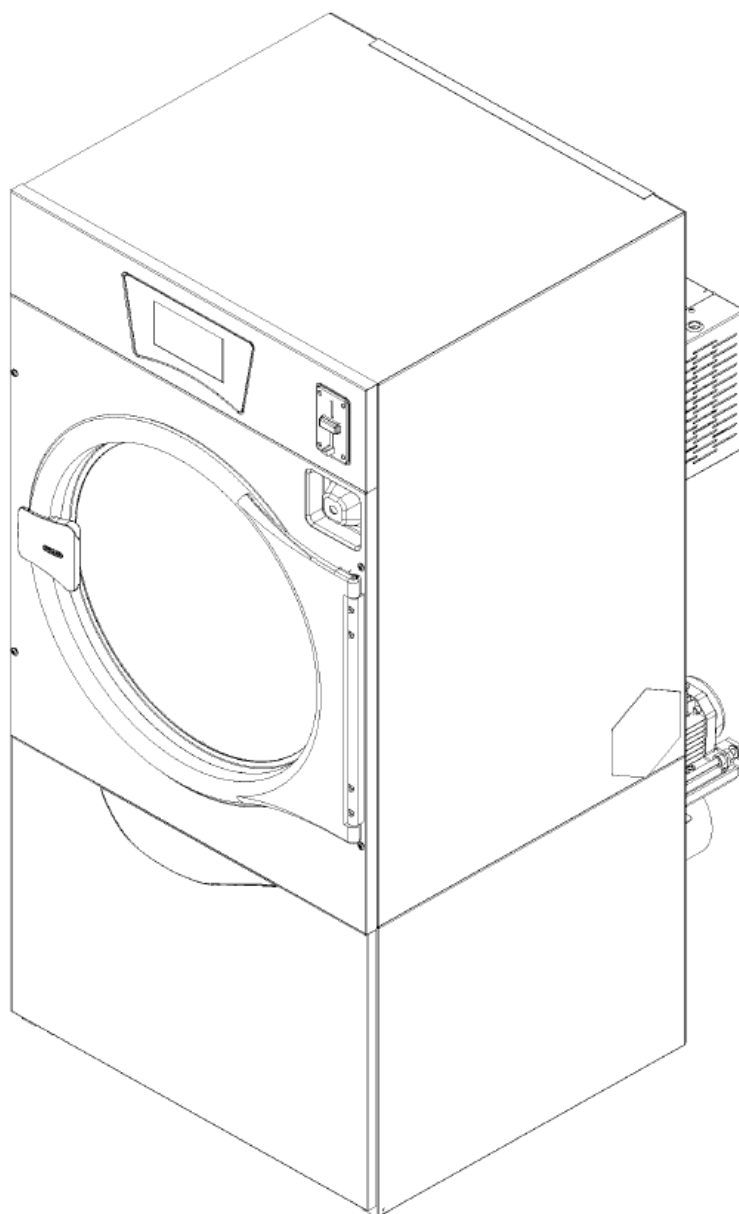




## Single tumble dryer \ installation \ operation \ maintenance manual

The manual suitable for the following models:  
**EC12DS/EC16DS/EC19DS/EC22DS/EC27DS/EC33DS**

Please read this manual thoroughly before use, and keep these instructions for future reference after reading.



# Contents

<b>1. Dryer Safety</b> .....	<b>1</b>
1.1 Safety Symbol.....	1
1.2 Safety instructions.....	2
<b>2. Installation</b> .....	<b>4</b>
2.1 Machine models and dimension.....	4
2.2 Installation requirements.....	5
2.3 Wiring.....	6
2.4 Heating connection.....	7
2.5 Piping.....	8
2.5.1 Gas piping.....	8
2.5.2 Make up air.....	12
<b>3. Debugging</b> .....	<b>14</b>
3.1 Debug coin acceptor.....	14
3.2 Debug drying program.....	15
3.3 Debug gas valve.....	15
<b>4. Simple operation</b> .....	<b>17</b>
<b>5. Maintenance</b> .....	<b>18</b>
5.1 Daily cleaning and maintenance.....	18
5.2 Common faults and solutions.....	18

# 1. Dryer Safety

## 1.1 Safety Symbol

Please read this part of the safety messages carefully, ignoring this part may cause damage to the machine or personal injury. The following warning symbol will be seen on the machine.

 <b>WARNING 警告!</b>		
Electrical shock hazard can cause death or serious injury To reduce the risk of electric shock, disconnect all electric power to appliance and accessories before servicing-		电击危险可能导致死亡或严重伤害为减少触电风险，维修前，请断开设备和配件的所有电源。
Moving parts hazard can cause serious injury Disconnect electric power to unit before servicing. Unexpected start of machinery will occur if the unit is equipped with the extended tumble feature		移动部件危险可能导致严重伤害。维修前断开设备的电源如果设备有延长的滚动功能，则会发生意外的机械启动。

 <b>WARNING 警示!</b>		
	To reduce the risk of electric shock, disconnect electric Power before servicing.	为减少触电风险，维修前，请断开设备和配件的所有电源。

For your personal safety, please do not touch this area during use, and be sure to disconnect the power supply for maintenance and moving the machine

<b>NOTICE 警示!</b>	
<p>Use only copper conductors with the following rating when wiring tumbler to electric supply:            Gas and steam heat 75°C( 167 F)minimum            Electric heat 90°C(194F)minimum            Connect this tumbler to an individual branch circuit.</p> <p>Wiring Diagram Location:            Inside electrical box.</p>	<p>使用符合以下规格的铜制导线连接烘干机和电源：            燃气和蒸汽加热 75℃ (167 F) 最少            电加热 90℃ (194 F) 最少            烘干机配单独的断路器</p> <p>接线图：            在电箱内！</p>
<p><b>INSPECTED BY:</b></p> <p>检验：</p>	

The external power cable must meet the standards required by the machine's wiring. Do not use power cable and pipes that do not meet the relevant standards.

