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

统一社会信用代码 91140881MA0KN5M71J

营业执照

名　　称　运城安捷风机电气有限公司
类　　型　有限责任公司(自然人投资或控股)
法定代表人　赵肖雷
经营范围　一般项目：风机、风扇制造；风机、风扇销售；通用设备制造（不含特种设备制造）；通用设备修理；电气设备修理；机械电气设备销售；机械电气设备制造；工业自动控制系统装置制造；专用设备修理；电力设施器材制造；电机及其控制系统研发；工业机器人安装、维修。（除依法须经批准的项目外，凭营业执照依法自主开展经营活动）
注册资本　贰仟万圆整
成立日期　2019 年 08 月 09 日
营业期限　2019 年 08 月 09 日至长期
住　　所　山西省运城市永济市经济技术开发区幸福佳苑东 1-9 号

登记机关　2021 年 10 月 日

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

SDF（P）隧道施工专用变频节能通风机

SDF (P) tunnel construction dedicated frequency conversion energy-saving fan

1. 概述

Overview

SDF（P）隧道施工专用变频节能通风机

SDF（P）tunnel construction dedicated frequency conversion energy-saving fan

SDF（P）隧道施工专用变频节能通风机是公司研发团队针对市场的需求和本公司产品特点，采用先进设计理念，提高性能数据所研制的新型隧道施工风机。适用于各种隧道施工，与传统风机比较可节省用电 30% 以上。

该系列风机适用范围广，可根据隧道施工所需要的风量、风压来随意电钮调节，并且可以根据隧道长短增减电动机数量来满足不同长度的隧道施工需求。

SDF（P）tunnel construction dedicated frequency conversion energy-saving fan is a new type of tunnel construction fan developed by the company's R&D team in response to market demand and the company's product features, adopting advanced design concepts and improving performance data. Applicable to all kinds of tunnel construction, compared with traditional fans can save more than 30% of electricity.

This series of fans has a wide range of applications. It can be freely adjusted according to the amount of wind and air pressure required for tunnel construction, and it can increase or decrease the number of motors according to the length of the tunnel to meet the requirements for different lengths of tunnel construction.

2. 特点

Features

（1）该系列风机采用变频控制柜，能大大减少对电网的冲击和对供电容量的要求，减少输入功率提高功率因数。

（2）根据隧道掘进不同时期对风量、风压的要求，通过调节电动机频率来供应适合的风量、风压，实现无极调速从而节省用电。

（3）根据施工环境对风量、风压的不同要求进行调节，使一种功率的风机在不同功率下运行，真正实现了一机多用，从而有效节省了电能及投资。

（1）This series of fans uses variable frequency control cabinets, which can greatly reduce the impact on the grid and the requirements for the power supply capacity, reduce the input power and increase the power factor.

（2）According to the requirements of air volume and air pressure at different stages of tunnel excavation, suitable air volume and air pressure are supplied by adjusting the frequency of the motor to realize stepless speed regulation and thus save electricity.

（3）According to the construction environment, the different requirements of the air volume and the air pressure are adjusted so that a kind of power fan can operate under different powers, realizing multi-purpose use of one machine, thereby effectively saving power and investment.

3. 风机型号标志解释

Explanation of markings of fan type

S D F (P) -4- №10

- 机号为10，即叶轮直径1000mm
  Machine number is10, that is, diameter of impeller is 1000mm
- 电机极数 Number of motor poles
- 变频系列 Frequency conversion series
- 风机 Fan
- 对旋 Counter rotating
- 隧道 Tunnel

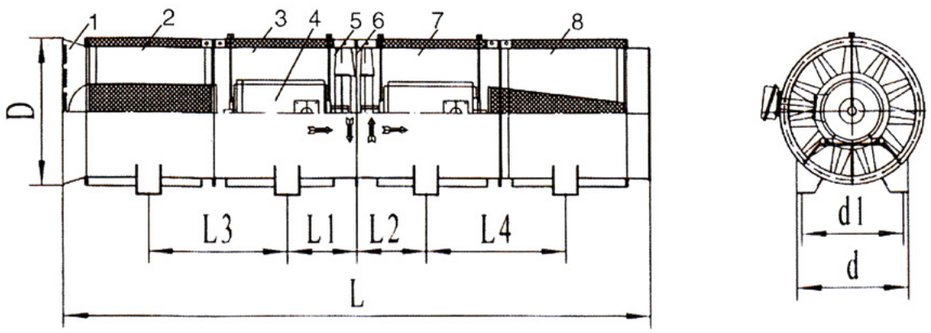
4.SDF（P）隧道施工专用变频节能通风机技术性能参数表

SDF（P）tunnel construction frequency conversion energy-saving fan technical performance parameters

