



Yuncheng Anjie Fan Electric Co., Ltd.

运城安捷风机电气有限公司

安捷隧道通风机

Ansett Tunnel Ventilator

COMPANY PROFILE

公司简介

运城安捷风机电气有限公司座落于武圣关公故里，地处晋、陕、豫三省交界的黄河金三角地带，是专业研制矿用风机和隧道通风的专业制造厂家，是我国矿山、铁路基建领域通风系统专业化研制企业。

公司拥有通风专业工程师及技术人员 20 余名，为提高产品竞争力，公司依托有雄厚科研力量的沈阳风机研究所、合肥风机研究所、西安流体机械研究所等科研单位并建立了长期合作关系，共同致力于通风技术的设计、科研开发、设备制造，使得产品质量达到国内同行业先进水平，尤其在隧道风机、射流风机等产品上具有低噪高效、外形美观、安装使用方便和维护简便，而且品种规格齐全、参数涵盖面广、实用性强等特点，深受国内外广大用户的青睐，享有高度信誉。

运城安捷风机电气有限公司是一个与您目标一致，同样追求速度、追求效率、追求卓越的合作伙伴。高质量的产品，降低了您的经营成本；全过程的服务，消除了您使用中的烦恼。面向未来，运城安捷风机电气有限公司将与您相伴而行，服务至诚。

Yuncheng Anjie Fan Electric Co., Ltd. is located in the hometown of Guan Gong, Wusheng, and is located in the golden triangle of the Yellow River at the junction of Shanxi, Shaanxi and Henan provinces. It is a professional manufacturer specializing in the development of mining fans and tunnel ventilation. Specialized research and development enterprise of ventilation system. The company has more than 20 professional ventilation engineers and technicians. In order to improve the competitiveness of products, the company relies on scientific research units such as Shenyang Fan Research Institute, Hefei Fan Research Institute, Xi'an Fluid Machinery Research Institute and other scientific research units with strong scientific research strength and has established long-term cooperative relations. Committed to the design, scientific research and development, and equipment manufacturing of ventilation technology, the product quality has reached the advanced level in the same industry in China, especially in tunnel fans, jet fans and other products with low noise and high efficiency, beautiful appearance, convenient installation and use, and easy maintenance. Complete varieties and specifications, wide coverage of parameters, strong practicability and other characteristics, are favored by the majority of users at home and abroad, and enjoy a high reputation. Yuncheng Anjie Fan Electric Co., Ltd. is a partner who has the same goals as you, and also pursues speed, efficiency and excellence. High-quality products reduce your operating costs; the whole process of service eliminates your troubles in use. Facing the future, Yuncheng Anjie Fan Electric Co., Ltd. will accompany you and provide sincere service.

公司愿景

ENTREPRENEURSHIP

成为具有国际竞争力的通风系统解决方案提供商。公司恪守关注客户、成就员工、做优企业的宗旨。聚焦能源矿业装备、交通装备两大领域。做精铁路隧道、水电工程、通风系统及控制系统领域，让领先的通风技术及通风系统更多的惠及社会，做备受业界和社会尊敬的企业。

Become an internationally competitive ventilation system solution provider.

The company abides by the tenet of paying attention to customers, achieving employees, and being an excellent enterprise. Focus on the two major fields of energy mining equipment and transportation equipment. Focus on the fields of railway tunnels, hydropower engineering, ventilation systems and control systems, so that leading ventilation technology and ventilation systems can benefit the society more, and become a highly respected enterprise in the industry and society.



