



SAND DISCHARGE UNIT

排沙机组



SAND REMOVAL UNIT / INDUSTRIAL SAND REMOVAL FAN
除沙机组 / 工业除沙风机

PRODUCT OVERVIEW

产品概述

The Sand Removal Unit (Dust Removal Unit) is a self-developed high-efficiency air filtration and purification device, specifically designed for high-sandstorm and high-dust working conditions. With a rated processing air volume, it features a front full-surface V-shaped louver inertial filtration structure, achieving a coarse sand interception efficiency of $\geq 98\%$. Equipped with an independent sand exhaust fan, it enables automatic sand discharge, eliminating the need for frequent filter replacement and significantly reducing operation and maintenance costs.

The unit adopts a modular combination design of "dust removal section + fan section," with an integrated welded cabinet combining the filter chamber, fan chamber, and dust collection chamber. It comes standard with a 45° guide elbow side air outlet. Constructed from 2.5mm carbon steel plates with outdoor spray-painted anti-corrosion treatment, the unit operates within a temperature range of -30°C to $+75^\circ\text{C}$, ensuring long-term stable performance in harsh environments such as desert fringes, gobi mining areas, and heavy industrial facilities.

Designed for sandy and dusty regions, this sand and dust filtration unit automatically removes various sand, dust, and other contaminants without the need for replacement parts or manual maintenance. It achieves over 90% removal efficiency for particles of 5 microns and up to 98% removal efficiency for particles of 10 microns.

排沙机组（除沙机组）自主研发的高效空气过滤净化设备，专为高风沙、高粉尘工况设计。产品额定处理风量，采用正面整面 V 型百叶惯性过滤结构，粗沙拦截效率 $\geq 98\%$ ，搭配独立排沙风机实现自动排沙功能，无需频繁更换滤网，大幅降低运维成本。

机组采用「除沙段 + 风机段」模块化组合设计，过滤仓、风机仓、集灰仓一体化焊接柜体，标配 45° 导流弯头侧出风口。整机以 2.5mm 碳钢板材制造，户外喷塑防腐处理，适用温度范围 -30°C 至 $+75^\circ\text{C}$ ，可长期稳定运行于沙漠边缘、戈壁矿区、重工业企业等严苛工况环境。

沙尘过滤机组适用于多风沙地区，可以自动去除各类沙尘、灰尘等污染物，无需更换备件，免人工维护，5 微米颗粒除效率达 90% 以上，10 微米颗粒去除效率达 98%。

PRODUCT FEATURES

产品特点

High-Efficiency Sand Removal — V-Shaped Louver Inertial Filtration

Adopts a full-front V-shaped louver intake screen, utilizing airflow inertial force to achieve physical separation of sand and dust from air. Coarse sand interception efficiency $\geq 98\%$, effectively protecting the fan impeller and duct system, reducing equipment wear. The louver structure is fluid-optimized, with system resistance of only 600–900Pa, balancing high efficiency and energy savings.

Automatic Sand Discharge — Independent Exhaust Fan

Equipped with an independent sand exhaust fan, operating separately from the main fan without mutual interference. Automatically discharges collected sand from the hopper, requiring no shutdown or manual cleaning. The discharge cycle can be flexibly adjusted based on working conditions, enabling unattended automatic operation.

Modular Design — Flexible Configuration

Adopts a "sand removal section + fan section" modular structure, with each unit relatively independent and allowing separate disassembly, inspection, and replacement. Can also be flexibly configured according to installation space and airflow requirements. The filter chamber, fan chamber, and dust hopper are integrally welded, offering a compact structure with a small footprint.

Low Maintenance Cost — Consumable-Free Design

Adopts pure physical inertial filtration, with no filter elements, bags, cartridges, or other consumables. The V-shaped louver screen is robust and durable, with a design life matching the unit itself, requiring no replacement throughout its service life. Only periodic inspection of the exhaust fan and cleaning of residual dust at the hopper bottom are needed. Annual maintenance costs are merely 10%–20% of traditional equipment.