风机型号 Type of fan	转速 Rotating speed（r/min）	风量 Air volume（m^3/min）	风压 Air pressure（pa）	配用电机功率（KW）
SDF(P)-2- № 7.1	2900	246-680	6400-684	30×2
SDF(P)-2- № 8.0	2900	322-895	8150-936	55×2
SDF(P)-4- № 9.5	1480	408-1325	3200-180	30×2
SDF(P)-4- № 10	1480	462-1500	3500-198	37×2
SDF(P)-4- № 10.5	1480	535-1736	3859-218	45×2
SDF(P)-4- № 11	1480	609-1985	4150-224	55×2
SDF(P)-4- № 11.5	1480	702-2285	4629-261	75×2
SDF(P)-4- № 12	1480	782-2684	4940-285	90×2
SDF(P)-4- № 12.5	1480	930-2912	5355-313	110×2
SDF(P)-4- № 13	1480	1017-3300	5920-334	132×2
SDF(P)-4- № 14	1480	1853-3980	5582-796	132×2
SDF(P)-4- № 14	1480	1965-4060	6380-945	160×2
SDF(P)-4- № 14	1480	1268-4116	6860-388	185×2
SDF(P)-6- № 14	980	839-2725	3100-170	75×2
SDF(P)-4- № 15	1480	2320-4680	5850-863	200×2
SDF(P)-6- № 15	980	1032-3352	3559-195	90×2
SDF(P)-4- № 16	1480	2700-5570	6370-920	220×2
SDF(P)-6- № 16	980	1252-4068	4049-222	110×2
SDF(P)-6- № 18	980	1783-5792	5124-281	200×2
SDF(P)-6- № 20	980	2079-6684	5820-316	250×2

5.SDF（P）隧道施工专用变频节能通风机外形结构示意图

SDF（P）tunnel construction dedicated frequency conversion energy saving fan outline structure schematic



1、集流器 Current collector
2、进气消声筒 Inlet muffling pot
3、一级主机 Primary main machine
4、变频电动机 Variable frequency motor
5、一级叶轮 Primary impeller
6、二级叶轮 Secondary impeller
7、二级主机 Secondary main machine
8、出气消音筒 Outlet muffling pot

6.SDF（P）隧道施工专用变频节能通风机外形尺寸表

SDF（P）tunnel construction frequency conversion energy-saving fan dimensions table

风机型号 Type of fan	L1	L2	L3	L4	L	d	d1	D
№ 7.1	400	400	/	/	3310	680	620	855
№ 8.0	460	460	/	/	3760	750	650	945
№ 9.5	500	500	800	800	3800	780	680	1145
№ 10	500	500	900	900	4110	780	680	1190
№ 10.5	500	500	1000	1000	4500	780	680	1240
№ 11	500	500	1000	1000	4660	880	780	1290
№ 11.5	550	550	1100	1100	4960	880	780	1340
№ 12	560	560	1110	1110	4960	1050	950	1390
№ 12.5	690	690	1380	1380	5630	1000	900	1450
№ 13	690	690	1380	1380	5950	1000	900	1500
№ 14	750	750	1500	1500	6280	1080	980	1600
№ 15	750	750	1500	1500	6730	1080	980	1700
№ 16	850	850	1700	1700	7180	1180	1080	1800
№ 18	900	900	1800	1800	8080	1280	1180	2000
№ 20	950	950	2000	2000	8980	1400	1300	2200

SDF（A）小断面隧道施工专用轴流通风机

SDF（A）axial flow fan for small section tunnel construction

1. 特点

Characteristics

SDF（A）小断面隧道施工专用轴流通风机

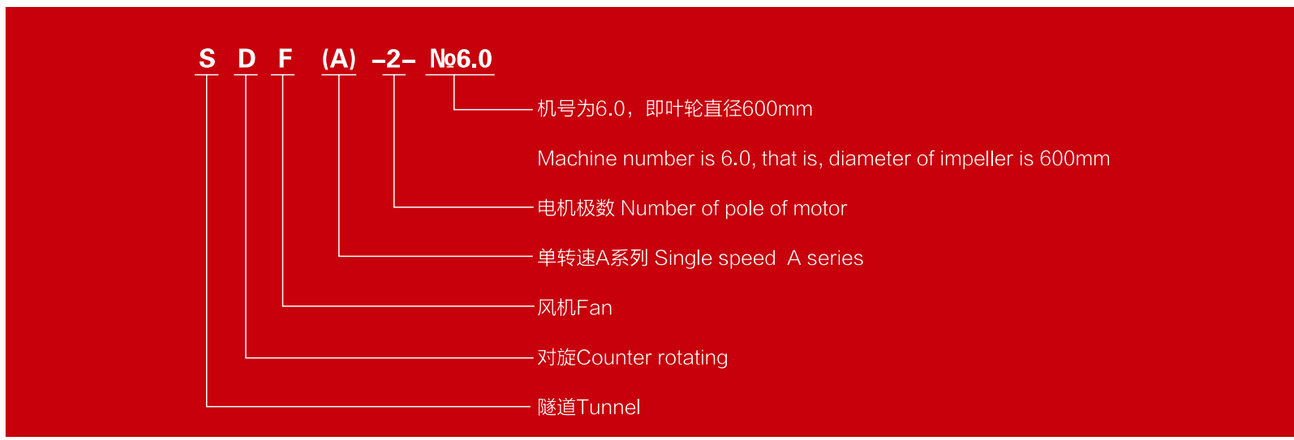
SDF（A） axial flow fan for small section tunnel construction

SDF（A）型风机出口风速快、风量大、噪声低、节能省电、易维修等特点。适用于地铁、引水工程以及石油管道工程等小断面作业。

SDF（A）type fans have the characteristics of fast outlet air speed, large air volume, energy saving and easy maintenance. They are suitable for operation of small sections such as subways, diversion works and petroleum pipeline projects.