企业理念

COMPANY QUALIFICATION

认真做好每一件事情，满足用户每一个需求。

运营理念

Operational Philosophy

- 研发理念：求新求是、先进可靠
- 生产理念：精心精益、安全快捷
- 营销理念：至诚至微、合作共赢
- 质量理念：专心专注、恪守标准
- 管理理念：严谨严细、科学高效
- 人才理念：公平公正、选贤任能

经营范围

Business Scope



1

各种通风机设计、研发与制造

2

各种隧道通风机、矿用通风机设计、生产制造及销售

3

各种通用设备及电气设备的研发制造与维修

4

工业自动化控制系统装置制造、矿用智能通风机的研发及制造

5

电机及其控制系统研发制造与维修

6

工业机器人安装、维修

SDS 射流通风机

SDS Jet fan

1. 概述

Overview

SDS 射流通风机

SDS Jet fan



SDS 射流通风机，由本企业自行开发设计制造并通过国家 3C 认证。该系列风机，适用于公路、铁路交通隧道的纵向通风系统，同时兼有消防排烟功能的一种轴流式通风机。可以根据隧道通风系统的设计，沿隧道顶部纵向串联式布置或在隧道进风口断面集中并联式布置，安装数台射流通风机，平时用于隧道内通风换气；当火灾发生时，用于消防排烟。因此，射流通风机是隧道运营时的必备设备。

The SDS jet fan is developed, designed and manufactured by the company and passed the national 3C certification. This series of fans is suitable for the longitudinal ventilation system of highway and railway traffic tunnels, and also has an axial flow fan with the function of fire and smoke exhaust. According to the design of the tunnel ventilation system, the tunnel can be arranged longitudinally in series along the top of the tunnel or be arranged in parallel in the cross section of the inlet of the tunnel. Several jet fans can be installed and used for ventilation in the tunnel; when the fire occurs, it can be used in fire protection smoke. Therefore, the jet fan is a necessary equipment for tunnel operation.

2. 使用环境及工作条件

the use of the environment and working conditions

1、用于日常隧道通风时，环境温度在 -25°C — $+50^{\circ}\text{C}$ 范围；用于消防排烟时，输送介质空气的最高温度 250°C ，运行时间高达 60 分钟。

2、额定输入电源条件：交流三相 $380\text{V} \pm 10\%$ 50Hz。

1. For daily tunnel ventilation, the ambient temperature is in the range of -25°C to $+50^{\circ}\text{C}$; when used in firefighting and smoke exhaust, the maximum temperature of the medium air is 250°C and the running time is up to 60 minutes.

2. Rated input power supply condition: AC three-phase $380\text{V} \pm 10\%$ 50Hz.

3. 特点

Characteristics

SDS 射流通风机的核心部件叶轮的技术，参照世界高技术水平经过不断的研究、实验，形成能满足不同需求的系列规格型号，具有以下特点：

(1) 采用钢制空心机翼形叶片或压铸铝合金实心机翼形叶片，具有重量轻、耐腐蚀、耐高温、抗氧化、不断裂的特点，确保了风机较长的使用寿命。叶片为机翼形状，具有空气阻力小，风机效率高，推力功率比大的优良空气动力性能。

(2) 叶片角度可调整，用户可根据需要通过调整叶片角度来改变出风量。

(3) 通过改变风机电机输入三相电源的相序，使风机电机正转或反转，从而使风机正向或反向出风使用。通常反风效率是正风的 65% 以上，也可根据用户要求特别设计使达到 95% 以上。

(4) 消音器，采用穿孔板消音结构，吸音系数大，吸音频带宽，有效地降低了噪音。

(5) 风机采用电机直联方式，叶轮、叶片、电机均可拆卸，因此，维护方便。

(6) 叶轮直径、叶片数量、叶片调节角度范围、电机功率及极数的不同，决定风机性能不同，来满足用户的不同需求。

(7) 风机设有吊环，用于装卸安装起吊；风机的安装底座根据安装需求上置或下置。

The core components of the SDS jet fan impeller technology, with reference to the world's high-tech level through continuous research and experiments, to form a series of specifications to meet different needs models, has the following characteristics:

(1) The use of steel hollow-wing airfoil blades or die-cast aluminum alloy solid airfoil blades has the features of light weight, corrosion resistance, high temperature resistance, oxidation resistance, and no fracture, ensuring a long service life of the fan. The blades are airfoil shaped and have excellent aerodynamic performance with low air resistance, high fan efficiency, and large thrust power ratio.

