ELECTROSTATIC POWDER COATINIG EQUIPMENT

-OPERATION MANUAL-

M100 Series

Model: M120

CE

TÜV NORD
TÜV NORD CERT GmbH
ISO 9001

www.irisinco.com

Operating instructions and spare parts list

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ELECTROSTATIC POWDER COATINIG EQUIPMENT

Instruction Manual

The Manual powder Gun M-100 with High voltage generator is designed to apply electrostatically chargeable powder on grounded work pieces.The gun designed with state of the art of technology.The parts are assembled in a simple manner wich guarantees easy maintenance and repair.The guns produce 100KV high voltage and it is therefore absolutely necessary to read the instruction manual carefully before starting to operate.

The manufacturer is not responsible for damage resulting from improper use of this equipment. The end-user alone is responsible. If the IRIS manual coating equipment is to be used for other purposes or other substances outside of our guidelines then it will be out of guarantees.

Important:

The M-120 manual coating equipment should only be used, maintained and started up by trained personnel, who are informed about and are familiar with the possible hazards involved. The powder spraying equipment should only be started up and used once the operating instructions have been carefully studied.
Improper use of the controlling device can lead to accidents, malfunction or damage to the control itself.

Technical safety regulations for electrostatic powder spraying equipment:

1-All equipment and parts within a reach of 5m from the spray gun have to be earthed.

2-The floor of place that operator is standing have to be conductive.

3-The operator has to wear conductive shoes the leather shoes recommended.

4-operator has to handle the gun with bare hands or with conductive gloves.

5-The earth wire (green/yellow) has to be connected with the earth screw of the electrostatic powder coating unit. The earth wire has to have a solid metallic connection with the booth, the recovery system, the conveyor chain as well as the objects to be coated.

6-The electric cables as well as the powder hoses leading to the guns have to be handled in such a way that they are protected against mechanical damage.

7-Only when the recovery system has been put into operation the powder coating unit be switched on.

8-Electric wires as well as powder hoses have to be controlled at least once a week.

9-The earth of all conductive parts and equipment within the reach of 5m from the spray area has to be checked at least once a week.

10-The control panel has to be switched off when cleaning the guns or changing the nozzles or extensions.

11-As a general rule for all powder spraying installations, persons with pacemakers should never enter high voltage areas or areas with electromagnetic fields.

12-Each person responsible for the assembly, start-up, operation, service and repair of powder spraying equipment must have read and understood the operating instructions and the "Safety regulations"-chapter. The operator must ensure that the user has had the appropriate training for powder spraying equipment and is aware of the possible sources of danger.

Pulse coating system M-120

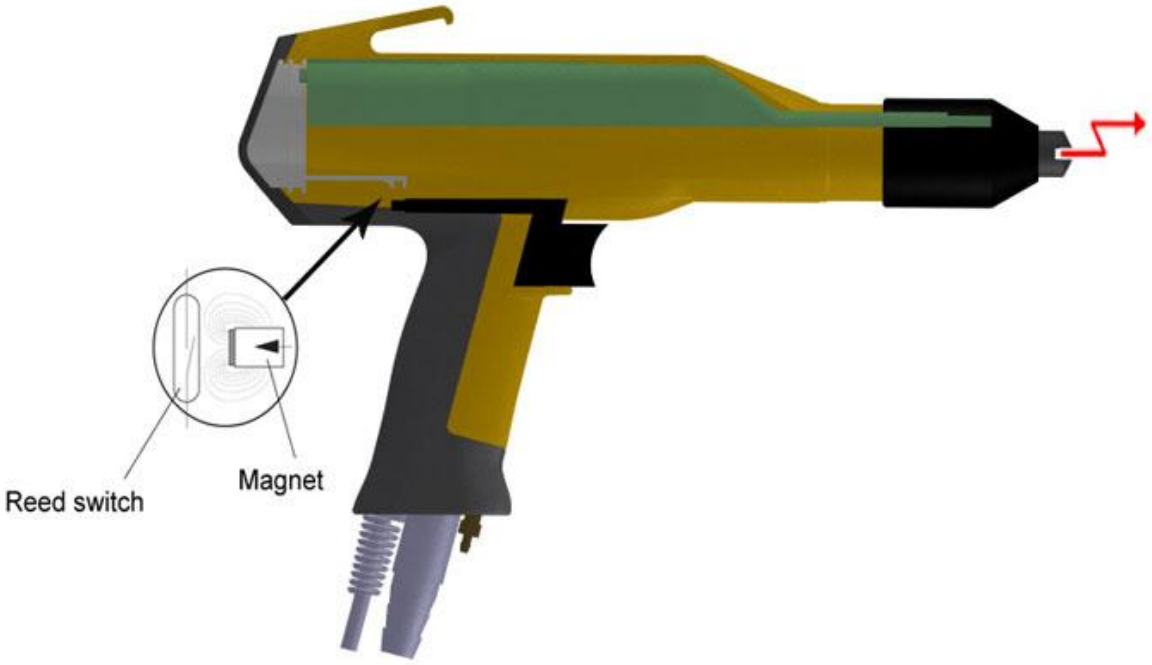
-High quality of coating.
-Reduction in coating material consuption.
-Effective coating in corrners.
-Effective recoating.
-Decrease in orange peel.
-3pre programed mode
-Gun and Earth connectivity detector