2. 风机型号标志解释

Explanation of markings of fan type



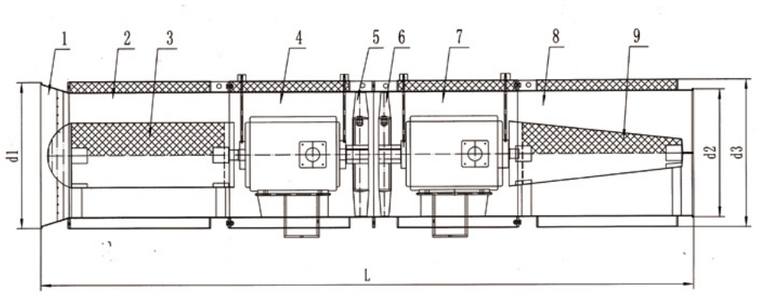
3.SDF（A）型隧道施工专用轴流通风机技术性能参数表

Technical performance parameter table of SDF（A）special axial flow fans for tunnel construction

风机型号 Type of fan	转速 Rotating speed（r/min）	风量 Air volume（m^3/min）	风压 Air pressure（pa）	最高点功率 Power at the highest point(KW)	最大配用电机功率 Maximum auxiliary motor power (KW)
SDF(A)-2- № 4.0	2900	90-140	275-1450	3.3	2.2×2
SDF(A)-2- № 5.0	2900	214-328	485-2695	9.5	5.5×2
SDF(A)-2- № 5.6	2900	250-385	540-2900	17.8	11×2
SDF(A)-2- № 6.0	2900	275-432	1350-4600	25.1	15×2
SDF(A)-2- № 6.3	2900	318-500	1500-5000	30.2	18.5×2
SDF(A)-2- № 6.5	2900	350-550	1600-5400	37.4	22×2
SDF(A)-2- № 7.1	2900	410-680	1900-6400	54.2	30×2
SDF(A)-2- № 7.5	2900	510-740	2120-6750	67.3	37×2
SDF(A)-2- № 8.0	2900	520-800	2400-7500	83.7	45×2
SDF(A)-2- № 8.0	2900	537-895	2600-8150	102.3	55×2

4.SDF（A）型隧道施工专用轴流通风机外形结构示意图

Schematic diagram of outline structure of SDF（A）special axial flow fans for tunnel construction



1、集流器 Current collector

2、进气消声筒 Inlet muffling pot

3、进气消声锥 Inlet muffling cone

4、一级主机 Primary main machine

5、一级叶轮 Primary impeller

6、二级叶轮 Secondary impeller

7、二级主机 Secondary main machine

8、出气消声筒 Outlet muffling pot

9、出气消声锥 Outlet muffling cone

5.SDF（A）型隧道施工专用轴流通风机外形尺寸表

Outline dimension table of SDF（A）special axial flow fans for tunnel construction

风机型号 Type of fan	d1	d2	d3	L
SDF(A)-2- № 4.0	486	405	525	1730
SDF(A)-2- № 5.0	600	505	625	2531
SDF(A)-2- № 5.6	684	565	685	2835
SDF(A)-2- № 6.0	720	605	725	3037
SDF(A)-2- № 6.3	756	635	755	3188
SDF(A)-2- № 6.5	780	655	775	3291
SDF(A)-2- № 7.1	850	715	835	3594
SDF(A)-2- № 7.5	900	755	875	3714
SDF(A)-2- № 8.0	957	805	925	3890

SDF（B）大断面隧道施工专用轴流通风机

SDF（B）special axial flow fan for large section tunnel construction

1. 特点

Characteristics

高效、低噪、风量大、节能，适用于高速公路隧道、双向铁路隧道、海底隧道等大型或特大型隧道施工。叶片角度可根据海拔高度选择性调整，使风机达到最佳运行状态。

High efficiency, low noise, large air volume and energy saving, they are applicable to large or extra large tunnel construction such as expressway tunnels, two-way railway tunnels and undersea tunnels. Angle of blade could be selectively adjusted in accordance with altitude to make fans reach the best operation state.