## 1.2 Safety instructions

Please install the dryer in accordance with "2 Machine Installation" in this manual. All inlet pipes, exhaust pipes, gas pipes, power supply, and grounding connections must comply with local regulations, and authorized professionals to complete the connections when necessary. It is recommended to ask professional technicians to install this machine.

Do not install or place the dryer in humid or open air.

To prevent fire or explosion, do not place flammable and explosive products around the machine.

To reduce the risk of electric shock or fire, do not use non-standard extension cables to connect the dryer machine to the power source.

Do not let children play on or in the dryer. When using the dryer near children, they must be closely supervised. Do not let young children or persons with impaired physical, sensory, or mental abilities use this device alone without supervision

and guidance. Please take care of young children to prevent them from playing with this device. This safety regulation applies to all equipment.

Do not reach into the drum of the dryer, especially when the dryer drum is rotating. Such behavior has serious safety hazards, and if not avoided, it will cause serious personal injury or death.

When the outer panel of the dryer is disassembled or damaged, the dryer must not be operated. Do not modify any safety devices or modify control devices by yourself.

This dryer can only be used for the specified purpose. Do not bake hard objects in the machine, otherwise it may cause serious damage to the drum.

To avoid machine corrosion and component failure, do not use corrosive chemicals in the machine.

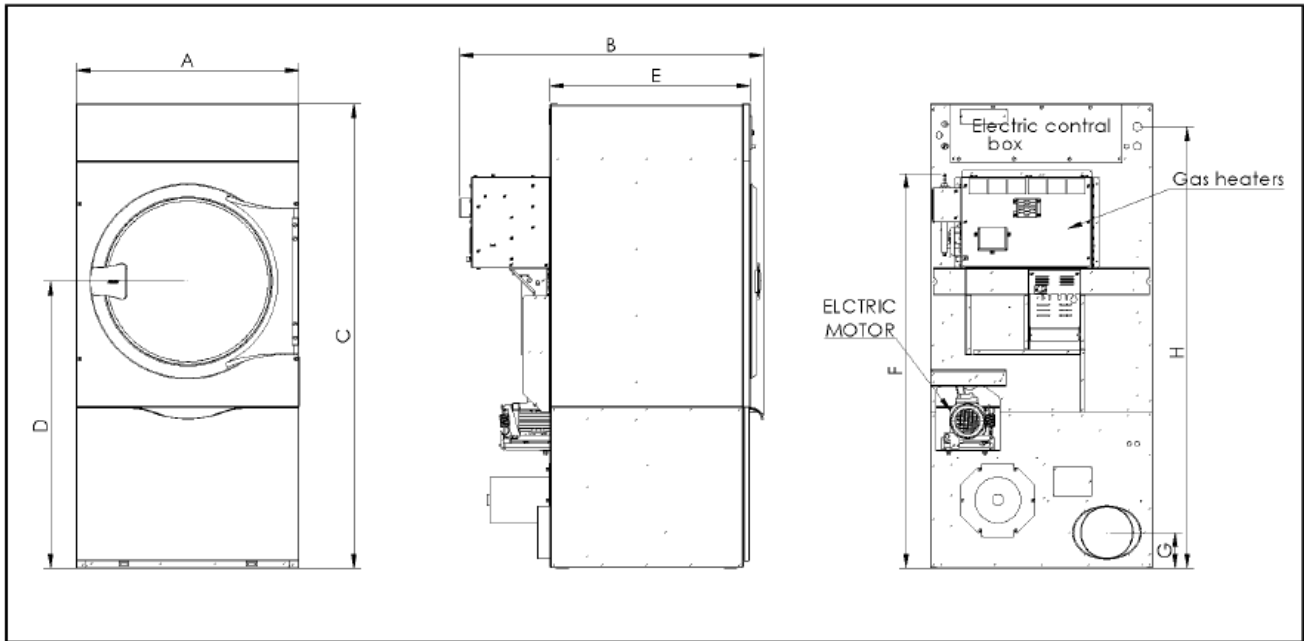
**Be sure to follow the fabric care instructions provided by the textile manufacturer.**

Before running the dryer, be sure to close the sealed door tightly. Do not allow the dryer to operate with the sealed door open by avoiding the loading door switch.

