



SDS 系列射流式通风机

SERIES JET FANS



浙江钜联风能机械有限公司

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本公司长期致力于产品技术的改进，技术手册所包含产品的规格及参数如有变动，恕不另行通知。
The company has ever been devoted to the improvement of the products' techniques for a long time. If the specification and parameter of the products in the change, the company will not further notice.

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COMPANY

INTRODUCTION 企业简介

浙江钜联风能机械有限公司位于杭甬高速上虞出口处（前身是上虞市日月风机有限公司，成立于1992年），专业从事各类专用特种风机、风冷设备的设计、开发、制造、安装及通风系统工程项目的承接。

公司注册商标为“钜联”。产品覆盖民用、电子、医药、纺织、化纤、烟草、轻工、钢铁、交通、核电、空调等行业，先进的制造检测设备和扎实的技术底蕴是公司开拓市场、立足市场的主要依托。

浙江钜联风能机械有限公司已通过ISO9001:2000质量认证体系和ISO14001:2004环境认证体系的认证，建立了完善的售后服务保证体系，秉承“以人为本，科技创新，共筑绿色生活环境”的企业精神，致力于为顾客提供技术先进、性能优良、质量可靠、最具性价比的产品和服务。

展望未来，钜联人将继续善尽职责，精益求精，勇于创新，为共创一个可持续发展的环境奠定坚实的基础。

Zhe jiang Julian Fengneng Machinery Co., Ltd (the original Shangyu City Riyue Fan Co.,Ltd, founded in 1992) is Located at the Shang yu exit of Hang-Yong Expressway. It is engaged specially in design ,development, manufacture, installation of special fan, wind-cooling equipment, and undertaking of ventilation system engineering project .

The company's products with trade marks of "Julian".Jun eng cover civil, electronic, medicine, textile, chemical fiber, tobacco, light industry, iron and steel, communications, nuclear power, air conditioning etc. Trades. The advanced equipment for manufacture and monitor, and solid technical base are the main backing, by which the company opens ap and has the markets.

zhejiang julian fengneng machinery co., Ltd has passed the authentications of ISO9001:2000 Quality certification system and Iso14001:2004 environmental certification, and established perfect after-saleservice system. Adhering to the enterprise spirit of " taking person as essence ,innovation by science and technology, jointly establishing green living environment", the company has been devoted to providing the customers with advanced techniques, excellent performance, reliable quality, and products and service with optimal performance-price ratio.

Looking forward to future, "JuLian" person will continuet to do their best in their duties, constantly impr0ve their work, to be brave in innovation, and lay solid foundation for joint creating sustainably developing environment.



SDS系列射流式通风机

SDS SERIES JET FAN

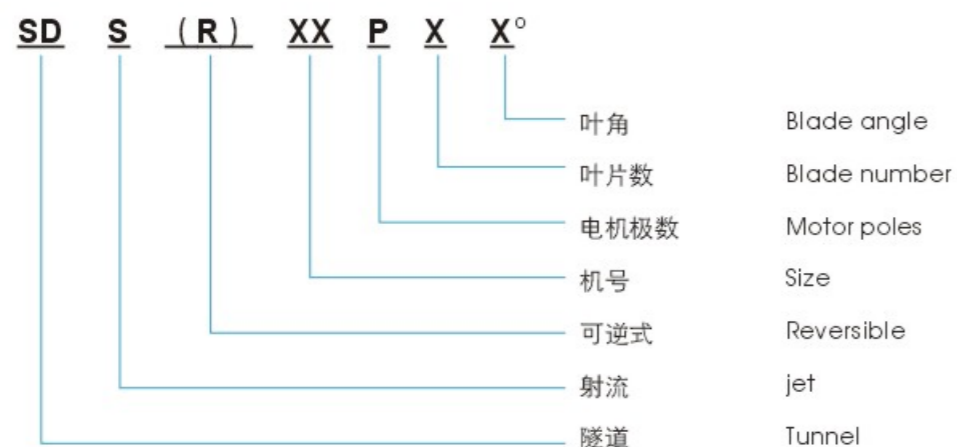
产品概述

SDS系列射流式通风机是地铁、公路隧道专用排风机，风机规格按叶轮直径自630mm~1600mm，分单向运转轴流风机和双向（可逆）运转轴流风机两大类，最大推力有3500N。SDS系列射流式通风机采用先进的制造工艺，风机外壳采用专用旋压机床一次成型，外表经热浸镀锌或其他等效涂装处理，外形美观并防腐性能优良；叶轮段内壁经金加工，既保证机壳的同轴度和强度，又保证叶片径向间隙，风机叶片、轮毂采用优质铝合金材料，分别在高、低压铸造机进行压铸成形。经公路隧道、铁路隧道等用户实际使用证明，该风机各项性能指标及耐腐蚀性、可靠性、经济性完全能适应各类隧道的使用。

Outline of products

SDS series jet type ventilator is a air exhaust fan specially for metro and road tunnel. Fan specification can be divided into both kinds of single direction axile fan and bi-direction (reversible) axile fan according to its impeller diameter from 630mm to 1600mm,with maximum driving force 3500N.SDS series jet type ventilator adopts advanced technical process, and fan shell was once formed by special spinning machine tool. Its outer surface is processed by hot dipping and galvanizing, and other similar processing the contour is pleasing to eye and has excellent corrosion-proof performance. Through metal processing, the inner wall of impeller section ensure the coaxiality and strength of the shell and the radial interval of impeller. Fan impeller and hub are made of high quality Al alloy. And formed by pressure casting of high and low pressure foundry machine. It is provedthrough use by the users of road tunnel and railway tunnel that the fan's various performance indexes,corrosion -proof performance, reliability and economy are fully suitable for its use in tunnel.

SDS系列射流式通风机代号表示 SDS SERIES JET FAN



说明：单向式风机型号为SDS

可逆式风机型号为SDS (R)

例1：SDS-6.3-2P-4-4°表示直径为630mm的射流风机，转速2900rpm，4叶片，安装角4°。

例2：SDS (R) -6.3-2P-4-4°表示直径为630mm的可逆式射流风机，转速2900rpm，4叶片，安装角4°。

Remarks:

Type SDS: unidirection jet fan

Type SDS(R): reversible jet fan

Example 1 :

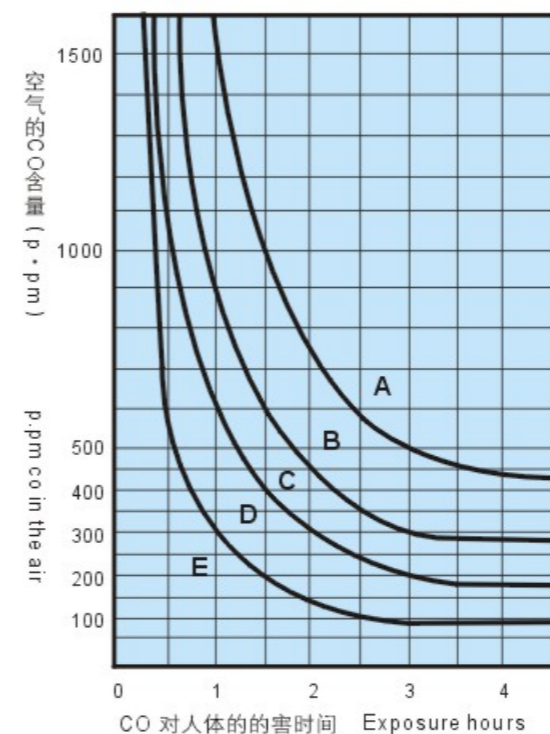
SDS-6.3-2P-4-4° means type SDS jet fan with diameter of 630mm, speed of 2900rpm, four blades, blade angle of 4 degree.

Example 2:

SDS (R) -6.3-2P-4-4° means type SDS (R) reversible jet fan with diameter of 630mm, speed of 2900rpm, four blades, blades angle of 4 degree.