2. 风机型号标志解释

Explanation of markings of fan type

3.SDF（B）型隧道施工专用轴流通风机技术性能参数表

Technical performance parameter table of SDF（B）special axial flow fans for tunnel construction

风机型号 Type of fan	转速 Rotating speed（r/min）	风量 Air volume（m^3/min）	风压 Air pressure（pa）	高效风量 Highefficient air volume（m^3/min）	最高点功率 Power at the highest point (KW)	最大配用电机功率 Maximum auxiliary motor power (KW)
SDF(B)-4-№9.6	1480	680-1325	500-3200	1100	58	30×2
SDF(B)-4-№10	1480	770-1500	550-3500	1225	71	37×2
SDF(B)-4-№10.5	1480	891-1736	606-3859	1415	85.5	45×2
SDF(B)-4-№11	1480	1015-1985	624-4150	1550	107	55×2
SDF(B)-4-№11.5	1480	1171-2281	727-4628	1863	142.8	75×2
SDF(B)-4-№12.5	1480	1550-2912	870-5355	2385	208	110×2
SDF(B)-4-№13	1480	1695-3300	930-5920	2691	259	132×2
SDF(B)-4-№14	1480	2113-4116	1078-6860	3316	360	185×2
SDF(B)-6-№14	980	1399-2725	473-3100	2226	110	75×2

SDF（C）大断面隧道施工专用变速轴流通风机

SDF（C）Variable-speed axial flow fan for large-section tunnel construction

1. 特点

Characteristics

SDF（B）、（C）型隧道施工专用轴流通风机

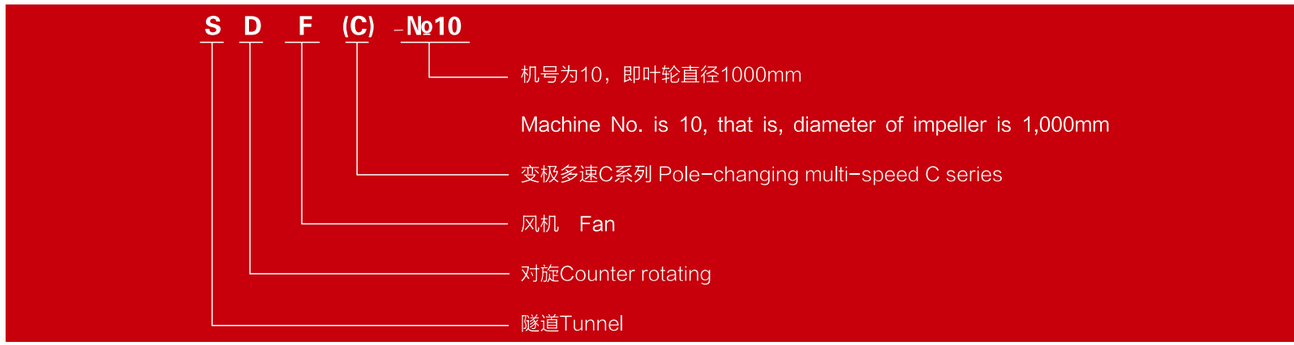
SDF(B) and (C) special axial flow fans for tunnel construction

高效、低噪、节能，“变极多速”以其不同的转速带给您不同的通风方式和节能效果，改变了传统叶片不可调的缺陷，实现了有选择的可调性，并能用于高原气候环境下的施工通风。

High efficiency, low noise and energy saving. "Pole changing multi-speed" could bring different ventilation means and energy saving effect for you with its different rotating speed. It changes the nonadjustable defects of traditional blades and realizes the selective adjustment, and could be used for construction ventilation under plateau climate environment.

2. 风机型号标志解释

Explanation of markings of fan type



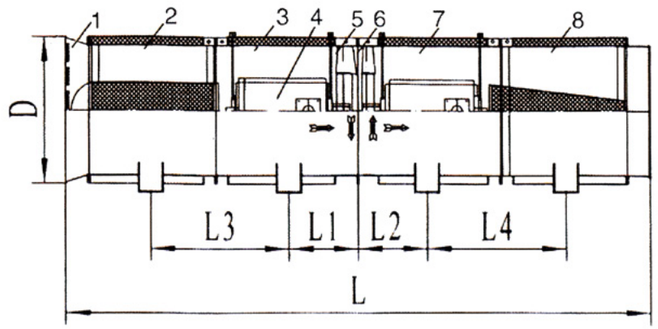
3.SDF（C）型隧道施工专用轴流通风机技术性能参数表

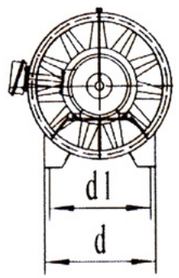
Technical performance parameter table of SDF（C）special axial flow fans for tunnel construction