Function of High voltage generation

The control unit supplies a high-frequency low-voltage signal of approximately 10 V rms. This voltage is fed through the gun cable to the high voltage cascade in the gun body.
In the high voltage cascade, the low-voltage is high-transformed in a first step. This primary high voltage is subsequently rectified and multiplied in the high voltage cascade in a second step, until the required high voltage is obtained at the end (approx. 100 kV). The high voltage is now fed to the electrode within the spray nozzle.

Circuit

In addition to the modulated low voltage needed for high voltage generation, there are signal lines fed troughs the gun cable. The control signals are used for monitoring gun trigger status and gun remote control functions.
The gun is released by a reed switch, which is operated by a magnet in the trigger. The control unit switches the modulated low voltage, powder conveying, and the rinsing air on.

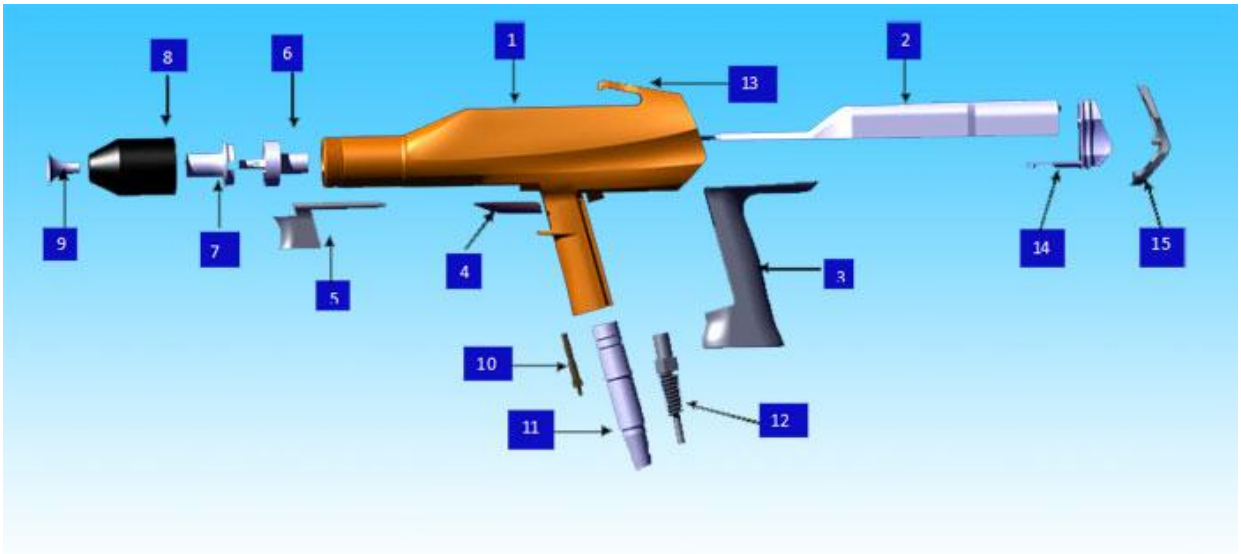


Technical Data:

M-120 Manual Gun

Length of gun	340mm
Gun weight	420gr
Out put voltage	100K V approx
Max out put current	140µA
Frequency	32KHz approx
Polrity	negative
Max powder injection	500g/min
Length of cable	5m
Packing size	240*320*60 mm

