Pulse Jet Bag Filter

I. Working Process

The pulse jet bag filter is a highly efficient and stable dust purification device, adopting the core process of "inertial settling+ bag filtration + pulse jet cleaning". Relying on a complete housing structure and jet cleaning system, it achieves highly efficient interception, purification, and collection of various types of dust. It is applicable to dust control scenarios with different air volumes and temperatures, and delivers consistently compliant purification performance.

Core process flow: Dust-laden gas enters the lower chamber of the dust collector through the air inlet. Coarser dust particles fall directly into the hopper by inertia, completing the primary settling purification. The remaining dust-laden gas flows upward through the filter bags in the middle chamber, where dust is retained on the outer surface of the bags. The purified clean air enters the upper chamber from inside the bags, passes through the bag outlets and valve plate openings into the static pressure chamber, and is finally discharged into the atmosphere by the exhaust fan. As filtration continues, dust accumulation on the bag surfaces increases and the resistance of the dust collector gradually rises. When the resistance reaches the set value, the cleaning controller issues an instruction to first close the lifting valve plate to cut off the filter airflow, then delivers high-pressure air into the bags via pulse solenoid valves, causing the bags to expand rapidly and shake vigorously, dislodging the adhered dust into the hopper. The jet cleaning system cleans each bag in sequence to ensure the bags maintain good filtration performance at all times. The dust in the hopper is discharged into the dust collection bin (cart) through the motorized rotary valve, completing the entire dust collection cycle.

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II. Key Parameters

Treatment Process: Inertial settling + bag filtration + pulse jet cleaning

Equipment Structure: Comprised of five parts: upper chamber, middle chamber, lower chamber, ash discharge system, and jet cleaning system

Jet Cleaning System: Includes pulse controller, pulse valves, jet pipes, and air tank

Filter Media Options: Glass fiber needled felt (≤240℃), polyester needled felt (≤120℃), aramid needled felt(≤200℃), polypropylene needled felt (≤90℃)

Purification Efficiency: ≥99.9% (capable of efficiently capturing fine dust particles)

Cleaning Method: Pulse jet cleaning, bag-by-bag sequential cleaning, fully automatic control

Ash Discharge Method: Motorized rotary valve discharge, with dust collection bin (cart)

Applicable Temperature: Continuous operating temperature range 90℃~240℃ depending on filter media selected

Applicable Air Volume: Customizable as required to suit different treatment scale needs

Control Method: Automatic control by cleaning controller, capable of triggering cleaning automatically based on resistance

III. Operating Instructions

1. Pre-start Inspection: Check the sealing condition of each chamber, whether the filter bags are firmly installed, and whether the pulse valves and jet pipes are tightly connected. Confirm that the motorized rotary valve and fan are operating normally. Based on the temperature of the dust-laden gas, verify that the selected filter media meets the requirements; if the gas temperature exceeds the allowable temperature of the media, cooling measures must be taken first.

2. Start-up Operation: Start the exhaust fan first; once the airflow inside the equipment stabilizes, the unit enters normal filtration mode. Set the cleaning trigger resistance value or cleaning interval according to the amount of dust generated, to ensure timely cleaning and prevent filter bag clogging.

3. Operational Monitoring: Continuously monitor the dust collector resistance, fan operating parameters, and filter bag condition. If resistance rises abnormally, check for damaged or clogged filter bags or cleaning system faults. If dust leakage occurs, promptly inspect the chamber seals and filter bags.

4.Routine Maintenance: Regularly clean the dust collection bin (cart) to prevent overflow from accumulation. Periodically inspect filter bags and replace them promptly if damage, aging, or blinding occurs. Regularly inspect the pulse controller, pulse valves, and jet pipes to ensure the cleaning system operates properly. Periodically check the motorized rotary valve to ensure smooth ash discharge and prevent excessive hopper buildup.

5. Safety Precautions: Do not disassemble the chambers, filter bags, or jet cleaning system during equipment operation to prevent dust leakage. When handling high-temperature gas, strictly control the inlet temperature to avoid exceeding the allowable range of the filter media and prevent bag damage. When handling combustible or explosive dust, take anti-static measures and keep open flames away from the equipment. When shutting down, first close the air inlet, allow the fan to continue running for a period to expel residual dust, then shut off the fan, and finally clean out the hopper dust.

IV. Product Advantages

1.**High purification efficiency with stable dust removal performance**: Using bag filtration technology, it effectively captures all types of fine dust particles with a purification

efficiency of ⩾99.9%, meeting stringent dust emission requirements and suitable for high-concentration, multi-type dust control.

2.**Excellent cleaning performance with extended filter bag life**: The pulse jet cleaning method cleans each bag in sequence, thoroughly and with minimal damage to the bags, effectively extending filter bag service life. Multiple filter media options are available to suit different temperature conditions, providing strong practicality.

3.**High air volume capacity with broad adaptability**: The equipment features a rational structure and can increase air handling capacity through modular combination, adapting to different scales from small workshops to large production lines, with a wide range of applications.

4.**Safe, reliable operation with convenient maintenance**: Automatic cleaning control eliminates manual cleaning, reducing maintenance workload. The mature equipment structure offers excellent sealing and stable operation; routine maintenance requires only periodic dust cleaning and filter bag inspection and replacement.

5.**Standard structure with smooth ash discharge**: The upper/middle/lower split chamber design provides a reasonably sized hopper. Combined with the motorized rotary valve, ash discharge is smooth, preventing dust accumulation and clogging, and ensuring continuous and stable equipment operation.

V. Applicable Industries

Widely applicable to various industrial dust and fume control scenarios, covering **steel, metallurgy, foundry, cement, building materials, chemical, mining, mechanical processing, grain processing, power generation, waste incineration, and wood working** industries. It can handle metallurgical dust, cement dust, mining dust, mechanical processing dust, grain dust, waste incineration fumes, and various other types of dust. It is particularly suitable for high-concentration dust control with varying temperature requirements, and is one of the core dust purification devices in industrial production.

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