风机型号 Type of fan	速度 Speed	转速 Rotating speed（r/min）	风量 Air volume（m^3/min）	风压 Air pressure（pa）	高效风量 Highefficient air volume（m^3/min）	最高点功率 Power at the highest point (KW)	最大配用电机功率 Maximum auxiliary motor power (KW)
SDF(C)-№10	高速 High speed	1480	770-1500	550-3500	1225	71	37×2
	中速 Medium speed	980	640-1010	240-1600	825	21.9	12×2
	低速 Low speed	750	420-760	140-880	619	9.3	6×2
SDF(C)-№11	高速 High speed	1480	1015-1985	624-4150	1550	107	55×2
	中速 Medium speed	980	690-1345	295-1900	1098	33.5	17×2
	低速 Low speed	750	540-1006	160-1095	825	15	8×2
SDF(C)-№11.5	高速 High speed	1480	1171-2285	727-4629	1865	142.8	75×2
	中速 Medium speed	980	975-1536	317-2116	1255	44	24×2
	低速 Low speed	750	639-1156	185-1164	941	18.7	12×2
SDF(C)-№12.5	高速 High speed	1480	1550-2912	870-5355	2385	208	110×2
	中速 Medium speed	980	1052-1968	629-2445	1610	67.5	34×2
	低速 Low speed	750	840-1475	210-1375	1208	28.4	16×2
SDF(C)-№13	高速 High speed	1480	1695-3300	930-5920	2691	259	132×2
	中速 Medium speed	980	1407-2219	406-2704	1813	81	45×2
	低速 Low speed	750	923-1670	237-1487	1360	34	22×2
SDF(C)-№14	高速 High speed	1480	2113-4116	1078-6860	3361	360	185×2
	中速 Medium speed	980	1756-2771	471-3136	2263	117	60×2
	低速 Low speed	750	1152-2085	274-1725	1698	50	30×2

4.SDF（B）、（C）型隧道施工专用轴流通风机外形结构示意图

Schematic diagram of outline structure of SDF（B）and（C）special axial flow fans for tunnel construction





1、集流器 Current collector　　2、进气消声筒 Inlet muffling pot

3、一级主机 Primary main machine　　4、电动机 Motor

5、一级叶轮 Primary impeller　　6、二级叶轮 Secondary impeller

7、二级主机 Secondary main machine　　8、出气消音筒 Outlet muffling pot

5.SDF（B）、（C）型隧道施工专用轴流通风机外形尺寸表

Outline dimension table of SDF（B）and（C）special axial flow fans for tunnel construction

风机型号 Type of fan	类别 Category	L1	L2	L3	L4	L	d	d1	D
№ 9.6	B	500	500	800	800	3680	780	680	1135
№ 10	B	500	500	800	800	3880	780	680	1175
	C	530	530	1050	1050	4460	780	680	1175
№ 10.5	B、C	500	500	1000	1000	4500	780	680	1240
№ 11	B	500	500	1000	1000	4700	880	780	1280
	C	550	550	1100	1100	4945	880	780	1280
№ 11.5	B	550	550	1100	1100	4945	880	780	1340
	C	600	600	1200	1200	5100	880	780	1340
№ 12.5	B、C	690	690	1380	1380	5850	1100	1000	1435
№ 13	B、C	690	690	1380	1380	6060	1100	1000	1480
№ 14	B、C	780	780	1550	1550	6750	1180	1050	1585

SDF（D）长大隧道施工专用轴流通风机

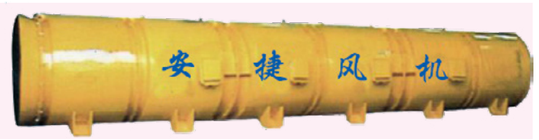
SDF（D）special axial flow fan for long tunnel construction

1. 概述

Overview

SDF（D）长大隧道施工专用轴流通风机

SDF（D） axial flow fan for long and large tunnel construction



SDF（D）节能型长大隧道多级对旋轴流通风机是经过反复试验研究，专门为长、大隧道设计的通风机并荣获国家专利。适用于公路、铁路及引水工程的隧道施工掘进作长距、恒风量的通风，具有送风距离远、噪声低、效率高、风量大等特点。从而解决了长大隧道通风难的问题。

SDF（D）节能型长大隧道多级对旋轴流通风机每级均有功率相同的电动机驱动，叶轮与电机直连，相邻间的叶轮旋转方向相反。气流进入第一级叶轮获得能量，经第二级叶轮加速，再经后级叶轮加速排出。后级叶轮兼备着普通轴流式通风机中静导叶的功能，在获得整直圆周方向速度分量的同时，增加气流的能量，从而达到比双级对旋式通风机更高的风压和效率。

对于特殊环境下施工通风，也可根据用户要求对叶片进行各种喷涂处理。

SDF（D）节能型长大隧道多级对旋轴流通风机更能解决高原环境下的通风需求。

After repeated experiments and research, SDF（D）energy saving four-stage counter rotating axial flow fans for long and large tunnels are fans especially designed for long and large tunnels, and have got national patents. They are applicable to the long distance and constant air volume ventilation of tunneling construction of highway, railway and diversion works, and have the characteristics of long air delivery distance, low noise, high efficiency and large air volume, In order to solve the problem of difficulty in ventilation in long tunnels.

The SDF（D）energy-saving long tunnel has a four-stage counter-rotating axial flow fan that can better solve the ventilation requirements in the plateau environment.For construction ventilation under special environment, various spraying treatments of blades could also be made according to the requirements of users.