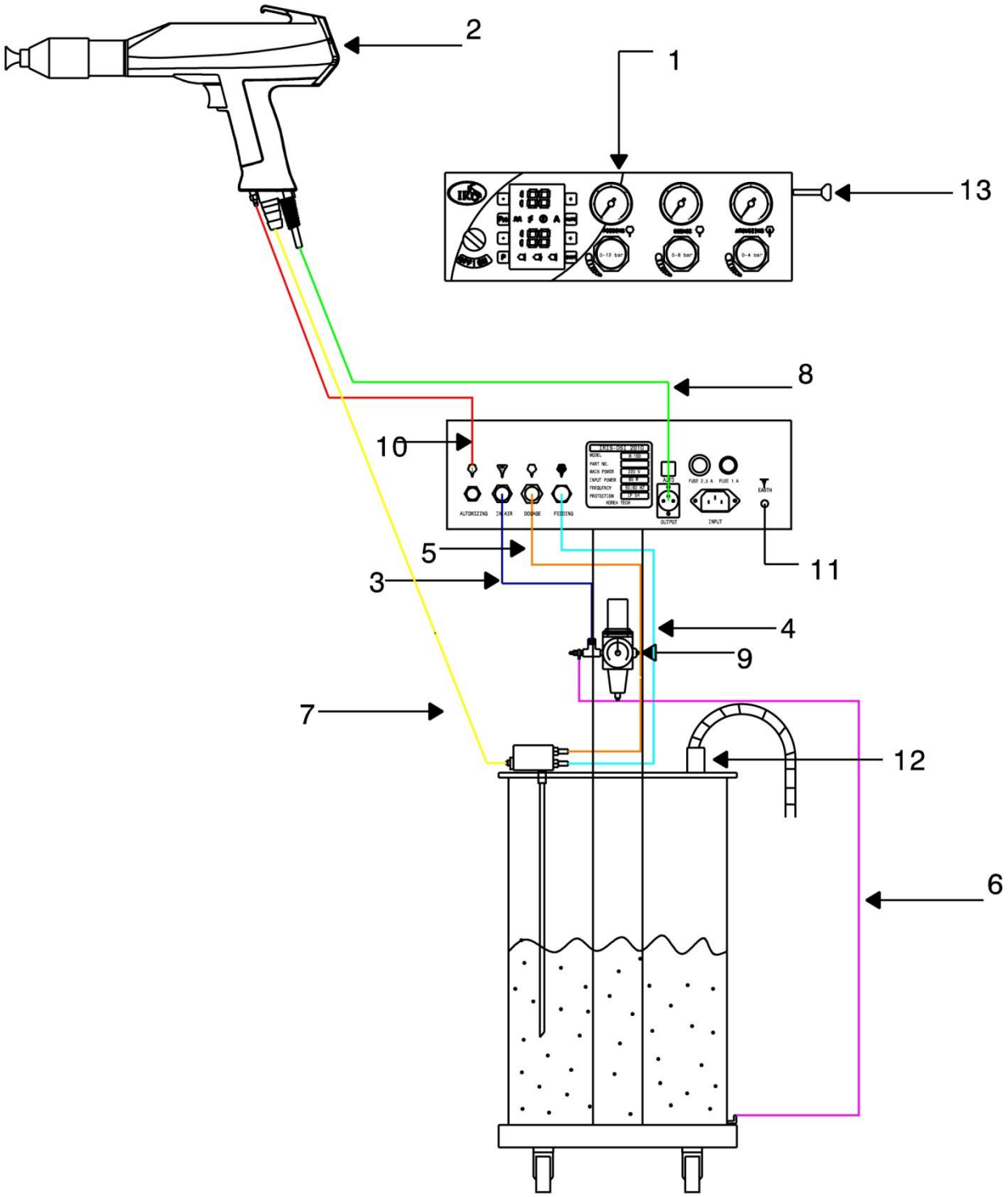
Disassembly parts



PARTS LIST – A -

Drawing No.	Part No.	Descreiption
1	101	Gun body
2	102	High voltage cascade
3	103	handle
4	104	Trigger cover
5	105	Trigger
6	106	Rod holder with spring
7	107	Nozzle cover
8	108	Gun cap
9	109	Round deflector
10	110	Auxiliary air nipple
11	111	Powder channel
12	112	Cable bracket
13	113	Hook
14	114	Back cap holder
15	115	Back cap

Connection Guide



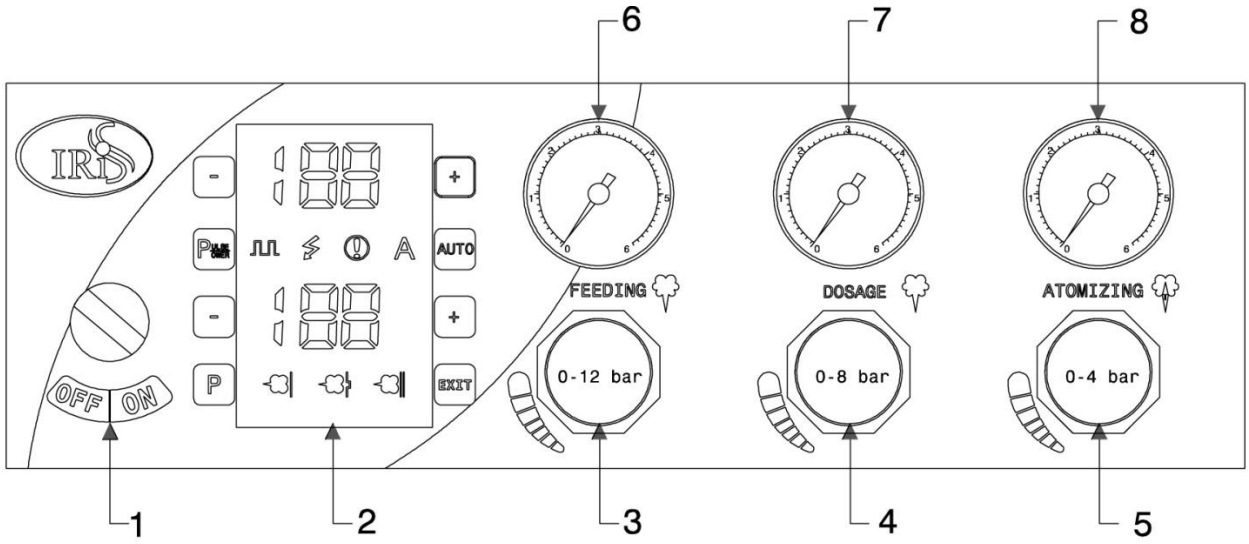
Drawing No.	Description
1	Control unit
2	Manual gun
3	Input air connection 8
4	Feeding air connection 8
5	Dosage air connection 6
6	Fluidizing connection 6
7	Powder hose
8	Gun connector
9	Main supply Air
10	Automizing air connection 4
11	Earth
12	Powder vent hose
13	Gun holder