SDS系列射流式通风机选型参考

SELECTION REFERENCE FOR SDS SERIES JET FAN



注:

A 致命

B 有害

C 头痛及恶心

D 有1%的影响

E 无影响

Note:

Lethal effects

Harmful effects

Headache & nausea

Perceptible effects

No perceptible effects

产品使用状况说明

在地铁、公路隧道、铁路隧道等基础工程建设中，其空气质量标准、安全因素靠风机强制通风达到要求。就通风系统而言，要长期保持良好的空气质量、否则对人体有害，如图说明。

Application condition explanation

In the construction of metro, highway tunnel and railway tunnel, the requirements of air quality and safety should be satisfied by means of mechanical ventilation, which should be in good performance for air quality, otherwise, would be harmful to health.

一氧化碳对人体危害程度说明:

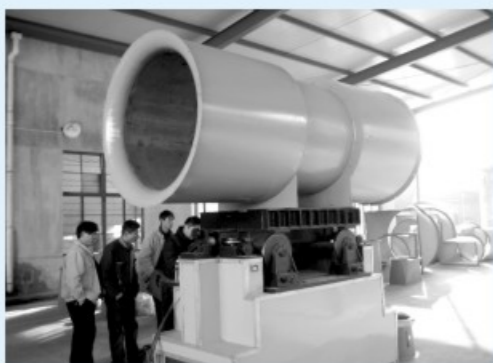
车辆连续地穿过隧道，使有毒气体不断增多，隧道内自然空气如不及时充分交换，必然导致对人体的危害（详见对人体影响危害时间的曲线图）。因此，必须通过强制通风，将足够的新鲜空气输入隧道内，同时排除有害气体。

地铁、铁路、公路隧道使用该风机，主要为降低CO的含量到允许值，以防止汽（柴）油发动机的废气污染，如NO、NO₂、NO₃。在紧急状况下，必须按要求控制烟雾排放，目前国际普遍采用WHO世界卫生组织的推荐值，即NO₂值替代原CO值作为通风控制的主要参数，同时还要保证车辆行驶的能见度和保证隧道内人员的逃避路径。所以，隧道通风系统必须保证事故状况下车辆和人员的安全。SDS系列风机其安全可靠、正反转、耐高温等特点均考虑了这一方面，特别在耐高温方面本公司是通过国家消防检测中心试验检测的（破坏性试验为300℃运行2小时不损坏），本公司在产品出厂前，对风机进行全性能试验，以确保产品质量。

◆ Explanation of the harmful effects of CO on people

The continuous passing of vehicles through tunnels will result in the increase of toxic gas within the confined spaces, which will be harmful to person, (Details seen from the cure according to the length of exposure time). Therefore, it shall be necessary to remove toxic gas and supply sufficient fresh air into the space by means of mechanical ventilation.

The purpose of the application of jet fan in metro, highway tunnel and railway tunnel is to reduce CO ppm to the acceptable level preventing from the exhaust gas pollution, i.e., No₂, No₃. The exhaust of smoke must be controlled according to the requirements in case of emergency, in which the criteria would be No₂ value recommended by WHO as a main index in ventilation control instead of CO, meanwhile, ensure the visibility for passing vehicles and emergency exits. The ventilation system in tunnel must ensure the safety of vehicle and people. The characteristics of SDS of reliability, reversibility and operation in high temperature are for the purpose of safety. The fan has passed the high temperature test by the National Fire Inspection Center (the destructive test is 300℃ /2hrs without any damage). Before delivery, the fan will be taken factor test, including performance, to the product quality.



推力试验 Thrust test



耐高温消防试验 High temperature fire test

● 隧道通风系统设计和产品选型依据

- 交通隧道原则上可分为三类：即地铁、公路隧道、铁路隧道。
- 常规运行及紧急状态下运行安全性、可靠性的先决条件是安装确保各系统之间协调并充分发挥作用的环控系统。

| | |
|-----------------------|----------------------|
| A 机械系统：通风、消防、排污 | B 动力系统：供电、输配电、紧急电力 |
| C 灯光系统：通灯照明、局部照明、荧光指示 | D 通信系统：电话、无线电、计算机终端 |
| E 交通系统：灯光、信号、标志、监视 | F 控制系统：交通状况和设备运行状况监控 |
- 隧道通风系统可以有如下三种基本方式或可采取混合方式。
 - 纵向通风系统：这是最基本的通风方式。新风气流从隧道入口端流向出口端，沿隧道纵向无需安装通风管道。该通风方式一般选用可逆转射流风机。将风机安装在隧道顶部或侧面，可二个方向全面通风，以达到双向通风或控制烟雾；若隧道较长则必须附加中央送、排风竖井，竖井与大气相联，组成混合通风方式。
 - 全面横向通风系统：沿隧道方向设置送、排风道，新风集中从风亭采集，排风集中从风塔排除，一般将送风道设置在路面以下，排风道设置在车道路上部，送风道与排风道每隔一定间距设有送、排风口，在事故工况下沿隧道横断面及时排风，由此抽出烟雾。
 - 半横向通风系统：该系统又可分为送风型半横向通风方式和排风型半横向通风方式，一般采用排风型半横向通风方式，新风从洞口进入，排风相似全横向通风系统。
- 隧道通风系统应考虑的因素：

| | | |
|--------|--------|--------------|
| A 工程投资 | B 电力容量 | C 运行费用 |
| C 空气质量 | E 安全因素 | F 紧急状态下的保证措施 |

上述因素经综合后确立最优方案
- 隧道通风系统通风机数量、机号选择的因素：

| | |
|----------------------------|----------------|
| A CO、NO _x 及烟雾浓度 | B 车流量（车辆密度、时速） |
| D 风力负荷（隧道长×宽×高） | D 废气排放（车龄、数量） |
| E 发生警时的应急措施 | |
- 隧道通风系统推力计算理论依据
 - 隧道通风系统推力计算依据

| | |
|--------------------------------|------------------|
| ◆ 入口出口阻力损失 | ◆ 隧道表面及设备磨擦系数 |
| ◆ 车辆磨擦系数（在最劣势的条件下计算车辆运动或活塞风效应） | |
| ◆ 最劣势条件下洞外风速对出、入口的影响 | ◆ 隧道地形、位置（坡度、海拔） |
| ◆ 发生火警时所需的推力（温度、压力、时间） | |
 - 隧道压降（Pa）理论转换为射流风机所需的推力（N）

| |
|--------------------------------|
| ◆ 射流式通风机的推力是风机进口与出口的动量变化，即风机推力 |
|--------------------------------|

$$N_i = C_v \times \text{质量流量} \times \text{气流速度} (N)$$

式中：Ns=风机静推力 (LSO) N值 C₁=经验修正系数

质量流量=空气密度×体积流量

◆ 隧道中使用的射流风机与隧道内气流之间的相对速度、隧道内摩擦系数和同组平行布置影响有关，所以，射流风机的有效推力为：

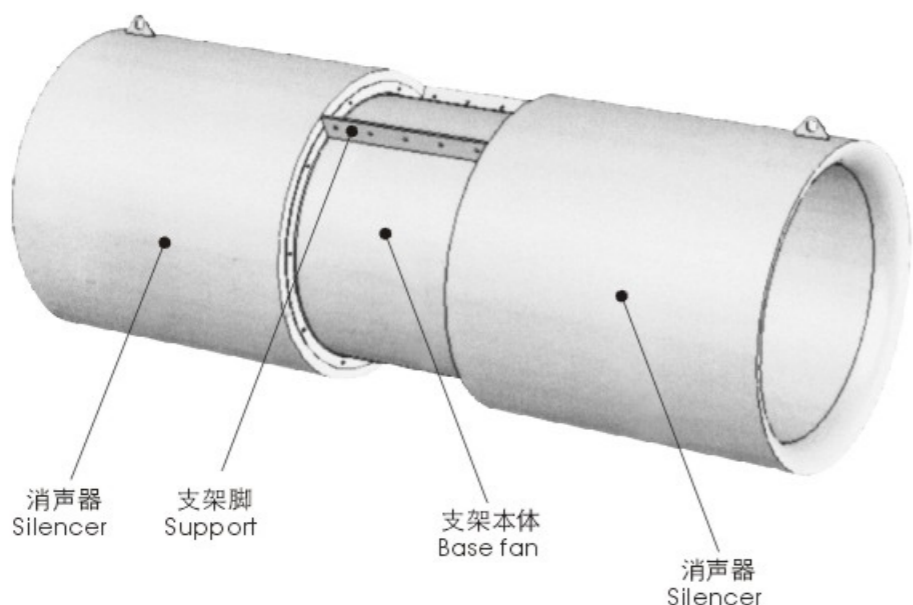
$$N_e = N_s \times (1 - V_t / V_i) C_2 \times C_3$$

