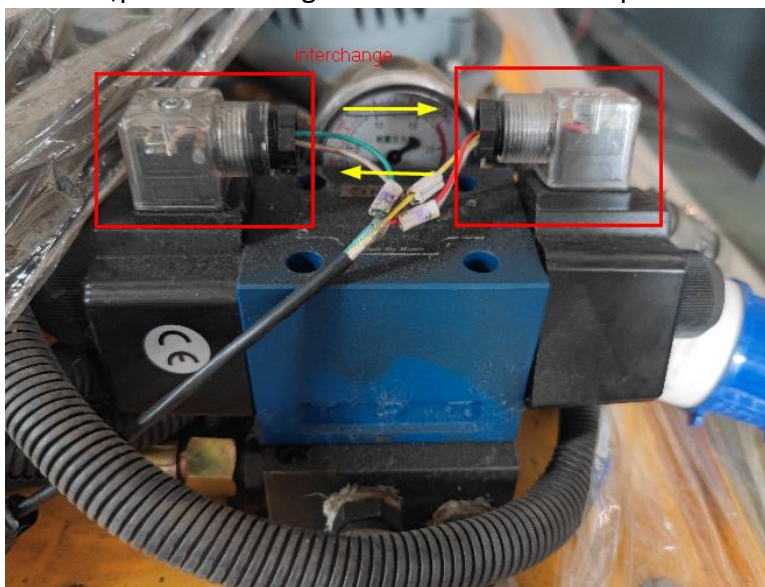
④. Check the Solenoid valves 检查电磁阀

Press the button of “Cutter up” and “Cutter down”, to check if the knife goes accordingly.

按下“刀具向上”和“刀具向下”，检查刀具是否相应移动。



If not ok, please exchange two Solenoid valve caps.



7 .Touch Screen Operation

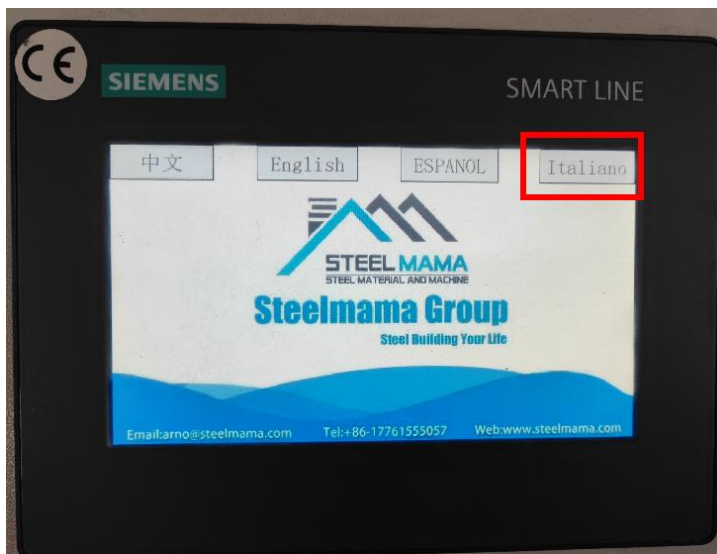
7.1 Operation for hydraulic decoiler

Operation please refer video “Decking machine hydraulic decoiler video”

7.2 IBR Machine touch screen operation

(1) First step:

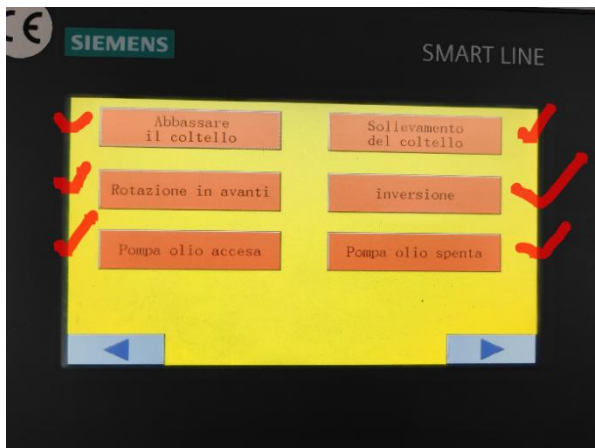
PLC table first page show photo PLC, Choose italiano Key.