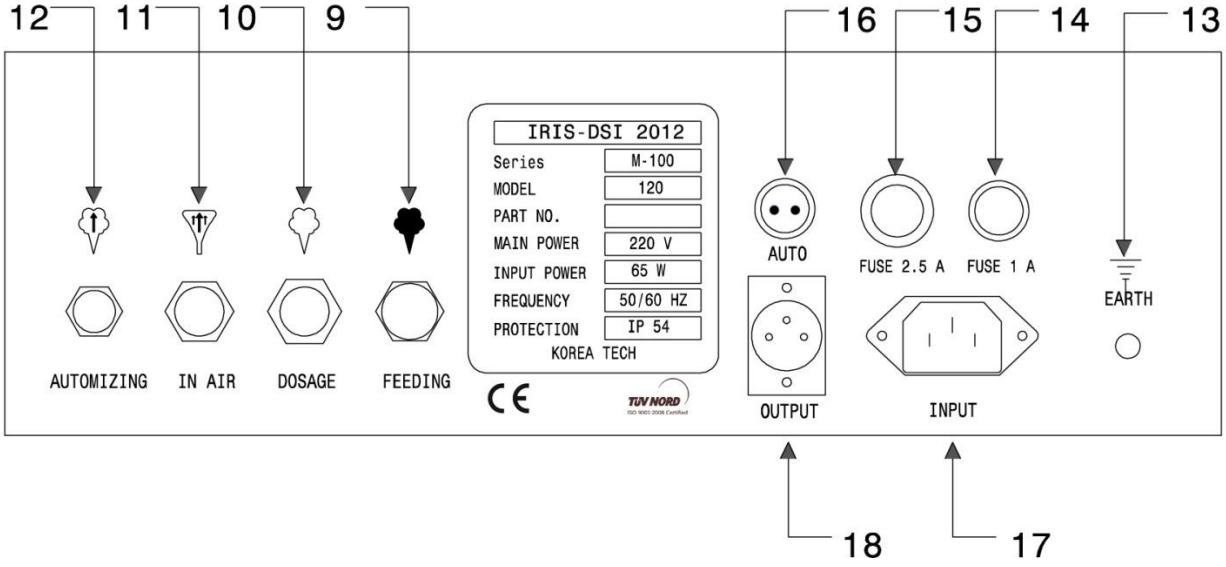
Control Unit

Technical Data :