式中：N_e=风机有效推力 (N) V_t=隧道内风速 (m/s)

V_i=射流速度 (m/s) C₂=隧道内摩擦系数

C₃=同组平行布置流向损失 (该损失如风机组之间相隔风机直径100倍，使射流速度不影响气流方向的运行条件可以不考虑)。

7、隧道通风系统应用通风机的结构特点



隧道式通风机分单向射流风机 (SDS) 和双向射流风机[SDS (R)]二种通风形式。

- ◆ 风机本体、消声器、支架脚：采用钢板数控自动焊接和机制成型，外表采用表面涂装处理，以保证风机强度和防腐蚀。
- ◆ 风机叶轮：为满足隧道通风的需要，SDS 系列风机可改变风机叶片数和改变风机叶片角度。
- ◆ 消声器：消声器长度通常为风机直径的一倍，当噪声要求高时，亦可以取风机直径的二倍，消声器与风机本体采用螺栓固定。
- ◆ 配套电机：SDS 系列射流式通风机配套电机为鼠笼全封闭式，电机设有法兰安装盘，电机绝缘等级为 H 级，防腐等级为 Ip55，电机引出电缆可接至风机本体机壳上的接线盒，电机带有润滑油脂嘴，外接金属软管至风机本体机壳上的润滑油脂嘴。
- ◆ 风机可逆切换时间：在紧急状态下，射流风机正反转切换时间极为重要，SDS (R) 型风机有电子式和机械式二种切换方法，可以在 30 秒钟内正反转切换到风机额定转速。

◎ SDS 系列射流式通风机试验检测

- ◆ 推力试验：采用推力试验装置测得。
- ◆ 高温消防试验：由公安部天津消防试验检测中心测试。
- ◆ 噪声测试：风机进出口装消声器和不装消声器均在空旷的场地上进行测试 (大气风速接近 0 时)，风机声压级的测试为沿风机轴线 45° 角距风机壳 10m 处测得。
- ◆ 风机效率：风机运行效率采用测定推力 (N) 及电机输入功率 (KW) 为定义。该试验检测严格按国家、行业有关标准进行，并经省级、国家级权威监督机构试验检测。

◎ Tunnel Ventilation Systems and Selection Basis

1. There are 3 main kinds tunnels, i.e. Metro, road tunnel and railway tunnel.
2. The precondition of safe operation and reliability at normal and emergency condition shall be coordination between different systems and functional environmental control system.
 - A. Mechanical system: ventilation, fire fighting, drainage
 - B. Power system: power supply, transmission, emergency power

- C Lighting system: general lighting, local lighting, fluorescence indicator
- D Communication system: telephone, radio, computer terminal
- E Traffic signal system: signal, sign, monitoring
- F Control system: traffic and equipment operation condition monitoring

3. There are 3 kinds of tunnel ventilation:

- Longitudinal ventilation: It is a basic kind of ventilation suitable for SDS(R), in which the air moves from entrance to the exit in the tunnel. SDS(R) jet fan can be mounted on the top or the wall of the tunnel to provide both forward and backward direction in ventilation and smoke control. For longer tunnel, the system should be supplemented with central exhaust/supply ventilation station as station hybrid solution, connected by shaft to atmosphere.
- Fully transverse ventilation: The fully transverse ventilation system direction employs centralized exhaust and supply ventilation ducts along the length of the tunnel. The fresh air ducts normally collected from the air station and runs at a lower road level while the exhaust duct runs at a higher level. Inlet and exhaust grilles are distributed along the ventilation ducts. Ventilation under emergency conditions normally would be provided by the exhaust system only, thereby providing smoke extract combined with a longitudinal velocity in the tunnel cross section.
- Semi-transverse ventilation: The semi-transverse ventilation system can be of the supply or exhaust type. Exhaust type semi-transverse ventilation system normally can be used with the fresh airflow moving from the tunnel entrance portal, similar with transverse ventilation system.

4. The factors for the design of the tunnel ventilation:

- Engineering investment
- Power capacity
- Operating expenses
- Air quality
- Safety
- Measurement under the emergency conditions

The above factors should be taken into account integrally for optimization.

5. The selection of fan quantity and size for tunnel ventilation system

- CO, NOx and smoke concentrations
- Flow volume of vehicles (traffic density, traffic speed)
- Wind load (length of tunnel*width *height)
- Pollution gas exhaust (vehicle age, quantity)
- Measurement under the fire conditions

6. Thrust calculation basis for tunnel ventilation systems

- ◆ Thrust calculation
- Entrance and exit resistance.
- Tunnel friction (surface, installations)
- Friction factor of vehicle (vehicle movement or piston under the worst condition)
- Effects of air velocity outside the tunnel on entrance and exit under the worst condition
- Tunnel land forms and location (gradients, altitude)
- Thrust required in emergency/fire (temperature, pressure, time)

◆ The calculated tunnel pressure drop (Pa) is converted into a requirement in thrust (N) from the installed jet fans:

The thrust of the jet fan the change in momentum from fan inlet to discharge, and can be written as:

$$\text{Fan thrust } N_s = C_1 * (\text{mass flow}) * (\text{air velocity}) \quad (\text{N})$$

$$\text{where } N_s = \text{fan static thrust (LSO) } \quad (\text{N})$$

$$C_1 = \text{empirical correction factor}$$

$$\text{Mass flow} = (\text{air density}) * (\text{volumetric flow})$$

The effective thrust imposed by the jet fan on the tunnel is based on the jet velocity relative to the tunnel air velocity, also an impact by jet friction on the tunnel wall side or by effects from other parallel jet fans installed within the same group of fans.

The effective fan thrust can be written:

$$N_e = N_s * (1 - V_r/V_i) C_2 * C_3$$

$$\text{where } N_e = \text{effective fan thrust (N)}$$

$$V_r = \text{tunnel air velocity (m/s)}$$

$$V_i = \text{jet velocity (m/s)}$$

$$C_2 = \text{installation factor, tunnel wall}$$

$$C_3 = \text{installation factor, Parallel fan distance within one group (The spacing between groups$$

should be kept at a minimum of 1 00 fan diameters in order for jet velocity not to affect the performance of the down-stream mounted fans) .

7、Structural Features of Jet Fan for Tunnel Ventilation Systems

Jet fan has two ventilation types, SDS uni-directional jet fan and SDS (R) bi-directional jet fan.

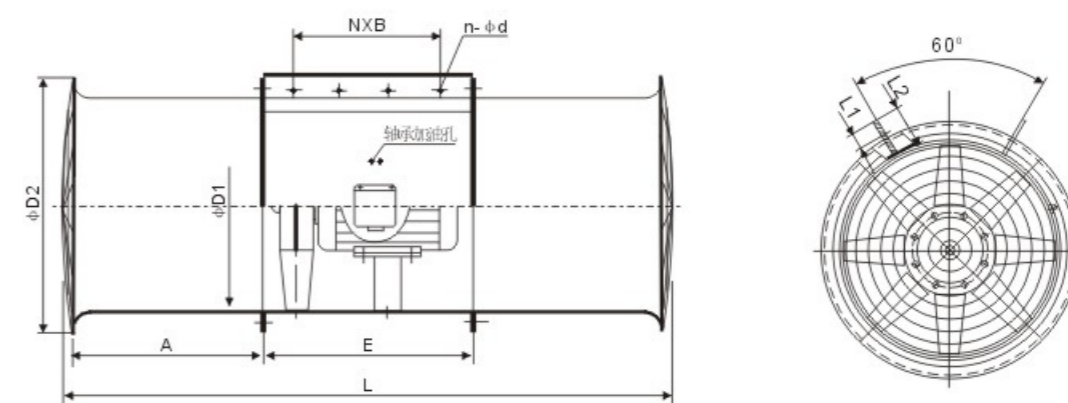
- ◆ Fan casing silencer and support are made of steel sheet, and external coating to improve intensity and corrosion protection.
- ◆ Impeller: the number of blades and blade angle is changeable to meet the requirement of tunnel ventilation.
- ◆ The length of the silencer normally is one fan diameter, when needed (low noise level) , can be up to 2 fan diameters. Silencers are bolted to the fan.
- ◆ Motor: The motor are of squirrel cage type, totally enclosed with a flange mounting, and are equipped with extended cables connected to a terminal box outside the fan casing. Insulation class H and protection class IP 55 are applied. Motors with grease nipples can be provided with extended grease lines to external grease nipples on the fan casing.
- ◆ Switch time of reversible jet fan: Switch time is very important under the emergency condition. SDS (R) jet fan is available for electric and mechanical methods. To switch the reversible jet fan to reverse to the rated speed would be within 30 seconds.