(2) The blade angle can be adjusted. Users can adjust the blade angle to change the air flow as needed.

(3) By changing the phase sequence of the three-phase power input of the fan motor, the fan motor is forward or reversed, so that the fan can be used in the forward or reverse direction. Usually, the wind-return efficiency is more than 65% of the positive wind, and it can also be specially designed to reach 95% or more according to user requirements.

(4) Silencer, using perforated plate muffler structure, large sound absorption coefficient, absorbing audio bandwidth, effectively reducing noise.

(5) The fan adopts direct motor connection. The impeller, blades and motor can be disassembled. Therefore, it is easy to maintain.

(6) The impeller diameter, number of blades, blade adjustment angle range, motor power, and number of poles determine the performance of the fan to meet the different needs of the user.

(7) The fan is equipped with lifting rings for loading, unloading and mounting; the installation base of the fan is placed or placed under the installation requirements.

4. SDS 射流通风机型号标志解释

Explanation of markings of fan type

SDS -11.2-T -G-4P-37KW

表示电动机功率，单位KW Motor power, unit KW

表示电机极数 Indicates the number of motor poles

表示叶轮材质：G为钢质；L为铝合金

Said impeller material: G is steel; L is aluminum alloy

表示通风形式：K指单向通风；T指双向通风 Indicates the ventilation type: K refers to one-way ventilation; T refers to two-way ventilation

表示叶轮机号，即叶轮直径1120mm

Indicates the impeller number, ie impeller diameter 1120mm

风机系列代号：SD表示隧道，S表示射流通风机

Fan series code: SD means tunnel, S means jet fan



5.SDS 射流风机结构

SDS jet fan structure

该系列射流风机一般由集流器、消音器、主机壳、叶轮、耐高温电动机（简称电机）组成，其中：主机壳、叶轮、电动机构成风机主机，如图所示。

(1) 集流器：流线型的集流器可使进入风机的气流均匀平稳，提高风机的运行效率、降低风机的噪音。

(2) 消音器：风机进出气两端可选配有消音器，用于降低风机的噪音。消音器为两层圆筒结构，内筒为穿孔板，外筒为钢板滚圆焊接而成，中间填充高效的吸声材料。

(3) 主机壳：是由钢板卷圆焊接而成的筒体外壳，电机支撑板焊接于筒体内壁，两端是用于消音器的法兰。

(4) 叶轮：安装于主机壳内部电机轴上，与电机直接连接。

(5) 电动机：采用特种耐高温电机，绝缘等级 H 级，运行可靠，并在火灾发生时进行消防排烟。电机安装于风机主机壳内，通过耐高温阻燃电缆及其套管，与外置于主机壳上的接线盒连接。当从接线盒给电机通入三相交流电时，电机转动，带动叶轮旋转，风机运转。

(6) 此外，根据用户需求，可以选配防护罩、隔振器、风机电气控制箱等。

The series of jet fans generally consists of current collector, muffler, main housing, impeller, high temperature motor (referred to as motor), including: host shell, impeller, motor constitute the host fan, as shown.

(1) Current collector: The streamlined current collector can make the airflow entering the fan even and smooth, improve the operating efficiency of the fan and reduce the noise of the fan.

(2) Silencer: The silencer can be equipped at both ends of the air inlet and outlet of the fan to reduce the noise of the fan. The muffler is a two-layered cylinder structure. The inner cylinder is a perforated plate. The outer cylinder is made by spheronization welding of steel plates, and an efficient sound-absorbing material is filled in the middle.

(3) Main housing: It is a cylindrical housing made by round welding of steel plates. The motor support plate is welded to the inner wall of the cylinder. Both ends are flanges for silencers.

(4) Impeller: Mounted on the motor shaft inside the main housing and directly connected to the motor.