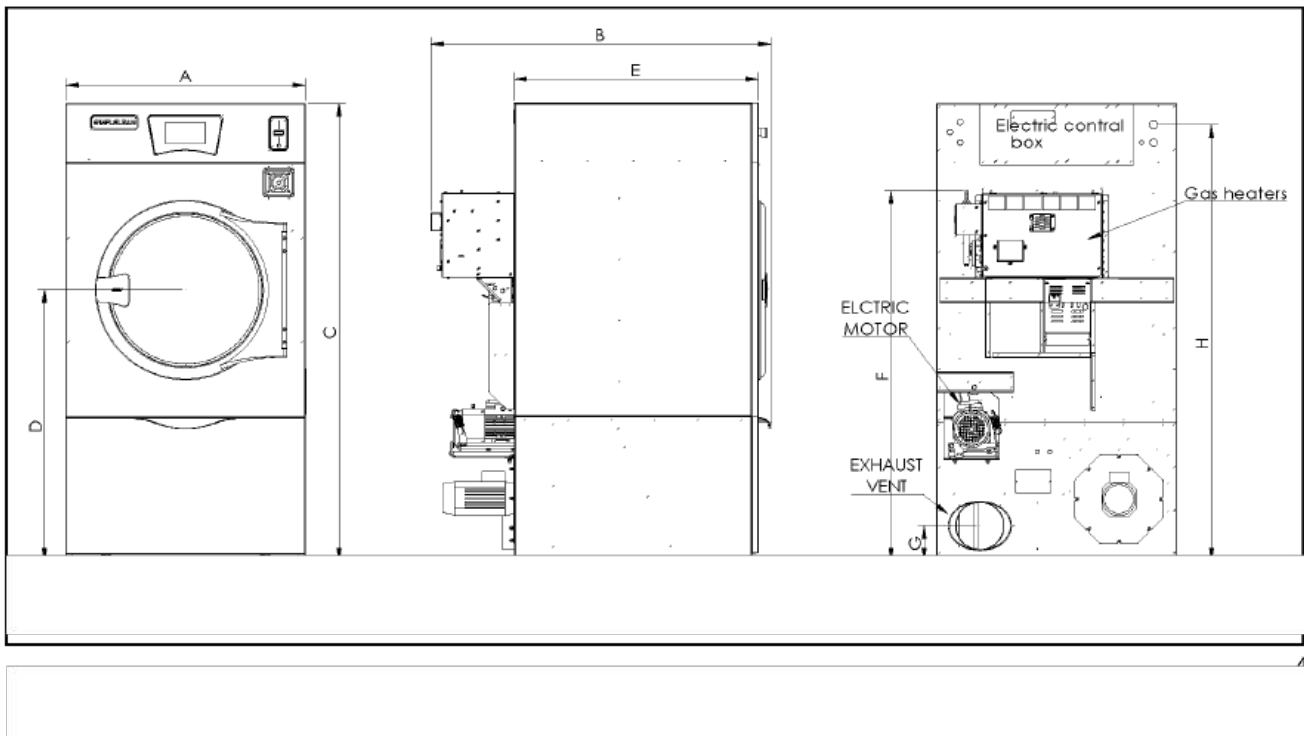
Please be sure to try to open the loading door after all moving parts of the dryer have stopped.

**Do not touch the inner part of the drum, the back panel, and the heating box to prevent burns when the machine is running or just after the machine is running.**

## 2. Installation



### 2.1 Machine models and dimension



机型	EC12DS	EC16DS	EC19DS	EC22DS	EC27DS	EC33DS
重量 (KG)	139	158.5	170	178	197.5	220
A (mm)	805	805	805	805	945	945
B (mm)	1044	1100	1340	1266	1240	1340
C (mm)	1683	1683	1683	1683	1800	1800
D (mm)	1037	1037	1037	1037	1065	1065
E (mm)	594	724	880	890	860	960
F (mm)	1426	1426	1426	1426	1456	1456
G (mm)	117	117	117	117	139	139
H (mm)	1594	1594	1594	1594	1715	1715

## 2.2 Installation requirements

<b>A (mini. gap machine to machine)</b>		5mm
<b>B (mini. for machine moving)</b>		5mm
<b>C (top mini. distance)</b>	<b>Removable panle</b>	0mm
	<b>Fixed panel</b>	50mm
<b>D (mini. clearance)</b>		300mm
<b>E (maintenance purpose)</b>		700mm
<b>F (door open mini. distance)</b>		750mm

## 2.3 Wiring

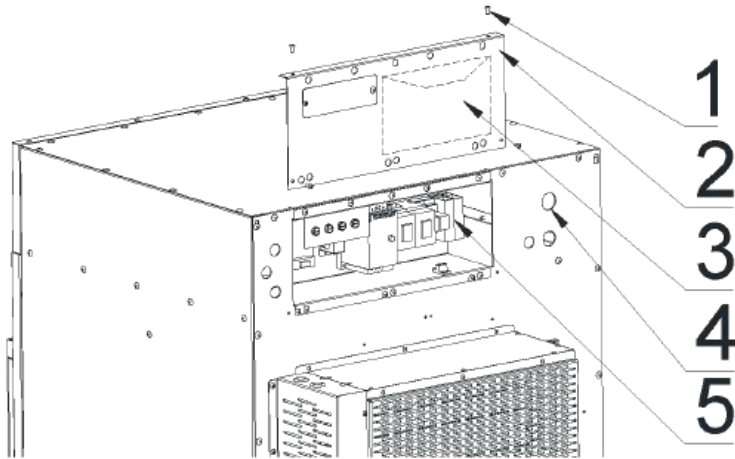
Remove the screws, open the cover of the electric box from left to right, and connect the incoming wire to the power switch through the wire hole. Wiring refer to the electrical schematic diagram (included with the machine) Please refer to Table 2 to select cables according to local electricity standards.

Do not use cables that do not meet the standards to avoid damage to the machine and Personnel.