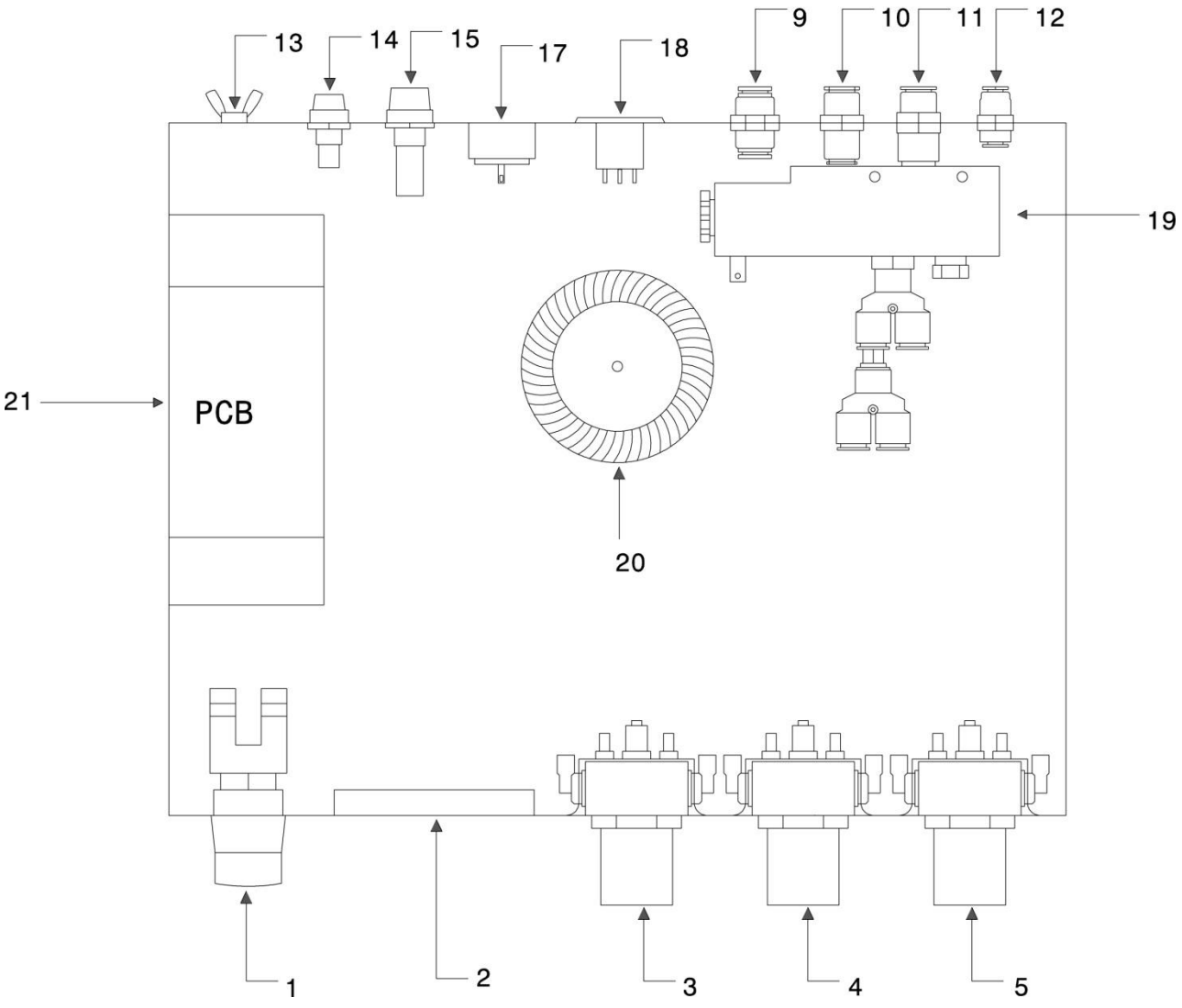
Input Voltage	220 V AC
Output Voltage	Max 100K V
Output Current	Max 140 µ A
Input Power	Max 65 w
Frequency	50/60 HZ
Solenoid Valve	24v DC
Input Air Pressure	6~8 bar
Temp Working	5~40°C
Max Air Consumption	$14 Nm^3/h$
Size(W*L*H)	350*270*110 mm

Front & Back of Control Unit





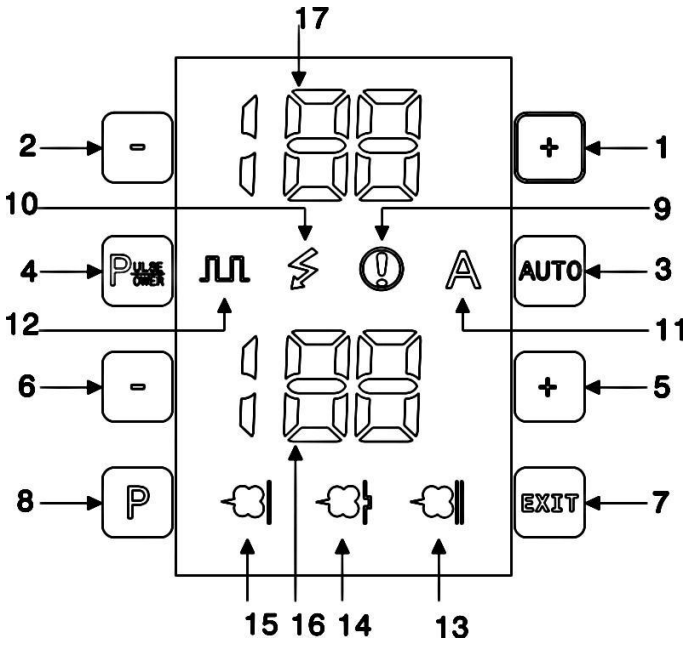
Top of Control Unit



PARTS LIST – B -

Drawing No.	Description
1	Power Switch
2	Display & Control board
3	Air regulator 0~12
4	Air regulatot 0~8
5	Air regulator 0~4
6	Feeding air manometer
7	Dosage air manometer
8	Automizing air manometer
9	Feeding air connector
10	Dosage Air connector
11	Main air connector
12	Automizing Air connector
13	Ground nut
14	Fuse holder with Fuse 1 A
15	Fuse holder with Fuse 2.5 A
16	Automatic jumper
17	Main power cable socket
18	Gun cable socket 3 pin
19	Solenoid Valve
20	Transformer
21	Main P.C.B