8、SDS jet fan Test

- ◆ Thrust test: Thrust test device
 - ◆ High temperature fire fighting test is performed by Tianjing Fire Fighting Test Center of Public Security Ministry of China.
 - ◆ Noise test: Noise measurements are carried out in free field conditions at about zero ambient air velocity for jet fan with or without silencer. The jet fan sound pressure level is tested at 10m distance, 45 degree from the fan axis.
 - ◆ Efficiency of a jet fan is defined and tested as thrust (N) and motor power input (Kw) .
- Jet fan is tested for performance following the national standard and the relative industrial standard at provincial national authority.

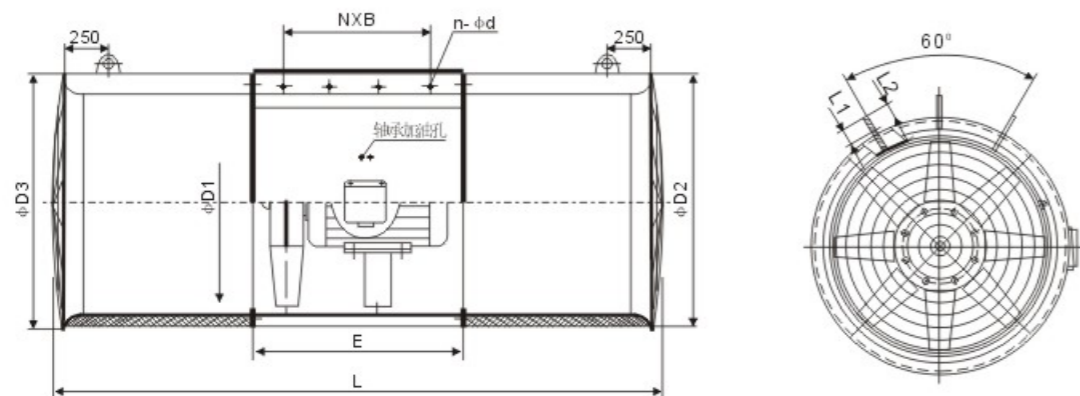
SDS系列射流式通风机外形尺寸图 OVERALL DIMENSION OF SDS JET FAN

● 不带消声器 Without silencer



| 尺寸 机号 | $\phi D1$ | $\phi D2$ | A | E | NxB | L1 | L2 | L | n- ϕd |
|----------|-----------|-----------|-----|------|-------|-----|-----|------|--------------|
| 6.3 | 640 | 740 | 310 | 600 | 3×180 | 50 | 100 | 1270 | 4- $\phi 14$ |
| 7.1 | 720 | 830 | 320 | 700 | 3×200 | 50 | 100 | 1400 | 4- $\phi 14$ |
| 8.0 | 810 | 930 | 350 | 650 | 3×190 | 50 | 100 | 1410 | 4- $\phi 14$ |
| 9.0 | 910 | 1060 | 390 | 700 | 4×160 | 60 | 150 | 1540 | 5- $\phi 14$ |
| 10.0 | 1010 | 1160 | 450 | 700 | 4×160 | 60 | 150 | 1660 | 5- $\phi 14$ |
| 11.2 | 1130 | 1400 | 460 | 805 | 4×180 | 80 | 180 | 1795 | 5- $\phi 18$ |
| 12.5 | 1260 | 1530 | 460 | 900 | 4×200 | 80 | 180 | 1890 | 5- $\phi 20$ |
| 14.0 | 1410 | 1690 | 500 | 1000 | 4×225 | 100 | 200 | 2100 | 5- $\phi 26$ |
| 16.0 | 1610 | 1890 | 600 | 1000 | 4×225 | 100 | 200 | 2300 | 5- $\phi 26$ |

带消声器 With silencer



| 尺寸 机号 | φD1 | φD2 | φD3 | E | N×B | L1 | L2 | L(MM) | | n-φd |
|----------|------|------|------|------|-------|-----|-----|-------|------|-------|
| | | | | | | | | 1D | 2D | |
| 6.3 | 640 | 780 | 820 | 600 | 3×180 | 50 | 100 | 1910 | 3170 | 4-φ14 |
| 7.1 | 720 | 920 | 980 | 700 | 3×200 | 50 | 100 | 2180 | 3600 | 4-φ14 |
| 8.0 | 810 | 1010 | 1070 | 650 | 3×190 | 50 | 100 | 2310 | 3910 | 4-φ14 |
| 9.0 | 910 | 1110 | 1170 | 700 | 4×160 | 60 | 150 | 2560 | 4360 | 5-φ14 |
| 10.0 | 1010 | 1220 | 1280 | 700 | 4×160 | 60 | 150 | 2760 | 4760 | 5-φ14 |
| 11.2 | 1130 | 1330 | 1400 | 805 | 4×180 | 80 | 180 | 3115 | 5355 | 5-φ18 |
| 12.5 | 1260 | 1460 | 1520 | 900 | 4×200 | 80 | 180 | 3470 | 5970 | 5-φ20 |
| 14.0 | 1410 | 1630 | 1690 | 1000 | 4×225 | 100 | 200 | 3900 | 6700 | 5-φ26 |
| 16.0 | 1610 | 1850 | 1910 | 1000 | 4×225 | 100 | 200 | 4300 | 7500 | 5-φ26 |

