TWOSUN®
SHUANGYANG FAN

Metro & Tunnel Fan
地铁隧道风机



2021版

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ZHEJIANG SHUANGYANG FAN CO.,LTD
浙江双阳风机有限公司

TWOSUN SHUANGYANG FAN

ABOUT US

关于我们

CREATING LEADING TECHNOLOGY CASTING SHUANGYANG FAN BOUTIQUE

创行业领先科技 铸双阳风机精品



浙江双阳风机有限公司是风机、风阀和消声器产品的专业制造企业，公司占地面积 8.5 万平方米，建筑面积 6.5 万平方米，注册资本 20620 万元，总资产近 4 亿元。目前，已形成工民建、地铁隧道、核电和工业配套四大领域应用风机的设计、制造和销售的完整体系。

公司自成立以来，一直以科技创新为发展方向，长期与国内知名院校、科研单位进行产学研合作，并不断引进、消化和吸收先进技术，公司创新能力持续增强。现有员工 500 余人，工程技术人员 60 余人，其中中高级职称 30 余人。公司拥有 50 多项专利，其中发明专利 5 项，多个产品被国家科技部、发改委列入"国家重点新产品"、"火炬计划"和"十大重点节能工程重大示范项目"，公司还荣获"国家高新技术企业"称号。

公司的历史悠久，资金实力雄厚，质保体系健全，制造设备精良，检验流程完善，设计、制造和服务经验丰富。公司综合实力处于行业领先地位。欢迎国内外朋友莅临指导！

Zhejiang Shuangyang Fan Co., Ltd, a professional manufacturer specialized in fans, dampers and silencers. It covers an area of more than 85,000 square meters and construction area 65,000 square meters with the registered capital 206.2 million yuan and total asset are nearly 400 million yuan. Shaungyang has formed a complete system included the design, manufacture and sales of fans in the fields of civil construction, metro and tunnel, nuclear power station and industrial supporting.

Since its founding, the company has always been dedicated to technical innovation and its innovation ability has been continuously enhanced by cooperating with domestic famous universities and research institutes in production, study and research, and constantly introducing and absorbing advanced technologies. The company, with more than 500 employees, more than 60 engineers technicians and more than 30 intermediate and senior engineer technicians, has more than 50 patents (includes 5 invention patents). Many products of Shuangyang company have been listed as National Key New Product, Torch Program and Ten Major Demonstration Projects of Key Energy Conservation Projects by the Ministry of Science and Technology and the National Development and Reform Commission, and the company awarded the High Technology and New Technology Enterprise.

With long history, solid financial resources, sound quality assurance system, high-quality devices, perfect inspection ability and rich experience of design, production and service, Shuangyang is looking forward to your kindly visit.

Metro & Tunnel Fan
地铁隧道风机



SDS Series Jet Fan
SDS系列隧道射流风机



DTF Series Small Metro & Tunnel Axial Flow Fan
DTF系列小型地铁隧道轴流风机



DTF Series Large Metro & Tunnel Axial Flow Fan
DTF系列大型地铁隧道轴流风机



DTF Series Tunnel Axial Flow Fan With Anti-Surging Device
DTF系列带防喘振隧道轴流风机



DTF Series Dynamic Swing-WingAxial Flow Fan
DTF系列动态可变翼轴流风机



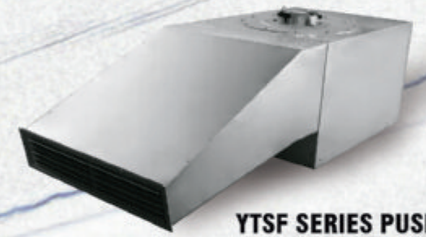
DTF(R) Series Vertical Axial Flow Fan
DTF (R) 系列立式轴流风机



DTF Series Axial Flow Fan With High Temperature Flexible Connection
DTF系列带高温软接轴流风机



DTF(R) Series Axial Flow Fan With Bell Mouth & High Temperature Flexible Connection
DTF (R) 系列带高温软接轴流风机



YTSF SERIES PUSHING INDUCTED FAN
YTSF系列诱导推射风机



SDS/SDS (R) Series Jet Fan

SDS/SDS（R）系列射流风机

1 Overview
概述

SDS/SDS (R) series jet fan is a core product independently developed by Shuangyang which absorbed the advanced technology of similar products abroad and fully investigated many domestic and foreign projects of metro, highway and railway tunnel. With high efficiency, high reliability, high thrust, low noise, high temperature resistance and other characteristics, this fan has reached perfect thrust performance and structural design at international advanced level. And the design, manufacture and inspection of the fan meet the requirements of JB/T10489-2004, Technical Specification for Tunnel Jet Fans.

The jet fan has various diameters range from 630mm to 1600mm, and the maximum thrust is up to 3500N. There are two basic types, SDS unidirectional type and SDS (R) reversible bidirectional type. The unidirectional jet fan is generally used for unidirectional ventilation, and under special conditions, the fan reverses and the reverse thrust value is 50%~70 of the forward thrust; reverse thrust, airflow volume and other data of reversible bidirectional fan are equal to the forward values.

SDS/SDS（R）系列射流风机是我公司消化吸收国外同类产品先进技术，充分调研国内外地铁、公路及铁路隧道等工程系统，自主研发的一款产品。该产品推力性能及结构设计达到国外同类产品先进水平，具有高效、高可靠性、大推力、低噪音、耐高温等特点，该射流风机的设计、制造、检验等符合 JB/T10489-2004《隧道用射流风机技术条件》要求。

该系列射流风机规格自 630mm~1600mm，最大推力达到 3500N，分 SDS 单向和 SDS（R）双向可逆两种基本型式，单向射流风机一般用作单向通风，在特殊情况下风机反转，反转的推力值为正转推力的 50%~70%；双向可逆射流风机的反向推力、风量等参数与正向相等。

TWOSUN SHUANGYANG FAN

2 Construction Features
结构特点

SDS/SDS (R) series jet fan, generally, consists of impeller, motor, casing, silencer, mounting bracket, etc.

1. Impeller: with high efficiency and low-noise airfoil shaped blades, hub and blades are made of high quality aluminum alloy die casting by heat treatment, X-ray flaw detection, tensile test and metal processing, through dynamic balance test. Blade angle is statically adjustable.

2. Matching motor: air cooling squirrel-cage totally enclosed type, protection grade IP55 and insulation class H; SKF and NSK brand:the outgoing cable of the motor can be connected to the junction box on the casing of fan body; the motor with lubrication fitting is guided to the fan casing with a lubricating pipe for easy operation and maintenance.

3. Fan casing and mounting bracket: by numerical control laser and plasma cutting and spinning forming after automatic welding, outer surface hot galvanizing or coating ensures the strength and corrosion resistance of the fan. The mounting bracket shall be designed according to field conditions.

4. Silencer: matching silencers at both ends of jet fan, the length of the silencer generally is the fan diameter (1D), if extreme low noise is required, the silencer whose length is 2 fan diameter (2D) might be selected; the outer duct of the silencer is formed by a high quality steel plates rolling and welding. The inner part of the silencer is ultra-fine glass wool absorbing material and the outer part covered is plain alkali free glass cloth lined with perforated plates. The streamline nozzle improves the flow field and makes the fan has high operating efficiency.

5. High temperature resistant performance: this series has been tested by Tianjin Fire and Testing Center of Ministry of Public Security and qualified by national compulsory product certification and AMCA certification, the fan runs continuously for 1h at 280℃ air flow temperature without any mechanical, electrical or structural faults. It is used for fire fighting and smoke exhaust in emergency.

6. Reversible switch: with small rotor moment of inertia and fast start and stop, the jet fan can be switched from forward rotation at fan rated speed to reverse rotation at fan rated speed within 30S.

7. Easy installation and maintenance.

SDS/SDS（R）系列射流风机一般由叶轮、电机、机壳、消声器和安装支架等部分组成。

1、风机叶轮：叶片采用高效率、低噪声的翼型设计，轮毂和叶片均采用优质高强度铝合金压铸而成，通过热处理、X 光射线探伤、拉伸试验和金加工，动平衡校验。叶片角度静态可调。

2、配套电机：电机为风冷鼠笼式全封闭湿热型产品，IP55 防护等级、H 级绝缘；电机轴承采用 SKF、NSK 进口品牌轴承；电机引出线电缆可接至风机本体机壳上的接线盒；带有润滑加油嘴的电动机，通过润滑油管引至风机外壳上，操作维护方便。

3、风机机壳、安装支架 采用数控激光、等离子下料，自动焊接后旋压成型，外表面热镀锌或涂装处理，以保证风机的强度和耐腐蚀性。安装支架根据现场条件要求进行设计。

4、消声器：射流风机两端配套消声器，通常为风机直径一倍长度（1D），当噪声要求特别高时，也可以选用风机直径两倍长度的消声器（2D）；消声器外筒采用优质钢板滚圆、焊接而成，内装超细玻璃棉吸声材料，外覆平纹无碱玻璃布，内衬消声穿孔板。流线型喷嘴改善了流场，使风机具有高的运行效率。

5、耐高温性能：该系列射流风机已通过公安部天津消防试验检测中心权威检测，并取得国家消防强制性产品认证及 AMCA 认证，气流温度达到 280℃时连续运行 1h，不会出现机械、电气或结构方面的故障，紧急状态下用于消防排烟。

6、风机可逆转切换：转子的转动惯量小，启动、停车时间短，射流风机能在 30S 内正反转切换到风机额定转速。

7、安装维护方便。

3 Inspection and Test
试验检测

Thrust test: thrust test device designed as ISO13350 standard.

High temperature fire test: tested by Tianjin Fire Research Institute of Ministry of Public Security(China National Center for Quality Supervision and Test of Fire-fighting System and Fire-resisting Building Components).

Noise test: the noise test is carried out on an open field to the fan with and without silencers at inlet and outlet(at atmospheric wind velocity near zero), sound pressure level of fan is measured along fan axis of 45° at 10m from the fan.

Fan efficiency: fan efficiency is defined with measured thrust (N) and motor input power (KW).

Fan test, mechanical running test, vibration test, the start-up time test, switching time test and other tests are carried out by provincial and national authoritative supervisory agencies in Shuangyang laboratory strictly in accordance with the national and industry standards.

推力试验：按 ISO13350 标准设计的推力试验装置上测得。

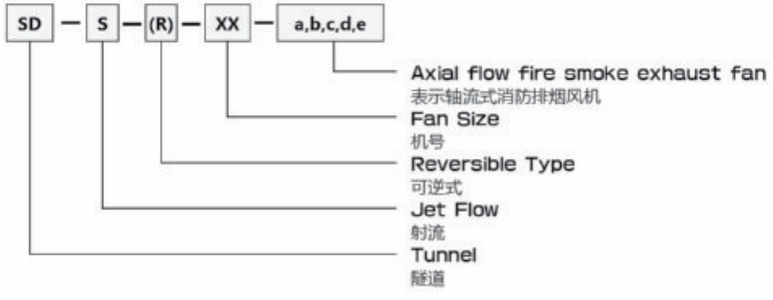
高温消防试验：由公安部天津消防试验检测中心（国家固定灭火系统和耐火构件质量监督检测中心）测试。

噪音测试：风机进出口装消声器和不装消声器均在空旷场地上进行测试（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 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。

风机测试、机械运行测试、振动测试、启动时间、正反转切换时间等试验检测均由我公司双阳实验室严格按国家、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。

4 Naming Conventions
命名规范



5 Performance Parameter Sheet of SDS Series Unidirectional Axial Flow Fireproof Smoke Exhaust Fan (Jet Fan) SDS 系列单向轴流式消防排烟风机（射流式通风机）性能参数表

Fan Type 风机型号	Volume 风量 m³/s	Oulet Air Velocity 出口风速 m/s	Motor 电机			Without Silencer 不带消声器			With Silencer 带消声器						
									1D				2D		
			Motor Size 机座号	Power 功率 kW	Fan Power 风机功率 kW	Thrust 推力 N	Sound Pressure 声压 dB(A)	Weight 重量 kg	Thrust 推力 N	Sound Pressure 声压 dB(A)	Sound Power 声功率 dB(A)	Weight 重量 kg	Thrust 推力 N	Sound Pressure 声压 dB(A)	Weight 重量 kg
SDS-6.3-a	8.1	26.0	132	7.5	6.8	247	78	135	244	68	96	245	239	64	322
SDS-6.3-b	9.0	28.9	160	11.0	8.4	305	79	182	302	69	97	292	296	65	369
SDS-6.3-b	9.9	31.8	160	11.0	10.1	369	80	182	365	70	98	292	358	66	369
SDS-6.3-c	10.8	34.7	160	15.0	12.0	439	81	190	435	71	99	300	426	67	377
SDS-6.3-c	11.7	37.5	160	15.0	14.1	513	82	190	508	72	100	300	498	68	377
SDS-6.3-d	12.7	40.6	160	18.5	17.2	602	84	212	596	74	102	322	584	70	399
SDS-7.1-a	12.7	32.0	160	15.0	13.3	475	81	208	470	71	99	338	461	67	433
SDS-7.1-b	14.0	35.4	160	18.5	16.9	581	82	230	575	72	100	360	564	68	455
SDS-7.1-c	15.0	37.9	180	22.0	20.1	666	84	263	659	72	100	393	646	69	488
SDS-7.1-d	16.0	40.4	200	30.0	22.9	757	85	323	749	73	101	453	734	71	548
SDS-7.1-d	17.0	42.9	200	30.0	25.8	853	86	323	845	75	103	453	828	72	548
SDS-7.1-e	18.0	45.5	200	37.0	30.0	960	87	338	950	77	105	468	931	73	563
SDS-8-a	9.3	18.6	112	4.0	3.1	204	66	138	202	56	84	310	198	52	435
SDS-8-b	10.6	21.0	132	5.5	4.2	260	68	163	257	58	86	335	252	54	460
SDS-8-c	11.8	23.5	132	7.5	5.5	325	69	176	322	59	87	348	315	55	473
SDS-8-c	12.6	25.0	132	7.5	6.6	368	70	176	364	60	88	348	357	55	473
SDS-8-d	13.3	26.5	160	11.0	7.7	413	71	218	409	62	90	390	401	57	515
SDS-8-d	14.1	28.0	160	11.0	9.4	461	72	218	457	63	91	390	448	58	515
SDS-9-a	13.0	20.5	132	7.5	5.4	313	70	232	310	60	88	414	304	56	569
SDS-9-b	14.6	22.9	160	11.0	7.1	391	71	274	387	62	90	456	379	58	611
SDS-9-b	16.1	25.3	160	11.0	9.1	477	72	274	472	63	91	456	463	59	611
SDS-9-b	16.7	26.2	160	11.0	9.9	511	73	274	506	64	92	456	496	60	611
SDS-9-c	18.8	29.5	160	15.0	13.1	641	75	295	634	65	93	477	620	61	632
SDS-9-d	20.1	31.6	180	18.5	16.9	744	76	333	736	67	95	515	722	63	670
SDS-10-a	17.7	22.5	160	11.0	9.8	466	72	306	461	63	91	518	452	60	703
SDS-10-b	19.6	25.0	160	15.0	11.7	575	73	327	569	64	92	539	558	61	724
SDS-10-b	21.2	27.0	160	15.0	13.9	670	75	327	664	66	94	539	650	63	724
SDS-10-c	23.2	29.5	180	18.5	17.1	800	77	365	792	67	95	577	776	64	762
SDS-10-d	24.8	31.6	180	22.0	21.2	884	78	373	875	69	97	585	857	65	770
SDS-10-e	26.9	34.2	200	30.0	27.5	1076	79	453	1065	70	98	665	1044	66	850
SDS-11.2-e	24.8	25.2	180	18.5	17.3	744	77	427	736	68	96	639	722	65	824
SDS-11.2-a	29.1	29.5	180	22.0	20.5	996	78	435	979	69	97	647	948	66	832
SDS-11.2-b	31.1	31.6	200	30.0	24.6	1150	80	515	1135	71	99	727	1100	68	912
SDS-11.2-c	32.9	32.4	225	37.0	33.3	1286	80	529	1270	71	99	741	1240	69	926
SDS-11.2-d	34.9	35.4	225	45.0	38.4	1468	81	565	1453	72	100	777	1424	69	962
SDS-11.2-f	37.4	38.0	250	55.0	46.2	1691	83	672	1674	73	101	884	1641	70	1069

5 Performance Parameter Sheet of SDS Series Unidirectional Axial Flow Fireproof Smoke Exhaust Fan (Jet Fan) SDS 系列单向轴流式消防排烟风机（射流式通风机）性能参数表

Fan Type 风机型号	Volume 风量 m³/s	Oulet Air Velocity 出口风速 m/s	Motor 电机			Without Silencer 不带消声器			With Silencer 带消声器						
									1D				2D		
			Motor Size 机座号	Power 功率 kW	Fan Power 风机功率 kW	Thrust 推力 N	Sound Pressure 声压 dB(A)	Weight 重量 kg	Thrust 推力 N	Sound Pressure 声压 dB(A)	Sound Power 声功率 dB(A)	Weight 重量 kg	Thrust 推力 N	Sound Pressure 声压 dB(A)	Weight 重量 kg
SDS-12.5-a	35.0	28.5	225	37.0	29.8	1185	82	574	1173	72	100	852	1150	70	1137
SDS-12.5-a	38.3	31.2	225	37.0	34.5	1420	82	574	1406	73	101	852	1378	70	1137
SDS-12.5-b	41.6	33.9	225	45.0	41.2	1677	83	610	1660	74	102	888	1627	71	1173
SDS-12.5-c	45.2	36.8	250	55.0	50.8	1976	84	717	1956	76	104	995	1917	73	1280
SDS-12.5-d	48.5	39.5	280	75.0	66.4	2276	85	852	2254	77	105	1130	2208	74	1415
SDS-12.5-e	51.5	42.0	280	90.0	81.9	2574	86	957	2548	78	106	1235	2497	74	1520
SDS-12.5-f	23.1	18.8	160	11.0	8.4	516	69	437	510	60	88	715	500	57	1000
SDS-12.5-g	25.4	20.7	180	15.0	10.7	625	70	485	619	61	89	763	607	58	1048
SDS-12.5-g	27.6	22.5	180	15.0	12.3	739	71	485	731	63	91	763	717	60	1048
SDS-12.5-h	29.8	24.3	200	18.5	15.6	861	72	510	853	64	92	788	836	61	1073
SDS-12.5-i	32.2	26.2	200	22.0	18.9	1001	73	540	991	64	92	818	972	61	1103
SDS-12.5-j	34.5	28.1	225	30.0	23.7	1152	74	582	1140	66	94	860	1118	63	1145
SDS-14-a	33.6	21.8	200	18.5	16.5	870	73	656	861	64	92	947	844	61	1292
SDS-14-b	36.8	23.9	200	22.0	18.1	1045	74	686	1035	65	93	977	1014	62	1322
SDS-14-c	39.9	25.9	225	30.0	24.8	1228	75	728	1215	66	94	1019	1191	64	1364
SDS-14-d	43.1	28.0	250	37.0	30.2	1435	76	844	1420	68	96	1135	1392	65	1480
SDS-14-e	46.3	30.1	280	45.0	35.5	1658	77	972	1642	68	96	1263	1609	66	1608
SDS-14-f	49.6	32.2	280	55.0	45.7	1898	78	1031	1879	69	97	1322	1841	67	1667
SDS-14-g	25.4	16.5	160	7.5	6.1	498	64	581	493	55	83	872	483	52	1217
SDS-14-h	27.7	18.0	180	11.0	7.7	593	65	620	589	57	85	911	575	54	1256
SDS-14-i	30.0	19.5	200	15.0	9.9	696	66	686	689	58	86	977	675	55	1322
SDS-14-i	32.5	21.1	225	15.0	13.5	815	68	686	807	59	87	977	790	57	1322
SDS-14-j	34.6	22.5	225	18.5	15.1	926	68	702	917	59	87	993	899	57	1338
SDS-14-k	37.1	24.1	250	22.0	19.5	1063	69	728	1052	61	89	1019	1031	58	1364
SDS-16-a	47.2	23.5	225	30.0	24.1	1320	77	892	1307	68	96	1240	1281	66	1680
SDS-16-b	52.1	25.9	250	37.0	32.5	1603	78	1008	1587	69	97	1356	1556	67	1796
SDS-16-c	57.1	28.4	280	55.0	45.6	1928	80	1195	1909	71	99	1543	1870	68	1983
SDS-16-d	61.9	30.8	315	75.0	56.2	2268	81	1590	2245	73	101	1938	2200	70	2378
SDS-16-d	67.0	33.3	315	75.0	65.7	2651	82	1590	2624	73	101	1938	2572	71	2378
SDS-16-e	71.8	35.7	315	90.0	83.5	3046	83	1680	3016	75	103	2028	2956	72	2468
SDS-16-f	35.6	17.7	200	15.0	10.8	749	69	850	741	61	89	1198	727	58	1638
SDS-16-f	39.2	19.5	225	15.0	13.2	909	69	850	900	61	89	1198	882	58	1638
SDS-16-g	42.8	21.3	225	22.0	18.1	1084	71	892	1074	63	91	1240	1052	61	1680
SDS-16-h	46.6	23.2	250	30.0	24.2	1287	72	1005	1274	64	92	1353	1248	62	1793
SDS-16-i	50.3	25.0	280	37.0	32.5	1498	73	1120	1479	65	93	1468	1449	63	1908
SDS-16-j	53.9	26.8	280	45.0	34.6	1717	74	1192	1700	66	94	1540	1666	64	1980