(5) Electric motor: It adopts special high-temperature resistant motor, insulation class H, reliable operation, and can carry out fire smoke exhaust in case of fire. The motor is installed in the main casing of the fan and is connected to the junction box on the main body casing through the high-temperature resistant flame-retardant cable and the casing. When the three-phase alternating current is fed from the junction box to the motor, the motor rotates to drive the impeller to rotate and the fan runs.

(6) In addition, according to the needs of users, protective covers, vibration isolator, fan electrical control boxes, etc. can be selected.

6.SDS 单向射流风机技术参数表

SDS one-way jet fan technical parameters

机号 Machine number	极数 Pole number	流量 Flow (m³/s)	出口风速 Outlet air speed (m/s)	轴向推力 Axial thrust (N)	电机功率 Power of motor (KW)	推力 / 功率 Thrust/Power (N/KW)
6.3	2P	14.6	46.9	1161.7	22	49.4
	2P	12.0	38.5	784.8	18.5	39.7
	2P	10.0	32.1	545	15	34
7.1	2P	20.9	52.8	1175	37	28.7
	2P	17.6	44.5	833.2	30	25.1
	4P	10.4	26.3	287.8	7.5	44.9
8.0	4P	14.8	29.5	463.9	15	39.8
	4P	12.2	24.3	315.2	11	36.9
	4P	9.6	19.1	219.4	7.5	37.6
9.0	4P	21.1	33.2	743	22	35.4
	4P	17.8	28.0	528	18.5	30
	4P	14.5	22.8	350.9	15	24.5
10.0	4P	33	38.6	1432.8	37	36
	4P	29.7	35.9	1160.6	30	35.5
	4P	26.5	33.8	924	22	38.5
	4P	23.3	29.7	800	18.5	40
	6P	20.0	25.5	517.3	15	47.2
11.2	6P	16.7	21.3	360.7	11	44.9
	4P	40.7	41.4	1781.9	45	39.1
	4P	37.4	37.7	1430.6	37	38.2
	4P	33.8	34.4	1228.9	30	40.5
	4P	30.6	31.2	972.4	22	43.7
11.2	4P	28.4	28.9	867.6	18.5	46.3
	6P	27.5	27.9	814	22	42.1
	6P	24.2	24.6	630.4	15	47.8
	4P	50.0	44.3	2348.2	45	35.7
	4P	46.7	41.4	2048.5	37	37.9
12.0	4P	43.1	38.2	1745	30	39.8
	4P	39.3	35.4	1495.5	22	46.5
	6P	33.8	29.9	1072.7	30	39.3
	6P	30.2	26.7	856.4	22	42.8
	4P	56.5	46.1	2764.8	55	34.2
12.5	4P	53.2	43.4	2451.3	45	37.1
	4P	49.6	43.0	2130.7	37	39.2
	6P	38.2	31.2	1262.9	30	42.4
	6P	34.9	28.5	1054.1	22	48.2
	6P	53.7	34.9	1987.2	55	33.7
14.0	6P	50.4	32.8	1750.5	45	40.5
	6P	47.2	30.7	1535.2	37	43.4
	6P	44	28.6	1334.1	30	45.9
	8P	41.1	26.7	1163.9	30	44.0
	8P	37.8	24.6	984.5	22	50.8
16.0	6P	80.1	39.9	3390.1	90	29.5
	6P	76.8	38.3	3116.5	75	32.5
	6P	73.2	36.5	2831.2	55	36.1
	8P	61.3	30.5	1985.6	55	38.5
	8P	58	28.9	177.6	45	42.1
18.0	8P	54.4	27.1	1563.8	37	45.1
	6P	114.1	44.9	5430.3	132	26.2
	6P	110.8	43.6	5120.7	110	27.2
	6P	107.2	42.2	4793.4	90	27.5
	8P	87.3	34.3	3180.5	110	34.2
	8P	84.0	33.0	2944.6	90	38.7