High Durability — Suited for Harsh Environments

The entire unit features a 2.5mm thick carbon steel cabinet with full-penetration welds and high strength. The surface is treated with outdoor spray-painting for acid/alkali resistance and UV protection, suitable for coastal areas, chemical plants, and other highly corrosive environments. Operating temperature

range: -30°C to $+75^{\circ}\text{C}$, adapting to extreme cold, high heat, and other severe climates. The fan impeller is dynamic-balanced, ensuring low vibration and low noise.

Low-Noise Environmental Design

Optimized airflow duct design and V-shaped louver flow-guiding structure effectively reduce airflow turbulence noise. The standard 45° elbow side outlet further minimizes turbulence and jet noise. The entire unit operates at $\leq 75\text{ dB(A)}$, meeting factory boundary noise emission standards.

高效除沙 — V 型百叶惯性过滤

采用正面整面 V 型百叶进风滤网，利用气流惯性力实现沙尘与空气的物理分离。粗沙拦截效率 $\geq 98\%$ ，有效保护风机叶轮及管道，降低设备磨损。百叶结构经流体优化，系统阻力仅 $600\sim 900\text{Pa}$ ，兼顾高效与节能。

自动排沙 — 独立排沙风机

配备独立排沙风机，与主风机分离运行，互不干扰。自动将集灰斗内沙尘排出，无需停机、无需人工清灰。排沙周期可根据工况灵活设定，实现无人值守自动运行。

模块化设计 — 灵活组合

采用「除沙段 + 风机段」模块化结构，各单元相对独立，可单独拆装、检修和更换。也可根据安装空间和风量需求灵活配置。过滤仓、风机仓、集灰仓一体化焊接，结构紧凑、占地小。

低维护成本 — 无耗材设计

采用纯物理惯性过滤，无滤芯、无滤袋、无滤筒等任何耗材。V 型百叶滤网坚固耐用，设计寿命与机组同步，终身无需更换。仅需定期巡检排沙风机和清理斗底积尘，年维护成本仅为传统设备的 $10\%\sim 20\%$ 。

耐用性强 — 适应严苛环境

整机采用 2.5mm 厚碳钢柜体，焊缝饱满，强度高。表面经户外喷塑处理，耐酸碱、抗紫外，适用于沿海、化工厂等高腐蚀环境。适用温度 $-30^{\circ}\text{C}\sim +75^{\circ}\text{C}$ ，适应极寒、高温等极端气候。风机叶轮经动平衡校验，振动低、噪声小。

低噪声环保设计

优化风道流线和 V 型百叶导流结构，有效降低气流湍流噪声。标配 45° 弯头侧出风口，进一步减少紊流和射流噪声。整机运行噪声 $\leq 75\text{ dB(A)}$ ，满足厂界噪声排放标准。

UNIT SPECIFICATIONS

机组参数

MODEL 型号	AIR VOLUME (m³/h) 风量 (m³/h)	EXTERNAL STATIC PRESSURE (Pa) 机外余压 (pa)	OVERALL DIMENSIONS(mm) 整体尺寸 (mm)	INLET & OUTLET DIMENSIONS (mm) 进出风口尺寸 (mm)
SK304	4000	200	2200*900*1500	720*670
SK306	6000	200	2350*1100*1500	1000*750
SK308	8000	200	2350*1400*1500	1300*750
SK310	10000	200	2450*1700*1500	1600*750
SK312	12000	200	2450*1500*1800	1300*1100
SK314	14000	200	2500*1500*2150	1300*1450
SK316	16000	200	2500*1500*2150	1300*1450
SK318	18000	200	2500*1750*2200	1600*1450
SK320	20000	200	2500*1750*2200	1600*1450
SK324	24000	200	2750*2100*2150	1250*2000
SK328	28000	200	2750*2400*2150	1500*2300
SK332	32000	200	2850*2700*2150	1500*2600
SK336	36000	200	2850*3000*2150	1500*2900
SK340	40000	200	3000*2700*2650	1950*2600
SK348	48000	200	3100*2700*2850	2600*2150