SDS系列单向射流式通风机性能参数表
SDS UNIDIRECTIONAL JET FAN PERFORMANCE DATA

| 风机型号 Fan type | 风量 Volume m³/s | 出口 风速 air velocity m/s | 电机 Motor | | | 不带消声器 Without silencer | | | 带消声器 With silencer | | | | | | |
|-------------------|----------------------|------------------------------------|----------------------|-----------------------------|--------------------------------|---------------------------|---|--------------------|--------------------|---|---|--------------------|-------------------|---|--------------------|
| | | | 机座号 Motor size | 功率 Motor rating KW | 风机 功率 Fan power KW | 推力 Thrust N | 声压 Sound pressure level dB(A) | 重量 Weight kg | 1D | | | 2D | | | |
| | | | | | | | | | 推力 Thrust N | 声压 Sound pressure level dB(A) | 声功率 Sound power level dB(A) | 重量 Weight kg | 推力 Thrust N | 声压 Sound pressure level dB(A) | 重量 Weight kg |
| SDS-6.3-2P-4-18° | 8.1 | 26.0 | 132 | 7.5 | 6.8 | 247 | 78 | 135 | 244 | 68 | 96 | 245 | 239 | 64 | 322 |
| SDS-6.3-2P-4-21° | 9.0 | 28.9 | 160 | 11 | 8.4 | 305 | 79 | 182 | 302 | 69 | 97 | 292 | 296 | 65 | 369 |
| SDS-6.3-2P-4-24° | 9.9 | 31.8 | 160 | 11 | 10.1 | 369 | 80 | 182 | 365 | 70 | 98 | 292 | 358 | 66 | 369 |
| SDS-6.3-2P-4-27° | 10.8 | 34.7 | 160 | 15 | 12.0 | 439 | 81 | 190 | 435 | 71 | 99 | 300 | 426 | 67 | 377 |
| SDS-6.3-2P-4-30° | 11.7 | 37.5 | 160 | 15 | 14.1 | 513 | 82 | 190 | 508 | 72 | 100 | 300 | 498 | 68 | 377 |
| SDS-6.3-2P-4-33° | 12.7 | 40.6 | 160 | 18.5 | 17.2 | 602 | 84 | 212 | 596 | 74 | 102 | 322 | 584 | 70 | 399 |
| SDS-7.1-2P-6-18° | 12.7 | 32.0 | 160 | 15 | 13.3 | 475 | 81 | 208 | 470 | 71 | 99 | 338 | 461 | 67 | 433 |
| SDS-7.1-2P-6-21° | 14.0 | 35.4 | 160 | 18.5 | 16.9 | 581 | 82 | 230 | 575 | 72 | 100 | 360 | 564 | 68 | 455 |
| SDS-7.1-2P-6-24° | 15.0 | 37.9 | 180 | 22 | 20.1 | 666 | 84 | 263 | 659 | 72 | 100 | 393 | 646 | 69 | 488 |
| SDS-7.1-2P-6-27° | 16.0 | 40.4 | 200 | 30 | 22.9 | 757 | 85 | 323 | 749 | 73 | 101 | 453 | 734 | 71 | 548 |
| SDS-7.1-2P-6-30° | 17.0 | 42.9 | 200 | 30 | 25.8 | 853 | 86 | 323 | 845 | 75 | 103 | 453 | 828 | 72 | 548 |
| SDS-7.1-2P-6-33° | 18.0 | 45.5 | 200 | 37 | 30.0 | 960 | 87 | 338 | 950 | 77 | 105 | 468 | 931 | 73 | 563 |
| SDS-8-4P-6-18° | 9.3 | 18.6 | 112 | 4 | 3.1 | 204 | 66 | 138 | 202 | 56 | 84 | 310 | 198 | 52 | 435 |
| SDS-8-4P-6-21° | 10.6 | 21.0 | 132 | 5.5 | 4.2 | 260 | 68 | 163 | 257 | 58 | 86 | 335 | 252 | 54 | 460 |
| SDS-8-4P-6-24° | 11.8 | 23.5 | 132 | 7.5 | 5.5 | 325 | 69 | 176 | 322 | 59 | 87 | 348 | 315 | 55 | 473 |
| SDS-8-4P-6-27° | 12.6 | 25.0 | 132 | 7.5 | 6.6 | 368 | 70 | 176 | 364 | 60 | 88 | 348 | 357 | 55 | 473 |
| SDS-8-4P-6-30° | 13.3 | 26.5 | 160 | 11 | 7.7 | 413 | 71 | 218 | 409 | 62 | 90 | 390 | 401 | 57 | 515 |
| SDS-8-4P-6-33° | 14.1 | 28.0 | 160 | 11 | 9.4 | 461 | 72 | 218 | 457 | 63 | 91 | 390 | 448 | 58 | 515 |
| SDS-9-4P-6-18° | 13.0 | 20.5 | 132 | 7.5 | 5.4 | 313 | 70 | 232 | 310 | 60 | 88 | 414 | 304 | 56 | 569 |
| SDS-9-4P-6-21° | 14.6 | 22.9 | 160 | 11 | 7.1 | 391 | 71 | 274 | 387 | 62 | 90 | 456 | 379 | 58 | 611 |
| SDS-9-4P-6-24° | 16.1 | 25.3 | 160 | 11 | 9.0 | 477 | 72 | 274 | 472 | 63 | 91 | 456 | 463 | 59 | 611 |
| SDS-9-4P-6-27° | 16.7 | 26.2 | 160 | 11 | 9.9 | 511 | 73 | 274 | 506 | 64 | 92 | 456 | 496 | 60 | 611 |
| SDS-9-4P-6-30° | 18.8 | 29.5 | 160 | 15 | 13.1 | 641 | 75 | 295 | 634 | 65 | 93 | 477 | 620 | 61 | 632 |
| SDS-9-4P-6-33° | 20.1 | 31.6 | 180 | 18.5 | 16.9 | 744 | 76 | 333 | 736 | 67 | 95 | 515 | 722 | 63 | 670 |
| SDS-10-4P-6-18° | 17.7 | 22.5 | 160 | 11 | 9.8 | 466 | 72 | 306 | 461 | 63 | 91 | 518 | 452 | 60 | 703 |
| SDS-10-4P-6-21° | 19.6 | 25.0 | 160 | 15 | 11.7 | 575 | 73 | 327 | 569 | 64 | 92 | 539 | 558 | 61 | 724 |
| SDS-10-4P-6-24° | 21.2 | 27.0 | 160 | 15 | 13.9 | 670 | 75 | 327 | 664 | 66 | 94 | 539 | 650 | 63 | 724 |
| SDS-10-4P-6-27° | 23.2 | 29.5 | 180 | 18.5 | 17.1 | 800 | 77 | 365 | 792 | 67 | 95 | 577 | 776 | 64 | 762 |
| SDS-10-4P-6-30° | 24.3 | 31.0 | 180 | 22 | 21.2 | 884 | 78 | 373 | 875 | 69 | 97 | 585 | 857 | 65 | 770 |
| SDS-10-4P-6-33° | 26.9 | 34.2 | 200 | 30 | 27.5 | 1076 | 79 | 453 | 1065 | 70 | 98 | 665 | 1044 | 66 | 850 |
| SDS-11.2-4P-6-18° | 24.8 | 25.2 | 180 | 18.5 | 17.3 | 744 | 77 | 427 | 736 | 68 | 96 | 639 | 722 | 65 | 824 |
| SDS-11.2-4P-6-21° | 27.3 | 27.7 | 180 | 22 | 20.5 | 899 | 78 | 435 | 890 | 69 | 97 | 647 | 872 | 66 | 832 |
| SDS-11.2-4P-6-24° | 29.9 | 30.3 | 200 | 30 | 24.6 | 1075 | 80 | 515 | 1065 | 71 | 99 | 727 | 1043 | 68 | 912 |
| SDS-11.2-4P-6-27° | 32.3 | 32.8 | 225 | 37 | 30.3 | 1260 | 80 | 529 | 1247 | 71 | 99 | 741 | 1223 | 69 | 926 |
| SDS-11.2-4P-6-30° | 34.9 | 35.4 | 225 | 45 | 38.4 | 1468 | 81 | 565 | 1453 | 72 | 100 | 777 | 1424 | 69 | 962 |
| SDS-11.2-4P-6-33° | 37.4 | 38.0 | 250 | 55 | 46.2 | 1691 | 83 | 672 | 1674 | 73 | 101 | 884 | 1641 | 70 | 1069 |