TWOSUN SHUANGYANG FAN

6 Performance Parameter Sheet of SDS(R) Series Biderectional Axial Flow Fireproof Smoke Exhaust Fan (Jet Fan) SDS(R) 系列双向轴流式消防排烟风机（射流式通风机）性能参数表

Fan Type 风机型号	Volume 风量 m³/s	Oulet Air Velocity 出口风速 m/s	Motor 电机			Without Silencer 不带消声器			With Silencer 带消声器						
									1D				2D		
			Motor Size 机座号	Power 功率 kW	Fan Power 风机功率 kW	Thrust 推力 N	Sound Pressure 声压 dB(A)	Weight 重量 kg	Thrust 推力 N	Sound Pressure 声压 dB(A)	Sound Power 声功率 dB(A)	Weight 重量 kg	Thrust 推力 N	Sound Pressure 声压 dB(A)	Weight 重量 kg
SDS(R)-6.3-a	8.9	28.5	132	7.5	6.9	303	79	135	289	70	98	245	274	66	322
SDS(R)-6.3-b	9.5	29.0	160	11.0	8.7	346	80	182	330	71	99	292	312	67	369
SDS(R)-6.3-b	10.2	32.8	160	11.0	10.4	391	80	182	371	71	99	292	363	67	369
SDS(R)-6.3-c	10.5	33.7	160	15.0	12.4	413	81	190	409	72	100	300	401	68	377
SDS(R)-6.3-c	11.4	36.5	160	15.0	14.3	495	82	190	482	73	101	300	470	69	377
SDS(R)-6.3-d	12.3	39.4	160	18.5	17.7	566	83	212	560	74	102	322	549	70	399
SDS(R)-7.1-a	13.0	32.8	160	15.0	13.7	497	83	208	481	73	101	338	460	70	433
SDS(R)-7.1-b	14.2	35.8	160	18.5	17.4	578	84	230	567	74	102	360	549	71	455
SDS(R)-7.1-c	14.9	37.6	180	22.0	20.7	626	85	263	620	75	103	393	607	73	488
SDS(R)-7.1-d	15.5	39.2	200	30.0	23.6	711	85	323	704	76	104	453	690	73	548
SDS(R)-7.1-d	16.5	41.6	200	30.0	26.6	802	86	323	794	77	105	453	778	74	548
SDS(R)-7.1-e	17.5	44.1	200	37.0	30.9	902	87	338	893	78	106	468	875	75	563
SDS(R)-8-a	9.1	18.0	112	4.0	3.2	191	66	138	189	56	84	310	186	52	435
SDS(R)-8-b	10.6	21.2	132	5.5	4.3	244	68	163	242	58	86	335	237	54	460
SDS(R)-8-c	11.5	22.8	132	7.5	5.7	306	69	176	302	59	87	348	296	56	473
SDS(R)-8-c	12.2	24.3	132	7.5	6.8	346	70	176	342	60	88	348	335	57	473
SDS(R)-8-d	14.1	28.0	160	11.0	9.7	453	72	218	448	62	90	410	421	59	515
SDS(R)-8-d	14.7	29.3	160	15.0	13.4	486	73	241	461	63	91	433	448	60	538
SDS(R)-9-a	14.1	22.2	160	11.0	7.3	367	71	274	364	61	89	456	356	57	611
SDS(R)-9-b	15.6	24.5	160	11.0	9.3	448	73	274	444	64	92	456	435	60	611
SDS(R)-9-b	16.2	25.5	160	11.0	10.2	481	73	274	476	64	92	456	466	61	611
SDS(R)-9-b	18.8	29.5	160	15.0	13.5	636	74	295	629	65	93	477	616	61	632
SDS(R)-9-c	19.7	31.0	180	18.5	17.4	699	75	333	692	66	94	515	678	63	670
SDS(R)-9-d	21.5	33.8	180	22.0	20.7	786	76	357	770	67	95	539	754	63	700
SDS(R)-10-a	7.1	21.8	160	11.0	10.1	438	74	306	433	64	92	518	425	61	703
SDS(R)-10-b	19.0	24.3	160	15.0	12.1	540	75	327	535	65	93	539	524	62	724
SDS(R)-10-b	20.8	26.5	160	15.0	14.3	630	76	327	624	67	95	839	611	64	724
SDS(R)-10-c	22.5	28.6	180	18.5	17.6	752	77	365	745	68	96	577	730	65	762
SDS(R)-10-d	24.3	31.0	180	22.0	21.5	831	78	373	822	70	98	585	806	66	770
SDS(R)-10-e	26.5	33.8	200	30.0	28.3	1011	79	453	1001	70	98	665	981	66	850
SDS(R)-11.2-e	24.1	24.4	180	18.5	17.8	699	78	427	682	69	97	639	668	65	824
SDS(R)-11.2-a	30.0	30.5	180	22.0	21.1	1005	79	435	985	70	98	647	941	67	832
SDS(R)-11.2-b	30.5	31.0	200	30.0	25.3	1130	80	515	1120	71	99	727	981	68	912
SDS(R)-11.2-c	33.5	34.0	225	37.0	31.2	1198	81	529	1180	72	100	741	1161	69	926
SDS(R)-11.2-d	34.5	35.0	225	45.0	39.6	1380	82	565	1350	74	102	777	1318	70	962
SDS(R)-11.2-f	36.3	36.9	250	55.0	47.6	1590	83	672	1550	75	103	884	1519	71	1069

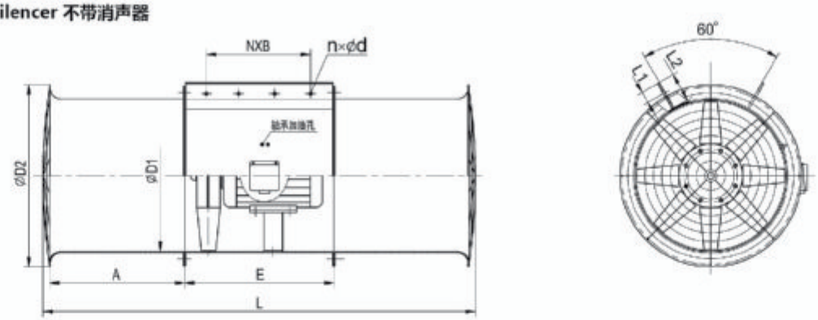
6 Performance Parameter Sheet of SDS(R) Series Biderectional Axial Flow Fireproof Smoke Exhaust Fan (Jet Fan) SDS(R) 系列双向轴流式消防排烟风机（射流式通风机）性能参数表

Fan Type 风机型号	Volume 风量 m³/s	Oulet Air Velocity 出口风速 m/s	Motor 电机			Without Silencer 不带消声器			With Silencer 带消声器						
									1D				2D		
			Motor Size 机座号	Power 功率 kW	Fan Power 风机功率 kW	Thrust 推力 N	Sound Pressure 声压 dB(A)	Weight 重量 kg	Thrust 推力 N	Sound Pressure 声压 dB(A)	Sound Power 声功率 dB(A)	Weight 重量 kg	Thrust 推力 N	Sound Pressure 声压 dB(A)	Weight 重量 kg
SDS(R)-12.5-a	36.2	29.5	200	30.0	27.6	1114	82	543	1153	73	101	821	1136	70	1106
SDS(R)-12.5-a	38.5	31.5	225	37.0	35.5	1335	82	574	1309	73	101	852	1276	70	1137
SDS(R)-12.5-b	41.1	33.5	225	45.0	42.4	1576	83	610	1537	75	103	888	1506	72	1173
SDS(R)-12.5-c	43.8	35.7	250	55.0	52.3	1857	84	717	1811	75	103	995	1775	72	1280
SDS(R)-12.5-d	47.0	38.3	280	75.0	68.4	2140	85	852	2086	76	104	1130	2045	74	1415
SDS(R)-12.5-e	50.0	40.7	280	90.0	84.4	2419	86	957	2359	78	106	1235	2312	75	1520
SDS(R)-12.5-f	22.4	18.2	160	11.0	8.7	485	69	437	473	60	88	715	463	57	1000
SDS(R)-12.5-g	24.6	20.1	180	15.0	11.0	588	70	485	573	61	89	763	561	58	1048
SDS(R)-12.5-g	26.8	21.8	180	15.0	12.7	694	71	485	677	62	90	763	663	59	1048
SDS(R)-12.5-h	28.9	23.6	200	18.5	16.1	810	72	510	790	63	91	788	774	61	1073
SDS(R)-12.5-i	31.2	25.4	200	22.0	19.5	941	73	540	918	64	92	818	899	63	1103
SDS(R)-12.5-j	33.4	27.3	225	30.0	24.4	1083	74	582	1056	65	93	860	1035	63	1145
SDS(R)-14-a	32.6	21.1	200	18.5	16.9	818	74	656	797	65	93	947	781	62	1292
SDS(R)-14-b	35.7	23.2	200	22.0	18.6	983	74	686	958	65	93	977	939	62	1322
SDS(R)-14-c	41.6	27.0	225	30.0	25.5	1238	75	728	1213	66	94	1019	1185	64	1364
SDS(R)-14-d	44.7	29.0	250	37.0	31.1	1426	76	844	1400	67	95	1135	1385	65	1480
SDS(R)-14-e	47.0	30.5	280	45.0	36.6	1586	77	972	1550	68	96	1263	1519	66	1608
SDS(R)-14-f	48.1	31.5	280	55.0	47.1	1784	78	1031	1739	70	98	1322	1704	67	1667
SDS(R)-14-g	24.6	16.0	160	7.5	6.3	468	64	581	457	55	83	872	448	52	1217
SDS(R)-14-h	26.9	17.5	180	11.0	7.9	557	65	620	543	56	84	911	533	53	1256
SDS(R)-14-i	29.1	18.9	200	15.0	10.2	654	66	686	683	58	86	977	625	56	1322
SDS(R)-14-i	31.5	20.5	225	15.0	13.9	766	68	686	747	59	87	977	732	57	1322
SDS(R)-14-j	33.6	21.8	225	18.5	15.6	871	68	702	849	60	88	993	832	58	1338
SDS(R)-14-k	36.0	23.4	250	22.0	20.0	999	69	728	974	61	89	1019	955	58	1364
SDS(R)-16-a	49.0	24.5	225	30.0	24.8	1300	77	892	1296	68	96	1240	1261	65	1680
SDS(R)-16-b	53.0	26.5	250	37.0	33.5	1543	78	1008	1516	69	97	1356	1485	66	1796
SDS(R)-16-c	55.4	27.7	280	45.0	41.0	1628	80	1135	1657	71	99	1483	1624	68	1923
SDS(R)-16-d	59.4	29.7	280	55.0	47.0	2012	80	1195	1905	71	99	1543	1862	68	1983
SDS(R)-16-d	64.9	32.3	315	75.0	67.7	2492	81	1590	2429	72	100	1938	2381	70	2378
SDS(R)-16-e	69.6	34.6	315	90.0	86.0	2864	83	1680	2792	74	102	2028	2736	71	2468
SDS(R)-16-f	34.5	17.2	200	15.0	11.1	704	69	850	686	60	88	1198	673	57	1638
SDS(R)-16-f	38.0	18.9	225	15.0	13.6	854	69	850	833	61	89	1198	816	58	1638
SDS(R)-16-g	41.5	20.7	225	22.0	18.5	1019	71	892	994	63	91	1240	974	60	1680
SDS(R)-16-h	45.2	22.5	250	30.0	24.9	1209	72	1005	1179	63	91	1353	1156	61	1793
SDS(R)-16-i	48.8	24.3	280	37.0	33.5	1404	73	1120	1369	65	93	1468	1342	62	1908
SDS(R)-16-j	52.3	26.0	280	45.0	35.6	1614	74	1192	1573	65	93	1540	1542	62	1980

TWOSUN SHUANGYANG FAN

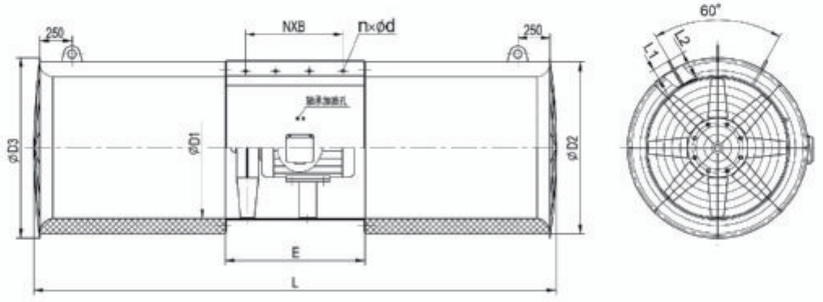
7 Overall Dimensions of SDS Series Axial Flow Fireproof Smoke Exhaust Fan (Jet Fan)
SDS 系列轴流式消防排烟风机（射流式通风机）外形尺寸图

Without Silencer 不带消声器

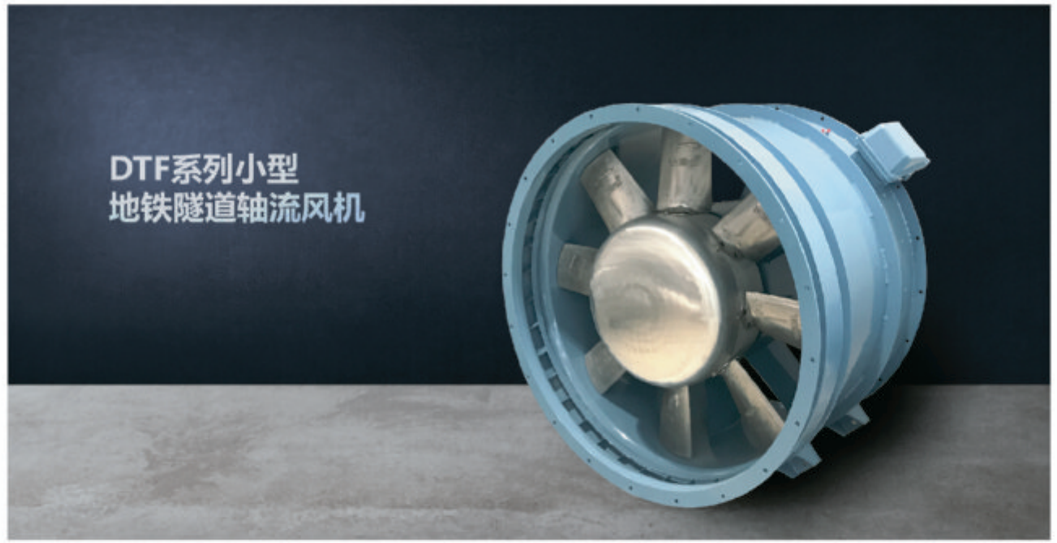


尺寸 Size / 机号 NO.	ΦD1	ΦD2	A	E	N×B	L1	L2	L	n×Φd
6.3	640	740	310	600	3×180	50	100	1270	4×Φ18
7.1	720	830	320	640	3×200	50	100	1280	4×Φ18
8	810	930	350	640	3×190	50	100	1340	4×Φ18
9	910	1060	390	640	4×160	60	150	1420	5×Φ18
10	1010	1160	450	640	4×160	60	150	1540	5×Φ18
11.2	1130	1400	460	640	4×180	80	180	1560	5×Φ18
12.5	1260	1530	460	900	4×200	80	180	1890	5×Φ20
14	1410	1690	500	1000	4×225	100	200	2100	5×Φ26
16	1610	1890	600	1000	4×225	100	200	2300	5×Φ26

With Silencer 带消声器



尺寸 Size / 机号 NO.	ΦD1	ΦD2	ΦD3	E	N×B	L1	L2	L		n×Φd
								1D	2D	
6.3	640	780	788	600	3×180	50	100	1910	3170	4×Φ18
7.1	720	920	928	640	3×200	50	100	2120	3540	4×Φ18
8	810	1010	1018	640	3×190	50	100	2300	3900	4×Φ18
9	910	1110	1118	640	4×160	60	150	2500	4300	5×Φ18
10	1010	1210	1218	640	4×160	60	150	2700	4700	5×Φ18
11.2	1130	1330	1338	640	4×180	80	180	2950	5190	5×Φ18
12.5	1260	1460	1468	900	4×200	80	180	3470	5970	5×Φ20
14	1410	1630	1640	1000	4×225	100	200	3900	6700	5×Φ26
16	1610	1850	1860	1000	4×225	100	200	4300	7500	5×Φ26



DTF Series Axial Flow Fireproof Smoke Exhaust Fan (Fire Fighting)
DTF Series Metro & Tunnel Small Size Fan (Ventilation)
DTF系列轴流式消防排烟风机（消防型）
DTF系列地铁、隧道小机号风机（通风型）

1 Overview
概述

DTF Series is a core series independently developed by Shuangyang which absorbed the advanced technology of similar products abroad and fully investigated many domestic and foreign projects of metro and tunnel. With high pressure, high efficiency, high reliability, high temperature resistance, low noise and other characteristics, the DTF fan has perfect thrust performance and structural design at international advanced level and can adapt to various special working conditions of metro and tunnel.

DTF series small size fan, with size 355~1120, airflow volume up to 100000 m³/h and total pressure up to 1500 pa, is the unidirectional axial flow fan whose blade angle is statically adjustable and applicable for different operating conditions. DTF metro and tunnel axial flow fan has passed the China Compulsory Certification and AMCA certification and runs continuously for one hour at 280℃airflow temperature without mechanical, electrical or structural failures. And the fan is used for fire fighting and smoke exhaust in emergency (executive standard GA211-2009).

DTF 系列地铁隧道轴流风机是我公司消化吸收国外同类产品先进技术，充分调研国内外地铁、隧道等工程系统，自主研发的地铁、隧道通风产品系列。该产品性能及结构设计达到国内外同类产品先进水平，具有大风量高压力、高效、高可靠性、低噪声、耐高温等特点，能适应地铁、隧道特点工况环境下的各种使用要求。

DTF系列小机号风机为单向运转轴流风机，风机型号355~1120，风量最大可达100000m³/h，全压最高达1500Pa，叶片角度静态可调，可满足不同工况条件下使用需要，同时该系列地铁隧道轴流风机通过了国家消防强制产品认证及 AMCA 认证，气流温度达到 280℃时连续运行 1h，不会出现机械、电气或结构方面的故障，紧急状态下用于消防排烟（执行标准 GA211-2009）。

2 Product Features
产品特点

Reliability 高可靠性设计

Designed with advanced FEA, the fan is proved has enough strength safety factor after repeated optimization and experimental verification; the thermal expansion and strength requirements of the impeller material at 300℃ are fully considered in the design to ensure the safe and reliable operation of the fan during high-temperature smoke exhaust in emergency.