Each stage of SDF（D）energy saving four-stage counter rotating axial flow fans for long and large tunnels is driven by the same power motor. Impeller and motor are directly connected and the rotation between adjacent impellers is in opposite direction. Air flow could get energy after entering to primary impeller, accelerate through secondary impeller and then accelerate the removal after the last impeller. The last impeller plays the function of static guide vane in ordinary axial flow fan, which increases the energy of air flow while getting the velocity component in straightening circumference direction, and then reach the higher air pressure and efficiency than that of two-stage counter rotating fans.

2. 特点
Characteristics

送风距离远、效率高、噪音低、风压高、风量大、恒风量、节能省电等特点，根据通风需求，既可开单级，也可双级、三级运行，节电效果明显。

Characteristics are long air delivery distance, high efficiency, low noise, high air pressure, large air volume, constant air volume and energy saving. Either single-stage or double-stage or three-stage could be opened for operation according to ventilation requirements. The energy saving effect is obvious.

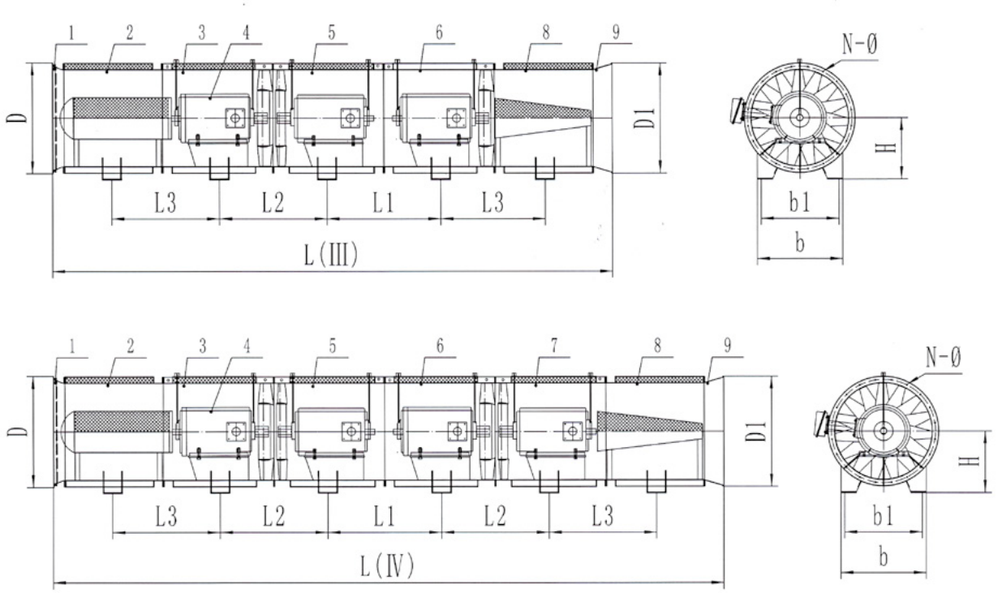
3. 风机型号标志解释
Explanation of markings of fan type

4.SDF（D）节能型长大隧道多级对旋轴流通风机技术性能参数表
SDF（D）energy-saving long tunnel multi-stage counter-rotating axial flow fan technical performance parameter table

风机型号 Type of fan	转速 Rotating speed (r/min)	风量 Air volume (m^3/min)	风压 Air pressure (pa)	最大配用电机功率 Maximum auxiliary motor power (KW)
SDF(D)- № 5.0	2900	176-270	3600-645	5.5×3
		180-275	4800-860	5.5×4
SDF(D)- № 5.3	2900	210-322	4043-727	7.5×3
		214-328	5390-970	7.5×4
SDF(D)- № 5.6	2900	245-378	4350-810	11×3
		250-385	5800-1080	11×4
SDF(D)- № 6.0	2900	270-424	6900-2025	15×3
		275-432	9200-2700	15×4
SDF(D)- № 6.3	2900	312-490	7500-2250	18.5×3
		318-500	10000-3000	18.5×4
SDF(D)- № 6.5	2900	313-539	8100-2400	22×3
		350-550	10800-3200	22×4
SDF(D)- № 7.1	2900	402-666	9600-2850	30×3
		410-680	12800-3800	30×4
SDF(D)- № 7.5	2900	500-726	10125-3180	37×3
		510-740	13500-4240	37×4
SDF(D)- № 8.0	2900	510-784	11250-3600	45×3
		520-800	15000-4800	45×4
SDF(D)- № 8.0	2900	527-877	12225-390	55×3
		537-895	16300-5200	55×4
SDF(D)- № 9.6	1480	666-1300	4800-825	30×3
		680-1325	6400-1100	30×4
SDF(D)- № 10	1480	755-1470	5250-825	37×3
		770-1500	7000-1100	37×4
SDF(D)- № 10.5	1480	880-1700	5790-910	45×3
		897-1736	7720-1212	45×4
SDF(D)- № 11	1480	995-1945	6225-900	55×3
		1015-1985	8300-1200	55×4
SDF(D)- № 11.5	1480	1146-2240	6940-1088	75×3
		1170-2285	9250-1450	75×4
SDF(D)- № 12.5	1480	1519-2854	8025-1290	110×3
		1550-2912	10700-1720	110×4
SDF(D)- № 13	1480	1662-3234	9000-1400	132×3
		1695-3300	12000-1860	132×4
SDF(D)- № 14	1480	2027-4036	10275-1617	185×3
		2113-4116	13700-2156	185×4
SDF(D)- № 14	980	1370-2952	4800-710	75×3
		1399-3013	6400-946	75×4
SDF(D)- № 15	980	1686-3685	5340-815	90×3
		1721-3760	7120-1086	90×4
SDF(D)- № 16	980	2046-4410	6075-927	110×3
		2088-4500	8100-1236	110×4

