Email: info@mp-sonic.com; ibor@ibortech.com
www.mp-sonic.com; www.ibortech.com

Full Automatic Line for KN95 Mask

I. Machine Instruction:

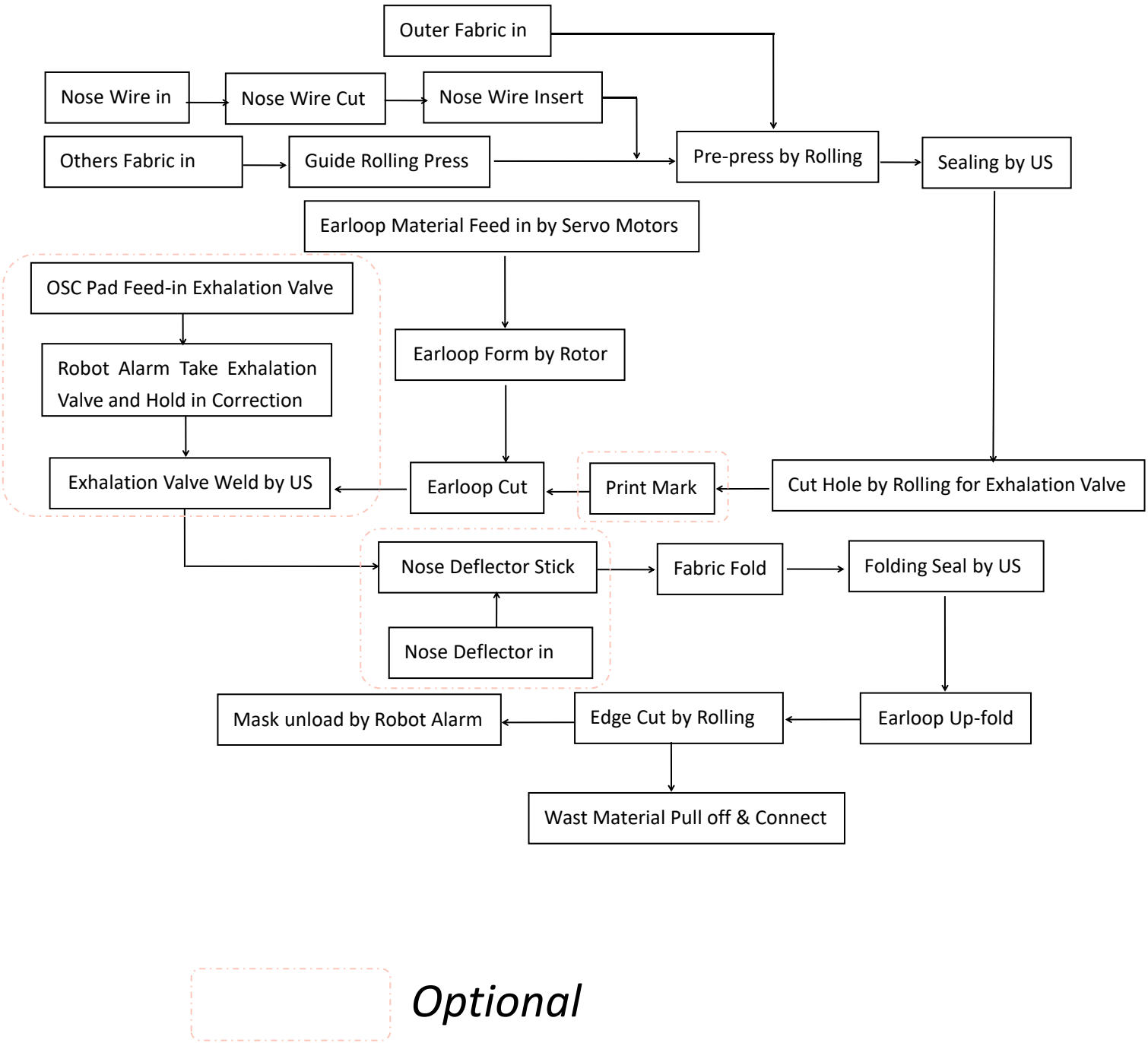
This machine is designed by MP Sonic China for making KN95 ear loop type folding mask in full automatic machine operation from raw material feeding-in to final mask outputting, requesting one operator only for supervising machine and changing-over material. Machine process sequence is controlled by PLC and set by HMI. Sensors are equipped with machine, error ID will display on HMI if machine fault to find out and solve trouble easily.