(2) second step: Manual try machine

Pompa olio accesa → Abbassare il coltello → Sollevamento del coltello → Rotazione in avanti →

inversione → Pompa olio spenta → Pompa olio accesa

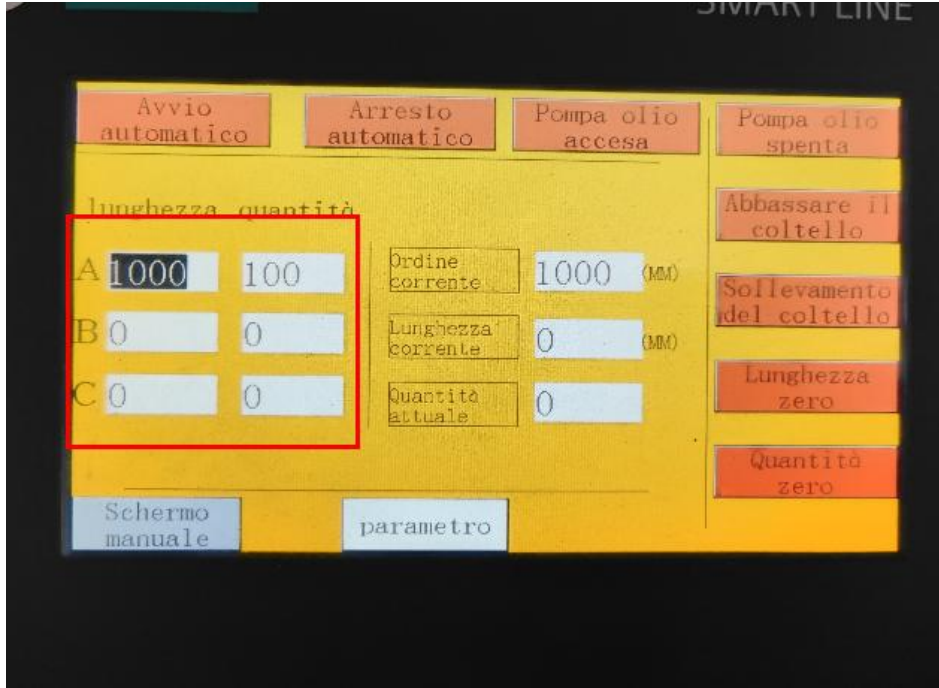


Manually setting page

(3) Third step :Order setup 订单设置

Total set up 3 orders, every order set up sheet length and sheet quantity.

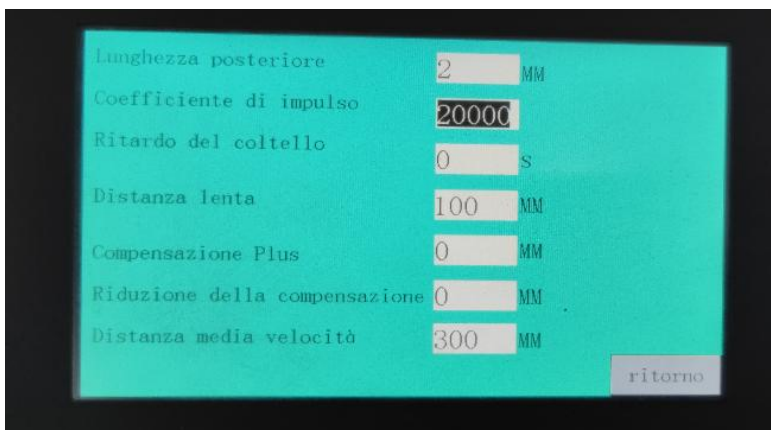
共设置 16 个订单，每个订单设置长度和片数。Then next page 然后下一页



(4)Forth step :Other factory setup 其他出厂设置

Stanza length, An stanza, End stanza lower, Between the knife to the type, The type down keep, The stanza length adds, The REV distance, Slowly distance, Add, Sub. All above information as factory setup, no need change.then back to (2) Manually setting page

