BaiFu Air Heater

AH10

Designed for electrostatic disc sprayer, bell spray gun, and pneumatic tools. To prevent condensation water leakage and contamination hazards

Model	AH10
Power	800W
Temperature control	Automatic Thermostat
Power supply	Single-phase AC 220 V
Rated current	3.7 A
Inlet/Outlet size	G1/2 BSPP,Ø15*21 Double-layer Hose
Max. temp. resistance	50 ℃
Max. air pressure	1 MPa
Inner tank material	Stainless steel
Part no.	708100
Dimensions	L425 × W135 × H157 mm
Net weight	7 kg
Max. airflow capacity*1	Max. 800 L/min

*1(Measurement conditions: Air pressure 2.5 kg, Set temperature 55 ℃, Inlet temperature 23 ℃, Outlet temperature 31–51 ℃)

Safety precautions

- The normal operating temperature of the heater should generally be set at around 35°C, and should not exceed 50°C
- The heater control box must be properly grounded during installation, and kept away from ovens and explosive gases.
- Before servicing the heater control box, power must be switched off to prevent accident.

Operating instructions

- Switch on the heater power and set it to the appropriate temperature level according to the scale. The main control box supplies the operating power and directly controls the startup and shutdown of the heater.
- When the outlet air temperature exceeds the thermostat set value, the heater's heating element power supply will automatically shut off. When the outlet air temperature falls below the thermostat set value, the heating element power supply will automatically reconnect.

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Condensation Prevention Guidelines

Core Temperature Setting Principles

- Based on dew point temperature: The heating temperature must be at least 3℃ above the ambient dew point.
- Compensate for air expansion cooling: Compressed air expands rapidly, causing a sharp temperature drop, which requires additional compensation.

Expansion process (P1 > P2), the temperature change can be expressed as:
Since the expansion causes a pressure drop (**P2/P1 < 1**) and the exponent is positive, the result is **T2 < T1**, meaning the temperature decreases after expansion.

Calculation formula:

$$T_2 = T_1 \times \left(\frac{P_2}{P_1}\right)^{\frac{\gamma-1}{\gamma}}$$

T1 = Air temperature after heating (K)
P1 = Air pressure after heating (MPa)
P2 = Air pressure after expansion (take 1 MPa at atmospheric pressure)
γ = 1.4 (specific heat ratio of air)
Example: At 0.4 MPa pressure, heated to 30℃ → temperature drops to -43℃ after expansion. Therefore, the heating temperature must be set above 50℃ to prevent condensation.

Operation steps

- Measure ambient dew point (using a dew point meter or wet-and-dry bulb thermometer).
- Calculate required post-expansion temperature (dew point + 5–8℃ as safety margin).
- Verify equipment temperature limits (must not exceed 45℃).

Typical recommend heating setting

Environment	Dew Point (℃)	Air Pressure (Gauge)	Heating Temp (℃)	Post-Expansion Temp (℃)
Northern dry summer	10–15	0.3 MPa	25-30	15-20
Southern humid summer	20–26	0.3 MPa	35-40	25-30
Humid winter workshop	5–10	0.3 MPa	30-35	20-25

Precaution

- Dynamic adjustment: In case of sudden humidity increase, automatically raise heating temperature by 2–5℃.
- Equipment compatibility: For temperature-sensitive parts (e.g., plastics), monitor with infrared thermometer to avoid overheating.
- Auxiliary drying: Combine with compressed air purging to further reduce condensation risk.

Conclusion

Optimal heating temperature must be determined using a 3 - steps method:
Dew point measurement → Expansion cooling calculation → Safety margin addition.
For Southern humid summers, typical settings are 35–40℃, balancing expansion compensation with equipment safety. Quarterly calibration of dew point meters and parameter optimization based on production data are recommended for balancing energy efficiency and condensation prevention.

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