5.SDF(D) 节能型长大隧道多级对旋轴流通风机结构示意图

SDF (D) energy-saving long tunnel multi-stage counter-rotating axial flow fan structure diagram



1、集流器 Current collector
2、进气消声筒 Inlet muffling pot
3、主机（一）Main machine (I)
4、电动机 Motor
5、主机（二）Main machine (II)
6、主机（三）Main machine (III)
7、主机（四）Main machine (IV)
8、出气消声筒 Outlet muffling pot
9、风筒接头 Air cylinder joint

6. SDF（D）节能型长大隧道多级对旋轴流通风机外形尺寸表

SDF（D）energy-saving long tunnel multi-stage counter-rotating axial flow fan outline size table

风机型号 Type of fan	L（Ⅲ）	L（Ⅳ）	L1	L2	L3	H	D	b	b1	N-φ
SDF(D)-№5.0	3474	4181	735	707	707	385	600	460	360	12-φ14
SDF(D)-№5.6	3859	4651	820	792	792	415	684	520	420	12-φ14
SDF(D)-№6.0	4039	4761	750	722	722	438	730	532	432	16-φ14

风机型号 Type of fan	L（Ⅲ）	L（Ⅳ）	L1	L2	L3	H	D	b	b1	N-φ
SDF(D)-№6.3	4196	4928	760	732	732	460	756	540	440	16-φ14
SDF(D)-№6.5	4316	5064	776	748	748	480	780	550	450	16-φ14
SDF(D)-№7.1	4652	5474	850	822	822	510	850	610	510	16-φ14
SDF(D)-№7.5	4852	5712	888	860	540	530	900	640	540	16-φ14
SDF(D)-№8.0	5088	6000	940	912	544	555	957	644	544	16-φ14
SDF(D)-№9.6	5056	5923	895	867	685	640	1152	785	685	16-φ16
SDF(D)-№10	5993	7030	1065	1037	704	660	1220	804	704	16-φ16
SDF(D)-№10.5	6193	7230	1065	1037	704	680	1270	804	704	16-φ16
SDF(D)-№11	6200	7300	1260	1100	775	720	1278	880	780	20-φ16
SDF(D)-№11.5	6430	7630	1320	1200	810	745	1330	1000	900	20-φ16
SDF(D)-№12.5	7320	8700	1460	1380	884	800	1430	1100	1000	20-φ16
SDF(D)-№13	7620	9000	1460	1380	884	825	1470	1100	1000	20-φ18
SDF(D)-№14	8340	9900	1586	1560	926	900	1575	1180	1050	20-φ18
SDF(D)-№15	8638	10228	1618	1590	996	910	1720	1196	1066	20-φ18
SDF(D)-№16	9318	11040	1750	1722	1066	970	1820	1376	1246	24-φ18

SDF（E）降噪型城市低噪音地铁专用风机

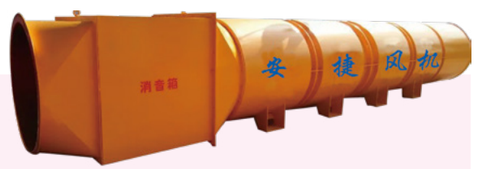
SDF（E）noise reduction of urban low noise dedicated subway fan

1. 概述

Overview

SDF（E）降噪型城市低噪音地铁专用风机

SDF（E）noise reduction of urban low noise dedicated subway fan



SDF（E）降噪型城市低噪音地铁专用风机是我公司针对城市地铁要求，精心制造的一种低噪风机。本系列风机包含有适用于地铁、石油管道等小端面作业的单转速双层消音风机和适用于大型隧道施工的变级多速加长消音风机。解决了城镇地铁隧道掘进时，一般轴流风机不能满足噪音要求的问题。

SDF（E）noise-reducing urban low-noise subway fan is our company for the city subway requirements, and carefully manufactured a low noise fan. This series of fans for subway, oil pipelines and other small end of the operation of the single-speed dual-silencer fan and for large-scale tunnel construction of the multi-speed variable-speed extended silencer fan. Solve the urban subway tunneling, the general axial fan can not meet the noise requirements.