Display & Control Board



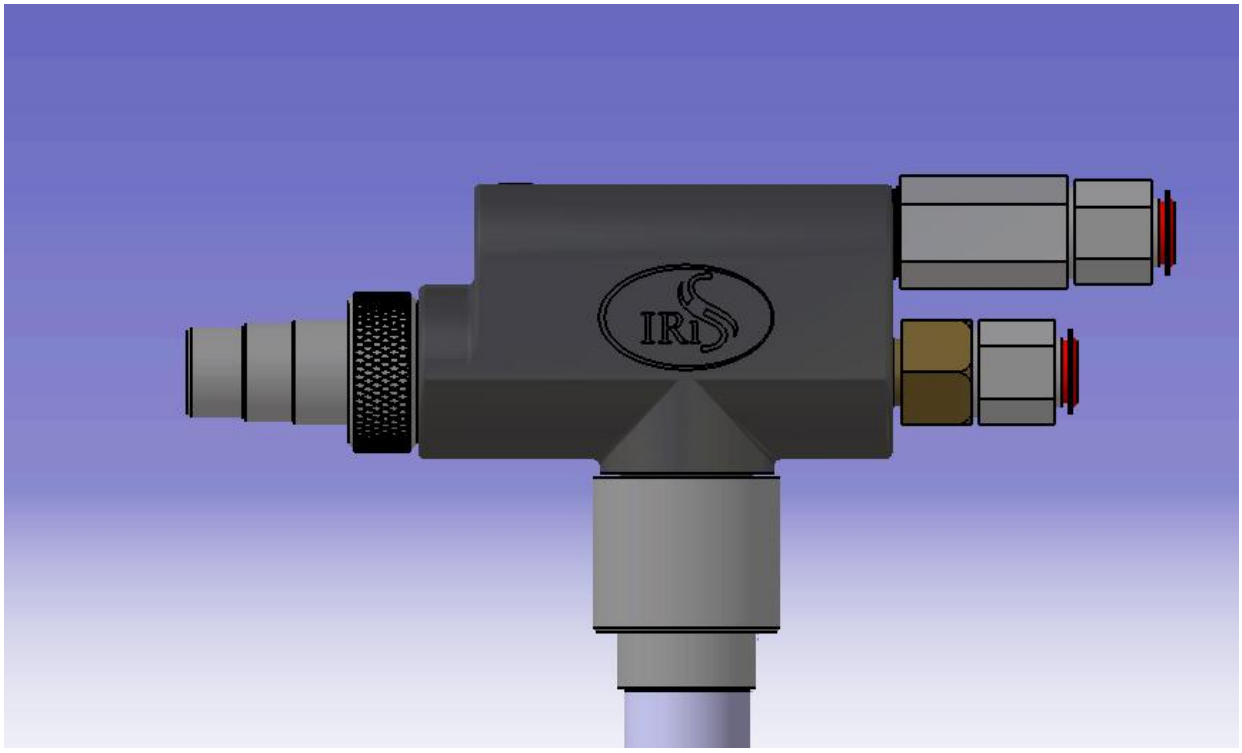
Drawing No.	Icon	Description
1	+	To Increase Voltage
2	-	To Decrease Voltage
3	AUTO	Turn On/Off Automatic Mode
4	PULSE POWER	Turn On/Off Pulse Power Mode
5	+	To Increase Current
6	-	To Decrease Curent
7	EXIT	To Exit Program Mode
8	P	To Select Pre-Programed Mode
9		Bilinking If Earth Is Not Connected
10		Bilinking If Gun Is Not Connected
11	A	Indicates That Automatic Mode Is On Or Not
12		Indicates That Pulse Power Mode Is On Or Not
13		Indicates Recoat Program
14		Indicates Corner Program
15		Indicates Flat Program
16		Working Current
17		Working Voltage

Injector

The injector is used to convey normal organic powders between the powder hopper and the powder gun. The injector is supplied with a Teflon insert sleeve as standard.

If air flows through the nozzle into the cavity, a vacuum is created in the cavity. This vacuum causes powder to be drawn up the suction tube and into the cavity. A powder/air mixture is created. The forward air velocity at the nozzle conveys the powder/air mixture through to the powder hose to the gun.

The concentration of the powder/air mixture, and with it, the powder output depends on the conveying air pressure and supplementary air pressure, the quality of the powder, the length of the powder hose, the diameter of the powder hose, and the difference in the height between the gun and injector, and the type of nozzle. The condition of the insert sleeve is of great importance, because wear causes the powder output to sink drastically.