Fan impeller is made with advanced die-casting technology, aluminum alloy blades and hub are analyzed by metallographic analysis to have fine structures; each blade is proved to have high quality for safe operation of fan after strict X-ray test.

Through two dynamic balancing tests, one for the hub and the other for the whole impeller, the dynamic balance precision of the impeller is ISOG2.5 (higher than the national standard of 5.6 grade), which ensures less vibration and smooth operation of the fan.

Impeller overspeed test and the mechanical test, vibration test, aerodynamic performance test of the whole fan are conducted before delivery to ensure the smooth and reliable operation of the fan.

Impeller blade and hub are connected with a Half structure to ensure the long-term reliable operation of the fan.

Fan casing is made of high quality thick steel plates by full welding, which has high structural strength.

风机采用先进的 FEA 辅助设计反复优化及实验验证，有足够的强度安全系数；设计时充分考虑叶轮材料 300℃高温下的热膨胀和强度要求，确保紧急情况高温排烟时安全可靠运行。

风机叶轮采用先进的压铸工艺技术，铝合金叶片、轮毂经金相分析，其结构组织良好；每个叶片都必须严格经过 X 射线探伤，检测合格质量可靠，保证安全运行。

风机叶轮经二次动平衡，轮毂动平衡和叶轮整体动平衡，动平衡精度达到 ISOG2.5（高于国家标准 5.6 级），风机振动小，运行平稳。

整机出厂前，经叶轮超速试验和整机机械性能试验、振动试验、气动性能试验，以确保达到运行平稳、可靠的要求。

叶轮叶片与轮毂采用哈呋压紧固定结构，确保风机长期可靠运行。

机壳采用优质厚钢板整体焊接制成，结构强度高。

Efficiency and Low Noise 高效率、低噪声

With the latest international aerospace pneumatic design technology and airfoil blade design which has the best aerodynamic characteristics, the fan is optimized with CFD flow field simulation technology and repeatedly tested in laboratory, which ensures the characteristics of high efficiency, wide efficient area and low noise of the fan, and the fan aerodynamic performance conforms to the flow field characteristics.

Streamlined inlet cone and rear guide vane improve the flow field of the fan effectively, enhance the fan operation efficiency and reduce the fan noise further.

Blade angle can be statically adjusted, which ensures the impeller operation in high efficient area.

Each impeller is quiet and stable in operation after the high quality impeller dynamic balance calibration.

用国际最新航空航天气动设计技术，采用气动特性最佳的翼型叶片设计；利用 CFD 流场模拟技术优化设计，通过实验室反复试验验证，保气动性能符合流场特性，效率高且高效区宽、噪音低。

风机采用流线型导流罩及后导叶设计，改善流场，进一步提高风机整体运行效率，降低噪音。

叶片角度静态可调节，当运行工况需求变化时，可通过调节叶片角度确保叶轮高效区运行。

个叶轮均经过高品质的叶轮动态平衡检测，叶轮运转安静平稳。

High Temperature Resistance 耐高温性能

According to the application requirement of metro and tunnel, the motor high temperature resistant may be selected so that the fan continuously operates for at least one hour when the design air temperature reaches 280℃ (higher than the national standard, 250℃/1h) without mechanical, electrical or structural failures and is used for fireproof and smoke exhaust in emergency.

根据地铁隧道的使用要求，可选用耐高温电机，设计气流温度达到 280℃时连续运行至少 1 小时（高于国家标准 250℃/1h），不会出现机械、电气或结构方面的故障，紧急状态下用于消防排烟。

Compact Structure and Easy Install and Maintain 结构紧凑、安装维护方便

Direct drive, no wearing parts and unnecessary maintenance.

The motor with lubrication filling and discharge devices is guided to the fan casing with a lubricating pipe for easy operation and maintenance.

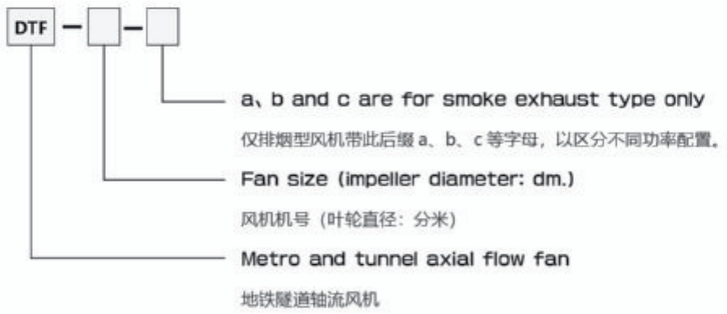
Vibration isolator is selected by vibration isolation calculation and meet the requirements of metro, tunnel and other applications.

直联驱动，无易损件，维护率低。

电机润滑加油及放油装置通过润滑油管引出至风机外壳上，操作维护方便。

通过隔振计算合理选择风机减振器，满足地铁、隧道及其他用途要求。

3 Naming Conventions
命名规范



4 Construction
结构形式

Compact structure and easy installation and maintenance

The fan consists of impeller, motor, casing, fixed bracket, vibration isolator and other components. There are two installation types: horizontal installation and vertical installation.

Fan impeller: consists of hub and blade, formed by high strength aluminum alloy die casting and made through heat treatment, X-ray flaw detection, tensile test, metal processing and dynamic balance test. The blade angle can be adjusted statically by loosening the tightened bolts after fan stop, so that the air flow and pressure of the fan adapt to different working conditions.

Fan motor: IP55 protection grade, insulation class H, moist heat resistant type, SKF and NSK bearing, oil filling hole, oil discharge hole, axle temperature alarm sensor, totally enclosed end and fan casing mounted junction box.

Fan casing: made with high quality steel plate, the inner wall of the impeller assembly section is machined by metal cutting to control the radial clearance of the blade, the fan is designed with the minimum length and weight of the fan casing, and the surface of the casing is hot dip galvanized or painting, with high corrosion resistance.

Mounting bracket: based on the sufficient fan strength, the bracket ensures the light weight and easy installation of the fan.

Fan disassembly and repair: during fan maintenance, remove the flexible connector pipes at both ends of the fan (plug them into the fan section or diffuser section) and the space section at one end of the fan first, loosen the fixed anchor bolts, and the fan can be moved arbitrarily for repair.

结构紧凑、安装维护方便

风机由叶轮、电机、机壳、固定支架、减振器等部件组成；分卧式安装和立式安装两种安装形式。

风机叶轮：有轮毂、叶片组成，采用优质高强度铝合金压铸而成，通过热处理、X 光射线探伤、拉伸试验和金加工，动平衡校验。叶片角度静态可调，停机后拧松压紧螺栓，调节叶片角度，从而使风机的流量和压力适应不同的使用工况。

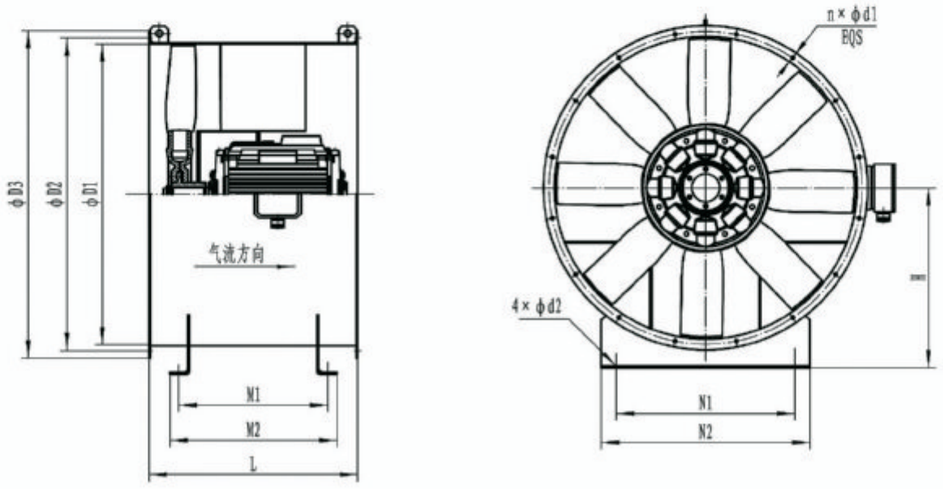
风机配套电机：采用 IP55 防护等级、H 级绝缘，防湿热型，电机轴承采用 SKF、NSK 进口品牌轴承，注油孔、排油孔，轴温报警传感器，末端全封闭式。接线盒安装在风机外壳。

风机壳体：优质钢板加工而成，叶轮装配段内壁经金属切削加工以保证控制叶片的径向间隙，机壳长度和重量以降低到最低（小）值为目标进行设计，机壳表面热浸镀锌或油漆处理，抗腐蚀性强。

风机安装支架：确保风机整机强度的前提下，使其达到重量轻和安装方便的要求。

风机拆装维修方式：风机维护保养时，只要先拆掉风机两端的软接管（将其塞到风机段或扩压段）和风机某端的空间段，拧松固定地脚螺栓，即可任意移动风机位置进行维修。

5 Overall Dimensions
外形尺寸



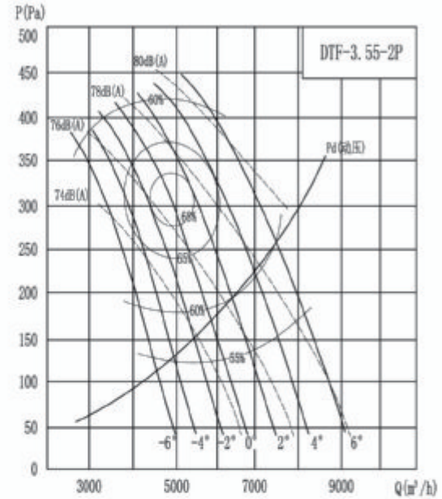
DTF Overall Dimensions DTF 外形尺寸

Fan Type 风机型号	Power 功率 kW	Speed 转速 (rpm)	Total Weight 总重量 kg	D1 (mm)	D2 (mm)	D3 (mm)	L (mm)	M1 (mm)	M2 (mm)	N1 (mm)	N2 (mm)	H (mm)	n×Φd1	Φd2
3.55	0.37	2900	27	363	400	425	320	225	265	200	240	240	8×Φ10	Φ12
	0.55	2900	27				320	225	265					
	0.75	2900	31				320	225	265					
	1.1	2900	31				320	225	265					
4	0.55	2900	31	408	454	490	320	225	275	200	300	258	8×Φ12	Φ12
	0.75	2900	35				320	225	275					
	1.1	2900	35				320	225	275					
	1.5	2900	45				380	275	325					
4.5	1.5	2900	52	460	504	540	400	300	350	300	400	290	8×Φ12	Φ12
	2.2	2900	55				400	300	350					
	3	2900	63				400	300	350					
5	1.1	1450	58	510	554	590	420	300	350	300	400	313	12×Φ12	Φ12
	1.5	1450	63				420	300	350					
	2.2	2900	61				420	300	350					
	3	2900	69				420	300	350					
	4	2900	81				420	300	350					
5.6	3	2900	77	570	614	650	420	300	350	400	500	353	12×Φ12	Φ14
	4	2900	89				420	300	350					
	5.5	2900	112				480	350	400					
	7.5	2900	118				480	350	400					
	11	2900	175				630	450	500					
6.3	5.5	2900	119	640	684	720	480	350	400	400	500	388	12×Φ12	Φ14
	7.5	2900	125				480	350	400					
	11	2900	185				650	475	525					
	15	2900	195				650	475	525					
	1.1	1450	71				420	300	350					
	1.5	1450	76				420	300	350					
	2.2	1450	83				420	300	350					
7.1	7.5	2900	141	720	770	800	500	375	425	500	600	428	12×Φ12	Φ14
	11	2900	203				650	475	525					
	15	2900	213				650	475	525					
	18.5	2900	239				700	500	550					
	22	2900	267				700	500	550					
	30	2900	326				780	575	625					
	1.5	1450	88				420	300	350					
	2.2	1450	95				420	300	350					
	3	1450	99				420	300	350					
8	2.2	1450	114	810	860	890	420	300	350	500	600	483	12×Φ12	Φ14
	3	1450	118				420	300	350					
	4	1450	127				420	300	350					
	5.5	1450	158				550	400	450					
9	5.5	1450	183	910	960	1000	550	400	460	600	700	546	16×Φ14.5	Φ14
	7.5	1450	196				550	400	460					
	11	1450	247				650	475	535					
	15	1450	277				700	500	560					
	3	960	178				550	400	460					
	4	960	188				550	400	460					
10	7.5	1450	231	1010	1060	1100	550	400	460	600	700	604	16×Φ14.5	Φ14
	11	1450	274				650	475	535					
	15	1450	312				700	500	560					
	18.5	1450	338				700	500	560					
	22	1450	370				800	575	635					
	30	1450	428				800	575	635					
	3	960	201				550	400	460					
	4	960	211				550	400	460					
	5.5	960	222				550	400	460					
11.2	18.5	1450	353	1130	1190	1230	700	500	580	800	900	660	20×Φ14.5	Φ14
	22	1450	397				800	575	655					
	30	1450	455				800	575	655					
	37	1450	509				800	575	655					
	45	1450	545				900	650	730					

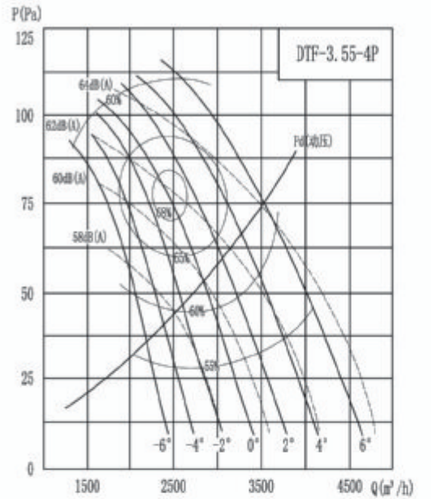
TWOSUN SHUANGYANG FAN

Performance Curve of DTF-3.55# Fan

DTF-3.55# 系列地铁隧道轴流风机性能曲线



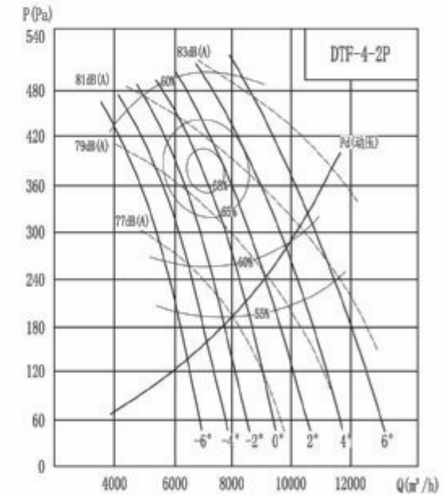
转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
2900	功率(KW)	0.37	0.37	0.55	0.55	0.55	0.75	0.75
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-16	-10	-5	-6	-8	-12	-20	-25



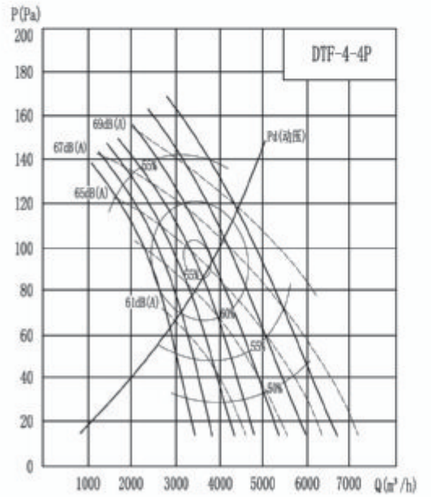
转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
1450	功率(KW)	0.04	0.06	0.06	0.06	0.09	0.09	0.09
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-15	-9	-5	-6	-8	-13	-21	-26

Performance Curve of DTF-4# Fan

DTF-4# 系列地铁隧道轴流风机性能曲线



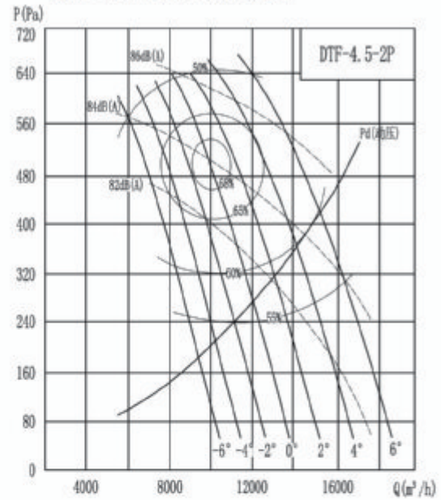
转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
2900	功率(KW)	1.1	1.1	1.5	1.5	2.2	2.2	2.2
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-16	-10	-5	-6	-8	-12	-20	-25



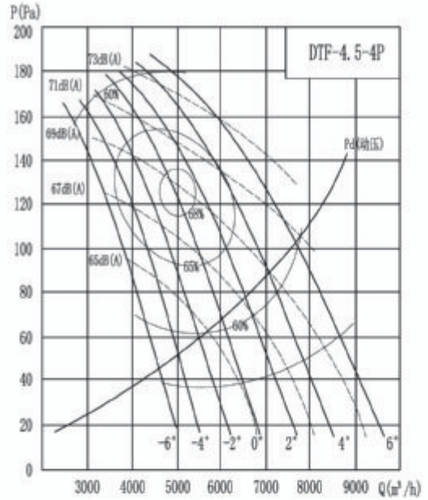
转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
1450	功率(KW)	0.12	0.18	0.18	0.18	0.25	0.25	0.37
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-15	-9	-5	-6	-8	-13	-21	-26

Performance Curve of DTF-4.5# Fan

DTF-4.5# 系列地铁隧道轴流风机性能曲线



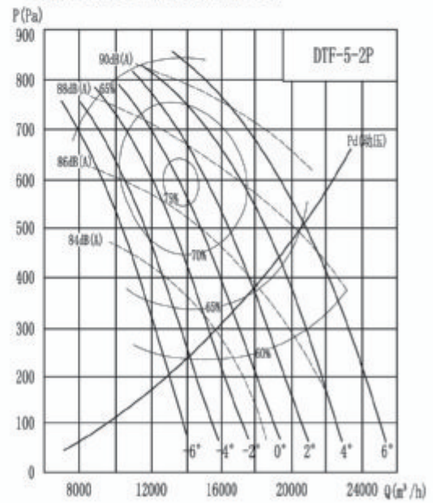
转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
2900	功率(KW)	2.2	2.2	2.2	3	3	4	4
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-16	-10	-5	-6	-8	-12	-20	-25



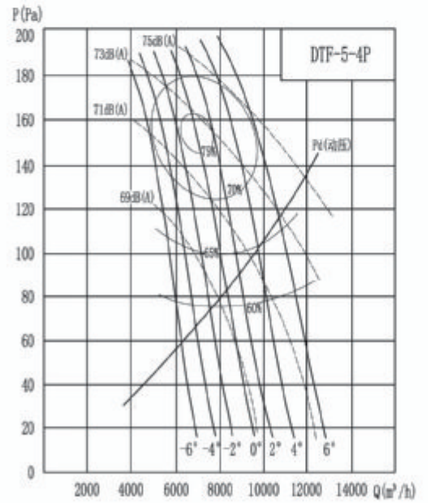
转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
1450	功率(KW)	0.25	0.25	0.37	0.37	0.37	0.55	0.55
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-15	-9	-5	-6	-8	-13	-21	-26