Model	Heating	Rated KW	Rated PH	Rated V	Rated A
EC12DS	Electric	11.12	14.91	220	50.55
				380	21.12
EC12DS	GAS	0.62	0.84	220	2.82
				380	1.18
EC16DS	Electric	11.12	14.91	220	50.55
				380	21.12
EC16DS	GAS	0.62	0.84	220	2.82
				380	1.18
EC19DS	Electric	11.12	14.91	220	50.55
				380	21.22
EC19DS	GAS	0.62	0.84	220	2.82
				380	1.18
EC22DS	Electric	14.12	18.94	220	64.19
				380	26.82
EC22DS	GAS	0.62	0.84	220	2.82
				380	1.18
EC27DS	Electric	21.1	28.29	220	95.91
				380	40.08
EC27DS	GAS	1.3	1.75	220	5.91
				380	2.47
EC33DS	Electric	26.5	35.53	220	120.46
				380	50.33
EC33DS	GAS	1.3	1.75	220	5.91



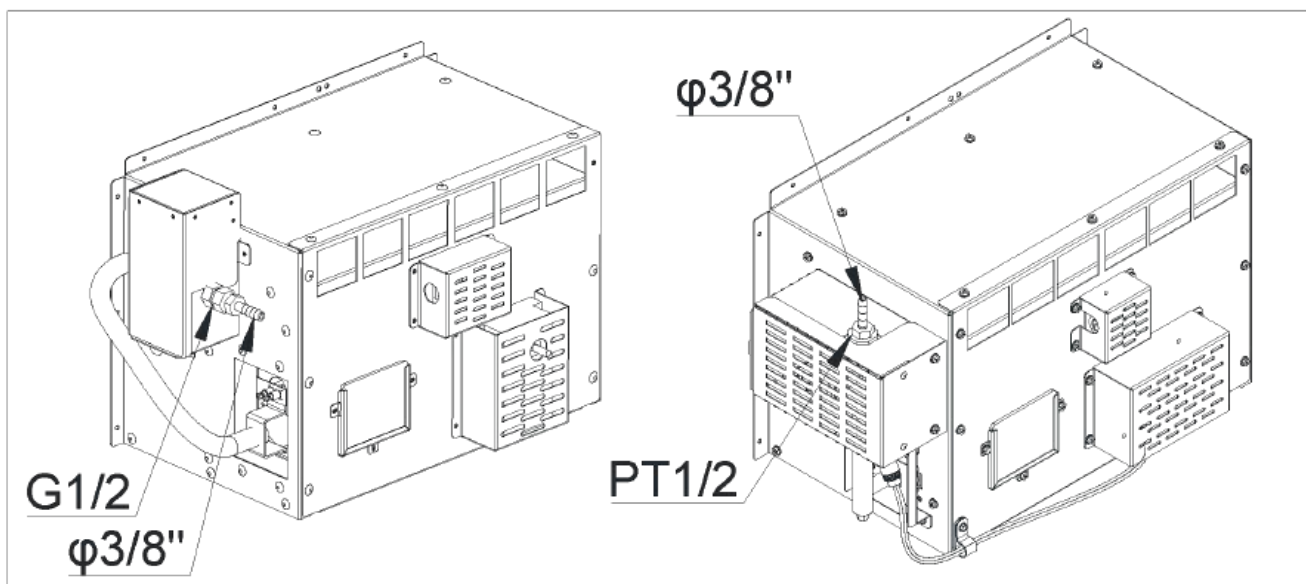
1. Screw
2. Cover
3. Diagram
4. Cable inlet
5. Terminal



## 2.4 Heating connection

Gas heating type machines need to arrange gas pipes in advance. The size of the gas pipe connection of the gas heating box is shown in Figure 12, and the space position is shown in “2.1 Machine models and dimension”.

If the gas pipeline terminal interface is a hose, the hose can be directly connected to the gas pipe joint, and the connection must be fixed with a hose clamp for safety. If the pipe end is a hard pipe, the gas pipe joint of G1/2 or PT1/2 (determined according to the gas valve model) can be used for connection



## 2.5 Piping

### 2.5.1 Gas piping

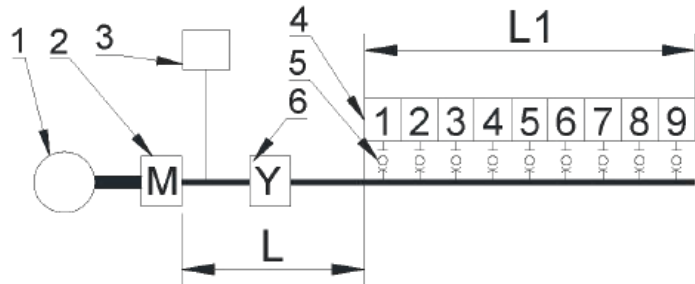
Gas heating type dryers need to arrange gas pipes in advance, refer to Table 3,4

<b>Model</b>	EC12/16/19/22/27/22DS
<b>Gas Max Pressure PSI[Kpa]</b>	0.85[6]
<b>Adjustable rang IN.W.C.[Kpa]</b>	0.4-14.8[0.1-3.7]
<b>BTU/hr.</b>	116580BTU/hr (123MJ/hr)

### EMERSON:

<b>Model</b>	SDS15/20/25
<b>Max Pressure PSI[Kpa]</b>	1/2[3.5]
<b>NG Adjustable rang IN.W.C.[Kpa]</b>	2.5-5[0.6-1.2]
<b>LPG Adjustable rang IN.W.C.[Kpa]</b>	7-12[1.7-2.9]
<b>BTU/hr</b>	116580BTU/hr (123MJ/hr)

1. Main regulator
2. Gas meter
3. Gas space heater
4. Machine
5. Sediment traps ,supply pressure taps and shut-off valves
6. Two stage pressure reducing valve



## Pipe Size Calculation

Equivalent length = Total length of main gas supply pipe to far end of dryer  
 $= L + L1$

Total Btu/hr. = Sum of the Btu/hrs. of all dryer  
 SDS15 = 116580 Btu/hr. x 9 machines  
 $= 1049220 \text{ Btu/hr.} \times 0.6 \text{ (LPG)}$   
 $= 629532 \text{ Btu/hr.}$

