

## explosion-proof circulation heating thermostat with cooling

Explosion-proof circulation heating thermostat is a kind of high-precision temperature control device suitable for flammable and explosive hazardous places, with the ability of automatic temperature rise and rapid cooling two-way adjustment.

### Explosion-Proof Circulation Heating Thermostat

The explosion-proof circulation heating thermostat is engineered for safe and stable operation in hazardous environments. With a fully enclosed circulating structure, pressure-resistant and corrosion-resistant components, and an explosion-proof electrical system, it ensures reliable performance in explosive gas atmospheres and supports air-cooled and water-cooled condensation modes.

### Features

1. **Built for hazardous environments:** All electrical components, junction boxes, and operating systems comply with explosion-proof specifications, ensuring safe operation in explosive gas environments.
2. **Wide temperature range operation:** Operates reliably from  $-40^{\circ}\text{C}$  to  $+200^{\circ}\text{C}$ , suitable for hot and cold alternating reaction needs.



3. **Integrated module design:** Integrates refrigeration, heating, circulation, and intelligent control in one compact system for highly synergistic functions.
4. **Dual condensing modes:** Air-cooled for independent operation, water-cooled for centralized factory cooling, both energy-saving and efficient.
5. **Precise intelligent control:** Supports fixed value and multi-stage program temperature control, with a built-in 7-inch touch screen for real-time display and curve tracking.
6. **Powerful program control:** Configure up to 120 groups of temperature programs, each with 100 segments. Supports linear temperature rise/fall, insulation segment conversion, and complex process control.
7. **Strong communication and integration:** RS485 and MODBUS RTU protocol support, enabling access to DCS and PLC systems for remote monitoring.
8. **Multiple safety protection:** Over-temperature, over-current, delayed start, high-voltage alarm, thermal protection, fault shutdown, and more for comprehensive safety.
9. **Stable fluid circulation:** Liquid level monitoring and expansion tank automatic adjustment maintain heat transfer fluid stability and prevent leaks or backflow.
10. **Excellent material selection:** Key components use 304 stainless steel and polymer explosion-proof materials, providing resistance to corrosion, pressure, low and high temperatures.

## Working Principle

1. **Refrigeration mechanism:** Uses rolling rotor compressor refrigeration; refrigerant undergoes compression, condensation, throttling, and evaporation to absorb heat and achieve rapid cooling. Condenser options include air-cooled finned and water-cooled coaxial tube heat exchangers.
2. **Heating mechanism:** Flange-type thermal oil heater inserted into heat-carrying medium for rapid, uniform heating with quick response, able to maintain up to 200°C.
3. **Fluid circulation principle:** High/low temperature resistant shielded pump drives heat transfer fluid in a closed high-speed loop. Expansion vessel absorbs/releases volume changes due to thermal expansion for stable operation.
4. **Control logic:** PID algorithm automatically adjusts heating/cooling power for precise temperature control. Supports fixed value/program control, uniform temperature rise/fall, heat preservation, and real-time data logging. Touch screen displays set temperature, actual temperature, running time, and fault status.

explosion-proof circulation heating thermostat with cooling

Model	HC20-18(W)	HC20-11(W)	HC20-7(W)
Temperature range	-40°C to +200°C		
Temperature stability	±0.5°C		

explosion-proof circulation heating thermostat with cooling

<b>Model</b>	<b>HC20-18(W)</b>	<b>HC20-11(W)</b>	<b>HC20-7(W)</b>
Overall power	5.7kw	11.1kw	18.6kw
Cooling power at 200°C	12kw	6kw	3kw
Cooling power at 100°C	8.6kw	6kw	3kw
Cooling power at 25°C	5.8kw	4.5kw	2.4kw
Cooling power at -10°C	4.5kw	4.2kw	1.4kw
Cooling power at -20°C	3.5kw	3.2kw	1.2kw
Cooling power at -30°C	2kw	2kw	0.85kw
Cooling power at -40°C	1.1kw	1.1kw	0.25kw
Heater Rated Power	12kw	6kw	3kw
Cooling method	air cooling or water cooling		
refrigerants	R404A		

explosion-proof circulation heating thermostat with cooling

<b>Model</b>	<b>HC20-18(W)</b>	<b>HC20-11(W)</b>	<b>HC20-7(W)</b>
Circulation pump Flow rate	45L per minute	30L per minute	25L per minute
Circulation pump Pressure	1.4bar		
Circulation Interface Size	R3/4		
Maximum viscosity of heat-carrying medium	30cp		
Noise level	68db	65db	68db
communication interface	usb, RS485		
protection class	IP20		
contamination level	2		
Environmental temperature	5°C to 35°C		
Power supply	380Vac, 50Hz, 3 phase		

explosion-proof circulation heating thermostat with cooling

<b>Model</b>	<b>HC20-18(W)</b>	<b>HC20-11(W)</b>	<b>HC20-7(W)</b>
Current	33A	20A	10.5A
Electrical Connection Methods	three-phase four-wire system		
External dimensions	755Wx1300Dx1795H mm		655Wx1000Dx1480H mm
Weight	460kg	430kg	270kg