Performance Curve of DTF-5# Fan

DTF-5# 系列地铁隧道轴流风机性能曲线



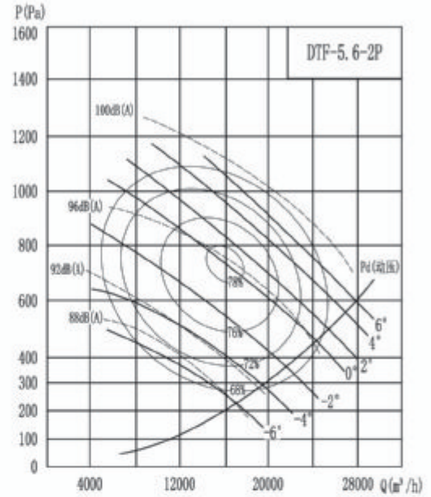
转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
2900	功率(KW)	3	3	4	4	5.5	5.5	7.5
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-16	-10	-5	-6	-8	-12	-20	-25



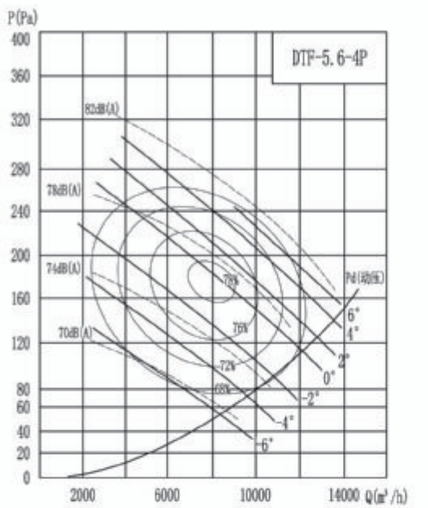
转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
1450	功率(KW)	0.37	0.55	0.55	0.55	0.75	0.75	0.75
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-15	-9	-5	-6	-8	-13	-21	-26

Performance Curve of DTF-5.6# Fan

DTF-5.6# 系列地铁隧道轴流风机性能曲线



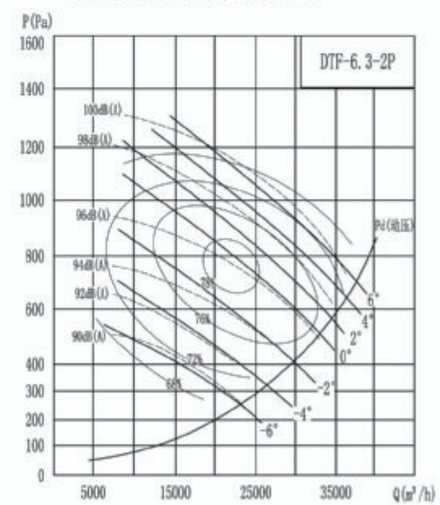
转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
2900	功率(KW)	3	4	5.5	7.5	7.5	11	11
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-16	-10	-5	-6	-8	-12	-20	-25



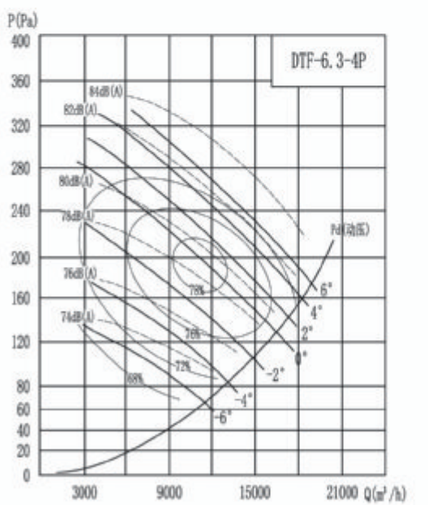
转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
1450	功率(KW)	0.37	0.55	0.75	0.75	0.75	1.1	1.1
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-15	-9	-5	-6	-8	-13	-21	-26

Performance Curve of DTF-6.3# Fan

DTF-6.3# 系列地铁隧道轴流风机性能曲线

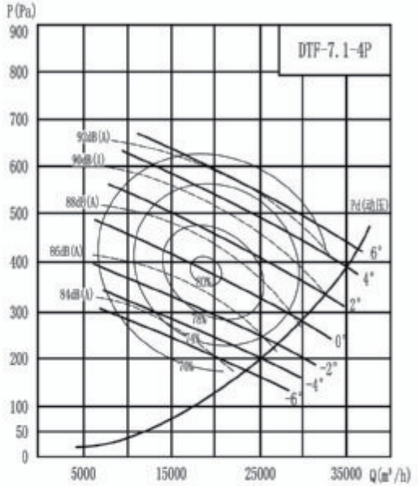


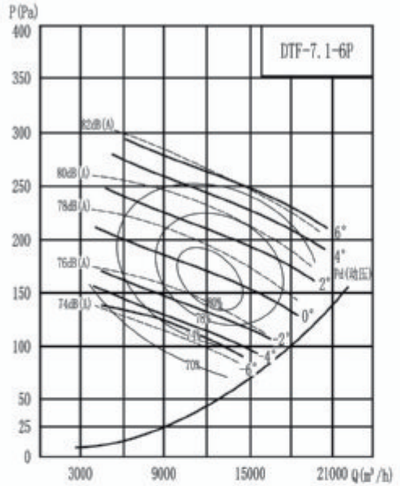
转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
2900	功率(KW)	4	5.5	7.5	11	11	15	15
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-16	-10	-5	-6	-8	-12	-20	-24



转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
1450	功率(KW)	0.55	0.75	1.1	1.5	1.5	2.2	2.2
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-15	-9	-5	-6	-8	-13	-21	-26

Performance Curve of DTF-7.1# Fan
DTF-7.1# 系列地铁隧道轴流风机性能曲线

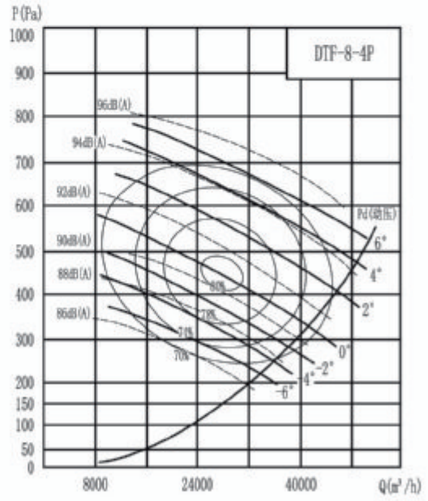


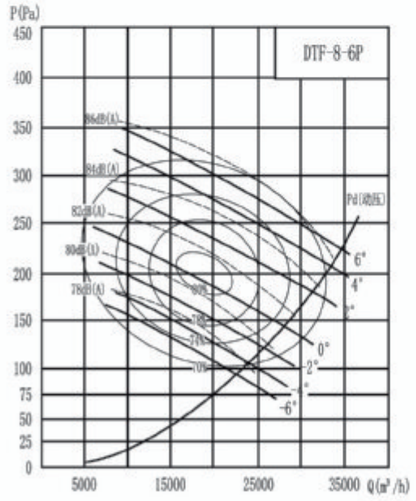


转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
1450	功率(KW)	2.2	2.2	3	4	5.5	5.5	7.5
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-18	-12	-6	-5	-7	-12	-20	-24

转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
985	功率(KW)	0.55	0.75	0.75	1.1	1.5	2.2	2.2
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-17	-11	-6	-5	-7	-12	-20	-24

Performance Curve of DTF-8# Fan
DTF-8# 系列地铁隧道轴流风机性能曲线



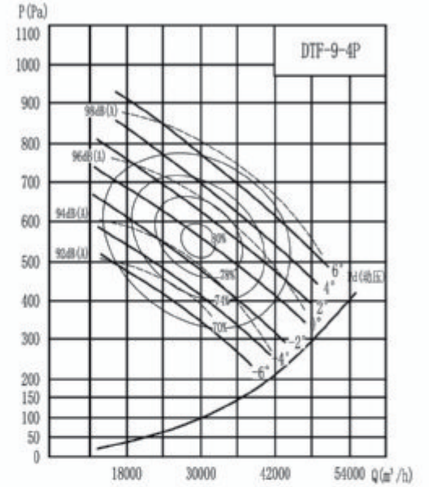


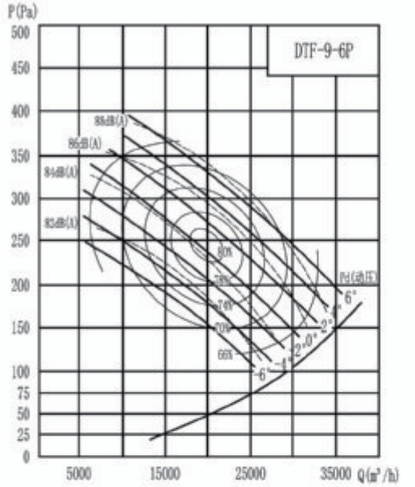
转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
1450	功率(KW)	4	4	5.5	7.5	11	11	11
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-18	-12	-6	-5	-7	-12	-20	-24

转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
985	功率(KW)	1.1	1.1	1.5	2.2	3	3	4
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-18	-12	-6	-5	-7	-12	-20	-24

TWOSUN SHUANGYANG FAN

Performance Curve of DTF-9# Fan
DTF-9# 系列地铁隧道轴流风机性能曲线

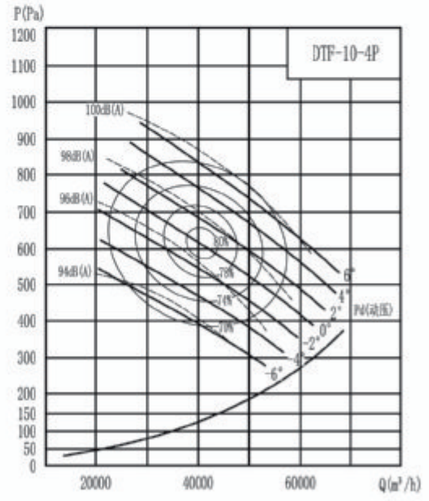


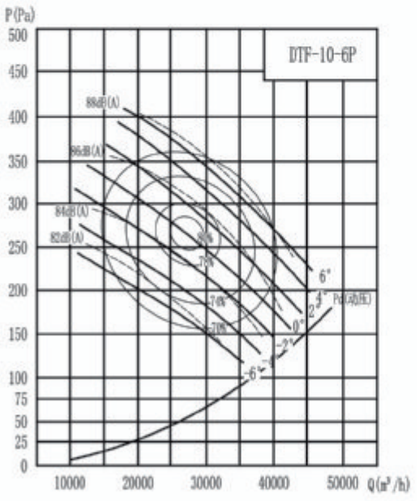


转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
1450	功率(KW)	5.5	7.5	7.5	11	11	11	15
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-18	-12	-6	-5	-7	-12	-20	-24

转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
985	功率(KW)	2.2	2.2	2.2	3	3	4	4
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-18	-12	-6	-5	-7	-12	-20	-24

Performance Curve of DTF-10# Fan
DTF-10# 系列地铁隧道轴流风机性能曲线



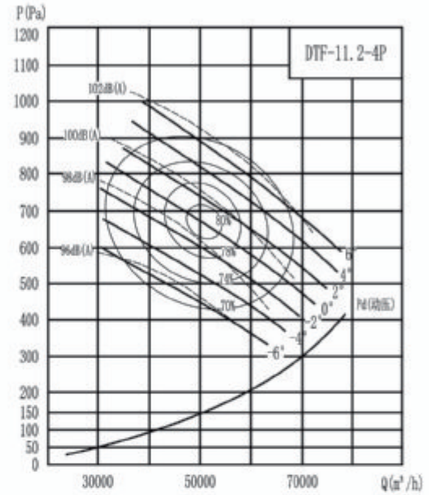


转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
1450	功率(KW)	7.5	11	11	15	15	18.5	18.5
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-18	-12	-6	-5	-7	-12	-20	-24

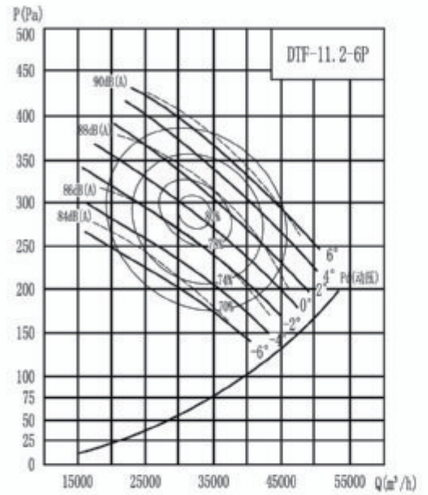
转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
985	功率(KW)	2.2	3	3	4	4	5.5	5.5
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-18	-12	-6	-5	-7	-12	-20	-24

Performance Curve of DTF-11.2# Fan

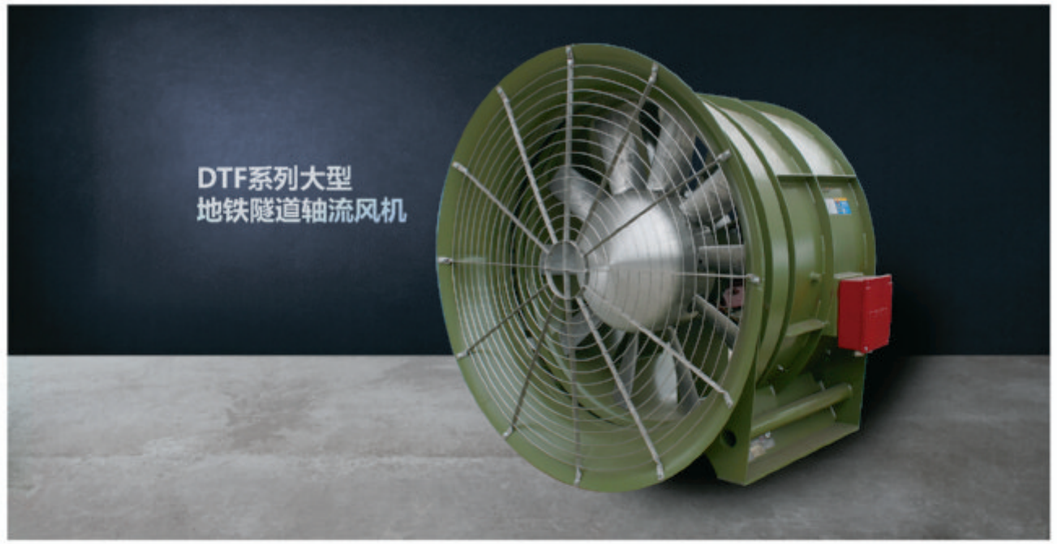
DTF-11.2# 系列地铁隧道轴流风机性能曲线



转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
1450	功率(KW)	11	15	18.5	18.5	22	22	30
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-18	-12	-6	-5	-7	-12	-20	-24



转速(rpm)	叶片角度	-6°	-4°	-2°	0°	2°	4°	6°
985	功率(KW)	3	4	4	5.5	5.5	7.5	7.5
频率（Hz）	63	125	250	500	1000	2000	4000	8000
自由空间（dB）	-18	-12	-6	-5	-7	-12	-20	-24



DTF Series Axial Flow Fireproof Smoke Exhaust Fan (Fire Fighting)
DTF Series Metro &Tunnel Large Size Fan (Ventilation)

DTF系列轴流式消防排烟风机（消防型）

DTF系列地铁、隧道大机号风机（通风型）

1 Overview
概述

DTF Series is a core series independently developed by Shuangyang which absorbed the advanced technology of similar products abroad and fully investigated many domestic and foreign projects of metro and tunnel. With high pressure, high efficiency, high reliability, high temperature resistance, low noise, anti surge and other characteristics, the DTF fan has perfect thrust performance and structural design at international advanced level and can adapt to various special working conditions of metro and tunnel.

DTF series large size fan, with size 1250~2800, airflow volume up to 780000 m³/h and total pressure up to 2000 pa, is the unidirectional axial flow fan whose blade angle is statically adjustable and applicable for different operating conditions. DTF metro and tunnel axial flow fan has passed the China Compulsory Certification and AMCA certification and runs continuously for one hour at 280℃airflow temperature without mechanical, electrical or structural failures. And the fan is used for fire fighting and smoke exhaust in emergency (executive standard GA211-2009).

DTF 系列地铁隧道轴流风机是我公司消化吸收国外同类产品先进技术，充分调研国内外地铁、隧道等工程系统，自主研发的地铁、隧道通风产品系列。该产品性能及结构设计达到国内外同类产品先进水平，具有大风量高压力、高效、高可靠性、低噪声、防喘振、耐高温等特点，能适应地铁、隧道特点工况环境下的各种使用要求。

DTF 系列大机号风机为单向运转轴流风机，风机型号 1250~2800，风量最大可达 780000m³/h，全压最高达 2000Pa，叶片角度静态可调，可满足不同工况条件下使用需要，同时该系列地铁隧道轴流风机通过了国家消防强制产品认证及 AMCA 认证，气流温度达到 280℃时连续运行 1h，不会出现机械、电气或结构方面的故障，紧急状态下用于消防排烟（执行标准 GA211-2009）。

2 Product Features
产品特点

Reliability 高可靠性设计

Designed with advanced FEA, the fan is proved has enough strength safety factor after repeated optimization and experimental verification; the thermal expansion and strength requirements of the impeller material at 300℃ are fully considered in the design to ensure the safe and reliable operation of the fan during high-temperature smoke exhaust in emergency.

Fan impeller is made with advanced die-casting technology, aluminum alloy blades and hub are analyzed by metallographic analysis to have fine structures; each blade is proved to have high quality for safe operation of fan after strict X-ray test.

Through two dynamic balancing tests, one for the hub and the other for the whole impeller, the dynamic balance precision of the impeller is ISOG2.5 (higher than the national standard of 5.6 grade), which ensures less vibration and smooth operation of the fan.

Impeller overspeed test and the mechanical test, vibration test, aerodynamic performance test of the whole fan are conducted before delivery to ensure the smooth and reliable operation of the fan.

The high-strength bolted connection of impeller blade and hub ensures the long-term reliable operation of the fan.

Fan casing is made of high quality thick steel plates by full welding, which has high structural strength.

风机采用先进的 FEA 辅助设计反复优化及实验验证，有足够的强度安全系数；设计时充分考虑叶轮材料 300℃高温下的热膨胀和强度要求，确保紧急情况高温排烟时安全可靠运行。

风机叶轮采用先进的压铸工艺技术，铝合金叶片、轮毂经金相分析，其结构组织良好；每个叶片都必须严格经过 X 射线探伤，检测合格质量可靠，保证安全运行。

风机叶轮经二次动平衡，轮毂动平衡和叶轮整体动平衡，动平衡精度达到 ISOG2.5（高于国家标准 5.6 级），风机振动小，运行平稳。

整机出厂前，经叶轮超速试验和整机机械性能试验、振动试验、气动性能试验，以确保达到运行平稳、可靠的要求。

机壳采用优质厚钢板整体焊接制成，结构强度高。

Efficiency and Low Noise 高效率、低噪声

With the latest international aerospace pneumatic design technology and airfoil blade design which has the best aerodynamic characteristics, the fan is optimized with CFD flow field simulation technology and repeatedly tested in laboratory, which ensures the characteristics of high efficiency, wide efficient area and low noise of the fan, and the fan aerodynamic performance conforms to the flow field characteristics.

Streamlined inlet cone and rear guide vane improve the flow field of the fan effectively, enhance the fan operation efficiency and reduce the fan noise further.

Blade angle can be statically adjusted, which ensures the impeller operation in high efficient area.

Each impeller is quiet and stable in operation after the high quality impeller dynamic balance calibration.