**Low Pressure Gas Pipe Sizes**

**NOTE: Sizing calculations based on National Fuel Gas Code.**

**Gas Pipe Size Required For 1000 BTU Natural Gas (Standard Conditions) at Upstream Pressure-7.0±1.5 inches water column pressure(17.4±4.0 mbar,1.74±0.37kpaz)**

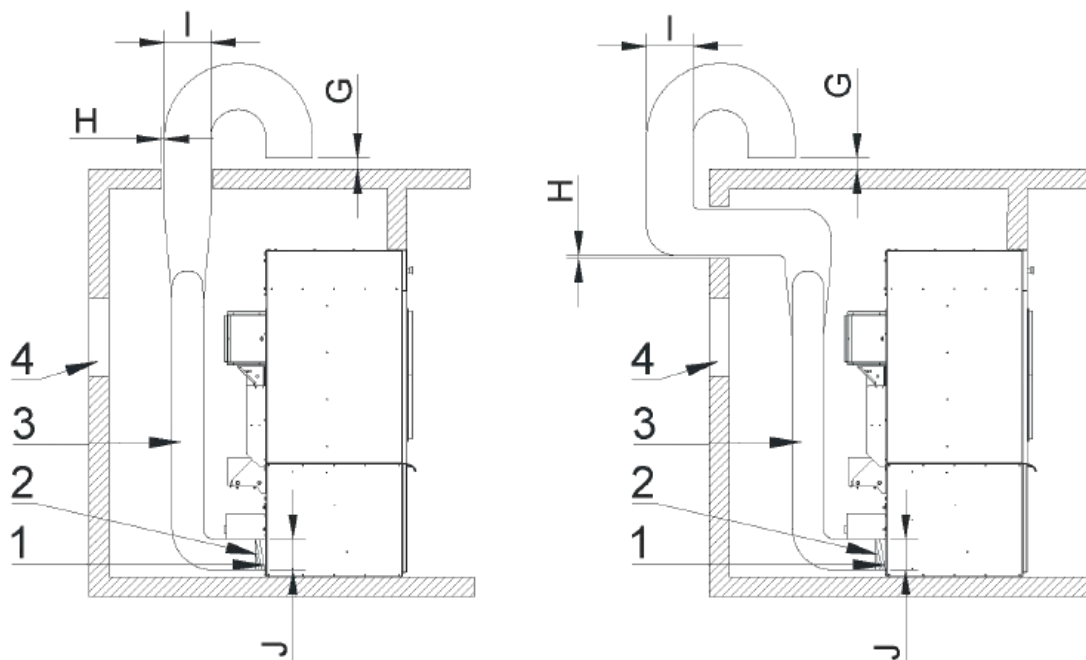
Gas Appliances Total BTU/hr.	Equivalent Length					
	25 feet (7.6m)	50 feet (15.2m)	75 feet (22.9m)	100 feet (30.5m)	125 feet (38.1m)	150 feet (45.7m)
	Based on 0.3 inches Water Column Pressure Drop for Length Given Sizes Shown in Gas Pipe Nominal Size (NPT)					
100000	3/4	3/4	3/4	1	1	1
120000	3/4	3/4	1	1	1	1
140000	3/4	1	1	1	1	1
160000	3/4	1	1	1	1-1/4	1-1/4
180000	3/4	1	1	1-1/4	1-1/4	1-1/4
200000	1	1	1	1-1/4	1-1/4	1-1/4
300000	1	1-1/4	1-1/4	1-1/4	1-1/2	1-1/2
400000	1-1/4	1-1/4	1-1/2	1-1/2	1-1/2	1-1/2
500000	1-1/4	1-1/2	1-1/2	1-1/2	1-1/2	2
600000	1-1/4	1-1/2	1-1/2	2	2	2
700000	1-1/2	1-1/2	2	2	2	2
800000	1-1/2	1-1/2	2	2	2	2
900000	1-1/2	2	2	2	2	2-1/2
1000000	1-1/2	2	2	2	2-1/2	2-1/2
1100000	1-1/2	2	2	2	2-1/2	2-1/2
1200000	1-1/2	2	2	2	2-1/2	2-1/2
1300000	2	2	2-1/2	2	2-1/2	2-1/2
1400000	2	2	2-1/2	2	2-1/2	2-1/2
1500000	2	2	2-1/2	2	2-1/2	2-1/2
1600000	2	2	2-1/2	2-1/2	2-1/2	3
1700000	2	2-1/2	2-1/2	2-1/2	3	3

1800000	2	2-1/2	2-1/2	2-1/2	3	3
1900000	2	2-1/2	2-1/2	3	3	3
2000000	2	2-1/2	2-1/2	3	3	3
2200000	2	2-1/2	3	3	3	3
2400000	2-1/2	2-1/2	3	3	3	3-1/2
<b>Gas Pipe Size Required For 1000 BTU Natural Gas (Standard Conditions) at Upstream Pressure-7.0±1.5 inches water column pressure(17.4±4.0 mbar,1.74±0.37kpaz)</b>						
<b>Gas Appliances</b>  <b>Total BTU/hr.</b>	<b>Equivalent Length</b>					
	<b>25 feet</b> <b>(7.6m)</b>	<b>50 feet</b> <b>(15.2m)</b>	<b>75 feet</b> <b>(22.9m)</b>	<b>100 feet</b> <b>(30.5m)</b>	<b>125 feet</b> <b>(38.1m)</b>	<b>150 feet</b> <b>(45.7m)</b>
<b>Based on 0.3 inches Water Column Pressure Drop for Length Given Sizes Shown in Gas Pipe Nominal Size (NPT)</b>						
2600000	2-1/2	2-1/2	3	3	3-1/2	3-1/2
2800000	2-1/2	3	3	3	3-1/2	3-1/2
3000000	2-1/2	3	3	3-1/2	3-1/2	3-1/2
<b>For L.P.Gas,correct the total BTU/hr. by multiplying it by 0.6. The answer is the equivalent. BTU on the above chart</b>						

## 2.5.2 Make up air

Tumble dryer needs make-up air to replace air exhausted by tumble dryer.