This machine is designed with mask production process procedure including: raw material automatic feed-in, folding mask automatic forming, nose wire automatic inserting, fabric sealing by ultrasonic, ear loop automatic attaching, exhalation valve automatic installation, nose deflector foam automatic attaching, mask specification information automatic printing , waster material cut off and automatic connection, finished mask unloading by robot, etc.

Machines applies ultrasonic system from MP Sonic Korea with stable performance. Ultrasonic system is in 20KHz 3000W, which is with advantages of lower noise and high welding ability and high capacity, comparing to the system in 15KHz 2600W by others mask machine brands. Machine action is link-controlled by servo motors, and the functional modules are repeat-moving along with fabric flow, while no need to stop fabric conveying during process, enhance mask capacity 30% over than normal machines supplied in the market. Computer remote control system is available for machine operation performance supervision and maintenance.

Email: info@mp-sonic.com; ibor@ibortech.com
www.mp-sonic.com; www.ibortech.com

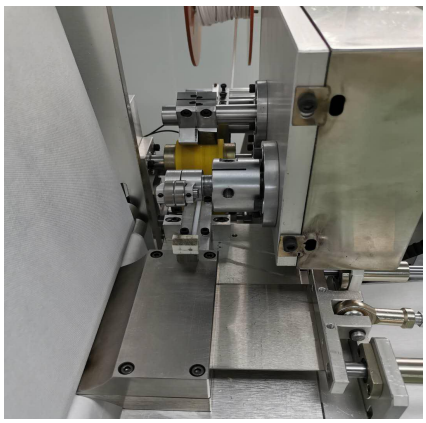
II. Procedure Flow:



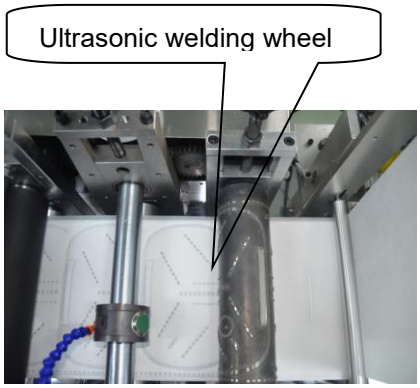
Email: info@mp-sonic.com; ibor@ibortech.com
www.mp-sonic.com; www.ibortech.com

III. Basic Features:

A. Automatic Fabric Material Feed-in： 6 material rollers are available on this machine, means it can make mask with max to 6 layers. Each layer material is supplied by independent motor with tension control system and optical sensor detection system.

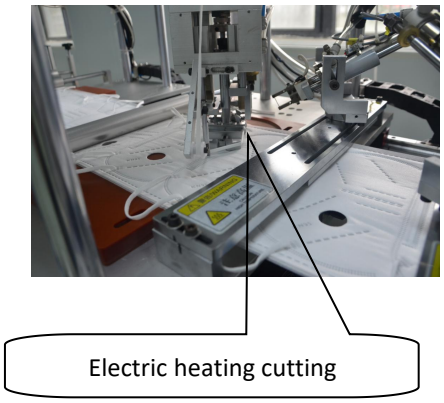


B. Internal nose wire inserting system
The equipment is specially designed with a nose clip insertion mechanism. The mechanism is controlled by a motor, and the precise cutting and insertion of the nose clip is achieved through the linkage control of gears and connecting rods. A pressure roller device is designed at the insertion position of the nose clip to ensure that the nose clip will not move out of position before ultrasonic welding. The cutting length of the nose clip can be adjusted according to the mask design. The nose clip is inserted into the



C. Ultrasonic stitching function of fabric:
The equipment adopts 20Khz ultrasonic system of Korean MP-Sonic to stitch each layer of fabric before folding by roller welding. Ultrasonic power can reach 3000W, compared with the ultrasonic system of 15KHZ 2600W, the noise is smaller, the power output is higher, and the production efficiency is faster.

Email: info@mp-sonic.com; ibor@ibortech.com
www.mp-sonic.com; www.ibortech.com



D. Automatic ear loop welding: The equipment uses a servo motor to automatically feed the material, and the ear loop is formed by the rotor, and then the ear loop is welded to the mask using ultrasonic. After welding, the ear loop material is melted by thermal fusing. The length of the ear loop and the position of the welding points can be adjusted according to the actual product design. The ear loop welding movement is controlled by servo, which has the characteristics of fast speed, accurate and stable welding.