用国际最新航空航天气动设计技术，采用气动特性最佳的翼型叶片设计；利用 CFD 流场模拟技术优化设计，通过实验室反复试验验证，保气动性能符合流场特性，效率高且高效区宽、噪音低。

风机采用流线型导流罩及后导叶设计，改善流场，进一步提高风机整体运行效率，降低噪音。

叶片角度静态可调节，当运行工况需求变化时，可通过调节叶片角度确保叶轮高效区运行。

个叶轮均经过高品质的叶轮动态平衡检测，叶轮运转安静平稳。

TWOSUN SHUANGYANG FAN

High Temperature Resistance 耐高温性能

According to the application requirement of metro and tunnel, the motor high temperature resistant may be selected so that the fan continuously operates for at least one hour when the design air temperature reaches 280℃ (higher than the national standard, 250℃/1h) without mechanical, electrical or structural failures and is used for fireproof and smoke exhaust in emergency.

根据地铁隧道的使用要求，可选用耐高温电机，设计气流温度达到 280℃时连续运行至少 1 小时（高于国家标准 250℃/1h），不会出现机械、电气或结构方面的故障，紧急状态下用于消防排烟。

Anti Surge Design 防喘振设计

Due to the piston wind generated during train operation, the operation conditions of the fan may be changed. In order to avoid fan surge caused by stall, the fan is specially designed with anti-surge device. With patented anti-surge technology, the anti-surge device has excellent anti-surge performance and ensures the fan operation without surging.

由于列车运行会产生活塞风，可能导致风机的运行工况发生变化，为防止风机因失速而发生喘振，风机专门设计与其相匹配的防喘振装置。该防喘振装置专利技术，具有优异的防喘振性能，确保风机无喘振运行。

Compact Structure and Easy Install and Maintain 结构紧凑、安装维护方便

With the design of rear guide vane and inlet cone, the fan is designed with the casing as short as possible based on the perfect fan performance to ensure the compact structure of the fan.

Direct drive, no wearing parts and unnecessary maintenance.

The motor with lubrication filling and discharge devices is guided to the fan casing with a lubricating pipe for easy operation and maintenance.

Vibration isolator is selected by vibration isolation calculation and meet the requirements of metro, tunnel and other applications.

风机后导叶及导流装置的设计，在确保风机性能优越的前提下设计尽可能短的机壳长度，结构紧凑。

直联驱动，无易损件，维护率低。

电机润滑加油及放油装置通过润滑油管引出至风机外壳上，操作维护方便。

通过隔振计算合理选择风机减振器，满足地铁、隧道及其他用途要求。

3 Naming Conventions
命名规范

DTF — □ — □

- □ (last): a、b and c are for smoke exhaust type only
  仅排烟型风机带此后缀 a、b、c 等字母，以区分不同功率配置。
- □ (middle): Fan size (impeller diameter: dm.)
  风机机号（叶轮直径：分米）
- DTF: Metro and tunnel axial flow fan
  地铁隧道轴流风机

4 Construction
结构形式

The fan consists of impeller, motor, casing, anti-surge device, inlet cone, fixed bracket, vibration isolator and other components. There are two installation types: horizontal installation and vertical installation.

Fan impeller: consists of hub and blade, formed by high strength aluminum alloy die casting and made through heat treatment, X-ray flaw detection, tensile test, metal processing and dynamic balance test. The blade angle can be adjusted statically by loosening the tightened bolts after fan stop, so that the air flow and pressure of the fan adapt to different working conditions.

Fan motor: IP55 protection grade, insulation class H, moist heat resistant type, SKF and NSK bearing, oil filling hole, oil discharge hole, axle temperature alarm sensor, totally enclosed end and fan casing mounted junction box.

Fan casing: made with high quality steel plate, the inner wall of the impeller assembly section is machined by metal cutting to control the radial clearance of the blade, the fan is designed with the minimum length and weight of the fan casing, and the surface of the casing is hot dip galvanized or painting, with high corrosion resistance.

Fan guide vane: static installation, designed as maximum efficiency and minimum volume.

Mounting bracket: based on the sufficient fan strength, the bracket ensures the light weight and easy installation of the fan.

Anti-surge device: the device can avoid fan surge and ensure the safety and stable operation of the fan for a long time, especially in tunnel emergency.

Fan disassembly and repair: during fan maintenance, remove the flexible connector pipes at both ends of the fan (plug them into the fan section or diffuser section) and the space section at one end of the fan first, loosen the fixed anchor bolts, and the fan can be moved arbitrarily for repair.

风机由叶轮、电机、机壳、防喘振装置、集（导）流器、固定支架、减振器等部件组成；分卧式安装和立式安装两种安装形式。

风机叶轮：有轮毂、叶片组成，采用优质高强度铝合金压铸而成，通过热处理、X 光射线探伤、拉伸试验和金加工，动平衡校验。叶片角度静态可调，停机后拧松叶柄螺栓，调节叶片角度，从而使风机的流量和压力适应不同的使用工况。

风机配套电机：采用 IP55 防护等级、H 级绝缘，防湿热型，电机轴承采用 SKF、NSK 进口品牌轴承，注油孔、排油孔，轴温报警传感器，末端全封闭式。接线盒安装在风机外壳。

风机壳体：优质钢板加工而成，叶轮装配段内壁经金属切削加工以保证控制叶片的径向间隙，机壳长度和重量以降低到最低（小）值为目标进行设计，机壳表面热浸镀锌或油漆处理，抗腐蚀性强。

风机导叶：为静态安装，以尽可能考虑最大的效能和最小的体积。

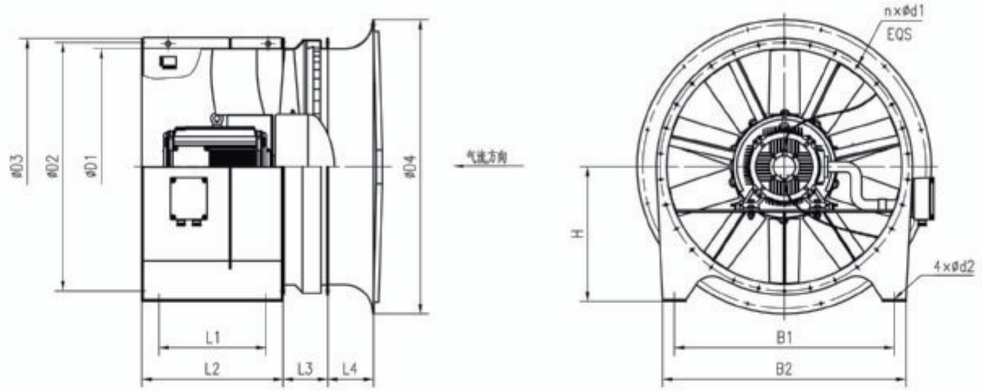
风机安装支架：确保风机整机强度的前提下，使其达到重量轻和安装方便的要求。

防喘振装置：可以防止风机发生喘振的现象，保证风机长期在稳定状态下运行，特别在隧道紧急状态下，保证安全，可靠。

风机拆装维修方式：风机维护保养时，只要先拆掉风机两端的软接管（将其塞到风机段或扩压段）和风机某端的空间段，拧松固定地脚螺栓，即可任意移动风机位置进行维修。

TWOSUN SHUANGYANG FAN

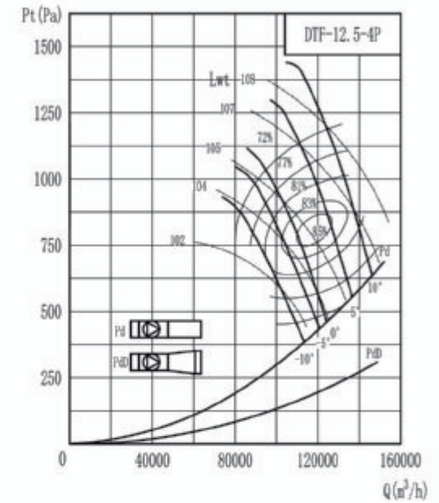
5 Overall Dimensions
外形尺寸



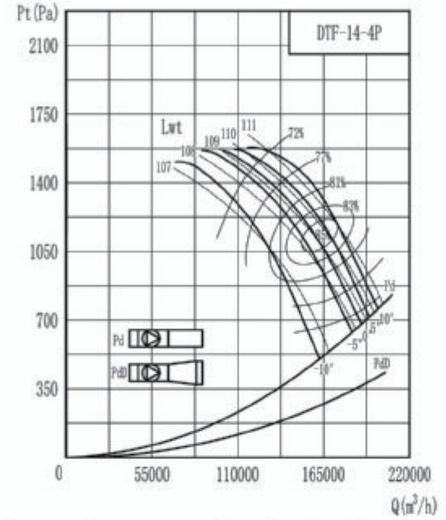
Fan Type 风机型号	Power 功率 (kW)	Speed 转速 (rpm)	Weight 重量 (kg)	D1 (mm)	D2 (mm)	D3 (mm)	D4 (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	H (mm)	B1 (mm)	B2 (mm)	n×Φd1	Φd2
12.5	37	1480	614	1260	1320	1390	1590	500	700	290	250	715	1130	1250	16×Φ14.5	Φ14
	45		650					540	740							
	55		757					540	740							
	75		892					600	800							
	90		997					600	840							
14	55	1480	890	1410	1470	1540	1740	500	740	300	250	800	1280	1400	20×Φ18.5	Φ14
	75		1025					550	790							
	90		1130					600	840							
	110		1463					790	1030							
14	18.5	980	683	1410	1470	1540	1740	500	700	300	250	800	1280	1400	20×Φ18.5	Φ14
	22		713					500	700							
	30		755					500	740							
	37		871					500	740							
	45		999					550	790							
15	22	980	800	1510	1570	1640	1840	500	740	300	250	850	1380	1500	20×Φ18.5	Φ14
	30		880					500	740							
	37		958					500	740							
	45		1086					550	790							
	55		1145					600	840							
16	37	980	1428	1612	1670	1740	2060	500	740	300	320	910	1480	1600	24×Φ18.5	Φ18
	45		1556					550	790							
	55		1615					600	840							
	75		2010					790	1030							
	90		2100					840	1080							
17	45	980	1420	1712	1800	1860	2150	550	790	340	320	960	1580	1700	24×Φ18.5	Φ18
	55		1580					600	840							
	75		2040					790	1030							
	90		2130					840	1080							
	110		2180					840	1080							
18	55	980	1720	1812	1900	1960	2250	600	840	340	320	1030	1680	1800	24×Φ18.5	Φ18
	75		2115					820	1060							
	90		2205					820	1060							
	110		2275					820	1060							
	132		2335					820	1060							

Fan Type 风机型号	Power 功率 (kW)	Speed 转速 (rpm)	Weight 重量 (kg)	D1 (mm)	D2 (mm)	D3 (mm)	D4 (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	H (mm)	B1 (mm)	B2 (mm)	n×Φd1	Φd2
19	55	980	2090	1914	2000	2060	2350	600	840	340	320	1060	1740	1900	24×Φ18.5	Φ18
	75		2490					820	1060							
	90		2410					820	1060							
	110		2560					820	1060							
	132		2710					820	1060							
20	55	980	2475	2014	2100	2160	2500	600	840	360	320	1120	1820	2000	24×Φ18.5	Φ18
	75		2870					800	1040							
	90		2960					840	1080							
	110		3030					840	1080							
	132		3110					840	1080							
21	75	980	3540	2114	2200	2260	2600	820	1080	360	320	1170	1920	2100	28×Φ24	Φ18
	90		3630					820	1080							
	110		3700					820	1080							
	132		3780					820	1080							
	160		4000					990	1250							
22	75	740	3650	2216	2300	2380	2700	820	1080	360	320	1220	2020	2200	28×Φ24	Φ18
	90		3710					820	1080							
	110		3770					820	1080							
	132		4550					990	1250							
	160		4700					990	1250							
23	90	740	3960	2316	2400	2480	2800	820	1080	420	320	1270	2120	2300	28×Φ24	Φ18
	110		4030					820	1080							
	132		4800					980	1250							
	160		4950					980	1250							
	200		5050					980	1250							
24	110	740	4280	2416	2500	2580	2900	820	1080	420	400	1340	2220	2400	32×Φ24	Φ18
	132		5050					980	1250							
	160		5200					980	1250							
	200		5300					980	1250							
	250		6050					1240	1500							
25	160	740	5470	2516	2600	2680	3000	980	1250	420	400	1390	2320	2500	32×Φ24	Φ18
	200		5570					980	1250							
	250		6320					1240	1500							
	315		6500					1240	1500							
	355		6610					1240	1500							
26	200	740	5850	2618	2720	2800	3100	980	1250	450	400	1450	2420	2600	36×Φ24	Φ18
	250		6600					1240	1500							
	315		6780					1240	1500							
	355		6890					1240	1500							
	400		7000					1540	1800							
28	250	740	7150	2820	2920	3000	3300	1240	1500	450	400	1550	2620	2800	36×Φ24	Φ18
	315		7330					1240	1500							
	355		7440					1240	1500							
	400		7550					1540	1800							
	450		7670					1540	1800							

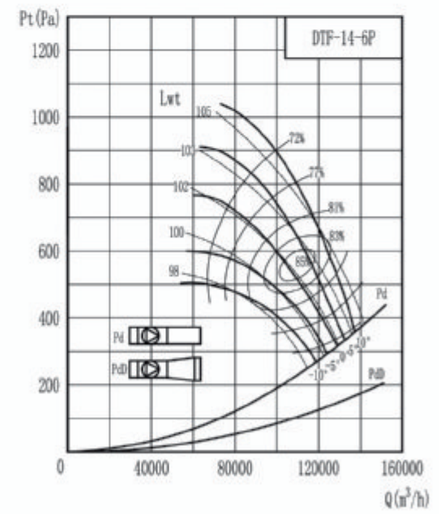
6 Performance Curves of DTF Series
DTF 系列风机性能曲线



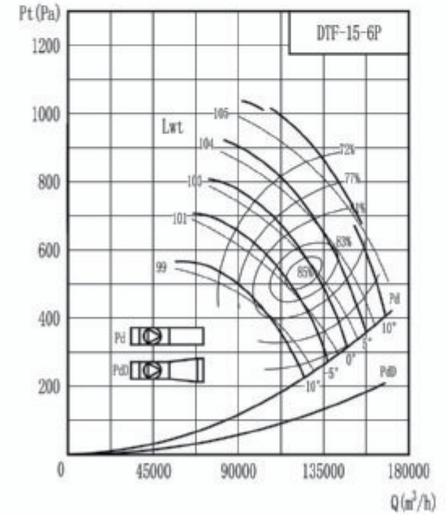
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1450	Power 功率(kW)			37	45	55	75	90
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-15	-9	-5	-6	-8	-13	-21	-26



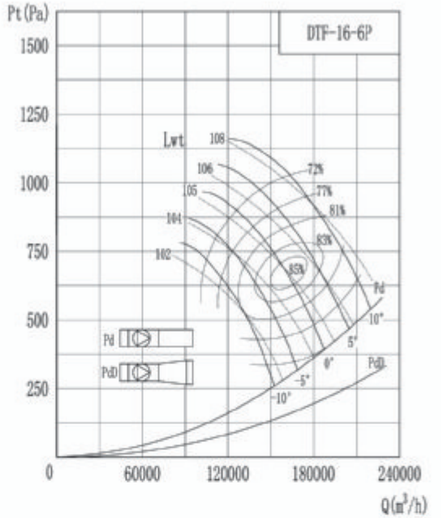
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1450	Power 功率(kW)			55	75	90	90	110
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-15	-9	-5	-6	-8	-13	-21	-26



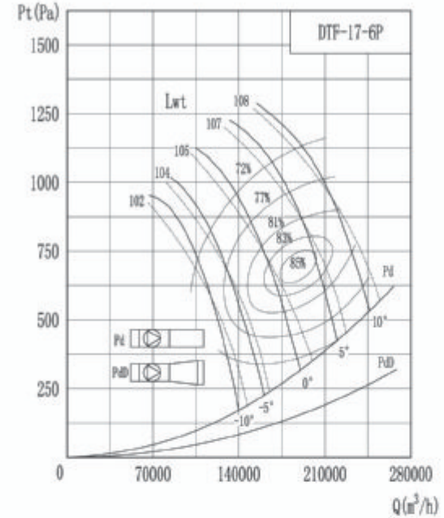
Speed 转速(rpm)	Setting Angle 安装角			-10°	-5°	0°	5°	10°
980	Power 功率(kW)			18.5	22	30	37	45
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-13	-8	-4	-5	-7	-11	-18	-23



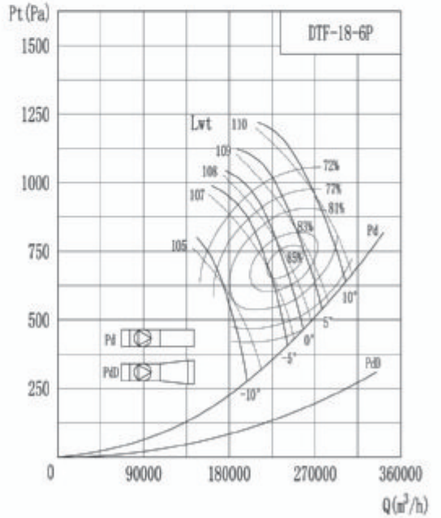
Speed 转速(rpm)	Setting Angle 安装角			-10°	-5°	0°	5°	10°
980	Power 功率(kW)			22	30	37	45	55
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-13	-8	-4	-5	-7	-11	-18	-23



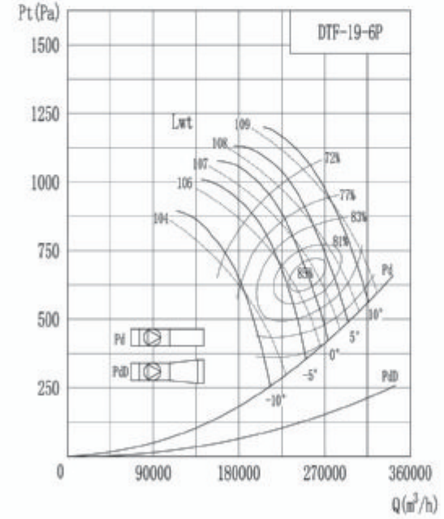
Speed 转速(rpm)	Setting Angle 安装角			-10°	-5°	0°	5°	10°
980	Power 功率(kW)			37	45	55	75	90
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-13	-8	-4	-5	-7	-11	-18	-23



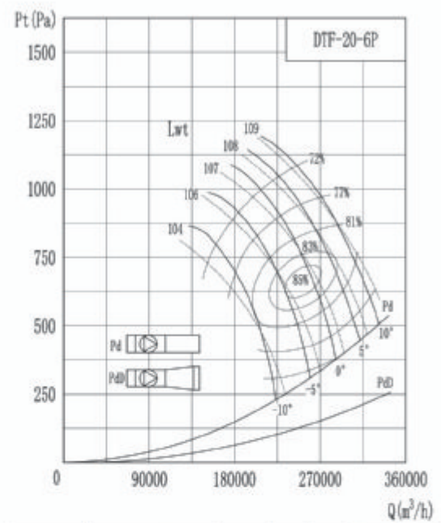
Speed 转速(rpm)	Setting Angle 安装角			-10°	-5°	0°	5°	10°
980	Power 功率(kW)			55	75	90	90	110
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-13	-8	-4	-5	-7	-11	-18	-23



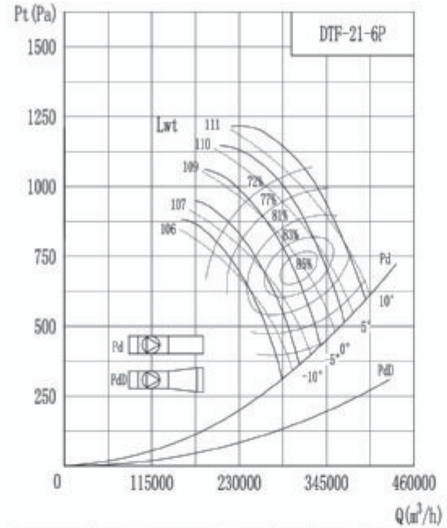
Speed 转速(rpm)	Setting Angle 安装角			-10°	-5°	0°	5°	10°
980	Power 功率(kW)			55	75	90	110	132
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-13	-8	-4	-5	-7	-11	-18	-23