Required Make-Up Air Opening (to the outside) for Each Dryer			
Model	Diameter of vent MM	Max Air Flow C.F.M(I/sec)	Opening in. <sup>2</sup> (cm <sup>2</sup> )
EC12DS/16DS/19DS / 22DS	163	400 (190)	55 (355)
EC27DS/33DS	190	1007 (475)	209 (1350)



1. Exhaust air outlet
2. Hose clamp and sealing tape
3. Exhaust pipe
4. Air window

- G. Mini. distance 900mm
- H. Mini. distance 50mm
- I. Main pipe depending on machine quantity
- J. 190mm

**Individual Venting: For the best efficiency and performance, it's preferred to exhaust tumble dryer individually to the outdoor**

Maximum exhaust length : 14 feet [4.3m] with (2) 90° Elbow  
 Diameter of round duct +10% of each 20 feet [6.1m] additional  
 Cross section area of rectangular duct +20% for each 20 feet [6.1m] additional

**Equivalent Length calculation**

A 12 inch [305mm] diameter duct's equivalent length of 14 feet [4.3m] of duct

and two 90° elbow is

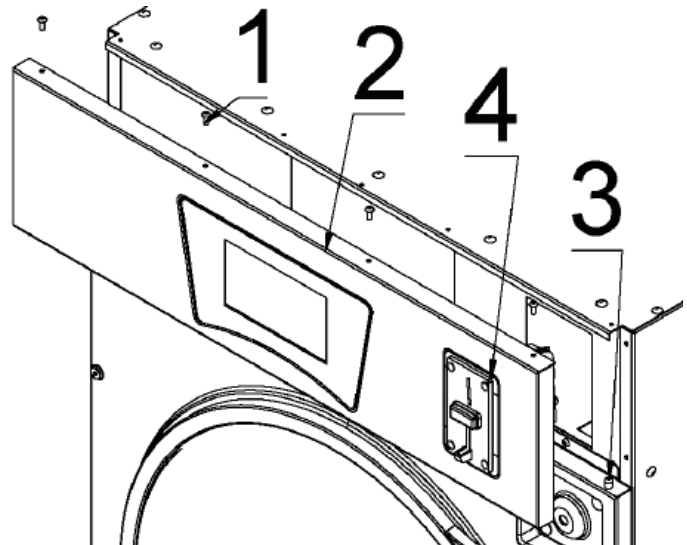
= 14 ft. [4.3m] + (2) 90° elbow

= 14 ft (4.3m) +14 ft (4.3m) +14 ft (4.3m) = 42 ft (12.9m)

Duct Diameter	相对直线的等效长度
8inch (203mm)	一个 90° elbow= 9.3 ft (2.8m)
10inch (254mm)	一个 90° elbow= = 11.6ft (3.5m)
12inch (305mm)	一个 90° elbow= = 14ft (4.3m)
14inch (356mm)	一个 90° elbow= = 16ft (4.9m)
16inch (406mm)	一个 90° elbow= = 18.7ft (5.7m)
18inch (457mm)	一个 90° elbow= = 21ft (6.4m)
Euqivalent length (m) = 1.17 x Diameter (mm)	

### 3. Debugging

1. Screw
2. Control panel
3. Pin
4. Coin acceptor



#### 3.1 Debug coin acceptor

1. Before using coin-operated machine, you need to adjust the coin acceptor currency and coin amount according to your personal needs.
2. Take off the four screws on the panel.
3. Push up the panel, then take off the panel, you can see the coin acceptor.

For specific debugging method of coin acceptor, please refer to "Instruction of coin acceptor".



### 3.2 Debug drying program

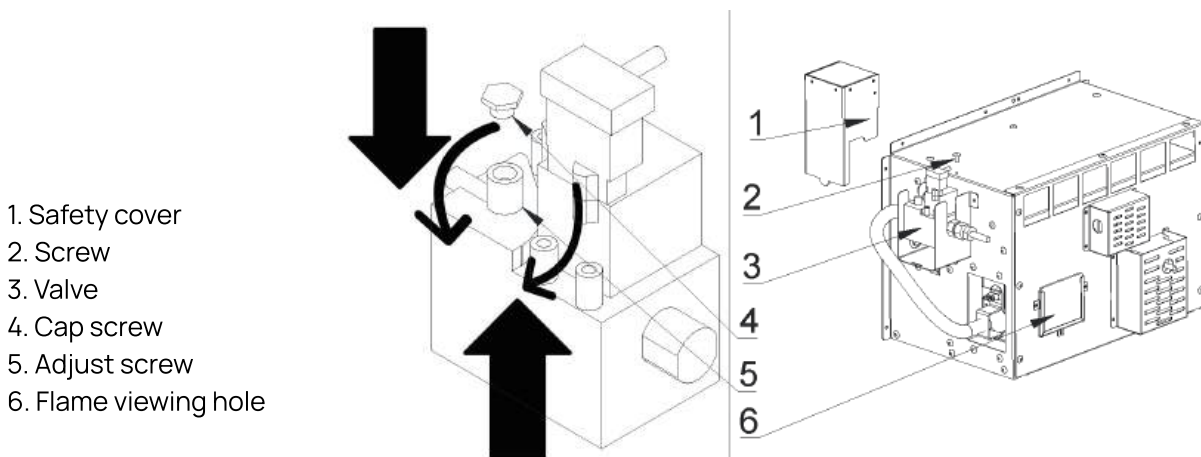
Due to the environmental impact of various regions, the drying effect under the same drying procedure will be affected. The user needs to adjust the machine drying program: drying time, drying temperature, etc. Please refer to "Computer Board Instructions" for specific adjustment.