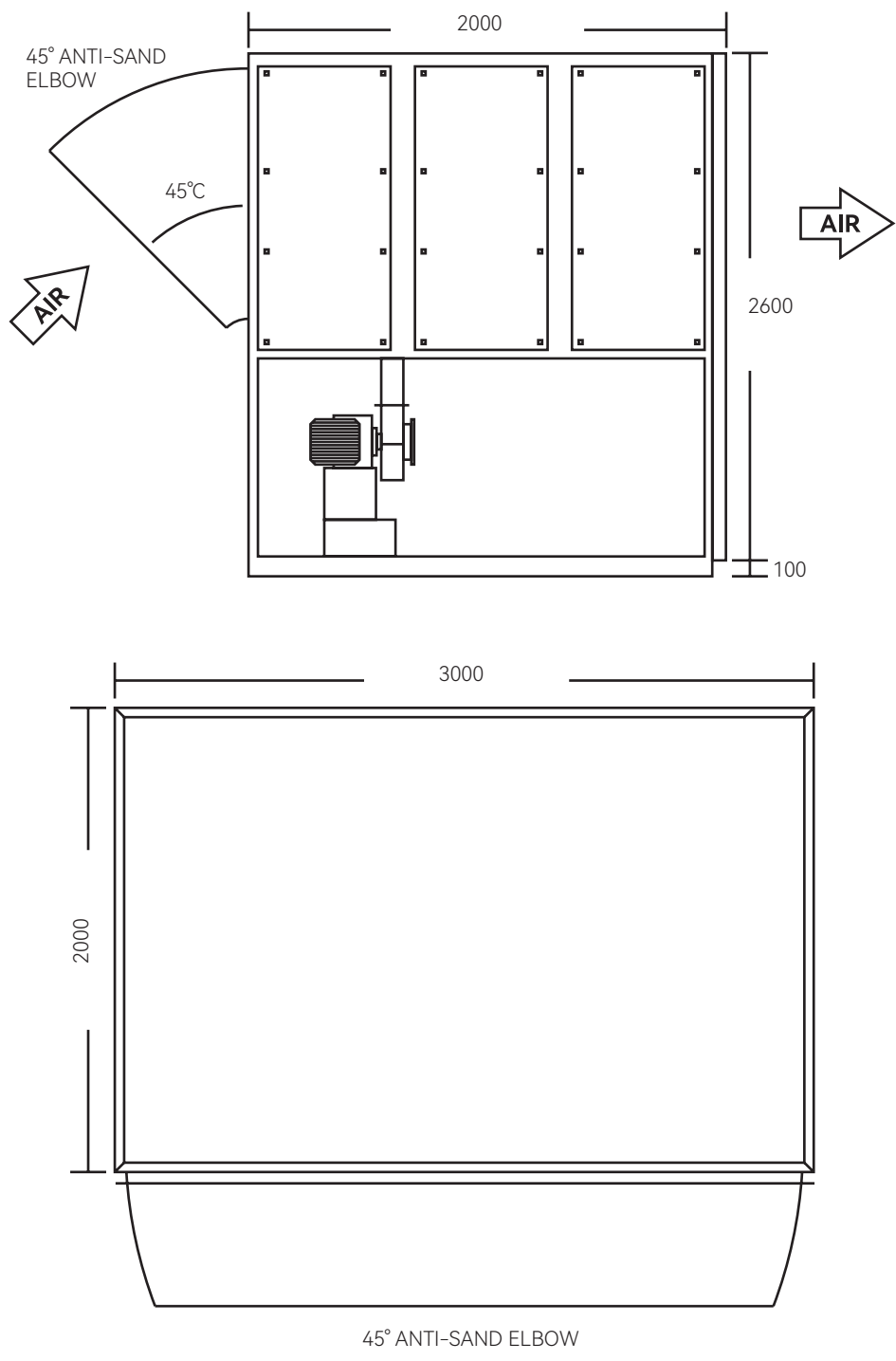
FILTRATION EFFICIENCY

过滤效率

PARTICLE SIZE FRACTION (µm) 分组粒径 µm	0.3	0.5	0.7	1	2	2.5	3	4	5	7	10
FRACTIONAL EFFICIENCY (%) 分组效率 %	0.55	0.61	0.665	0.715	0.823	0.85	0.881	0.927	0.956	0.974	0.99