SDS系列单向射流式通风机性能参数表
SDS UNIDIRECTIONAL JET FAN PERFORMANCE DATA

| 风机型号 Fan type | 风量 Volume m³/s | 出口 风速 Outlet air velocity m/s | 电机 Motor | | | 不带消声器 Without silencer | | | 带消声器 With silencer | | | | | | |
|-------------------|----------------------|--|----------------------|-----------------------------|--------------------------------|---------------------------|---|--------------------|--------------------|---|---|--------------------|-------------------|---|--------------------|
| | | | 机座号 Motor size | 功率 Motor rating KW | 风机 功率 Fan power KW | 推力 Thrust N | 声压 Sound pressure level dB(A) | 重量 Weight kg | 1D | | | 2D | | | |
| | | | | | | | | | 推力 Thrust N | 声压 Sound pressure level dB(A) | 声功率 Sound power level dB(A) | 重量 Weight kg | 推力 Thrust N | 声压 Sound pressure level dB(A) | 重量 Weight kg |
| SDS-12.5-4P-6-18° | 35.0 | 28.5 | 225 | 37 | 29.8 | 1185 | 82 | 574 | 1173 | 72 | 100 | 852 | 1150 | 70 | 1137 |
| SDS-12.5-4P-6-21° | 38.3 | 31.2 | 225 | 37 | 34.5 | 1420 | 82 | 574 | 1406 | 73 | 101 | 852 | 1378 | 70 | 1137 |
| SDS-12.5-4P-6-24° | 41.6 | 33.9 | 225 | 45 | 41.2 | 1677 | 83 | 610 | 1660 | 74 | 102 | 888 | 1627 | 71 | 1173 |
| SDS-12.5-4P-8-27° | 45.2 | 36.8 | 250 | 55 | 50.8 | 1976 | 84 | 717 | 1956 | 76 | 104 | 995 | 1917 | 73 | 1280 |
| SDS-12.5-4P-8-30° | 48.5 | 39.5 | 280 | 75 | 66.4 | 2276 | 85 | 852 | 2254 | 77 | 105 | 1130 | 2208 | 74 | 1415 |
| SDS-12.5-4P-8-33° | 51.5 | 42.0 | 280 | 90 | 81.9 | 2574 | 86 | 957 | 2548 | 78 | 106 | 1235 | 2497 | 74 | 1520 |
| SDS-12.5-6P-6-18° | 23.1 | 18.8 | 160 | 11 | 8.4 | 516 | 69 | 437 | 510 | 60 | 88 | 715 | 500 | 57 | 1000 |
| SDS-12.5-6P-6-21° | 25.4 | 20.7 | 180 | 15 | 10.7 | 625 | 70 | 485 | 619 | 61 | 89 | 763 | 607 | 58 | 1048 |
| SDS-12.5-6P-6-24° | 27.6 | 22.5 | 180 | 15 | 12.3 | 739 | 71 | 485 | 731 | 63 | 91 | 763 | 717 | 60 | 1048 |
| SDS-14-6P-8-27° | 29.8 | 24.3 | 200 | 18.5 | 15.6 | 861 | 72 | 510 | 853 | 64 | 92 | 788 | 836 | 61 | 1073 |
| SDS-14-6P-8-30° | 32.2 | 26.2 | 200 | 22 | 18.9 | 1001 | 73 | 540 | 991 | 64 | 92 | 818 | 972 | 61 | 1103 |
| SDS-14-6P-8-33° | 34.5 | 28.1 | 225 | 30 | 23.7 | 1152 | 74 | 582 | 1140 | 66 | 94 | 860 | 1118 | 63 | 1145 |
| SDS-14-6P-6-18° | 33.6 | 21.8 | 200 | 18.5 | 16.5 | 870 | 73 | 656 | 861 | 64 | 92 | 947 | 844 | 61 | 1292 |
| SDS-14-6P-6-21° | 36.8 | 23.9 | 200 | 22 | 18.1 | 1045 | 74 | 686 | 1035 | 65 | 93 | 977 | 1014 | 62 | 1322 |
| SDS-14-6P-6-24° | 39.9 | 25.9 | 225 | 30 | 24.8 | 1228 | 75 | 728 | 1215 | 66 | 94 | 1019 | 1191 | 64 | 1364 |
| SDS-14-6P-8-27° | 43.1 | 28.0 | 250 | 37 | 30.2 | 1435 | 76 | 844 | 1420 | 68 | 96 | 1135 | 1392 | 65 | 1480 |
| SDS-14-6P-8-30° | 46.3 | 30.1 | 280 | 45 | 35.5 | 1658 | 77 | 972 | 1642 | 68 | 96 | 1263 | 1609 | 66 | 1608 |
| SDS-14-6P-8-33° | 49.6 | 32.2 | 280 | 55 | 45.7 | 1898 | 78 | 1031 | 1879 | 69 | 97 | 1322 | 1841 | 67 | 1667 |
| SDS-14-8P-6-18° | 25.4 | 16.5 | 160 | 7.5 | 6.1 | 498 | 64 | 581 | 493 | 55 | 83 | 872 | 483 | 52 | 1217 |
| SDS-14-8P-6-21° | 27.7 | 18.0 | 180 | 11 | 7.7 | 593 | 65 | 620 | 587 | 57 | 85 | 911 | 575 | 54 | 1256 |
| SDS-14-8P-6-24° | 30.0 | 19.5 | 200 | 15 | 9.9 | 696 | 66 | 686 | 689 | 58 | 86 | 977 | 675 | 55 | 1322 |
| SDS-14-8P-8-27° | 32.5 | 21.1 | 225 | 15 | 13.5 | 815 | 68 | 686 | 807 | 59 | 87 | 977 | 790 | 57 | 1322 |
| SDS-14-8P-8-30° | 34.6 | 22.5 | 225 | 18.5 | 15.1 | 926 | 68 | 702 | 917 | 59 | 87 | 993 | 899 | 57 | 1338 |
| SDS-14-8P-8-33° | 37.1 | 24.1 | 250 | 22 | 19.5 | 1063 | 69 | 728 | 1052 | 61 | 89 | 1019 | 1031 | 58 | 1364 |
| SDS-16-6P-6-18° | 47.2 | 23.5 | 225 | 30 | 24.1 | 1320 | 77 | 892 | 1307 | 68 | 96 | 1240 | 1281 | 66 | 1680 |
| SDS-16-6P-6-21° | 52.1 | 25.9 | 250 | 37 | 32.5 | 1603 | 78 | 1008 | 1587 | 69 | 97 | 1356 | 1556 | 67 | 1796 |
| SDS-16-6P-6-24° | 57.1 | 28.4 | 280 | 55 | 45.6 | 1928 | 80 | 1195 | 1909 | 71 | 99 | 1543 | 1870 | 68 | 1983 |
| SDS-16-6P-6-27° | 61.9 | 30.8 | 315 | 75 | 56.2 | 2268 | 81 | 1590 | 2245 | 73 | 101 | 1938 | 2200 | 70 | 2378 |
| SDS-16-6P-8-30° | 67.0 | 33.3 | 315 | 75 | 65.7 | 2651 | 82 | 1590 | 2624 | 73 | 101 | 1938 | 2572 | 71 | 2378 |
| SDS-16-6P-8-33° | 71.8 | 35.7 | 315 | 90 | 83.5 | 3046 | 83 | 1680 | 3016 | 75 | 103 | 2028 | 2956 | 72 | 2468 |
| SDS-16-8P-6-18° | 35.6 | 17.7 | 200 | 15 | 10.8 | 749 | 69 | 850 | 741 | 61 | 89 | 1198 | 727 | 58 | 1638 |
| SDS-16-8P-6-21° | 39.2 | 19.5 | 225 | 15 | 13.2 | 909 | 69 | 850 | 900 | 61 | 89 | 1198 | 882 | 58 | 1638 |
| SDS-16-8P-6-24° | 42.8 | 21.3 | 225 | 22 | 18.1 | 1084 | 71 | 892 | 1074 | 63 | 91 | 1240 | 1052 | 61 | 1680 |
| SDS-16-8P-6-27° | 46.6 | 23.2 | 250 | 30 | 24.2 | 1287 | 72 | 1005 | 1274 | 64 | 92 | 1353 | 1248 | 62 | 1793 |
| SDS-16-8P-8-30° | 50.3 | 25.0 | 280 | 37 | 32.5 | 1498 | 73 | 1120 | 1479 | 65 | 93 | 1468 | 1449 | 63 | 1908 |
| SDS-16-8P-8-33° | 53.9 | 26.8 | 280 | 45 | 34.6 | 1717 | 74 | 1192 | 1700 | 66 | 94 | 1540 | 1666 | 64 | 1980 |