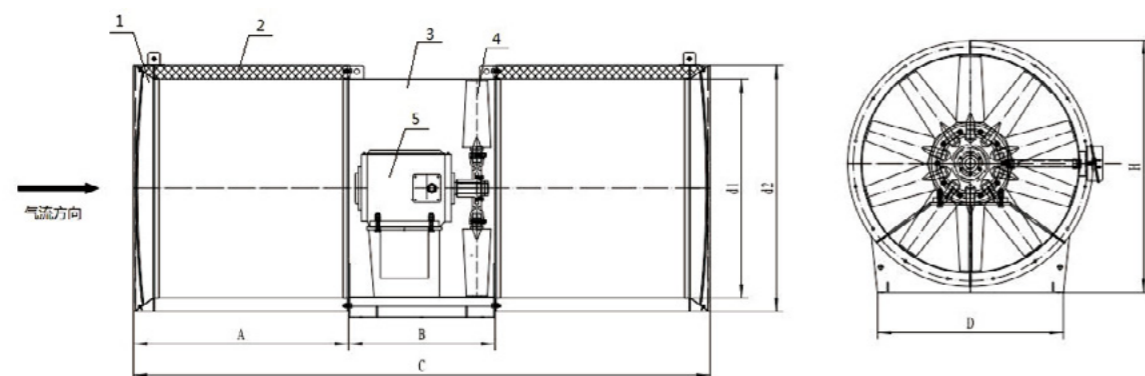
7.SDS 双向射流风机技术参数表

SDS two-way jet fan technical parameters

机号 Machine number	极数 Pole number	流量 Flow (m³/s)	出口风速 Outlet air speed (m/s)	轴向推力 Axial thrust (N)	电机功率 Power of motor (KW)	推力 / 功率 Thrust/Power (N/KW)
6.3	2P	14.6	45.2	807	22	49.4
	2P	12.0	37.3	545	18.5	45.6
	2P	9.6	30	350	15	41
8.0	4P	16.5	32	641	15	33
	4P	14.2	27.5	475	11	31.4
	4P	9.6	18.6	217	7.5	29.6
9.0	4P	22.9	35	978	22	32
	4P	21.4	33	854	18.5	30
	4P	19.6	30.1	716	15	24.5
10.0	4P	28	34.9	1181	37	31
	4P	25.4	31.7	972	30	33
	4P	24.3	30.3	890	22	38.5
	4P	23.3	29	818	18.5	40
	6P	20.0	24.9	602	15	47.2
	6P	16.7	20.8	420	11	44.9
11.2	4P	30	30	1076	45	31.8
	4P	28	28	1000	37	33
	4P	27.2	27.1	885	30	38.2
	4P	25	25	747	22	43.7
	4P	24.6	24.5	724	18.5	46.3
	6P	23	23	632	22	42.1
12.5	6P	21.6	21.5	558	15	47.8
	4P	39	31.2	1463	55	34.2
	4P	34	28	1150/1200	45	35
	4P	33	26.4	1048	37	39.2
	6P	29	23.2	810	30	42.4
	6P	26	20.8	650	22	48.2

8.SDS 隧道运营射流风机外形结构示意图

Schematic diagram of outline structure of SDS jet fans for tunnel operation



- 1、集流器 Current collector 2、消音器 Muffler 3、主机 Main machine
4、叶轮 Impeller 5、耐高温电动机 Motor

9.SDS 射流风机外形尺寸表

SDS jet fan dimensions table

型号 Type	A	B	C	D	H	d1	d2
6.3	750	700	2200	620	842	635	800
8.0	1140	700	2980	750	1006	805	969
9.0	1140	850	3130	800	1116	905	1073
10.0	1140	850	3130	900	1214	1007	1175
11.2	1250	850	3350	1000	1335	1130	1295
12.5	1250	850	3350	1080	1465	1260	1425
14.0	1450	1050	3950	1180	1615	1410	1575
16.0	1450	1050	3950	1280	1875	1610	1775
18.0	1865	1330	5060	1400	2015	1810	1975