If there are abnormal phenomena during the debugging process, please refer to "5.2 Common Faults and Solutions".

### 3.3 Debug gas valve

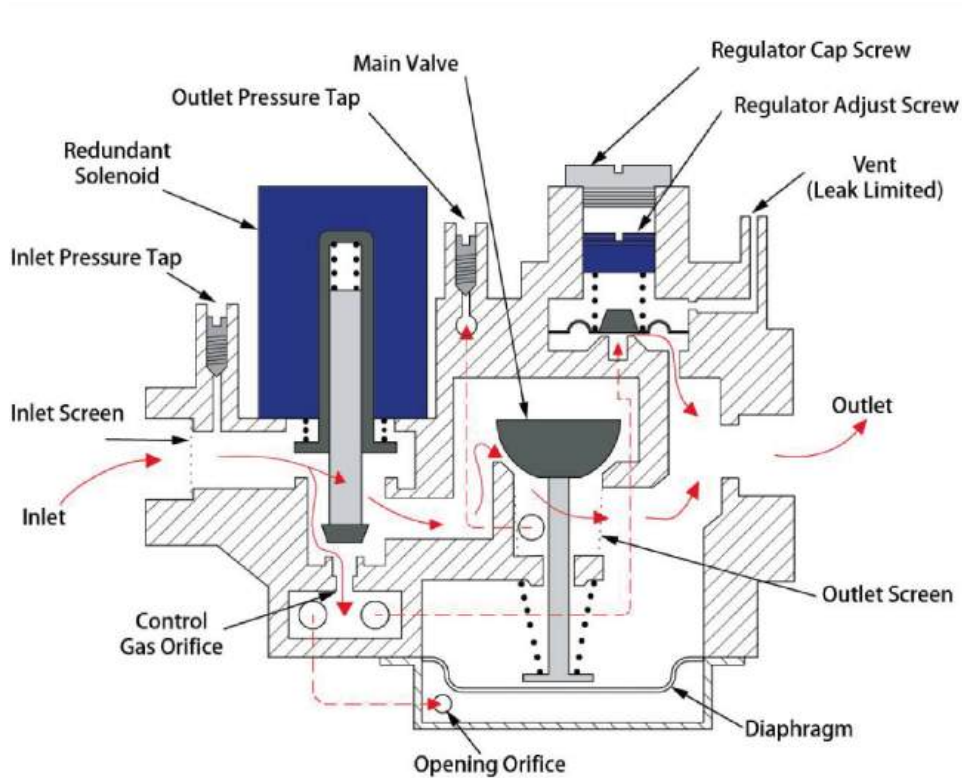
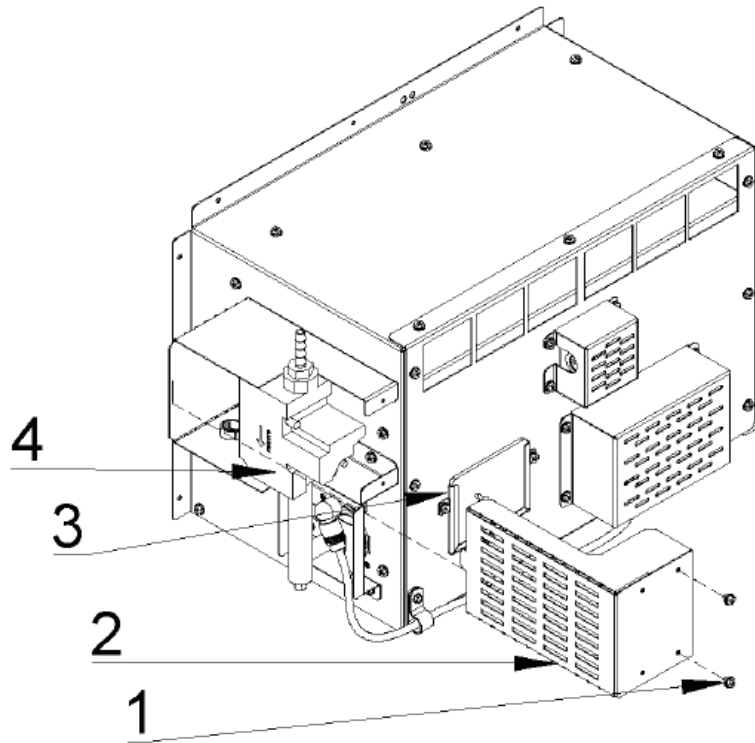
The pressure of the gas control valve has been debugged before leaving the factory, and generally does not need to be adjusted. If it is found that the heating box is abnormally burning through the flame observation hole and the gas pipeline pressure is normal, the gas control valve can be adjusted to adjust the flame.

#### EMERSON:



Remove the protective cover, unscrew the gas control valve screw, turn the adjusting screw clockwise to increase the pressure, and turn the adjusting screw counterclockwise to decrease the pressure.