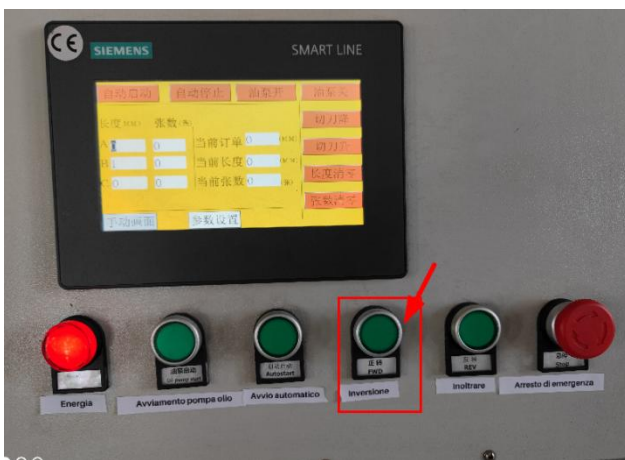
节距、首节、末节最小值、刀至压型、压下保持、节距加、后退距离、减速距离、补偿加、补偿减。以上所有信息均按照出厂设置，不需要改变。



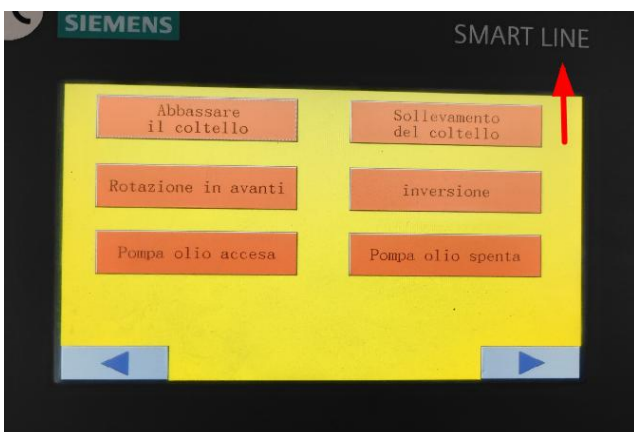
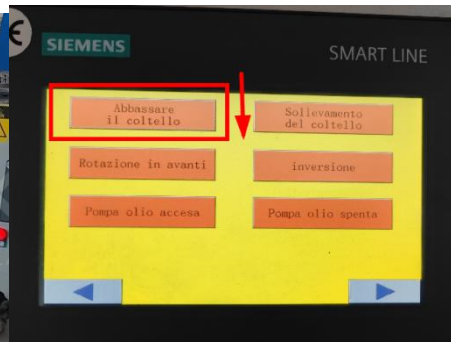
(4) Install the steel coil from the feeding position



Manual forward transmission



When the steel coil reaches the blade position, manually cut the ibr panel



(5) Auto start

Repeat the manual production until there is no problem with the rolling of the steel coil, and it can be automatically started and automatically produced



8. Notice proceeding and Maintenance

1. Pay attention to safety when the equipment is busywork with electrification. The equipment is connected with safe ground line.

设备带电作业时注意安全,设备接安全地线。

2. Don't put your hands or tools or foreign object into the knife-edge at any time.

任何时候不能把手,工具或者异物伸入刀口。

3. Electrical cabinets pay attention to rain and sun protection; Counter prevents hard objects from colliding; line is prevented from bump and break by plate.

电器柜注意防雨防晒;计数器防止硬物撞击;线防止被板撞断。

4. Machine cooperation movement parts often add lubricating oil.

机械配合活动部位经常加润滑油。

5. If you meet any problems or questions during working, please do not change any connection of the wires or any part of the machine randomly, please contact us firstly, we will send proper solution.

如果您在生产过程中遇到了任何问题,请不要随意修改机器的任何部位,第一时间联系我们。

9. Part lists 零件

Solnoid(2pcs)



Switch(2pcs)



Limit Switch(2pcs)



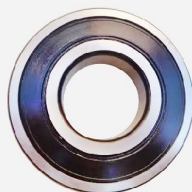
Fuse(2pcs)



Oil Pipe(1pcs)



Bearing(2pcs)



Encoder Wheel(2pcs)



10.Safety precautions 安全预防措施

Danger 危险

1.Do not enter the working range of rolling and cutting. To prevent serious injury from being involved or caught in the extraction machine.

禁止进入到滚压和切断的工作范围内。以防被取出机卷入或夹住而导致重伤。

2.Do not repair machinery in operation. Do not repair machinery in operation. During maintenance, please turn off the switch, cut off the power switch and power circuit breaker of the control box or operation box, and then perform maintenance.

