CAEL-E3

POLYURETHANE FOAMING MACHINE

OPERATION BOOK

Thanks for your order

Thanks for ordering with us and we really appreciate the opportunity of doing business with you. Your satisfaction is our top priority. This instruction manual keeps good records of using instructions. Please read it carefully before using. We will do our best to provide a comprehensive range of technical support and great after-sale service. To adapt to market and improve service quality, we will continue to upgrade and innovate our products. The specification instruction are subject to change without separate notice.

Safe Operation Precautions

Equipment operator must strictly follow the required procedures during the operation, any improper operation might result in equipment damage or threat to personal safety. The manual describes the procedures to be followed for safety production of polyurethane.Equipment operators should read this manual very carefully and get an comprehensive understand of it, for safe and operation of the equipment and are able to quickly deal with problems and failures that might appear.

Polyurethane foam system is formed from different centralized chemical substances, some of which can be hazardous to humans if not used properly. Thus necessary precaution is highly required while in use. It generates fine particles during the use of polyurethane spray equipment. Operators must take good precautions to protect respiratory and eyes and other important body parts. The following precautions measures is highly required while using polyurethane spray equipment :

- **Protective mask required**
- **Splash-proof goggles required**
- **Chemical Protective Clothing**
- **Protection Gloves required**
- **Protective footwear required**

Features

1. Stable cylinder supercharged unit, easily providing adequate working pressure;
2. Small volume, light weight, low failure rate, simple operation, easy mobility;
3. Adopting the most advanced ventilation method, guarantee equipment working stability to the maximum;
4. Minimizing spraying congestion with 4-layers-feedstock device;
5. Multi-leakage protection system to protect the safety of the operator;
6. Equipped with emergency switch system, help operator deal with emergencies rapidly;
7. Digital counting system can understand original consumption timely;
8. Reliable & powerful 380V or 220v heating system enables rapid warming of raw materials to the best state, making sure it works great in cold condition;
9. Humanized design with equipment operation panel, super easy to get the hang of it;
10. Feed pump adopts big change ratio method, it can easily feed raw materials high viscosity even in winter.
11. The latest spraying gun has great features like small volume, light weight, low failure rate, etc;

Equipment Applications

This equipment is can be used for various construction environment with spraying two-component materials spray(optional) like polyurethane foaming materials, widely used in embankment waterproof, pipeline corrosion, auxiliary cofferdam,tanks, pipe coating, cement layer protection, wastewater disposal,roofing, basement waterproofing, industrial maintenance, wear-resistant linings, cold storage insulation, wall insulation and so on.

Technical Parameters

Power source: 380v 3 phase or single phase 220V 50Hz/60HZ
Heating power: 7.5KW
Driven mode: pneumatic
Air source: 0.8 MPa ≥1.0m³/min
Raw output: 2~12 kg/min
Maximum output pressure: 11Mpa
AB material output ratio: 1:1

Packing lists

Upon the receipt of commodity, please check if it's in accordance with the configuration of Packing lists.

Name	Pictures	Number
Main machine		1 set
Spray gun		1 set
Feeding pump		2 sets
Heating pipes		15 metes
Whip hose for spray gun		2 sets
Feed delivery pipes		2 sets
Air delivery pipes		5 meters
Return hose for chemicals recycle		1 set
Accessories box		1 set
Instruction manual		1 copy

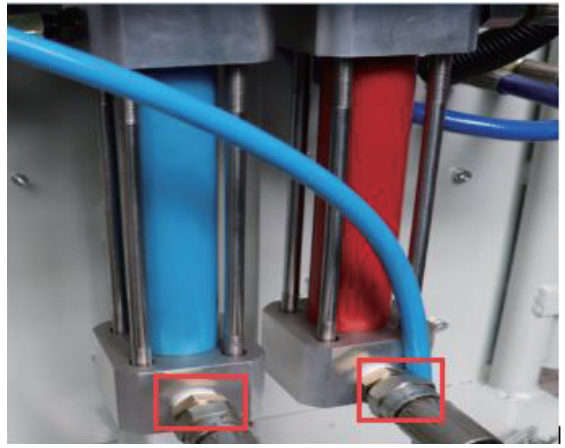
Main body machine

15 meters heated hose +1.5 meters spray gun whip hose +material feed delivery pipe +hose for connecting compressor +return hose +transfer pumps +spray gun + tool box spare parts

