Centralized Dust/Workshop Welding Fume Collector

I. Working Process

The centralized workshop welding fume dust collector is a custom-engineered device designed for comprehensive welding fume control in workshops. It adopts a core "Centralized Collection + Centralized Purification" mode, suitable for scenarios with fixed exhaust sources requiring flexible suction. Its core logic is to achieve omnidirectional coverage through movable suction arms, concentrating the welding fumes, dust, and harmful gases generated by welding, cutting, and other processes in the workshop. These are collected via the main duct and fed into a large centralized dust collector for deep purification, ultimately achieving harmless treatment of welding fumes. The main unit is installed outside the factory building to minimize disruption to production while maximizing workshop space utilization.

The specific workflow is as follows: welding fumes generated at each welding and cutting station in the workshop are precisely captured by movable suction arms, then conveyed through the duct work to the centralized dust collector. The collector purifies the dust and harmful gases in the welding fumes through filtration, adsorption, and other processes. After reaching emission standards, the cleaned air is discharged. Simultaneously, welding fume recovery and reuse is achieved, ensuring a clean workshop environment and improving resource utilization.

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II. Core Parameters

Treatment Process: Centralized welding fume collection + large-scale centralized dust collector purification, equipped with movable suction arms and main duct conveying system;

Purification Efficiency: Welding fume removal rate ⩾95%, harmful gas purification rate ⩾90%, no significant welding fume diffusion;

Suction Device: Movable suction arms (freely position able and flexibly adjustable), main duct adapted to workshop layout;

Main Unit Configuration: Large centralized dust collector and centrifugal fan, install able outside the factory building, occupying no interior workshop space;

Operating Parameters: Suction arms adjustable 360°, duct work adapted to workshop layout, no significant air pressure fluctuation;

Applicable Scenarios: Overall workshop welding fume treatment; main duct layout can be customized according to workshop size and workstation distribution.

III. Operating Instructions

Before starting, check that the suction arms, duct work, and dust collector are functioning properly. Ensure the suction arms move freely without obstruction, and that duct connections are tight and leak-free;

During operation, position the suction arms at the source of welding fumes to ensure complete capture and prevent escape;

During operation, regularly check the flexibility of suction arms and the sealing of duct work. Promptly clean dust from the suction inlets to prevent blockages;

Regularly clean the dust collector filter media and discharge ash residue; inspect the operating status of the fan and main unit to prevent equipment failure;

When shutting down, first stop the welding operations, allow the dust collector to continue running for 5 – 10 minutes, then shut down the main unit to ensure complete purification of welding fumes.

IV. Product Advantages

Strong Adaptability: Custom non-standard design allows flexible arrangement of suction arms and duct work based on workshop layout and workstation distribution, adaptable to workshops of different scales;

High Space Utilization: The main unit and fan are installed outside the factory building, freeing up interior workshop space and avoiding disruption to production operations;

Thorough Purification: Centralized purification design ensures complete removal of welding fumes and dust with no secondary pollution, meeting environmental emission requirements;

Convenient Operation: Suction arms can be freely moved and positioned to precisely capture welding fumes without frequent repositioning of equipment;

Energy-Saving and Efficient: Centralized purification reduces redundant equipment investment. External main unit placement lowers workshop noise, while welding fume recovery and reuse reduces operating costs.

V. Applicable Industries

Widely applied in **mechanical manufacturing, automotive parts processing, steel structure fabrication, shipbuilding, hardware processing, and electronics manufacturing** and other industries. Particularly suitable for workshops with multiple welding and cutting workstations where welding fumes are concentrated and overall purification is required. Effectively resolves problems such as pervasive welding fumes and dust dispersal in workshops, safeguarding workshop cleanliness and employee occupational health.

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