10. 安装、运行与维护

Installation, Operation and Maintenance

10.1 安装

Installation

10.1.1、安装前的检查

(1) 风机部件是否齐备, 各种连接件是否连接牢固, 主要部件装配是否符合要求, 如叶片、轴承以及叶片顶与主机壳内筒壁之间的间隙均匀性等, 以便确认在运输和搬运过程中不存在损坏和松动现象。如发现问题, 应予以解决。

(2) 用绝缘电阻表测量电机相与机壳之间的绝缘电阻, 应不小于 10MΩ。

(3) 检查风机支撑架安装用的隧道顶部预埋螺栓的规格等级和质量, 其应具备足够的强度承载风机运行载荷、推力以及由过往车辆造成的附加冲击载荷。

(4) 如风机从本厂出厂, 未及时安装运行超过 12 个月, 则应使用规定的油脂对电机轴承重新注油

10.1.1, Check Before Installation

(1) Whether the fan components are complete, whether the various connection pieces are firmly connected, and whether the assembly of the main components meets the requirements, such as the uniformity of the gap between the blade, the bearing, and the top of the blade and the wall of the main body casing, in order to confirm the transportation and handling. There is no damage and loosening during the process. If problems are found, they should be resolved.

(2) Measure the insulation resistance between the motor phase and the case with an insulation resistance meter and should not be less than 10 MΩ.

(3) Check the grade and quality of pre-embedded bolts on the top of the tunnel for installation of the fan support frame. It should have sufficient strength to carry the fan's operational load, thrust force and additional impact loads caused by passing vehicles.

(4) If the fan is shipped from the factory and it has not been installed and operated in a timely manner

润滑。

(5) 手动检查叶轮确保其旋转灵活、平稳。

10.1.2、安装

(1) 将风机运入隧道合适位置，然后，使用适当的提升设备将风机提升至隧道的预定位置，用螺栓将风机定位，同时确保风机支架无冗余应力存在。如采用隔振器，应确保各隔振器应均匀压缩。

(2) 风机安装时，不得磕碰及损坏风机，不得通过钩挂消音器来起吊风机，不得对风机施焊。

(3) 安装风机时，应注意使风机上的风向标志与隧道的通风方向一致，并保证风机轴线与隧道的中心线平行，否则，将增加风能的额外损失。

(4) 风机安装后，应检查确认风机连接螺栓固定紧固，无松动。

10.1.3、电气安装

对风机连接的工作电源，应由专业电工进行。应按风机上外置电机接线盒内所标电气接线图接线，连接三相交流电源，并确保接线连接正确及紧固。

10.2 调试

Debugging

(1) 风机安装完成后，在启动风机以前，应作如下检查确认：

a) 三相交流电源电压是否处于正常范围之内（通常为

for more than 12 months, the specified grease should be used to relubricate the motor bearings.

(5) Check the impeller manually to ensure its rotation is flexible and stable.

10.1.2, Installation

(1) Put the fan into a suitable location in the tunnel. Then, use a suitable lifting device to lift the fan to a predetermined position in the tunnel and position the fan with bolts. At the same time, ensure that there is no redundant stress in the fan support frame. If isolators are used, it should be ensured that the isolators should be uniformly compressed.

(2) During the installation of the fan, the fan must not be bumped or damaged; the fan must not be lifted by hooking the muffler; welding of the fan must not be carried out.

(3) When installing the fan, make sure that the wind direction marking on the fan is consistent with the ventilation direction of the tunnel and ensure that the axis of the fan is parallel to the centerline of the tunnel. Otherwise, the additional loss of wind energy will increase.

(4) After the fan is installed, it should be checked to confirm that the fan connection bolts are fixed and tightened, and there is no looseness.

10.1.3, Electrical Installation

The working power connected to the fan should be performed by a professional electrician. The three-phase AC power supply should be connected according to the wiring diagram of the electrical wiring in the external motor terminal box on the fan, and ensure that the wiring connection is correct and tight.