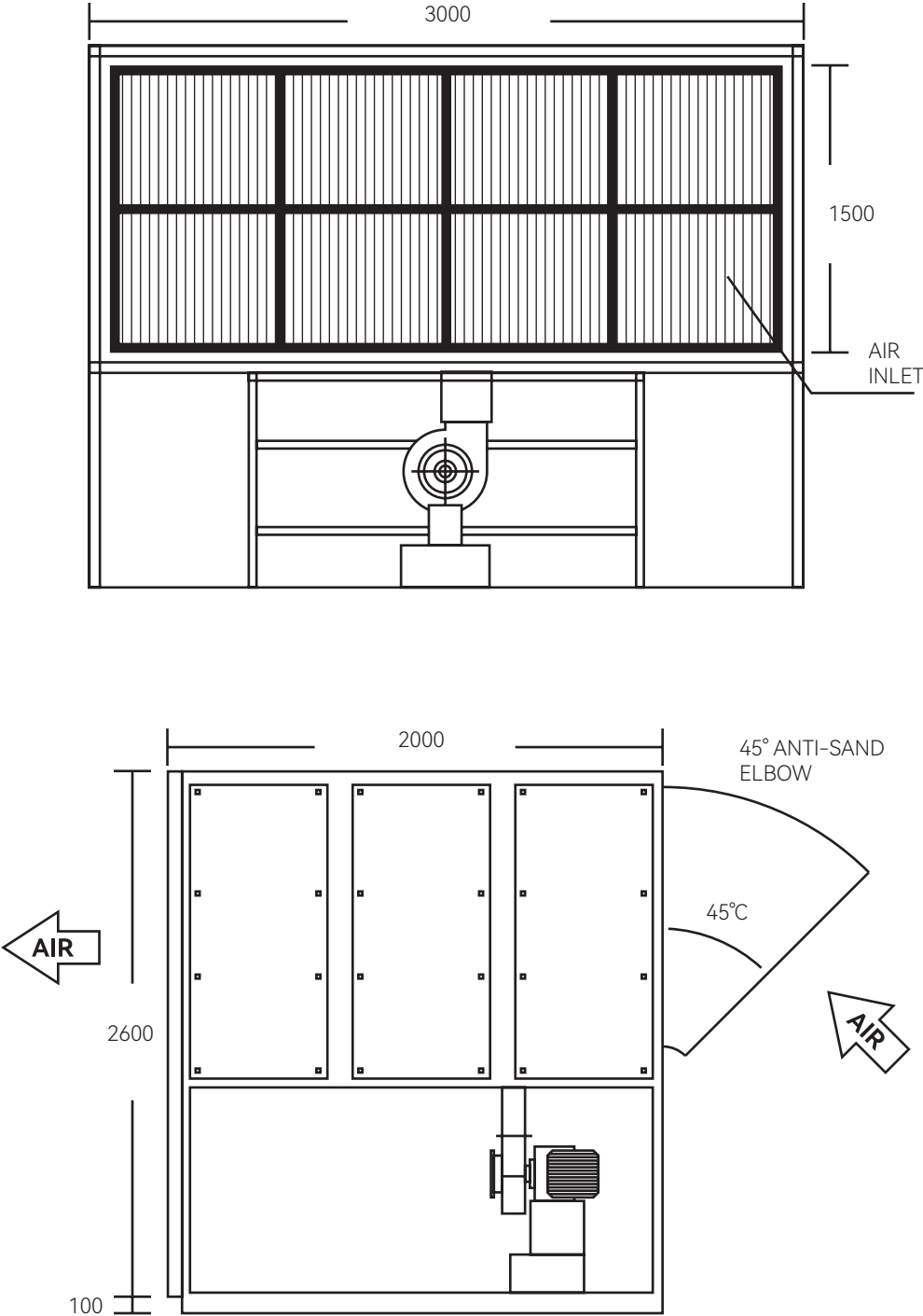
SAND REMOVAL UNIT DRAWING

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