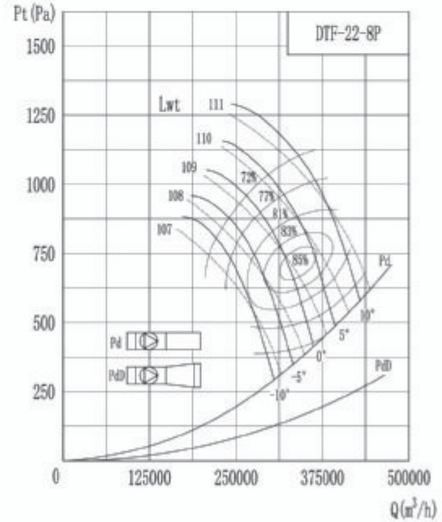
Speed 转速(rpm)	Setting Angle 安装角			-10°	-5°	0°	5°	10°
1450	Power 功率(kW)			55	75	90	110	132
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-13	-8	-4	-5	-7	-11	-18	-23



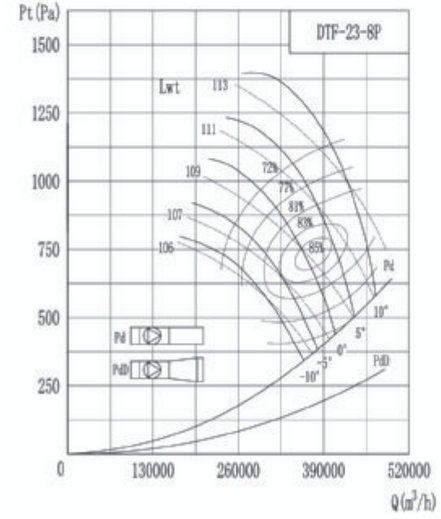
Speed 转速(rpm)	Setting Angle 安装角			-10°	-5°	0°	5°	10°
980	Power 功率(kW)			55	75	90	110	132
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-13	-8	-4	-5	-7	-11	-18	-23



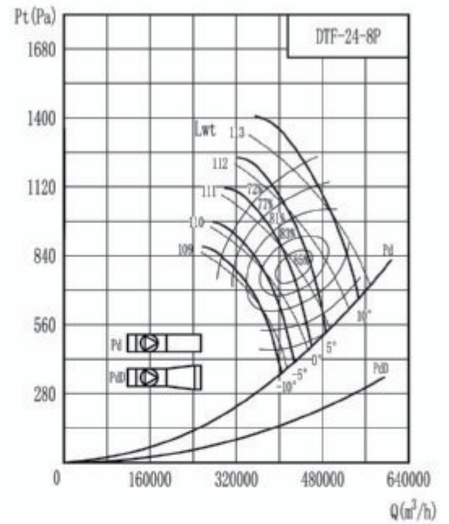
Speed 转速(rpm)	Setting Angle 安装角			-10°	-5°	0°	5°	10°
980	Power 功率(kW)			75	90	110	132	160
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-13	-8	-4	-5	-7	-11	-18	-23



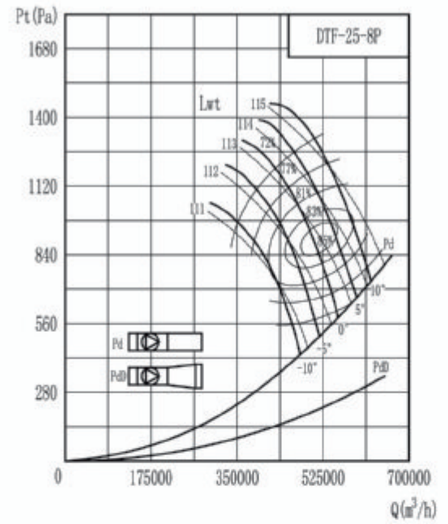
Speed 转速(rpm)	Setting Angle 安装角			-10°	-5°	0°	5°	10°
740	Power 功率(kW)			75	90	110	132	160
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-12	-7	-3	-5	-7	-9	-16	-21



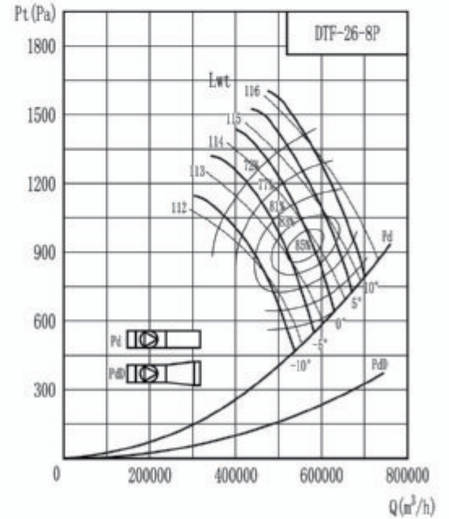
Speed 转速(rpm)	Setting Angle 安装角			-10°	-5°	0°	5°	10°
740	Power 功率(kW)			90	110	132	160	200
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-12	-7	-3	-5	-7	-9	-16	-21



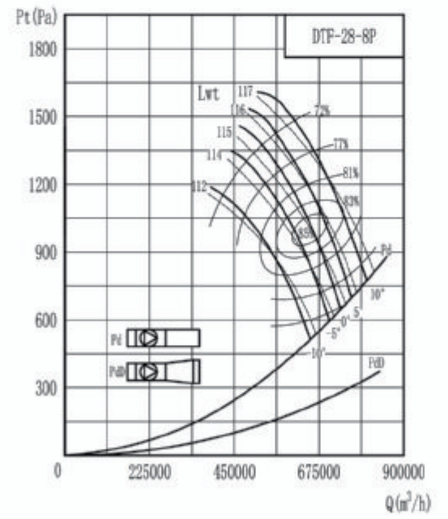
Speed 转速(rpm)	Setting Angle 安装角			-10°	-5°	0°	5°	10°
740	Power 功率(kW)			110	132	160	200	250
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-12	-7	-3	-5	-7	-9	-16	-21



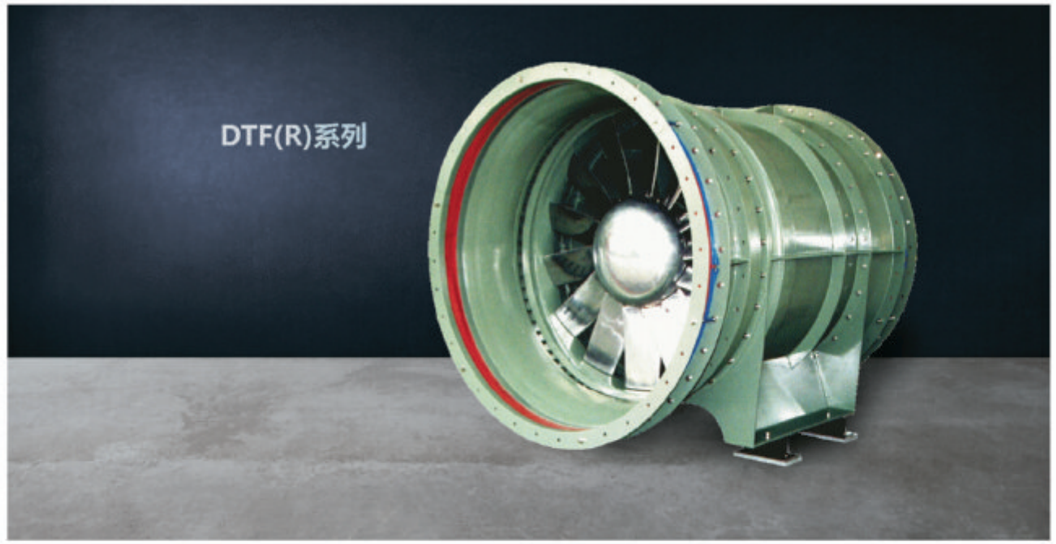
Speed 转速(rpm)	Setting Angle 安装角			-10°	-5°	0°	5°	10°
740	Power 功率(kW)			160	200	250	315	355
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-12	-7	-3	-5	-7	-9	-16	-21



Speed 转速(rpm)	Setting Angle 安装角			-10°	-5°	0°	5°	10°
740	Power 功率(kW)			200	250	315	355	400
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-12	-7	-3	-5	-7	-9	-16	-21



Speed 转速(rpm)	Setting Angle 安装角			-10°	-5°	0°	5°	10°
740	Power 功率(kW)			250	315	355	400	450
Frequency 频率 (Hz)	63	125	250	500	1000	2000	4000	8000
Free Space 自由空间(dB)	-12	-7	-3	-5	-7	-9	-16	-21



DTF (R) Series Reversible Metro & Tunnel Axial Flow Fan

DTF（R）系列可逆转地铁隧道轴流风机

1 Overview
概述

DTF Series is a core series independently developed by Shuangyang which absorbed the advanced technology of similar products abroad and fully investigated many domestic and foreign projects of metro and tunnel. With high pressure, high efficiency, high reliability, high temperature resistance, low noise, anti surge and other characteristics, the DTF fan has perfect thrust performance and structural design at international advanced level and can adapt to various special working conditions of metro and tunnel.

The DTF (R) series fan, with size 1250~2800, airflow volume up to 700000 m³/h and total pressure up to 1800 pa, is the bidirectional axial flow fan whose blade angle is statically adjustable and applicable for different operating conditions. DTF metro and tunnel axial flow fan has passed the China Compulsory Certification and AMCA certification and runs continuously for one hour at 280℃airflow temperature without mechanical, electrical or structural failures. And the fan is used for fire fighting and smoke exhaust in emergency (executive standard GA211-2009).

DTF（R）系列可逆转地铁隧道轴流风机是我公司消化吸收国外同类产品先进技术，充分调研国内外地铁、隧道等工程系统，自主研发的地铁、隧道通风产品系列。该产品性能及结构设计达到国内外同类产品先进水平，具有大风量高压力、高效、高可靠性、低噪声、防喘振、耐高温等特点，能适应地铁、隧道特点工况环境下的各种使用要求。

DTF(R)系列风机为双向运转轴流风机，风机型号 1250~2800，风量最大可达 700000 m³/h，全压最高达 1800Pa，叶片角度静态可调，可满足不同工况条件下使用需要，同时该系列地铁隧道轴流风机通过了国家消防强制产品认证及 AMCA 认证，气流温度达到 280℃时连续运行 1h，不会出现机械、电气或结构方面的故障，紧急状态下用于消防排烟（执行标准 GA211-2009）。

2 Product Features
产品特点

Reliability 高可靠性设计

Designed with advanced FEA, the fan is proved has enough strength safety factor after repeated optimization and experimental verification; the thermal expansion and strength requirements of the impeller material at 300℃ are fully considered in the design to ensure the safe and reliable operation of the fan during high-temperature smoke exhaust in emergency.

Fan impeller is made with advanced die-casting technology, aluminum alloy blades and hub are analyzed by metallographic analysis to have fine structures; each blade is proved to have high quality for safe operation of fan after strict X-ray test.

Through two dynamic balancing tests, one for the hub and the other for the whole impeller, the dynamic balance precision of the impeller is ISOG2.5 (higher than the national standard of 5.6 grade), which ensures less vibration and smooth operation of the fan.

Impeller overspeed test and the mechanical test, vibration test, aerodynamic performance test of the whole fan are conducted before delivery to ensure the smooth and reliable operation of the fan.

The high-strength bolted connection of impeller blade and hub ensures the long-term reliable operation of the fan.

Fan casing is made of high quality thick steel plates by full welding, which has high structural strength.

风机采用先进的 FEA 辅助设计反复优化及实验验证，有足够的强度安全系数；设计时充分考虑叶轮材料 300℃高温下的热膨胀和强度要求，确保紧急情况高温排烟时安全可靠运行。

风机叶轮采用先进的压铸工艺技术，铝合金叶片、轮毂经金相分析，其结构组织良好；每个叶片都必须严格经过 X 射线探伤，检测合格质量可靠，保证安全运行。

风机叶轮经二次动平衡，轮毂动平衡和叶轮整体动平衡，动平衡精度达到 ISOG2.5（高于国家标准 5.6 级），风机振动小，运行平稳。

整机出厂前，经叶轮超速试验和整机机械性能试验、振动试验、气动性能试验，以确保达到运行平稳、可靠的要求。

机壳采用优质厚钢板整体焊接制成，结构强度高。

Efficiency and Low Noise 高效率、低噪声

With the latest international aerospace pneumatic design technology and airfoil blade design which has the best aerodynamic characteristics, the fan is optimized with CFD flow field simulation technology and repeatedly tested in laboratory, which ensures the characteristics of high efficiency, wide efficient area and low noise of the fan, and the fan aerodynamic performance conforms to the flow field characteristics.

Streamlined inlet cone and rear guide vane improve the flow field of the fan effectively, enhance the fan operation efficiency and reduce the fan noise further.

Blade angle can be statically adjusted, which ensures the impeller operation in high efficient area.

Each impeller is quiet and stable in operation after the high quality impeller dynamic balance calibration.

用国际最新航空航天气动设计技术，采用气动特性最佳的翼型叶片设计；利用 CFD 流场模拟技术优化设计，通过实验室反复试验验证，保气动性能符合流场特性，效率高且高效区宽、噪音低。

风机采用流线型导流罩及后导叶设计，改善流场，进一步提高风机整体运行效率，降低噪音。

叶片角度静态可调节，当运行工况需求变化时，可通过调节叶片角度确保叶轮高效区运行。

个叶轮均经过高品质的叶轮动态平衡检测，叶轮运转安静平稳。

TWOSUN SHUANGYANG FAN

Bidirectional and Reversible Design and Fast Switch 双向可逆设计、切换时间短

DTF (R) bidirectional reversible fan has fully symmetrical airfoil blade so that the performance of the fan forward and backward rotation are basically the same.

Streamlined inlet cone and rear guide vane improve the flow field of the fan effectively, enhance the fan operation efficiency and reduce the fan noise further.

The fine structure design of fan impeller, under the premise of reliable operation, minimizes the fan rotational inertia load by controlling the quality of the rotor and ensures the fast start and stop of the fan.

The forward and reverse rotation switch of the fan is conducted by dynamic braking, after repeated trials, it is proved that the time for the fan to switch from forward to reverse and reach the rated speed is less than 45s (soft start) and 30s (compensation start).

DTF（R）系列为双向可逆设计，叶片设计为完全对称机翼型，以保证风机正反转性能基本相等。

风机采用流线型导流罩及后导叶设计，改善流场，进一步提升风机整体运行效率，降低噪音。

叶轮结构设计在满足风机运行可靠的前提下，通过控制转子质量，最大限度减少风机转动惯量负荷，启动、停车时间短。

风机采用能耗止动方式进行正反转切换，经过多少反复试验证明，风机正反转切换并达到额定转速时间（软启动方式）小于 45S，（补偿启动方式）小于 30S。

High Temperature Resistance 耐高温性能

According to the application requirement of metro and tunnel, the motor high temperature resistant may be selected so that the fan continuously operates for two hours when the design air temperature reaches 280℃ (higher than the national standard, 250℃/1h) without mechanical, electrical or structural failures and is used for fireproof and smoke exhaust in emergency.

根据地铁隧道的使用要求，可选用耐高温电机，设计气流温度达到 280℃时连续运行 2 小时(高于国家标准 250℃/1h)，不会出现机械、电气或结构方面的故障，紧急状态下用于消防排烟。

Anti Surge Design 防喘振设计

Due to the piston wind generated during train operation, the operation conditions of the fan may be changed. In order to avoid fan surge caused by stall, the fan is specially designed with anti-surge device. With patented anti-surge technology, the anti-surge device has excellent anti-surge performance and ensures the fan operation without surging.

Anti-surge device is provided for both forward and reverse rotation of the fan.

由于列车运行会产生活塞风，可能导致风机的运行工况发生变化，为防止风机因失速而发生喘振，风机专门设计与其相匹配的防喘振装置，该防喘振装置专利技术，具有优异的防喘振性能，确保风机无喘振运行。

风机正反转均设置有防喘振装置。

Compact Structure and Easy Install and Maintain 结构紧凑、安装维护方便

With the design of rear guide vane and inlet cone, the fan is designed with the casing as short as possible based on the perfect fan performance to ensure the compact structure of the fan.

Direct drive, no wearing parts and unnecessary maintenance.

The motor with lubrication filling and discharge devices is guided to the fan casing with a lubricating pipe for easy operation and maintenance.

Vibration isolator is selected by vibration isolation calculation and meet the requirements of metro, tunnel and other applications.

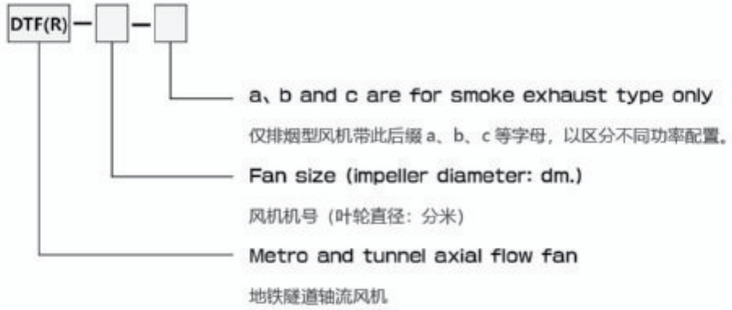
风机后导叶及导流装置的设计，在确保风机性能优越的前提下设计尽可能短的机壳长度，结构紧凑。

直联驱动，无易损件，维护率低。

电机润滑加油及放油装置通过润滑油管引出至风机外壳上，操作维护方便。

通过隔振计算合理选择风机减振器，满足地铁、隧道及其他用途要求。

3 Naming Conventions
命名规范



4 Construction
结构形式

The fan consists of impeller, motor, casing, anti-surge device, inlet cone, fixed bracket, vibration isolator and other components. There are two installation types: horizontal installation and vertical installation.

Fan impeller: consists of hub and blade, formed by high strength aluminum alloy die casting and made through heat treatment, X-ray flaw detection, tensile test, metal processing and dynamic balance test. The blade angle can be adjusted statically by loosening the tightened bolts after fan stop, so that the air flow and pressure of the fan adapt to different working conditions.

Fan motor: IP55 protection grade, insulation class H, moist heat resistant type, SKF and NSK bearing, oil filling hole, oil discharge hole, axle temperature alarm sensor, totally enclosed end and fan casing mounted junction box.

Fan casing: made with high quality steel plate, the inner wall of the impeller assembly section is machined by metal cutting to control the radial clearance of the blade, the fan is designed with the minimum length and weight of the fan casing, and the surface of the casing is hot dip galvanized or painting, with high corrosion resistance.

Fan guide vane: static installation, designed as maximum efficiency and minimum volume.

Mounting bracket: based on the sufficient fan strength, the bracket ensures the light weight and easy installation of the fan.

Anti-surge device: the device can avoid fan surge and ensure the safety and stable operation of the fan for a long time, especially in tunnel emergency.

Fan disassembly and repair: during fan maintenance, remove the flexible connector pipes at both ends of the fan (plug them into the fan section or diffuser section) and the space section at one end of the fan first, loosen the fixed anchor bolts, and the fan can be moved arbitrarily for repair.