Install

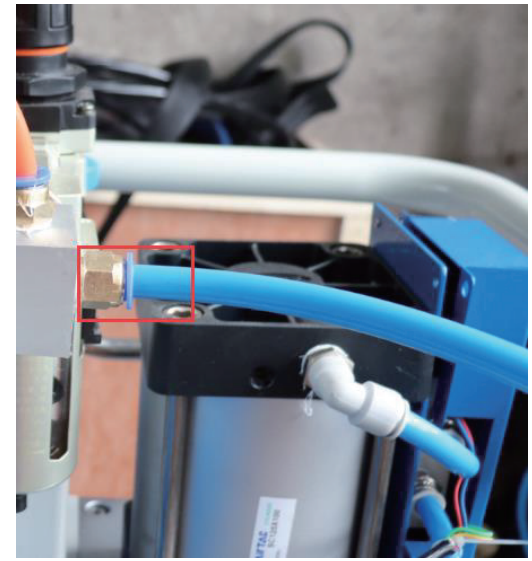
1:Transfer pump install

Connect the material delivery hose between transfer pump and secondary pump ,around 2.5 meters long .
At the behind of the machine ,there are secondary pumps ,see red pump A and blue pump B Connect the A hose to A pump ,connect the B hose to B pump .

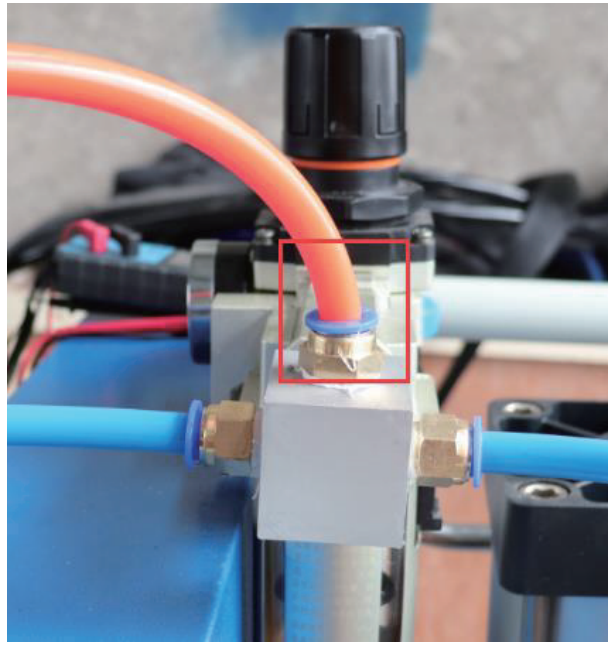


2:Hose connecting

Connect air hose to transfer pumps

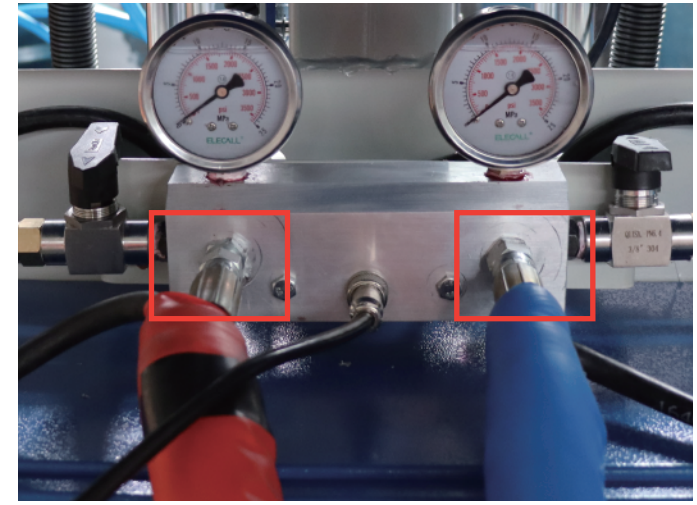


Connect air hose to compressor(above 32cfm ,116 psi)