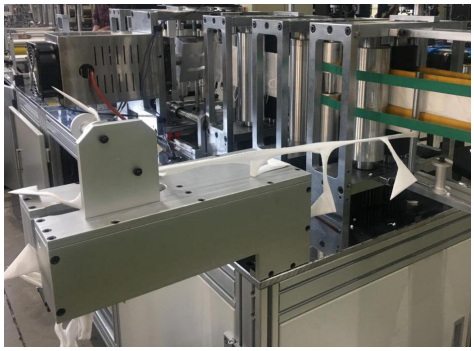
E. Fabric fold in half: A disc and set square are used to fold the fabric precisely to form the 3D folding side of the mask. The folding triangle can be adjusted according to the tension of the fabric.

F. Mask ultrasonic sealing: When the fabric is folded in half, 20KHz high-power ultrasonic is used to weld and seal the fabric, and the welding is firm and reliable. Before and after the welding position, the feed material shaft is used to press the fabric to ensure the smoothness of the welding.

Email: info@mp-sonic.com; ibor@ibortech.com
www.mp-sonic.com; www.ibortech.com

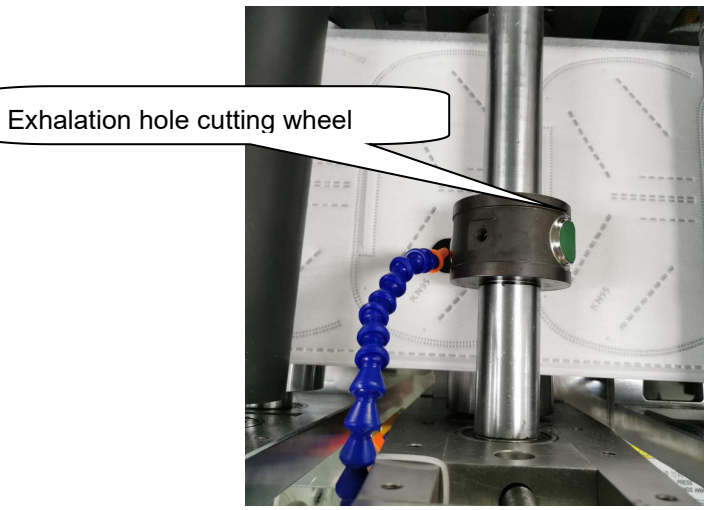
G. Automatic removal of waste materials.
Rolling cutting method is used to remove excess fabric. The ear loops are automatically folded up before cutting to avoid being cut. The cutting wheel is independently made of high-speed carbon steel imported from Japan. The cutting edge design and processing technology of the cutting wheel are independently developed by Zhenbo. It has the advantages of sharp knife edge, smooth and clean cut, and durable wear of the cutter wheel.

H. Automatic gripping of finished masks: The equipment is designed with a mechanical arm to automatically pick up the masks at the discharge place to avoid manual picking and pollution of the masks. The output control of the mechanical arm and mask is linked, and it is accurate to take each time.



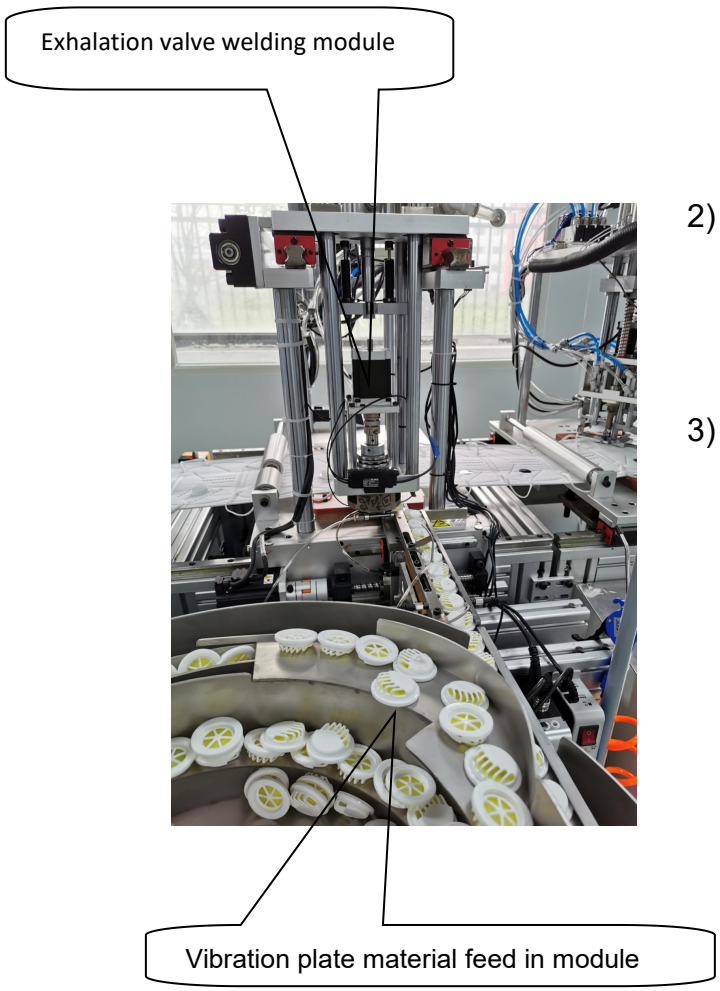
I. Automatic waste collection: The equipment is specially designed with a motor pressure wheel dragging mechanism to strip the cut waste mask and pull it to the waste accumulation port, without the need for special manual stripping or waste collection.