SDS(R)系列双向射流式通风机性能参数表
SDS(R) BIDIRECTIONAL JET FAN PERFORMANCE DATA

| 风机型号 Fan type | 风量 Volume m³/s | 出口 风速 Outlet air velocity m/s | 电机 Motor | | | 不带消声器 Without silencer | | | 带消声器 With silencer | | | | | | |
|----------------------|----------------------|--|----------------------|-----------------------------|--------------------------------|---------------------------|---|--------------------|--------------------|---|---|--------------------|-------------------|---|--------------------|
| | | | 机座号 Motor size | 功率 Motor rating KW | 风机 功率 Fan power KW | 推力 Thrust N | 声压 Sound pressure level dB(A) | 重量 Weight kg | 1D | | | 2D | | | |
| | | | | | | | | | 推力 Thrust N | 声压 Sound pressure level dB(A) | 声功率 Sound power level dB(A) | 重量 Weight kg | 推力 Thrust N | 声压 Sound pressure level dB(A) | 重量 Weight kg |
| SDS(R)-6.3-2P-4-18° | 7.9 | 25.2 | 132 | 7.5 | 6.9 | 232 | 79 | 135 | 230 | 70 | 98 | 245 | 225 | 66 | 322 |
| SDS(R)-6.3-2P-4-21° | 8.7 | 28.0 | 160 | 11 | 8.7 | 287 | 80 | 182 | 284 | 71 | 99 | 292 | 278 | 67 | 369 |
| SDS(R)-6.3-2P-4-24° | 9.6 | 30.8 | 160 | 11 | 10.4 | 347 | 80 | 182 | 343 | 71 | 99 | 292 | 337 | 67 | 369 |
| SDS(R)-6.3-2P-4-27° | 10.5 | 33.7 | 160 | 15 | 12.4 | 413 | 81 | 190 | 409 | 72 | 100 | 300 | 401 | 68 | 377 |
| SDS(R)-6.3-2P-4-30° | 11.3 | 36.4 | 160 | 15 | 14.3 | 482 | 82 | 190 | 478 | 73 | 101 | 300 | 468 | 69 | 377 |
| SDS(R)-6.3-2P-4-33° | 12.3 | 39.4 | 160 | 18.5 | 17.7 | 566 | 83 | 212 | 560 | 74 | 102 | 322 | 549 | 70 | 399 |
| SDS(R)-7.1-2P-6-18° | 12.3 | 31.0 | 160 | 15 | 13.7 | 446 | 83 | 208 | 442 | 73 | 101 | 338 | 433 | 70 | 433 |
| SDS(R)-7.1-2P-6-21° | 13.6 | 34.3 | 160 | 18.5 | 17.4 | 546 | 84 | 230 | 541 | 74 | 102 | 360 | 530 | 71 | 455 |
| SDS(R)-7.1-2P-6-24° | 14.6 | 36.8 | 180 | 22 | 20.7 | 626 | 85 | 263 | 620 | 75 | 103 | 393 | 607 | 73 | 488 |
| SDS(R)-7.1-2P-6-27° | 15.5 | 39.2 | 200 | 30 | 23.6 | 711 | 85 | 323 | 704 | 76 | 104 | 453 | 690 | 73 | 548 |
| SDS(R)-7.1-2P-6-30° | 16.5 | 41.6 | 200 | 30 | 26.6 | 802 | 86 | 323 | 794 | 77 | 105 | 453 | 778 | 74 | 548 |
| SDS(R)-7.1-2P-6-33° | 17.5 | 44.1 | 200 | 37 | 30.9 | 902 | 87 | 338 | 893 | 78 | 106 | 468 | 875 | 75 | 563 |
| SDS(R)-8-4P-6-18° | 9.1 | 18.0 | 112 | 4.0 | 3.2 | 191 | 66 | 138 | 189 | 56 | 84 | 310 | 186 | 52 | 435 |
| SDS(R)-8-4P-6-21° | 10.2 | 20.4 | 132 | 5.5 | 4.3 | 244 | 68 | 163 | 242 | 58 | 86 | 335 | 237 | 54 | 460 |
| SDS(R)-8-4P-6-24° | 11.5 | 22.8 | 132 | 7.5 | 5.7 | 306 | 69 | 176 | 302 | 59 | 87 | 348 | 296 | 56 | 473 |
| SDS(R)-8-4P-8-27° | 12.2 | 24.3 | 132 | 7.5 | 6.8 | 346 | 70 | 176 | 342 | 60 | 88 | 348 | 335 | 57 | 473 |
| SDS(R)-8-4P-8-30° | 12.9 | 25.7 | 160 | 11 | 7.9 | 388 | 71 | 218 | 385 | 62 | 90 | 390 | 377 | 58 | 515 |
| SDS(R)-8-4P-8-33° | 13.7 | 27.2 | 160 | 11 | 9.7 | 434 | 72 | 218 | 429 | 62 | 90 | 390 | 421 | 59 | 515 |
| SDS(R)-9-4P-6-18° | 12.7 | 19.9 | 132 | 7.5 | 5.6 | 294 | 70 | 232 | 291 | 60 | 88 | 414 | 285 | 57 | 569 |
| SDS(R)-9-4P-6-21° | 14.1 | 22.2 | 160 | 11 | 7.3 | 367 | 71 | 274 | 364 | 61 | 89 | 456 | 356 | 57 | 611 |
| SDS(R)-9-4P-6-24° | 15.6 | 24.5 | 160 | 11 | 9.3 | 448 | 73 | 274 | 444 | 64 | 92 | 456 | 435 | 60 | 611 |
| SDS(R)-9-4P-6-27° | 16.2 | 25.4 | 160 | 11 | 10.2 | 481 | 73 | 274 | 476 | 64 | 92 | 456 | 466 | 61 | 611 |
| SDS(R)-9-4P-8-30° | 18.7 | 29.4 | 160 | 15 | 13.5 | 636 | 74 | 295 | 629 | 65 | 93 | 477 | 616 | 61 | 632 |
| SDS(R)-9-4P-8-33° | 19.5 | 30.7 | 180 | 18.5 | 17.4 | 699 | 75 | 333 | 692 | 66 | 94 | 515 | 678 | 63 | 670 |
| SDS(R)-10-4P-6-18° | 17.1 | 21.8 | 160 | 11 | 10.1 | 438 | 74 | 306 | 433 | 64 | 92 | 518 | 425 | 61 | 703 |
| SDS(R)-10-4P-6-21° | 19.0 | 24.3 | 160 | 15 | 12.1 | 540 | 75 | 327 | 535 | 65 | 93 | 539 | 524 | 62 | 724 |
| SDS(R)-10-4P-6-24° | 20.6 | 26.2 | 160 | 15 | 14.3 | 630 | 76 | 327 | 624 | 67 | 95 | 839 | 611 | 64 | 724 |
| SDS(R)-10-4P-8-27° | 22.5 | 28.6 | 180 | 18.5 | 17.6 | 752 | 77 | 365 | 745 | 68 | 96 | 577 | 730 | 65 | 762 |
| SDS(R)-10-4P-8-30° | 23.6 | 30.1 | 180 | 22 | 21.5 | 831 | 78 | 373 | 822 | 70 | 98 | 585 | 806 | 66 | 770 |
| SDS(R)-10-4P-8-33° | 26.1 | 33.2 | 200 | 30 | 28.3 | 1011 | 79 | 453 | 1001 | 70 | 98 | 665 | 981 | 66 | 850 |
| SDS(R)-11.2-4P-6-18° | 24.1 | 24.2 | 180 | 18.5 | 17.8 | 699 | 78 | 427 | 682 | 69 | 97 | 639 | 668 | 65 | 824 |
| SDS(R)-11.2-4P-6-21° | 26.5 | 26.9 | 180 | 22 | 21.1 | 845 | 79 | 435 | 824 | 70 | 98 | 647 | 807 | 67 | 832 |
| SDS(R)-11.2-4P-6-24° | 29.0 | 29.4 | 200 | 30 | 25.3 | 1011 | 80 | 515 | 986 | 71 | 99 | 727 | 966 | 68 | 912 |
| SDS(R)-11.2-4P-6-27° | 31.3 | 31.8 | 225 | 37 | 31.2 | 1184 | 81 | 529 | 1155 | 72 | 100 | 741 | 1132 | 69 | 926 |
| SDS(R)-11.2-4P-6-30° | 33.8 | 34.3 | 225 | 45 | 39.6 | 1380 | 82 | 565 | 1345 | 74 | 102 | 777 | 1318 | 70 | 962 |
| SDS(R)-11.2-4P-8-33° | 36.3 | 36.9 | 250 | 55 | 47.6 | 1590 | 83 | 672 | 1550 | 75 | 103 | 884 | 1519 | 71 | 1069 |