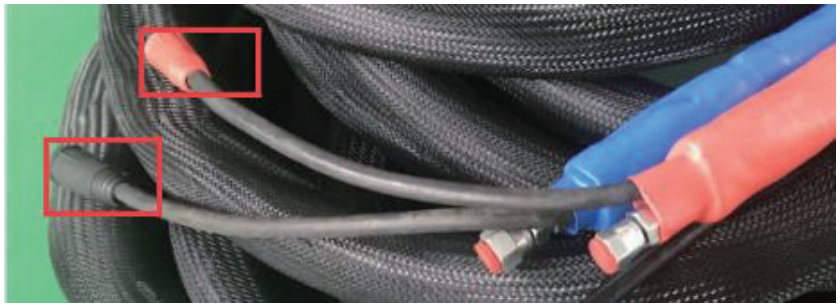


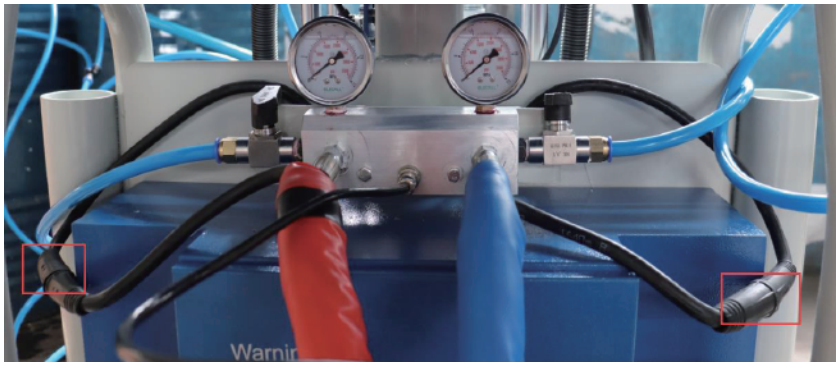
Heated hose connecting

Connect heated hose (JIC 5 and JIC 6 side) to machine a and b material discharge port