(1) After the installation of the fan is completed, the following inspections shall be made before starting the fan:

a) Whether the voltage of the three-phase AC power supply is within the normal range (usually $380V \pm 5\%$), and whether the three-phase voltage is balanced;

$380V \pm 5\%$), 三相电压是否平衡;

b) 用手转动叶轮，检查叶片顶与主机筒内壁间隙是否符合要求，应无擦碰现象;

c) 检查风机内及其附近是否有杂质异物，如有，则应立即予以清除;

d) 操作电机电源控制开关，试转风机，检查风机叶轮旋转方向是否与标牌所示方向一致，如不一致，应切断电源，将所连接电源某两相互换;

e) 检查风机电气接地可靠; 检查过流保护器件（如断路器、熔断器、过载保护继电器）的整定电流，符合电机保护要求。

(2) 只有当以上各项检查符合要求后，方可开始风机调试运转。在调试期间，如出现剧烈振动或声音异常，应立即切断风机电源，待风机停稳后，方可进行检查原因采取措施。

(3) 在风机试运转 10-30 分钟内，如无明显振动或运转声音正常后，则停止检查叶片螺栓是否松动，如无松动现象，则风机可待机进入正常运行状态。

10.3 运行

Operation

(1) 启动风机时，为减少对电网的冲击，应逐台启动风机，即一台风机达到额定转速后，方可启动下一台风机。

(2) 射流风机正反向换向时，应等待风机叶轮停稳后，才接通反向电源。

(3) 在正常运行中，应定期检查风机的电机电流、振动、运转声响，当出现以下情况时，应立即停机予以检查或修理：

a) 电流突然增大、超出正常范围;

b) 振动异常或出现摩擦撞击声。

b) Turn the impeller by hand to check if the clearance between the top of the blade and the wall of the main cylinder meets the requirements and there should be no friction.

c) Inspect the fan for foreign matter in and around it. If any, remove it immediately;

d) Operate the motor power control switch, test the fan, check whether the fan impeller rotation direction and the direction shown by the sign, if not, should cut off the power, the two connected power supply to each other;

e) Check the reliability of the electrical grounding of the fan; check the setting current of the overcurrent protection device (such as circuit breakers, fuses, overload protection relays) and meet the motor protection requirements.

(2) Only after the above items meet the requirements can the wind turbine be commissioned. During the commissioning, if there is severe vibration or sound abnormality, the power of the fan should be cut off immediately. After the fan is stopped, the cause of the check can be taken.

(3) Within 10-30 minutes of the commissioning of the fan, if there is no obvious vibration or the operating sound is normal, then check whether the blade bolts are loosened. If there is no looseness, the fan can be put into normal operation.

(1) When starting the fan, in order to reduce the impact on the power grid, the fan should be started one by one, that is, after one fan reaches the rated speed, the next fan can be started.

(2) When the forward and reverse direction of the jet fan is reversed, the reverse power supply must be turned on after waiting for the fan impeller to stop.

(3) In normal operation, the motor current, vibration, and running noise of the fan should be inspected periodically. When the following conditions occur, the machine should be shut down immediately for inspection or repair:

a) The current suddenly increases beyond the normal range;

b) Abnormal vibration or frictional crash sound.

10.4 维护保养、检修

maintenance, overhaul

(1) 每6个月，检查维护一次。检查维护项目如下：

a) 用刷子或吸尘器清洁风机，如叶轮、消音器、机壳内部、电机等。

尤其是清理消音器灰尘，避免消音器孔被灰尘堵死；不得用水直接冲洗消音器。注：集尘会造成风机振动加剧、电机冷却条件恶化、降低消音器消音效果。

b) 检查风机的各紧固件是否有松动，松动会导致振动加剧，所以，如有松动，应紧固。

c) 检查各接合面间的垫片是否损坏，必要时，予以更换。

d) 手动叶轮，观察转动有无晃动或叶片顶摩擦机壳内筒壁，如有晃动，应检查电机轴承是否存在磨损；观察转动是否灵活，如不灵活，应检查电机轴承的润滑情况，必要时，加注适量的润滑油，以确保轴承的润滑良好。

e) 通电运行，检查风机的电机电流、振动、运转声响、电机温度、轴承温度等，必要时检修。

(2) 按电机使用说明书规定周期和润滑油型号，对电机轴承加注油润滑。如电机使用说明书没有规定润滑周期，则一般按每运行20000小时或2年，应对电机轴承加注油润滑。