2. 特点

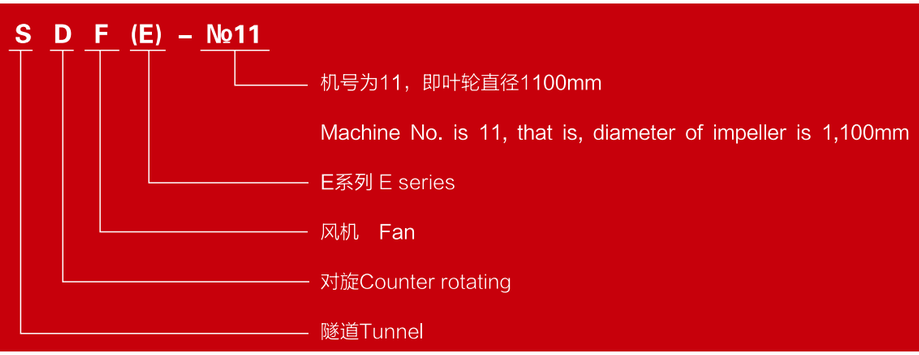
Characteristics

低噪、节能，采用“变极多速”电机，达到节能效果，双层消音筒和加长消音筒使噪音在原有基础上再降低，实现满足噪声要求。

Low noise, energy saving, the use of "multi-speed multi-speed" motor, to energy-saving effect, double muffler and lengthen the muffler noise reduction on the basis of the original, to meet the noise requirements.

3. 风机型号标志解释

Explanation of markings of fan type



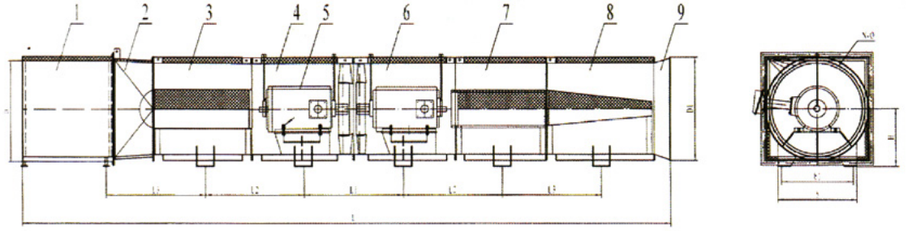
4.SDF（E）降噪型城市低噪音地铁专用风机技术性能参数表

Technical performance parameter table of SDF（E）noise reduction of urban low noise dedicated subway fan

风机型号 Type of fan	转速 Rotating speed（r/min）	风量 Air volume（m^3/min）	风压 Air pressure（pa）	配用电机功率 Auxiliary motor power (KW)	噪声 noise（dB）
SDF(E)-№6.0	2900	275-432	1350-4600	15×2	≤85
SDF(E)-№6.3	2900	318-500	1500-5000	30×2	≤85
SDF(E)-№7.1	2900	410-680	1900-6400	37×2	≤85
SDF(E)-№8.0	2900	520-800	2400-7500	45×2	≤85
SDF(E)-№11	1480/980/750	540-1985	160-4150	55×2	≤85
SDF(E)-№11.5	1480/980/750	639-2285	185-4629	75×2	≤85
SDF(E)-№12.5	1480/980/750	840-2912	210-5355	110×2	≤85
SDF(E)-№13	1480/980/750	923-3300	237-5920	132×2	≤85

5.SDF（E）降噪型城市低噪音地铁专用风机外形结构示意图

Schematic diagram of outline structure of SDF（E）noise reduction of urban low noise dedicated subway fan



1、消音箱 Muffling box　2、圆变方 Joint of circular to square　3、进气消音筒 Inlet muffling pot
4、一级主机 Main machine (I)　5、电动机 Motor　6、二级主机 Main machine (II)
7、出气消音筒 Outlet muffling pot　8、加长消声筒 Lengthened muffling pot　9、风筒接头 Air cylinder joint

6.SDF（E）型隧道施工专用轴流通风机外形尺寸表

Outline dimension table of SDF（E）special axial flow fans for tunnel construction

风机型号 Type of fan	L	L1	L2	L3	H	D	D1	B	b1	N-φ
№6.0	4300	750	960	/	435	820	632	580	520	16-φ12
№6.3	4570	840	1000	/	500	870	665	620	550	16-φ12
№7.1	4620	895	1000	/	510	930	745	680	620	16-φ12
№8.0	4680	900	1000	/	540	1020	835	800	700	16-φ12
№11	8500	1100	1100	1460	720	1348	1180	880	780	16-φ16
№11.5	8680	1200	1200	1410	745	1435	1185	1000	900	16-φ16
№12.5	9050	1380	1380	1380	800	1460	1435	1100	1000	20-φ18
№13	9860	1380	1380	1540	820	1515	1470	1100	1000	20-φ18

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，同时确保风机支撑架无冗余应力存在。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。

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.

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380V±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。

(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±5%), and whether the three-phase voltage is balanced;

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.

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。

(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. Loosing 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