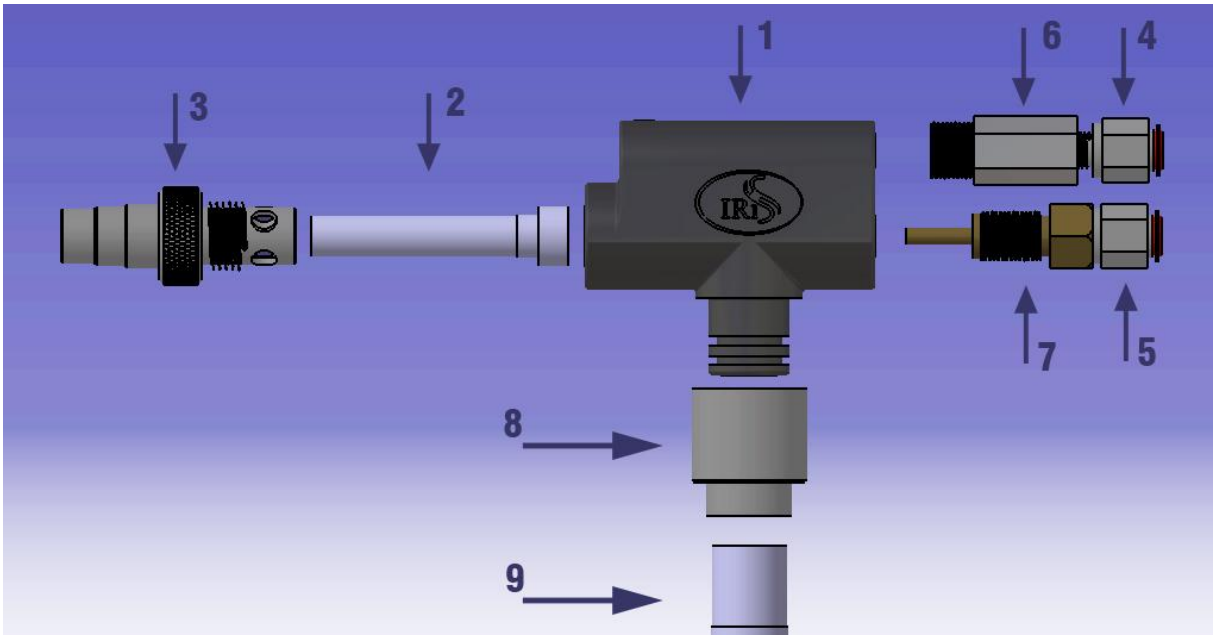
1. Remove the injector from the hopper.

2. Pull powder hose off the hose fitting.

3. Clean the hose fitting with compressed air which is free of water and oil.

4. Clean injector body with compressed air which is free of water and oil.

5. Reassemble the injector and fit it on the hopper.



PARTS LIST – C -

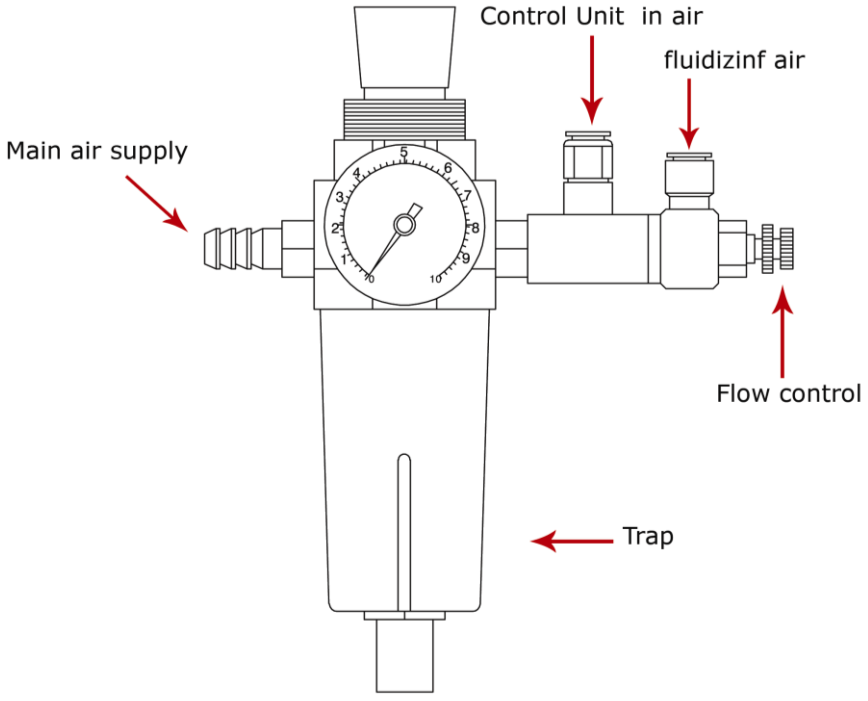
Drawing No.	Part No.	Description
1	201	Injector body
2	202	Sleeve
3	203	Sleeve holder
4	204	Air fitting 6
5	205	Air fitting 8
6	206	Check valve
7	207	Injector Nozzle
8	208	Pipe holder
9	209	pipe