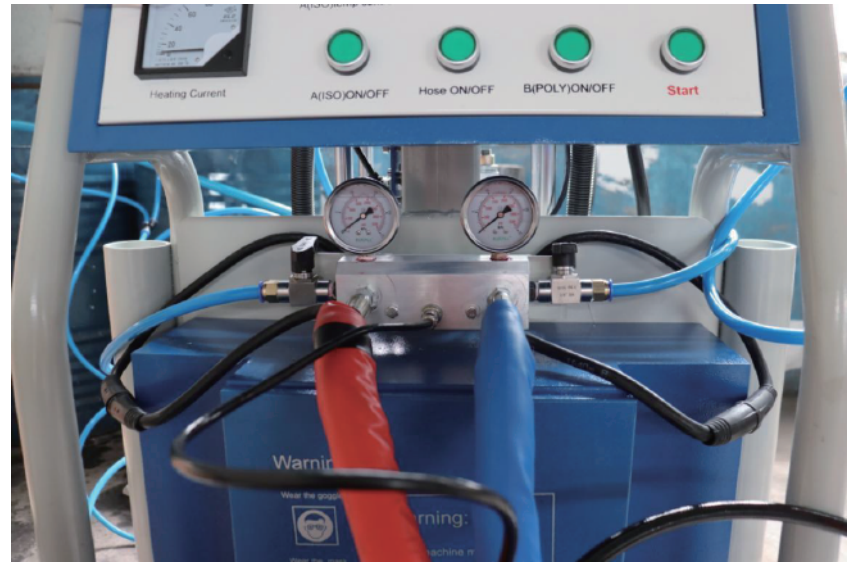


Connect heating cable to machine

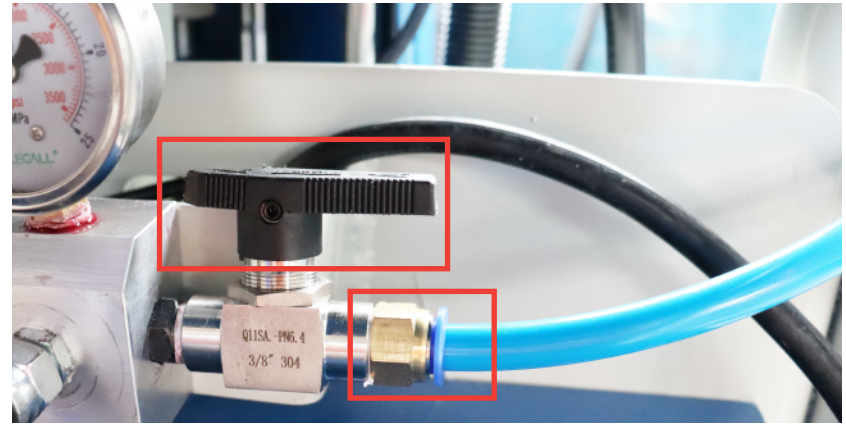




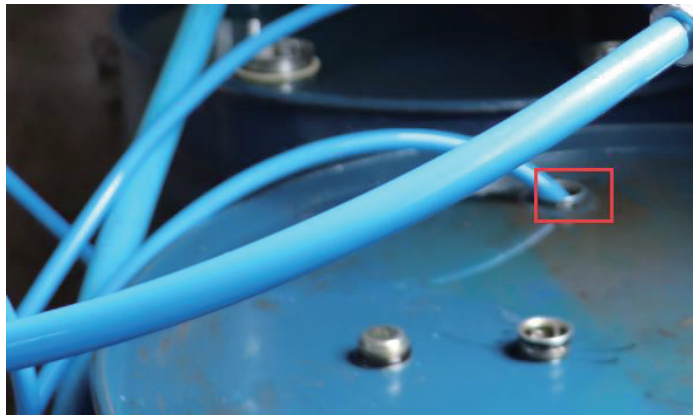
Connect hose temperature sensor to machine



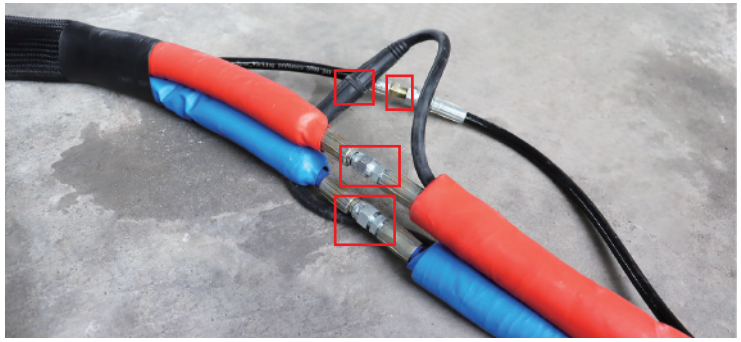
Connect the return hose to machine (at winter cold day ,better to connect return hose and open it to recycle material for in advance heating ,when you finish recycling,turn off the two valves from a and b side)



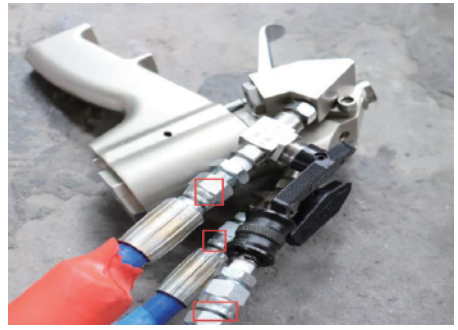
Return hose another side will connect to the small port of the drum(a side to a drum b side to b drum)



Whip hose connecting
Connect whip hose to the heated hose (heating wire connect+air hose connecting +heated hose connect)