(3) 注意：在对风机进行维修保养时，均应切断风机供电电源，同时在开关处悬挂醒目标牌“维修中，严禁供电”，应保证至少2人同时在工作现场，以确保人员安全。

(1) Check and maintain once every 6 months. Check maintenance items as follows:

a) Clean the fan with a brush or a vacuum cleaner, such as an impeller, a muffler, the inside of the housing, a motor, etc.

In particular, clean the muffler dust to prevent the muffler hole from being blocked by dust; do not flush the muffler directly with water. Note: Dust collection will cause increased vibration of the fan, deterioration of the motor cooling conditions, and reduction of muffler silencing effects.

b) Check whether the fasteners of the fan are loose. Loosening will cause the vibration to increase. Therefore, if there is any looseness, tighten it.

c) Inspect the gasket between joint surfaces for damage and replace if necessary.

d) Manual impeller, observe whether the rotation is shaking or the top of the blade friction in the shell wall, if there is shaking, you should check whether the motor bearing wear; observe the rotation is flexible, if not flexible, you should check the lubrication of the motor bearing, necessary When adding a suitable amount of lubricant, ensure that the bearing is well lubricated.

e) Power-on operation, check the fan motor current, vibration, running sound, motor temperature, bearing temperature, etc., if necessary, overhaul.

(2) Lubricate the motor bearings according to the cycle and lubricant type specified in the motor instruction manual. If the instructions for use of the motor do not specify the lubrication period, the motor bearings should generally be lubricated with oil every 20,000 hours or 2 years.

(3) Note: When the fan is being maintained and maintained, the power supply of the fan shall be cut off. At the same time, the target card shall be suspended at the switch and shall be "repaired from service." It shall be ensured that at least 2 persons are working at the same time to ensure the safety of the personnel.

11. 故障分析及排除

Failure analysis and exclusion

故障现象 Fault phenomenon	原因分析 Cause Analysis	排除方法 Method of exclusion	备注 Note
风机启动困难 Fan start difficult	电源电压过低或启动器故障 Low supply voltage or starter failure	提高电源电压或检查启动器 Raise the supply voltage or check the starter	
风机内有金属碰撞声 There is a metal collision sound in the fan	金属物进入 Metal entry	排除异物 Exclude foreign objects	
	电机轴承损坏 Damaged motor bearings	更换电机轴承 Replace motor bearing	

风机常见故障、原因及排除方法，见下表。当风机在正常运行时出现故障，建议用户最好先与本企业联系，便于指导排除故障。

Fan common faults, causes and exclusion methods, see the table below. When the fan fails during normal operation, it is recommended that the user should contact the company first to facilitate troubleshooting.

订货须知

一、用户在订货时，请首先决定所需通风机的品种、规格及型号。

订货时须写明以下参数：

- (1) 电机额定功率、极数（转速）和频率；
- (2) 风机额定工作电压；
- (3) 风机电控类型（外形尺寸及型号）和启动方式。

二、如果通风机样本上没有能适合用户所需要型号时，我公司可为用户另行设计、制造非标准通风机。

Ordering instruction

1. When ordering, users shall determine the variety, specification and type of fan required at first.

◆ The following parameters shall be specified in ordering:

- (1) Rated power, pole number (rotating speed) and frequency of motor;
- (2) Rated working voltage of fan;
- (3) Electric control type (outline dimension and type) and starting means of fan

2. In case parameters are inaccurate and type of fan cannot be selected, technical personnel of the Company can help users select the type.

安捷风机