禁止在运行中维修机械请不要对运转中的机械进行维修。维修的时候,请关闭开关、切断控制箱或操作盒的电源开关以及电源断路器后, 再进行维修。

warn 警告

1.Please dress properly before proceeding. Please do not wear clothing that is too large or ill-fitting, or clothing with other ornaments, so as to avoid being involved in machinery and causing serious injuries. 请正确着装后再进行操作。请不要穿戴过大或不合身的衣服, 或有其他装饰物的服装, 以免被机械卷入而导致重伤。

2.Do not modify the machinery Do not modify the machinery. The company is not responsible for accidents or failures caused by the modified machinery.

请勿改造机械请勿改造机械。因改造后的机械而产生的事故或故障,本公司概不负责。

3.Please note that when grounding installation, in order to prevent the occurrence of electric shock accidents, please pay attention to the implementation of the grounding works required by your country (Japan for! The third type of grounding works).

请注意接地 安装的时候,为了防止触电事故的发生,请注意实施你所在国家所要求的接地工事(日本为!第三种接地工事)。

4.Use a non-fuse circuit breaker (fuse). On the distribution line connected to the power supply, use an overcurrent fuse switch.

请使用无熔丝断路器(熔断器), 与电源相连接的配线上, 请注意使用过流熔断器开关。

5.Do not open the power device box, it is easy to occur due to high voltage electric shock, resulting in casualties.

请勿打开电源装置箱，容易发生因高压电触电，从而导致伤亡事故。

6.Do not put your hand into the inside of the moving machinery to prevent it from getting involved or stuck.

请勿将手伸入正在运转的机械内部,以防被机械卷入或卡住。

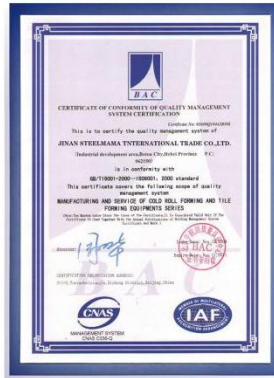
7.In case of frequent power outages, please stop the operation of the machinery. In case of frequent power outages caused by intense landmines or other reasons, stop the machine from traveling in order to prevent accidents caused by abnormal power supply.

频繁停电的时候，请中止机械的运转。激烈的落地雷或因其他原因导致频繁停电的时候,为了防止因电源异常而导致的事故,请停止机械的远行。

11. Product specification

Machine type		IBR roll forming machine
Decoiler	Coil width	1250mm
	Inner Diameter	Φ450 – Φ550 mm
	Motor brand	Siemens
	Hydraulic Power	5.5KW
	Main Power	7.5KW
	Max. Loading Capacity	10000 kgs
Roll forming	Thickness of feeding material	0.25-0.8mm PPGI and GI
	No of forming roller	21
	Material of roller	45# steel polished and coated with chrome HRC58-62°
	Diameter of shaft	80mm
	Material of shafts	high grade 45# steel polished
	Main frame	350x8mm H steel
	Thickness of side plate	16mm
	Forming speed	10-20 m/min
	Main power	5.5kw
Cut device	Cutting type	Hydraulic cutting
	Main power	5.5kw+5.5kw
	Brand of motor	Siemens
Control system	Control system	PLC
	Brand of PLC,inverter ,touch screen	Siemens
IBR	Power	3phase,380voltage,50hz
	Dimensions(L*W*H)	10m x 2.1m x 1.44m (L x W x H)
	Weight	About 8590kg
	Color	Blue
Work contions	Wires/cables	4-6mm ² (length according to workshop)
	Labor cost	2 workers
	Tools	Spanners and screwdriver
	Lift device	5-10t forklift or crane
	Working size	22m x3.1m(L X W)

12.Certificate



ABOUT STEELMAMA GROUP

—Steel Building Your Life

Steelmama was founded in 2009. Since its inception, Steelmama has always uphold the "create a first-class enterprise, first-class talents, first-class contribution" vision, to create a well-known "STEELMAMA" brand. Steelmama's main business is to "project" as the theme of "China Steel Agent Service", leading products for steel profile machinery include roll forming machine, press brake bending machine and other steel processing machinery, and steel coil include PPGI coil, GI coil, Aluminium coil, Alu-zinc coil and steel strips and plates, also steel building material like metal roofing sheet, steel sections, H steel, welding mill tube and some hardware to be global brand

—Steelmama Group Shipping—



—Cooperative Customers—





STEELMAMA

Steel Building Your Life

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