风机由叶轮、电机、机壳、防喘振装置、集（导）流器、固定支架、减振器等部件组成；分卧式安装和立式安装两种安装形式。

风机叶轮：有轮毂、叶片组成，采用优质高强度铝合金压铸而成，通过热处理、X 光射线探伤、拉伸试验和金加工，动平衡校验。叶片角度静态可调，停机后拧松叶柄螺栓，调节叶片角度，从而使风机的流量和压力适应不同的使用工况。

风机配套电机：采用 IP55 防护等级、H 级绝缘，防湿热型，电机轴承采用 SKF、NSK 进口品牌轴承，注油孔、排油孔，轴温报警传感器，末端全封闭式。接线盒安装在风机外壳。

风机壳体：优质钢板加工而成，叶轮装配段内壁经金属切削加工以保证控制叶片的径向间隙，机壳长度和重量以降低到最低（小）值为目标进行设计，机壳表面热浸镀锌或油漆处理，抗腐蚀性强。

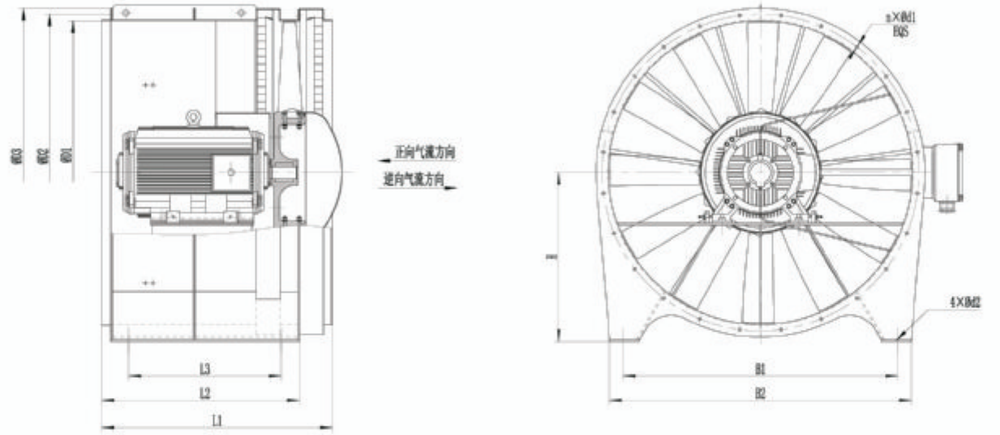
风机导叶：为静态安装，以尽可能考虑最大的效能和最小的体积。

风机安装支架：确保风机整机强度的前提下，使其达到重量轻和安装方便的要求。

防喘振装置：可以防止风机发生喘振的现象，保证风机长期在稳定状态下运行，特别在隧道紧急状态下，保证安全，可靠。

风机拆装维修方式：风机维护保养时，只要先拆掉风机两端的软接管（将其塞到风机段或扩压段）和风机某端的空间段，拧松固定地脚螺栓，即可任意移动风机位置进行维修。

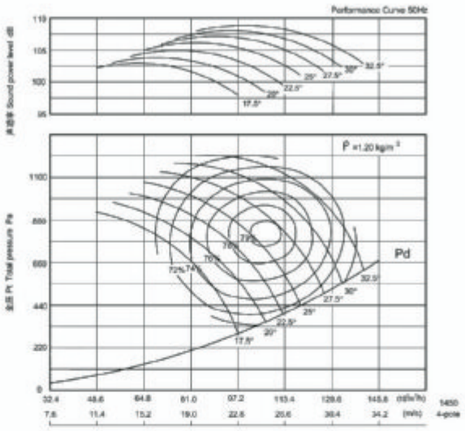
5 Overall Dimensions
外形尺寸



Fan Type 风机型号	Power 功率 (kW)	Speed 转速 (rpm)	Weight 重量 (kg)	D1 (mm)	D2 (mm)	D3 (mm)	L1 (mm)	L2 (mm)	L3 (mm)	H (mm)	B1 (mm)	B2 (mm)	n×Φd1	Φd2
12.5	30	1480	600	1260	1320	1390	925	730	530	715	1130	1250	16×Φ14.5	Φ11
	37		614				955	760	560					
	45		650				995	800	600					
	55		657				1065	870	670					
	75		892				1115	920	720					
14	45	1480	783	1410	1470	1540	1005	810	570	800	1280	1400	20×Φ18.5	Φ11
	55		890				1075	880	640					
	75		1025				1125	930	690					
	90		1130				1125	930	690					
	110		1463				1325	113	890					
15	22	980	800	1510	1570	1640	975	770	530	850	1380	1500	20×Φ18.5	Φ11
	30		842				1035	830	590					
	37		958				1105	900	660					
	45		1086				1155	950	710					
	55		1145				1185	980	740					
16	22	980	1270	1612	1670	1740	975	770	530	910	1480	1600	24×Φ18.5	Φ18
	30		1312				1035	830	590					
	37		1428				1105	900	660					
	45		1556				1155	950	710					
	55		1615				1185	980	740					
18	37	980	1530	1812	1900	1960	1140	920	680	1030	1680	1800	24×Φ18.5	Φ18
	45		1660				1190	970	730					
	55		1720				1220	1000	760					
	75		2115				1420	1200	960					
	90		2210				1470	1250	1010					

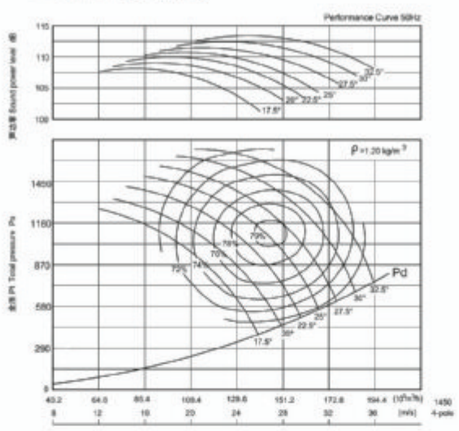
Fan Type 风机型号	Power 功率 (kW)	Speed 转速 (rpm)	Weight 重量 (kg)	D1 (mm)	D2 (mm)	D3 (mm)	L1 (mm)	L2 (mm)	L3 (mm)	H (mm)	B1 (mm)	B2 (mm)	n×Φd1	Φd2
19	45	980	2050	1914	2000	2060	1190	970	730	1060	1740	11900	24×Φ18.5	Φ18
	55		2115				1220	1000	760					
	75		2510				1420	1200	960					
	90		2600				1470	1250	1010					
	110		2670				1470	1250	1010					
	132		2730				1470	1250	1010					
20	55	980	2475	2014	2100	2160	1220	1000	760	1120	1820	2000	24×Φ18.5	Φ18
	75		2870				1420	1200	960					
	90		2950				1470	1250	1010					
	110		3030				1470	1250	1010					
	132		3090				1470	1250	1010					
	160		3330				1470	1250	1010					
21	75	980	3210	2114	2200	2260	1420	1200	960	1170	1920	2100	28×Φ24	Φ18
	90		3300				1470	1250	1010					
	110		3370				1470	1250	1010					
	132		3430				1470	1250	1010					
	160		3670				1680	1460	1220					
	200		3720				1680	1460	1220					
22	45	740	3142	2216	2300	2380	1220	1000	760	1220	2020	2200	28×Φ24	Φ18
	55		3550				1420	1200	960					
	75		3650				1470	1250	1010					
	90		3710				1470	1250	1010					
	110		3780				1470	1250	1010					
23	55	740	3800	2316	2400	2480	1420	1200	960	1270	2120	2300	28×Φ24	Φ18
	75		3900				1470	1250	1010					
	90		3960				1470	1250	1010					
	110		4030				1470	1250	1010					
	132		4800				1680	1460	1220					
24	55	740	4050	2416	2500	2580	1420	1200	960	1340	2220	2400	32×Φ24	Φ18
	75		4150				1470	1250	1010					
	90		4210				1470	1250	1010					
	110		4280				1470	1250	1010					
	132		5050				1680	1460	1220					
	160		5150				1680	1460	1220					
25	75	740	4430	2516	2600	2680	1470	1250	1010	1390	2320	2500	32×Φ24	Φ18
	90		4490				1470	1250	1010					
	110		4560				1470	1250	1010					
	132		5330				1680	1460	1220					
	160		5480				1680	1460	1220					
	200		5580				1680	1460	1220					
26	75	740	4700	2618	2720	2800	1470	1250	1010	1450	2420	2600	36×Φ24	Φ18
	90		4760				1470	1250	1010					
	110		4830				1470	1250	1010					
	132		5600				1680	1460	1220					
	160		5750				1680	1460	1220					
	200		5850				1680	1460	1220					
28	75	740	5250	2820	2920	3000	1470	1250	1010	1550	2620	2800	36×Φ24	Φ18
	90		5310				1470	1250	1010					
	110		5380				1470	1250	1010					
	132		6150				1680	1460	1220					
	160		6300				1680	1460	1220					
	200		6400				1680	1460	1220					

DTF(R)–12.5 风机性能曲线



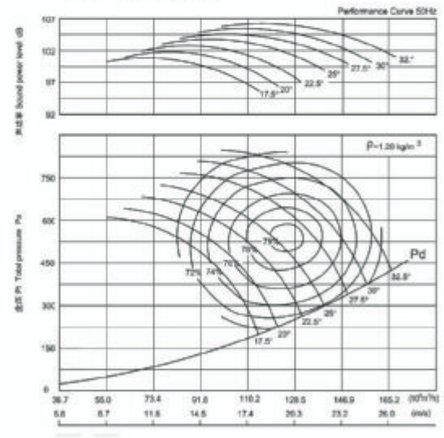
Speed 转速(rpm)	Blade Angle 叶片角度 (°)							Free space frequency 自由空间频率 (Hz)							
740	17.5	20	22.5	25	27.5	30	32.5	63	125	250	500	1K	2K	4K	8K
Power 功率(kW)	30	30	37	37	45	55	75	-15	-12	-1	-3	-6	-12	-20	-25

DTF(R)–14 风机性能曲线



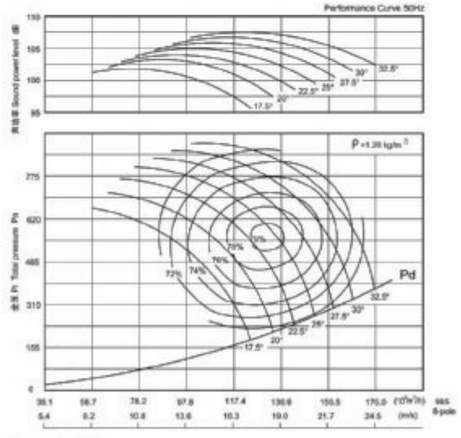
Speed 转速(rpm)	Blade Angle 叶片角度 (°)							Free space frequency 自由空间频率 (Hz)							
740	17.5	20	22.5	25	27.5	30	32.5	63	125	250	500	1K	2K	4K	8K
Power 功率(kW)	45	55	55	75	90	90	110	-15	-12	-1	-3	-6	-12	-20	-25

DTF(R)–15 风机性能曲线



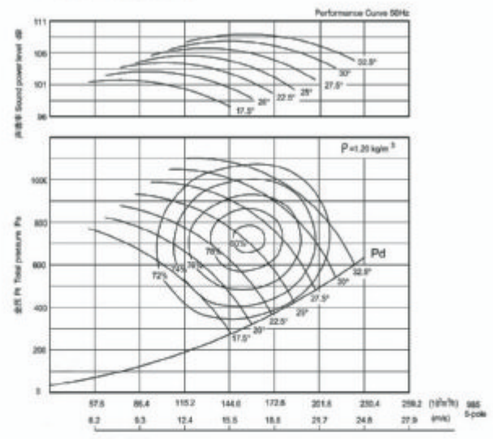
Speed 转速(rpm)	Blade Angle 叶片角度 (°)							Free space frequency 自由空间频率 (Hz)							
980	17.5	20	22.5	25	27.5	30	32.5	63	125	250	500	1K	2K	4K	8K
Power 功率(kW)	22	22	30	30	37	45	55	-13	-11	-2	-4	-7	-10	-17	-21

DTF(R)–16 风机性能曲线



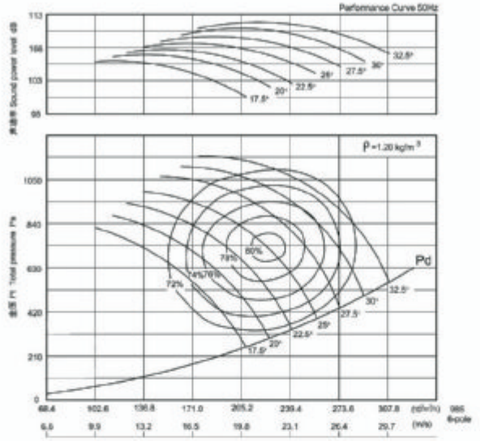
Speed 转速(rpm)	Blade Angle 叶片角度 (°)							Free space frequency 自由空间频率 (Hz)							
980	17.5	20	22.5	25	27.5	30	32.5	63	125	250	500	1K	2K	4K	8K
Power 功率(kW)	22	30	30	37	45	45	55	-13	-11	-2	-4	-7	-10	-17	-21

DTF(R)-18 风机性能曲线



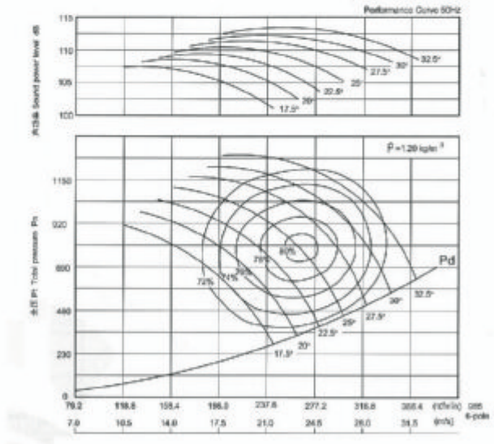
Speed 转速(rpm)	Blade Angle 叶片角度 (°)							Free space frequency 自由空间频率 (Hz)							
980	17.5	20	22.5	25	27.5	30	32.5	63	125	250	500	1K	2K	4K	8K
Power 功率(kW)	37	45	55	55	75	75	90	-13	-11	-2	-4	-7	-10	-17	-21

DTF(R)-19 风机性能曲线



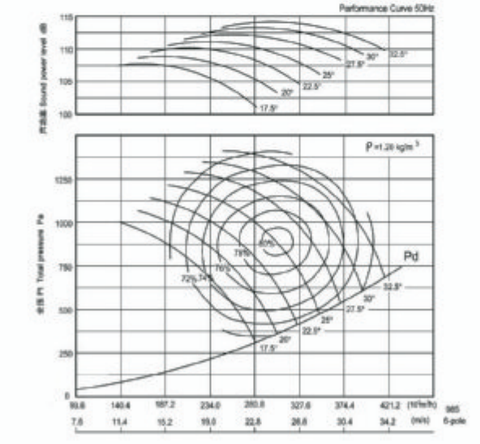
Speed 转速(rpm)	Blade Angle 叶片角度 (°)							Free space frequency 自由空间频率 (Hz)							
980	17.5	20	22.5	25	27.5	30	32.5	63	125	250	500	1K	2K	4K	8K
Power 功率(kW)	45	55	55	75	90	110	132	-13	-11	-2	-4	-7	-10	-17	-21

DTF(R)-20 风机性能曲线



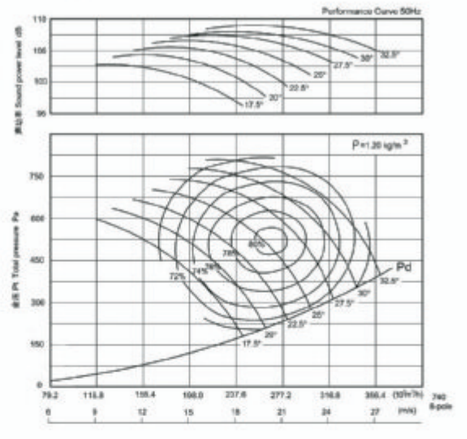
Speed 转速(rpm)	Blade Angle 叶片角度 (°)							Free space frequency 自由空间频率 (Hz)							
980	17.5	20	22.5	25	27.5	30	32.5	63	125	250	500	1K	2K	4K	8K
Power 功率(kW)	55	75	90	110	110	132	160	-13	-11	-2	-4	-7	-10	-17	-21

DTF(R)-21 风机性能曲线



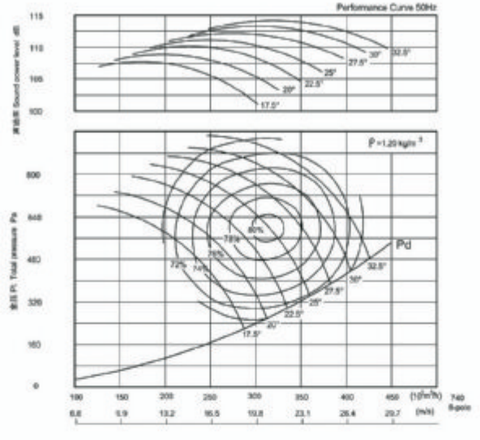
Speed 转速(rpm)	Blade Angle 叶片角度 (°)							Free space frequency 自由空间频率 (Hz)							
980	17.5	20	22.5	25	27.5	30	32.5	63	125	250	500	1K	2K	4K	8K
Power 功率(kW)	75	90	110	132	160	160	200	-13	-11	-2	-4	-7	-10	-17	-21

DTF(R)-22 风机性能曲线



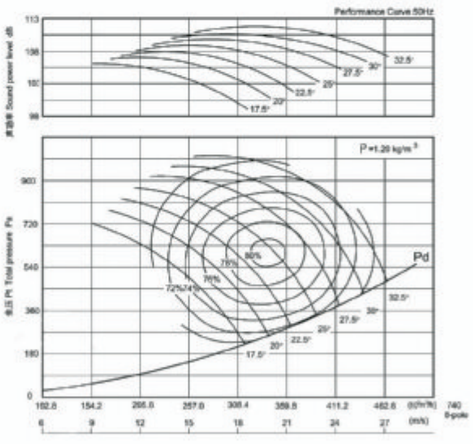
Speed 转速(rpm)	Blade Angle 叶片角度 (°)							Free space frequency 自由空间频率 (Hz)							
740	17.5	20	22.5	25	27.5	30	32.5	63	125	250	500	1K	2K	4K	8K
Power 功率(kW)	45	45	55	55	75	90	110	-12	-10	-1	-4	-8	-10	-18	-23

DTF(R)-23 风机性能曲线



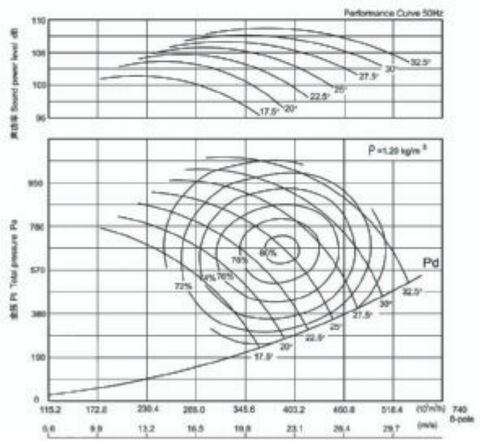
Speed 转速(rpm)	Blade Angle 叶片角度 (°)							Free space frequency 自由空间频率 (Hz)							
740	17.5	20	22.5	25	27.5	30	32.5	63	125	250	500	1K	2K	4K	8K
Power 功率(kW)	55	55	75	90	90	110	132	-12	-10	-1	-4	-8	-10	-18	-23