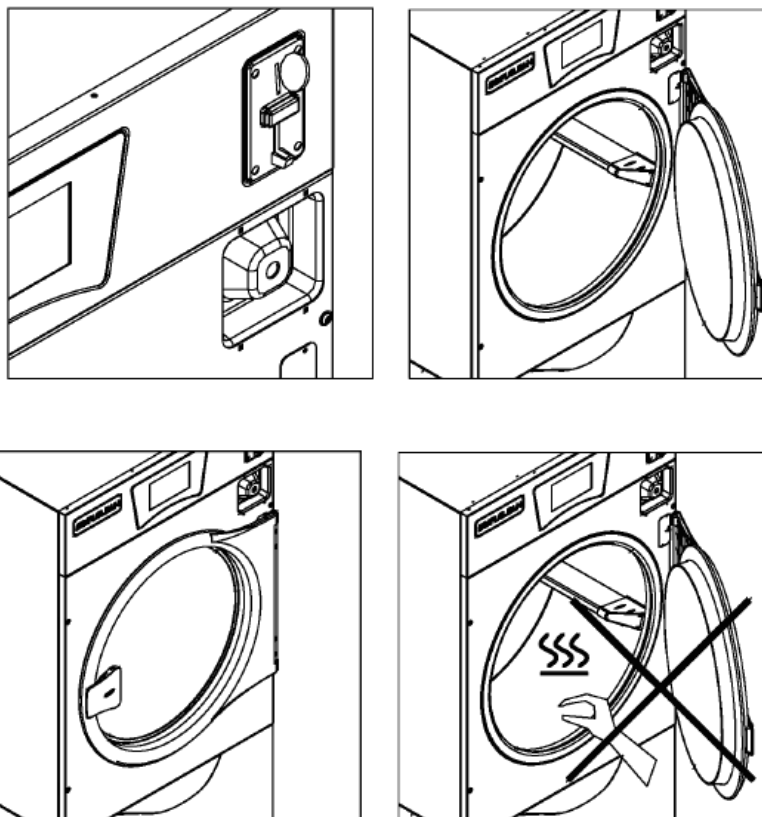
- 1. Screw
- 2. safety cover
- 3. gas control valve
- 4. flame viewing hole



## 4. Simple Operation

1. Confirm that the power supply, exhaust ducts, and gas ducts (gas heating type) are installed correctly, and that there are no foreign objects in the machine's inner drum and no dangerous goods around the machine.
2. Insert Coins (skip this step for non-coins)
3. Open the door
4. Put in clothes
5. Close the door
6. Start and run
7. Open the door after the standby device has completely stopped running
8. Take out the clothes

**Note: Do not touch the inner drum before confirming that the temperature has dropped to a safe value to avoid burns.**



## **5. Simple Operation**

### **5.1 Daily cleaning and maintenance**

Only use low-foaming, non-foaming industrial cleaners to clean the inner drum. Make sure that the cleaning agent is rinsed to avoid the damage of the garment from direct contact between the inner drum and the clothes. After cleaning, wipe the machine clean in time.

It is recommended that users conduct inspection and maintenance on the following facilities within a fixed period:

The lint collector regularly cleans fluff according to the degree of use.

Check whether there is any foreign matter remaining inside the machine once a day.

Check whether the coin acceptor of the coin-operated machine is working normally and the gas pipeline tightness is checked once a month.

Whether the sealing ring is aging or damaged, check it every six months.

Belts and exhaust ducts are inspected every twelve months.

### **5.2 Common faults and solutions**

#### **1. Ignition failure**

① The exhaust motor does not rotate in the direction indicated. Incoming power supply, two of the live wires exchange positions. (Single camera type does not exist in this case)

② No sparks are seen from the ignition needle.

The controller does not get voltage, check the upstream circuit.

The ignition high-tension wire is broken or broken. Use a universal changer to check whether the whole wire is connected.

The ignition needle touches the combustion tube, adjust the distance between the ignition needle and the combustion tube (3-5MM is best)

The control box is faulty. Replace the control box.

③ There is electric spark but no effective flame

The gas pressure does not match the ignition pressure. Install a pressure reducing valve to adjust to the best pressure.

The gas control valve cannot be opened. The gas control valve has no voltage, or the gas control valve is faulty

## **2. The direction of rotation of the inner liner of the dryer does not match the display direction.**

① Incoming power supply, two of the live wires exchange positions.  
(Single camera type does not exist in this case)

## **3. Damper failure**

① The exhaust motor does not rotate in the direction indicated.  
Incoming power supply, two of the live wires exchange positions. (Single camera type does not exist in this case)

② The wire of the air door micro switch is off. Check and insert it tightly.

③ The blockage resistance of the damper switch bracket is too large and cannot be closed. Clean up Clean or replace the bracket assembly if necessary.

## **4. The monitor has a blue screen, a black screen and a white screen.**

① Open the flip panel of the installation controller and check whether the back of the screen is damp. Wipe the water droplets and do moisture-proof treatment. Wait for a while before using it.

② Replace with a new connection line (display-front panel)

③ Replace with a new monitor.

## **5. The drive motor is overheated and the current is large.**

- ① Whether the motor wiring mode matches the model voltage.  
(220V delta connection method 380V star connection method)  
The optional inverter model is subject to the inverter output voltage.
- ② The resistance of the inner tank is large. The bearing is stuck and lacks oil. Replace bearing
- ③ The resistance of the inner tank is large. The belt rolls off, reinstall the belt and align it.
- ④ The resistance of the inner tank is large. The back plate squeezes the bottom of the inner liner, and it is difficult to rotate. The inner liner needs to be removed to eliminate the friction and extrusion failure.
- ⑤ Run at rated frequency. If the problem is not resolved, please contact your local agent or manufacturer.