SDS(R)系列双向射流式通风机性能参数表
SDS(R)BIDIRECTIONAL JET FAN PERFORMANCE DATA

| 风机型号 Fan type | 风量 Volume m³/s | 出口 风速 Outlet air velocity m/s | 电机 Motor | | | 不带消声器 Without silencer | | | 带消声器 With silencer | | | | | | |
|----------------------|----------------------|--|----------------------|-----------------------------|--------------------------------|---------------------------|---|--------------------|--------------------|---|---|--------------------|-------------------|---|--------------------|
| | | | 机座号 Motor size | 功率 Motor rating KW | 风机 功率 Fan power KW | 推力 Thrust N | 声压 Sound pressure level dB(A) | 重量 Weight kg | 1D | | | 2D | | | |
| | | | | | | | | | 推力 Thrust N | 声压 Sound pressure level dB(A) | 声功率 Sound power level dB(A) | 重量 Weight kg | 推力 Thrust N | 声压 Sound pressure level dB(A) | 重量 Weight kg |
| SDS(R)-12.5-4P-6-18° | 33.9 | 27.6 | 225 | 37 | 30.7 | 1114 | 82 | 574 | 1086 | 73 | 101 | 852 | 1064 | 70 | 1137 |
| SDS(R)-12.5-4P-6-21° | 37.1 | 30.3 | 225 | 37 | 35.5 | 1335 | 82 | 574 | 1302 | 73 | 101 | 852 | 1276 | 70 | 1137 |
| SDS(R)-12.5-4P-6-24° | 40.4 | 32.9 | 225 | 45 | 42.4 | 1576 | 83 | 610 | 1537 | 75 | 103 | 888 | 1506 | 72 | 1173 |
| SDS(R)-12.5-4P-6-27° | 43.8 | 35.7 | 250 | 55 | 52.3 | 1857 | 84 | 717 | 1811 | 75 | 103 | 995 | 1775 | 72 | 1280 |
| SDS(R)-12.5-4P-8-30° | 47.0 | 38.3 | 280 | 75 | 68.4 | 2140 | 85 | 852 | 2086 | 76 | 104 | 1130 | 2045 | 74 | 1415 |
| SDS(R)-12.5-4P-8-33° | 50.0 | 40.7 | 280 | 90 | 84.4 | 2419 | 86 | 957 | 2359 | 78 | 106 | 1235 | 2312 | 75 | 1520 |
| SDS(R)-12.5-6P-6-18° | 22.4 | 18.2 | 160 | 11 | 8.7 | 485 | 69 | 437 | 473 | 60 | 88 | 715 | 463 | 57 | 1000 |
| SDS(R)-12.5-6P-6-21° | 24.6 | 20.1 | 180 | 15 | 11.0 | 588 | 70 | 485 | 573 | 61 | 89 | 763 | 561 | 58 | 1048 |
| SDS(R)-12.5-6P-6-24° | 26.8 | 21.8 | 180 | 15 | 12.7 | 694 | 71 | 485 | 677 | 62 | 90 | 763 | 663 | 59 | 1048 |
| SDS(R)-12.5-6P-8-27° | 28.9 | 23.6 | 200 | 18.5 | 16.1 | 810 | 72 | 510 | 790 | 63 | 91 | 788 | 774 | 61 | 1073 |
| SDS(R)-12.5-6P-8-30° | 31.2 | 25.4 | 200 | 22 | 19.5 | 941 | 73 | 540 | 918 | 64 | 92 | 818 | 899 | 63 | 1103 |
| SDS(R)-12.5-6P-8-33° | 33.4 | 27.3 | 225 | 30 | 24.4 | 1083 | 74 | 582 | 1056 | 65 | 93 | 860 | 1035 | 63 | 1145 |
| SDS(R)-1.4-6P-6-18° | 32.6 | 21.1 | 200 | 18.5 | 16.9 | 818 | 74 | 565 | 797 | 65 | 93 | 947 | 781 | 62 | 1292 |
| SDS(R)-1.4-6P-6-21° | 35.7 | 23.2 | 200 | 22 | 18.6 | 983 | 74 | 686 | 958 | 65 | 93 | 977 | 939 | 62 | 1322 |
| SDS(R)-1.4-6P-6-24° | 38.7 | 25.1 | 225 | 30 | 25.5 | 1154 | 75 | 728 | 1125 | 66 | 94 | 1019 | 1103 | 64 | 1364 |
| SDS(R)-1.4-6P-8-27° | 41.8 | 27.2 | 250 | 37 | 31.1 | 1349 | 76 | 844 | 1315 | 67 | 95 | 1135 | 1289 | 65 | 1480 |
| SDS(R)-1.4-6P-8-30° | 44.9 | 29.2 | 280 | 45 | 36.6 | 1559 | 77 | 972 | 1520 | 68 | 96 | 1263 | 1489 | 66 | 1608 |
| SDS(R)-1.4-6P-8-33° | 48.1 | 31.2 | 280 | 55 | 47.1 | 1784 | 78 | 1031 | 1739 | 70 | 98 | 1322 | 1704 | 67 | 1667 |
| SDS(R)-1.4-8P-6-18° | 24.6 | 16 | 160 | 7.5 | 6.3 | 468 | 64 | 581 | 457 | 55 | 83 | 872 | 448 | 52 | 1217 |
| SDS(R)-1.4-6P-6-21° | 26.9 | 17.5 | 180 | 11 | 7.9 | 557 | 65 | 620 | 543 | 56 | 84 | 911 | 533 | 53 | 1256 |
| SDS(R)-1.4-6P-6-24° | 29.1 | 18.9 | 200 | 15 | 10.2 | 654 | 66 | 686 | 683 | 58 | 86 | 977 | 625 | 56 | 1322 |
| SDS(R)-1.4-6P-8-27° | 31.5 | 20.5 | 225 | 15 | 13.9 | 766 | 68 | 686 | 747 | 59 | 87 | 977 | 732 | 57 | 1322 |
| SDS(R)-1.4-6P-8-30° | 33.6 | 21.8 | 225 | 18.5 | 15.6 | 871 | 68 | 702 | 849 | 60 | 88 | 993 | 832 | 58 | 1338 |
| SDS(R)-1.4-6P-8-33° | 36.0 | 23.4 | 250 | 22 | 20.0 | 999 | 69 | 728 | 974 | 61 | 89 | 1019 | 955 | 58 | 1364 |
| SDS(R)-1.6-6P-6-18° | 45.8 | 22.8 | 225 | 30 | 24.8 | 1241 | 77 | 892 | 1210 | 68 | 96 | 1240 | 1186 | 65 | 1680 |
| SDS(R)-1.6-6P-6-21° | 50.5 | 25.1 | 250 | 37 | 33.5 | 1507 | 78 | 1008 | 1470 | 69 | 97 | 1356 | 1440 | 66 | 1796 |
| SDS(R)-1.6-6P-6-24° | 55.4 | 27.5 | 280 | 55 | 47.0 | 1812 | 80 | 1195 | 1767 | 71 | 99 | 1543 | 1732 | 68 | 1983 |
| SDS(R)-1.6-6P-6-27° | 60.1 | 29.9 | 315 | 75 | 57.9 | 2132 | 81 | 1590 | 2078 | 71 | 99 | 1938 | 2037 | 69 | 2378 |
| SDS(R)-1.6-6P-8-30° | 64.9 | 32.3 | 315 | 75 | 67.7 | 2492 | 81 | 1590 | 2429 | 72 | 100 | 1938 | 2381 | 70 | 2378 |
| SDS(R)-1.6-6P-8-33° | 69.6 | 34.6 | 315 | 90 | 86.0 | 2864 | 83 | 1680 | 2792 | 74 | 102 | 2028 | 2736 | 71 | 2468 |
| SDS(R)-1.6-8P-6-18° | 34.5 | 17.2 | 200 | 15 | 11.1 | 704 | 69 | 850 | 686 | 60 | 88 | 1198 | 673 | 57 | 1638 |
| SDS(R)-1.6-8P-6-21° | 38.0 | 18.9 | 225 | 15 | 13.6 | 854 | 69 | 850 | 833 | 61 | 89 | 1198 | 816 | 58 | 1638 |
| SDS(R)-1.6-8P-6-24° | 41.5 | 20.7 | 225 | 22 | 18.5 | 1019 | 71 | 892 | 994 | 63 | 91 | 1240 | 974 | 60 | 1680 |
| SDS(R)-1.6-8P-6-27° | 45.2 | 22.5 | 250 | 30 | 24.9 | 1209 | 72 | 1005 | 1179 | 63 | 91 | 1353 | 1156 | 61 | 1793 |
| SDS(R)-1.6-8P-6-30° | 48.8 | 24.3 | 280 | 37 | 33.5 | 1404 | 73 | 1120 | 1369 | 65 | 93 | 1468 | 1342 | 62 | 1908 |
| SDS(R)-1.6-8P-6-33° | 52.3 | 26.0 | 280 | 45 | 35.6 | 1614 | 74 | 1192 | 1573 | 65 | 93 | 1540 | 1542 | 62 | 1980 |

- 以人为本，科技创新，共筑绿色生活环境
Taking person as essence ,Innovation by science and technology,
Jointly establishing green living environment