DTF(R)-24 风机性能曲线



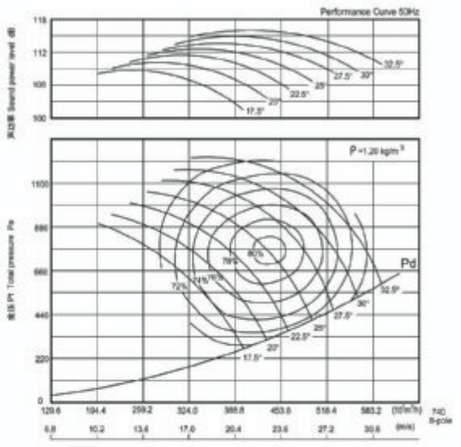
Speed 转速(rpm)	Blade Angle 叶片角度 (°)							Free space frequency 自由空间频率 (Hz)							
740	17.5	20	22.5	25	27.5	30	32.5	63	125	250	500	1K	2K	4K	8K
Power 功率(kW)	55	75	90	90	110	132	160	-12	-10	-1	-4	-8	-10	-18	-23

DTF(R)-25 风机性能曲线



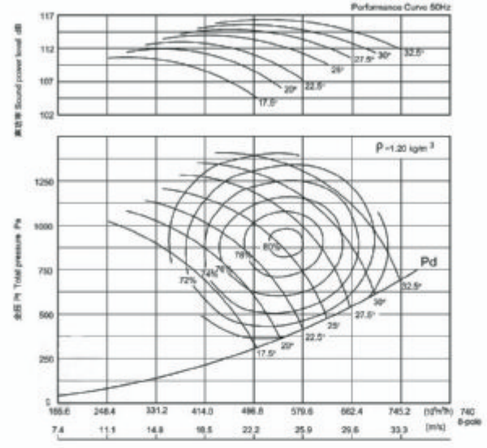
Speed 转速(rpm)	Blade Angle 叶片角度 (°)							Free space frequency 自由空间频率 (Hz)							
740	17.5	20	22.5	25	27.5	30	32.5	63	125	250	500	1K	2K	4K	8K
Power 功率(kW)	75	90	110	132	132	160	200	-12	-10	-1	-4	-8	-10	-18	-23

DTF(R)–26 风机性能曲线

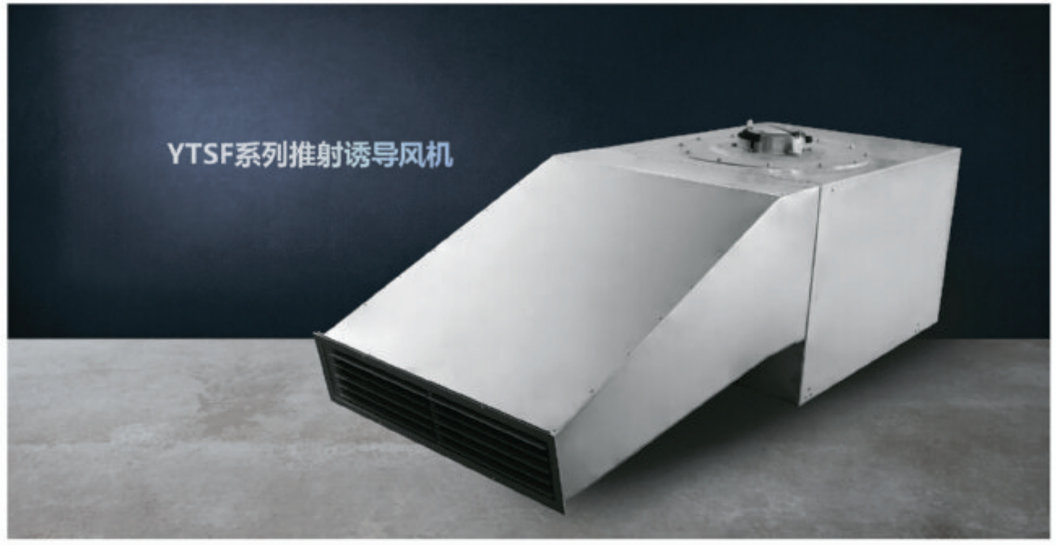


Speed 转速(rpm)	Blade Angle 叶片角度 (°)							Free space frequency 自由空间频率 (Hz)							
740	17.5	20	22.5	25	27.5	30	32.5	63	125	250	500	1K	2K	4K	8K
Power 功率(kW)	75	90	110	132	132	160	200	-12	-10	-1	-4	-8	-10	-18	-23

DTF(R)–28 风机性能曲线



Speed 转速(rpm)	Blade Angle 叶片角度 (°)							Free space frequency 自由空间频率 (Hz)							
740	17.5	20	22.5	25	27.5	30	32.5	63	125	250	500	1K	2K	4K	8K
Power 功率(kW)	75	90	110	132	132	160	200	-12	-10	-1	-4	-8	-10	-18	-23



YTSF SERIES PUSHING INDUCTED FAN
YTSF系列诱导推射风机

1 The Third Party Testing Report
第三方检测报告

The aerodynamic performance test report (issued by national inspection institution, Hefei General Machinery&Electrical Products Inspection Institute)

由第三方国家级检测检验机构（合肥通用机电产品检测院有限公司）出具的空气动力性能试验报告。



Inspection report
检验报告

2 PRINCIPLE AND APPLICATION
原理及用途

The theory of the pushing inducted fan is derived from the characteristics of high-speed jet flow in aerodynamics. The high-speed jet flow with high kinetic energy is used to disturb the surrounding air and bring the air to a specific target direction. The central velocity of the jet flow gradually decreases from the exit point of the nozzle while the width of the jet flow increases and the induced surrounding air also gradually increases. The increased surrounding air on the one hand dilutes the indoor harmful gas, and drives the indoor air flow on the other hand, which makes the harmful gas concentrate and quickly move to the exhaust fan along the preset air passage. The harmful gas is discharged outdoors through the exhaust fan so that create a good indoor exchange air effect.

The inducted fan can effectively reduce the concentration of harmful gas in large indoor places, maintain good air and improve the indoor environment.

Application in: Metro vehicle depot, underground parks and supermarkets, warehouses, industrial workshops, stadiums, other large places and large-area induced ventilation required places.

诱导推射风机主要运用理论来自于空气动力学中高速喷流的特性。利用喷出的带有高动能的高速气流来诱导及扰拌周围大量空气，并将其带至特定的目标方向。喷流中心速度由喷嘴出口点起逐渐减低，但是喷流宽度逐渐增加，所诱导的周围的空气也逐渐增加。一方面稀释室内有害气体，另一方面带动室内空气流动，将有害气体集中且快速的沿着预设的空气流道行进至排风机处，由排风机排走，从而使大型室内场合拥用良好的换气效果。

诱导推射风机应用的场所，可以有效降低大型室内场所的有害气体的浓度，保持良好的空气，改善室内环境。

应用场所：地铁车辆段、地下停车场、地下超市、仓库、工业厂房、体育场等大型场所，及有局部污染的大面积区域诱导通风。

3 PERFORMANCE FEATURES
性能特色

1、 High efficiency and energy saving, high air exchange quality, small size, easy installation, free maintenance and easy to clean;

2、With purifier at inlet (from a professional company) and functions of filtration, dust collection, purification and disinfection, easy cleaning and maintenance; (Optional)

3、With adjustable double louver at fan outlet and the air outlet angles of upper, lower, left and right directions can be adjustable; (Optional)

4、 CFD simulation analysis: CFD flow field simulation analysis and optimization can be carried out according to customer requirements and specific site conditions;

5、 Low noise: the muffler layer of the whole fan can effectively reduce the noise;

6、Optional materials: customers can choose galvanized plate (plastic-sprayed surface) or stainless steel pate as casing material according to their needs;

1、高效节能、换气质量高、省电、体积小、安装简便、免维护、便于清洗；

2、进口带净化器（专业公司定制），具有过滤、集尘、净化、消毒等功能，清洁维护方便；（选配）

3、出口带可调双层百叶，可调节上、下、左、右方向的出风角度；（选配）

4、CFD 模拟分析：根据客户要求及现场具体情况先期进行 CFD 流场模拟分析优化；

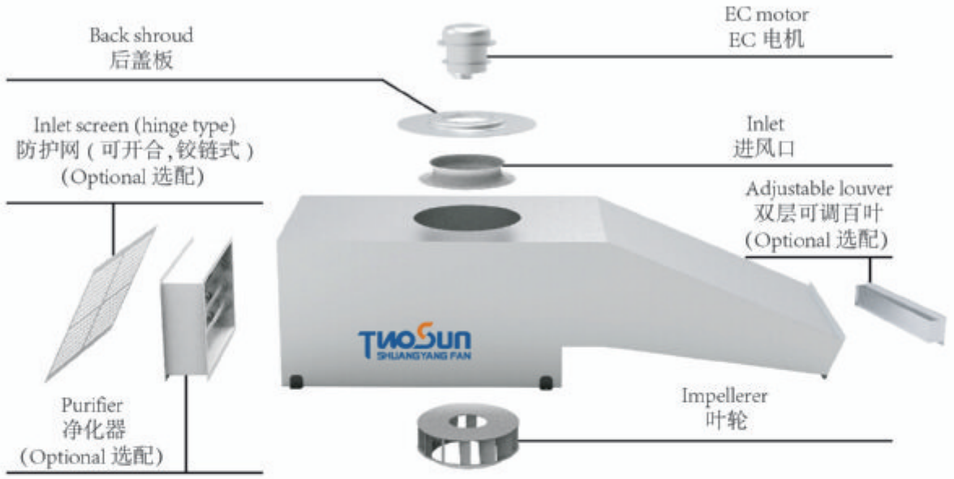
5、噪声低：风机有整体消音层，能有效的降低噪声；

6、材质可选：客户可根据需求，可选择镀锌板（表面喷塑）或不锈钢材质制作壳体；

4 Fan Structure
风机结构

The centrifugal fan, with backward curved impeller, is driven by EC brushless external rotor, direct driven. The overall shape of the fan is flat and long. The motor is installed inside the fan to reduce the fan height and installation space. And the special inclined fan outlet makes the jet air flow cover the operating area of the man-machine workstation well.

风机类型为后弯叶轮离心通风机。驱动方式为 EC 直流无刷外转子直联驱动。风机整体外形为扁长型结构，电机安装在风机内部，以降低风机高度，减小安装空间。风机出风口为特殊设计，倾斜式鸭嘴喷口，使喷流的气体能更好的覆盖人机工位作业区。



5 Control plan
控制方案

The control cabinet can be connected with the application in mobile phone and the function of communication with BAS is reserved.

控制柜可与手机 APP 连接，预留同 BAS 通讯功能。





Data Display Function数据显示功能

① Real-time data display;

② Equipment running status display;

③ Process monitoring display;

④ The historical curve shows;

①实时数据显示；

②设备运行状态显示；

③过程监视显示；

④历史曲线图形显示。

Control function控制功能

Control modes: local control and central control

控制方式为就地控制和总控制。

① Local control function 就地控制功能:

Manual start/stop fan according to the requirements of the track at site, and the fan speed can be automatically adjusted according to the ambient temperature collected by the temperature sensor after fan start.

Shift operation mode can be set according to non-operating hours and off-peak operating hours.

Operating modes can be set according to season (spring and autumn, summer and winter), temperature, VOC, time setting, manual control, etc.

Real time display of energy consumption of a single fan and fan number.

依据现场股道按需人工启 / 停，开启后风机转速按照温度传感器采集到的环境温度自动调速运行的功能。

可以根据非运营时间、运营非高峰时间来设置班次运行模式。

可按季节（设定春秋、夏、冬）、温度、VOC、时间设定、手动控制等多种方式设置运行模式。

可显示实时的单台能耗、运转数量。

② Central control 总控制功能:

Total energy consumption data in year, month and day can be displayed on the central control end, which is convenient for operation and maintenance management reference.

Centralized computer control by industrial serial communication (RS485) can reduce energy consumption and fan noise and prolongs the life of the fan.

According to the industrial serial communication protocol, fan revolution, fan power and other real time information of fan will be uploaded to the BAS.

The status of equipment overload and overheating, fan alarm and other information can be displayed, at the same time, this information is uploaded to BAS through the industrial serial communication protocol.

总控制端可显示年、月、日为单位的总能耗数据，方便运营维保管理参考使用。

通过工业串行通讯方式（RS485）进行计算机集中控制，降低能耗，减小噪音，延长风机寿命。

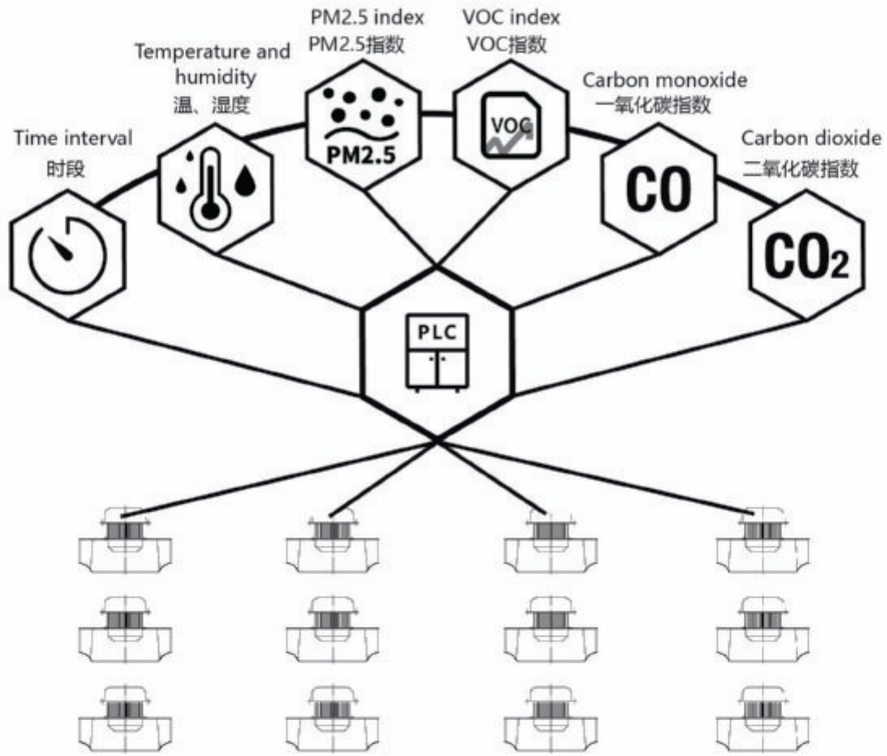
按照工业串行通讯协议，将风机转数、功率等实时信息上传至 BAS。

可显示设备过载、过热等状态，风机报警等信息，同时通过工业串行通讯协议向 BAS 上传信息。

Note: indexes of temperature, humidity, carbon monoxide, carbon dioxide, PM2.5 and VOC can be added as monitored items as required. And according to the actual needs of the project site, the required functions can be customized.

备注 根据需要可增加温度、湿度、一氧化碳、二氧化碳、PM2.5、VOC 指数监控。根据项目现场实际需求，可特殊定制所要的功能。

TWOSUN SHUANGYANG FAN



6 Fan Performance Parameters and Outline Dimensions
风机性能参数表和外形尺寸

Fan performance parameters
风机性能参数表

Fan model 风机型号	Speed 转速(r/min)	Airflow volume 风量(m^3/h)	Shaft power 轴功率(kW)	Power supply 电源参数 (V/HZ/Ph)	Outlet air velocity 出口风速(m/s)
YTSF-I	1500-1700	10000-11000	2.4-2.6	380/50/3	21-23
YTSF-II	1500-1650	11500-12500	2.6-2.9	380/50/3	21-23
YTSF-III	1200-1300	13000-15000	2.6-2.8	380/50/3	21-23

Unit单位：(mm)毫米 (Kg)千克

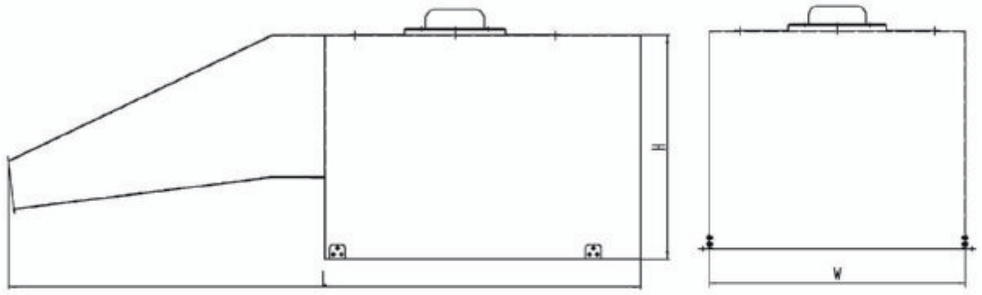
Inlet with filter
进口带过滤器

Model 型号	W	H	L	Weight 重量
YTSF-I	800	700	2000	120
YTSF-II	900	750	2200	135
YTSF-III	1000	850	2400	150

Inlet with dust collector, sterilizing device and filter unit
进口带除尘、消毒、过滤装置

Unit单位：(mm)毫米　(Kg)千克

Model 型号	W	H	L	Weight 重量
YTSF-I	800	700	2000	145
YTSF-II	900	750	2400	165
YTSF-III	1000	850	2600	180

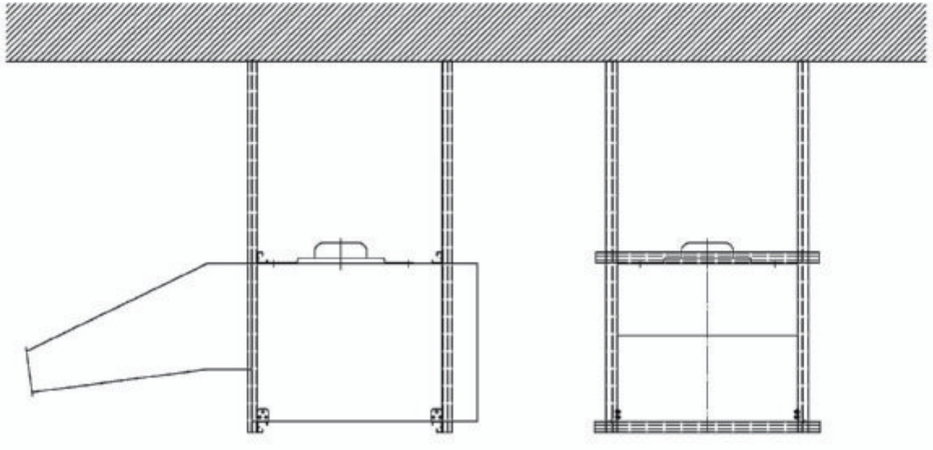




7 Fan installation
风机的安装

The installation method of YTSF series fan is profile steel frame hoisting. The obstacles within 1 meter of inlet and outlet of the fan are not allowed. The distribution distance between two fans is less than jet range of the fan and the fan outlets shall not be touched.

YTSF 系列诱导推射风机采用型钢框架吊装的安装方式。风机出风口和进风口 1 米内不得有障碍物。风机排布距离小于风机射程，出风口不应相互抵触。



Profile steel frame hoisting
型钢框架吊装方式

8 Scope of supply
供货范围

Pushing inducted fans, field control cabinets, central control cabinets, fan supports and hangers and shock pads, the telecommunication cables between field control cabinets and central control cabinets; models and specifications of the cables between field control cabinets and fan body.

诱导推射风机、现场控制柜、中央控制柜、风机支吊架及减振垫、现场控制柜与中央控制柜之间的通迅线缆；提供现场控制柜与风机本体间的线缆型号、规格。

9 Models and specifications of the cables between field control cabinets and fan bodies:
现场控制柜与风机本体间的线缆型号、规格:

Models and specifications of the cables between field control cabinets and fan bodies:

Main power lines between the field control cabinet and fan body: 6*2.5 square

Telecommunication cables between the field control cabinet and adjustable louver: 2*1 square

Telecommunication cables between the field control cabinet and temperature and humidity sensor: 4*1 square (shielding line)

现场控制柜与风机间的主电源线：6*2.5 平方

现场控制柜与出口可调百叶间的通迅线：2*1 平方

现场控制柜与温湿度传感器间的通讯线：4*1 平方 (屏蔽线)