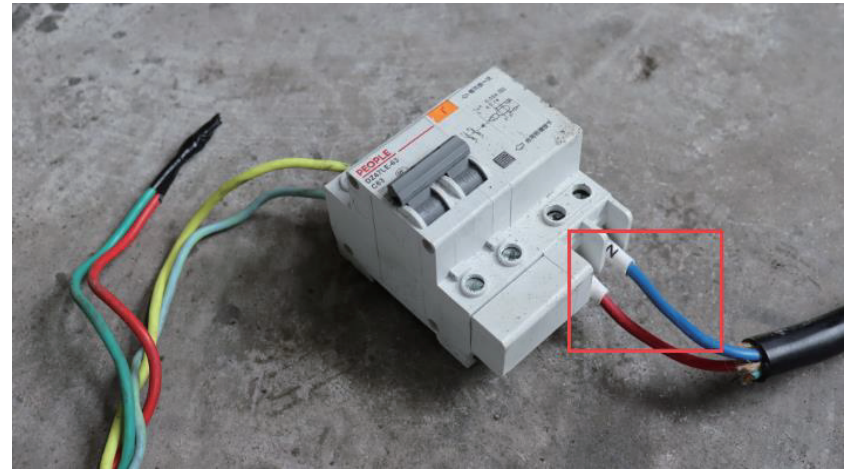


Connect another side to the gun

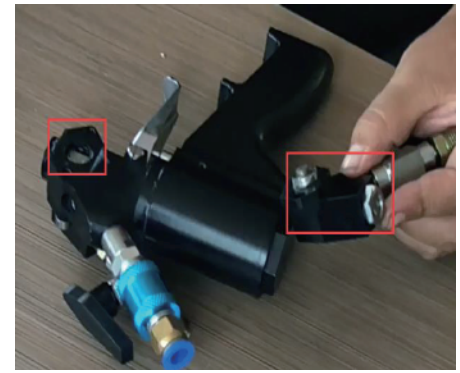


3:Power connecting

Connect the electric wire to the power supply plug (220v machine can not be connected to 380v ,if so,machine may probably be burned,380v machine can not be connected to 220v)



4:Dissemble lump blocks from a and b side ,prepare for draining air from machine and heating hose



5:Drain air from machine and hose .

Open compressor ,Operate machine ,press start button ,use chemical to drain air ,this will take you 20 seconds to recycle(This step is important before normal spray)

6:Prepare for normal spray

After finishing draining air ,install spray gun -Open compressor .

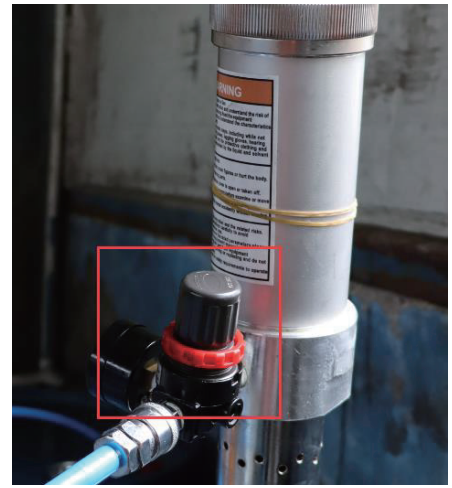
Pressure setting :

Main machine pressure setting :

Pull up the main machine air pressure control gauge clockwise rotate it up to 0.6mpa.

Transfer pumps pressure setting:

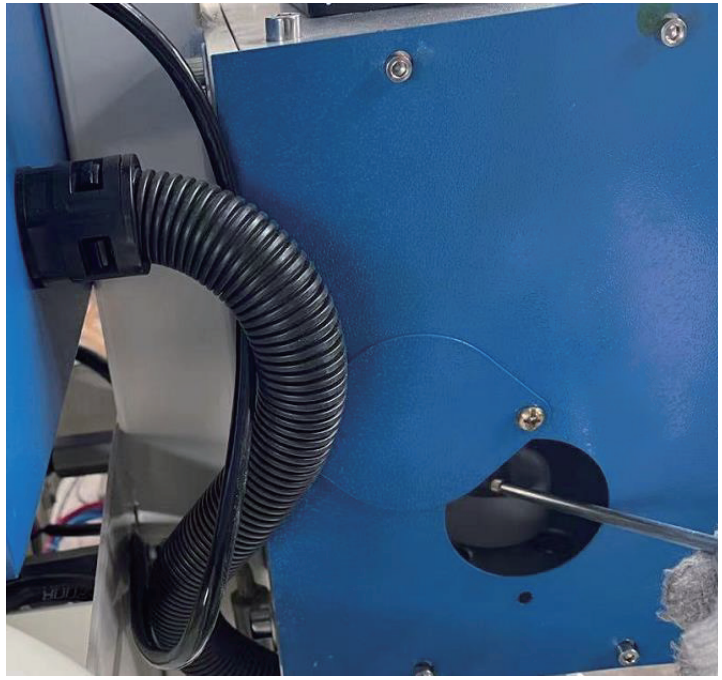
Pull up the air pressure control gauge clockwise rotate it up to 0.4mpa for a and b transfer pumps .



Temperature setting:
When local temperate 20 degree centigrade ,set A ISO B POLY and Hose all 35 .When local local temperate below 20,set A ISO 50 B POLY 45 and Hose 48

7:Add DOP chemicals

For preventing iso material becoming dry in the oil cup,use oilcan to add some dop .