Powder Hopper

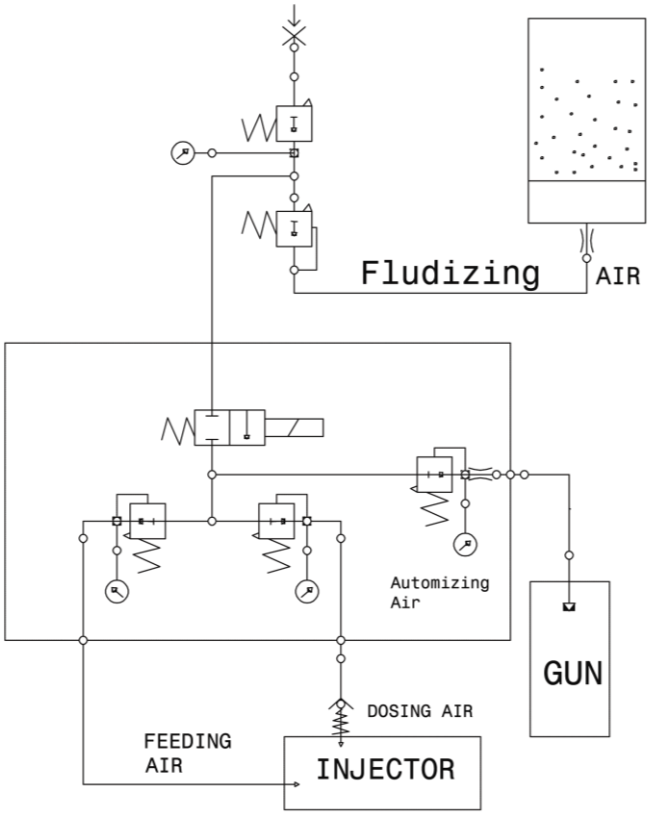
PARTS LIST – D -

Drawing No.	Part No.	Description
1	251	**Injector**
2	252	**Powder vent hose**
3	253	**Hopper body**
4	254	**Powder cap**
5	255	**Hopper cap**
6	256	**Injector holder**
7	257	**Cap rubber**
8	258	**Snap lock**
9	259	**Fluidizing rubber**
10	260	**Fluidizing plate**
11	261	**Hopper bottom case**
12	262	**Fluidizing fitting**

Filter regulator



Pneumatic Diagram



Color change

When a color change takes place, the individual components of the manual coating equipment must be cleaned carefully.

1. Empty the powder hopper and clean thoroughly

2. Clean the powder hose:
- Strip the powder hose from the hose connection on the injector
- Point the gun into the booth
- Blow through the hose manually with a compressed air gun
- Fit the powder hose again to the hose connection on the Injector

3. Dismantle and clean the powder gun

4. Clean the injector

5. Prepare the manual coating equipment with new powder for start-up

Maintenance and cleaning

Daily maintenance

1. Clean the injector

2. Clean the powder gun

3. Clean the powder hose

Weekly maintenance

1. Clean the powder hopper, the injector and the powder gun

2. Check the control unit grounding connections to the coating booth, the suspension devices of the work pieces, or the conveyor chain

If in disuse for several days

1. Disconnect the mains plug

2. Clean the coating equipment

3. Turn off the compressed air main supply

Cleaning the powder hopper

1. Disconnect the fluidizing air supply

2. Remove the injector

3. Open the cover, blow out with compressed air and clean with a clean dry brush and cloth

4. Clean the suction tube, and injector

5. Empty the remaining powder into a container

6. Clean the hopper with a cloth

7. Reassemble the powder hopper

Troubleshooting

Fault	Causes	Fault elimination
Display remains off	AC 220 volt cable conection defective Fuse defective Low voltage transformer defective	Connect the cable to power supply Replace Replace
High voltage display not operate	Cascade defective PCB defective Reed switch defective Gun cable defective	Replace Replace Replace check
Powder does not adhere to object	Cascade defective PCB defective Object is not grounded	Replace Replace Ground the object
Powder does not come out throu the gun	Solenoid Valve defective Sleeve deformation Reed switch defective Fluidiz plat defective	Replace Replace Replace Replace
Powder output is countinuously	Read switch defective Solenoid valve defective	Replace Replace
The powder is not fluidized	Compressed air not present Fluidizing air is set too low	Connect the equipment to the compressed air Set the fluidizing air correctly
Powder is pumping	Sleeve deformation Powder hoses are griped Dosage air is too low	Replace Change the hose Set the dosage air correctly

- ✓ **Acquired CE Mark**
- ✓ **Acquired ISO 9001:2008**

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