IV. Optional features



A. The equipment is designed with exhalation valve assembly functions for customers to choose, including exhalation valve hole cutting module, vibration plate material feed module and ultrasonic welding module.

1) The opening group of the exhalation valve adopts a hob to cut holes. The cutting wheel is made of high-speed carbon steel imported from Japan. The design of the cutting edge and the processing technology of the cutting wheel are independently developed by Zhenbo. It has a sharp cutting edge, a flat and clean cut. The wheel is durable and wear-resistant. After opening the hole, use compressed air to blow the waste into the waste bin below;



2) Adopt vibration plate to sieve material and accurately introduce it into the welding position without manual feeding or correction of position;

3) Adopt 20K high-power ultrasonic welding exhalation valve, the welding is firm and reliable, and the air tightness is guaranteed. The welding action is controlled by a servo motor, which produces fast and accurate and stable welding position. The welding module can automatically correct position deviation, which can automatically correct the deviation according to the axial deviation angle of the breathing valve feed.

Email: info@mp-sonic.com; ibor@ibortech.com
www.mp-sonic.com; www.ibortech.com

B. Automatic printing power:

The equipment can choose to install an automatic printing module to print the mask specification information before the ear loop welding. Printing can be selected as pad printing or inkjet method: pad printing can print different information by changing the mold, using pad printing can only choose one color printing; inkjet method uses computer input to change printing information, you can choose to install Two or three nozzle to realize 2~3 colors printing.

C. Sponge strip automatic pasting function: an independent sponge bonding function unit, connected to the entire line through communication. The fitting position of the sponge strip is adjustable.

Email: info@mp-sonic.com; ibor@ibortech.com
www.mp-sonic.com; www.ibortech.com

V. Advantages:

- ✧ Fully automatic production, high efficiency, saving labor costs.
- ✧ PLC control, touch screen operation settings
- ✧ Modular design of equipment function, communication protocol link, you can choose to use or close the functional module according to the mask design
- ✧ The device has a fault self-checking function: the fault location information is displayed on the interface to facilitate the technician to quickly find and repair the device
- ✧ South Korea MP Sonic imported ultrasonic system, high power output, improve mask welding speed, stable and reliable running performance.
- ✧ The equipment welding wheel, cutter wheel and ultrasonic steel mold are made of high-speed carbon steel imported from Japan, and are processed through a variety of complex processing techniques to ensure its high precision and wear resistance

VI. Parameter

Power supply: 220V, 1P, 50/50Hz;
B. Air source: 0.5•0.8MPa;
C. Overall size: 10000*2000*2000 (mm);
D. Power consumption: 13KW;
E. Ultrasonic power: 120KHz, 3000W.
F. Equipment capacity: 45~60PCs/Minutes.

VII. Core components

1. Machine/frame: aluminum alloy
2. Main mechanical parts: steel/aluminum;
3. Welding wheel/cutter wheel: high-speed carbon steel imported from Japan;
4. Equipment sealing plate: cold rolled plate;
5. PLC/Machine operation Interface: Siemens/Delta;
6. Motor: Inovance TL, Panasonic, etc (basing on design in need, in high quality);
7. Pneumatic parts: SMC or Yadeke;
8. Other electrical components: IDEC, Autonics, Schneider, LS, etc

VIDEO