8 Attention :

1:Once you install everything (hose ,transfer pump),please do not disassemble the heating hose or transfer pump from machine ,Keep the air hose connecting with air compressor .
keep the hose on the machine and keep the transfer pump into drum and do not let any air go into machine, after the chemicals runs out ,do not let transfer pump leave in empty drums in case the air goes into hose and transfer pump ,this will make iso crystal!!! This will be very hard to clean it .Change the transfer pumps into another drum with enough chemicals .Once use it ,do not change the A transfer pump into B drum or change B transfer pump to A drum .
If you do this ,this will make the transfer pump block ,because A and B chemical will make chemical reaction.

2:Put the gun nozzle part into DOP(Dioctyl phthalate) chemicals once the short work finished .When you want to change it ,you can find (C24H38O4)Dioctyl phthalate Try to open the link :
https://pubchem.ncbi.nlm.nih.gov/compound/Dioctyl-phthalate

Dioctyl Phthalate is one of the most widely used plasticizers in PVC due to its low cost.DOP is a general-purpose plasticizer and long-time industry standard known for its good stability to heat and ultraviolet light, and broad range of compatibility for use with PVC
Resins Or you can use DOHP instead of the dop .

3 If for one week ,you will not use it ,you should recycle the chemicals into the machine system:disassemble spray gun ,put the A pipe into A drum ,put B pipe into B drum ,operate the machine .operate it around 20 seconds .

4:If for long time no use spray machine,like more than 2 months :Operate machine and empty all chemicals from machine and hose .Remove the spray gun from hose Put A (iso transfer pump)into acetone drum ,put B(poly transfer pump) into warm water ,operate machine several minutes， when you find the acetone material and water ,there are no iso and poly inside .Then material inside is cleaned .

5:Do not Put ISO A transfer pumps into water for making test ,because when isocyanate meets water ,it will become crystal ,pumps will be blocked .

6:Before spraying ,better to shake the drum a and b ,let the bottom material go up ,maybe the a iso or b poly material layered in the drum .

9.Equipment commissioning

1.Equipment commissioning is required after installation. Turn on air compressor, and adjust air pressure regulator on the equipment front top, making it 0.6MPa-0.7Mpa.

2.Connect air delivery pipe of equipment with feeding pump air source port, and adjust air pressure to 0.4MPa-0.5Mpa(ideal is 0.5Mpa). After starting feeding pump, unplug air delivery pipe, and put red-color feeding pump in Iso material barrel and blue-color feeding pump in polyol material barrel.

3.Be sure to keep Iso and polyol material switch all turned-off after connecting the equipment with spray gun, then unload feed lump from the spray gun.

4.Turn on power on the equipment, start slide switch and convey air to cylinder, and reconnect air delivery pipe. Switch start/reset to Start direction, the equipment starts working and stops automatically when it reaches needed pressure.

5.Turn on the Iso and polyol material switch on the spray gun and let the material flow. When the flow of both sides become the same, power off main machine and relieve pressure. After the pressure release is done, turn off both switches then load feed lump back to the gun. Turn on air switch of spray gun and let the air flow out from the gun muzzle, then turn on Iso and polyol material switches, and pull the trigger. When a atomization appears, the spray gun can be put into use.

6.When indoors temperature is below 30℃, please turn on heating system and warm up Iso, polyol materials and pipes. The Iso material setting on temperature control can't exceed 35℃, heating pipe setting can't exceed 30℃, polyol material can't exceed 25℃.

10.Equipment Daily Use and Maintenance

Main Machine Daily Use and Maintenance

① Replace DOP in oil cup of primary-secondary pump daily;
② When equipment stops running, swerve Start/Reset switch to reset direction, making sure cylinder rod fully soaked inside DOP liquid, in this way it can prolong service life of seal ring.
③ Check sensitivity of the equipment heating system, if anything goes wrong, please fix the problem as soon as possible.
④ When equipment isn't working, please turn off heating system timely, for not only it prevents potential danger also avoids low foaming quality cuz polyol material long-time heating.
⑤ Make sure turning on and off heating system in correct order. When turning on, first start main power,then turn on heating system; when turning off, first stopping heating system then turning off main power.
⑥ Remember to check if there's enough oil inside oil-water separator and the water expelled from the separator;