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**SY-EX-10-4.8-15kW/4P-8(23deg)轴流式通风机**

SY-EX-10 -4.8-15kW/4P-8(23deg)AXIAL FAN

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**浙江双阳风机股份有限公司**  
ZHEJIANG SHUANGYANG FANS HOLDING CO.,LTD.

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## 关于双阳

**浙江双阳风机股份有限公司**是风机、风阀和消声器产品的专业制造企业。公司占地面积 10 万平方米,建筑面积 8.5 万平方米,注册资本 30500 万元,总资产近 7 亿元。目前,已形成工业配套、核电、地铁隧道和工民建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 70 余人,其中中高级职称 40 余人。

公司拥有 80 多项专利,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”,“浙江省专精特新中小企业”等称号。

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!



浙江双阳风机股份有限公司特此证明,此处所示 SY-EX-10-4.8-15kW/4P-8(23deg) 轴流式通风机获得了加盖 AMCA 印章的授权。所示额定值系根据 AMCA 出版物 211 和 AMCA 出版物 311 所进行测试和程序确定,并符合 AMCA 认证额定值计划的要求。

Zhejiang Shuangyang Fans Holding Co., Ltd. certifies that the SY-EX-10-4.8-15kW/4P-8(23deg) Axial Fan shown herein is licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.



# SY-EX-10-4.8-15kW/4P-8(23deg)轴流式通风机

## SY-EX-10 -4.8-15kW/4P-8(23deg)AXIAL FAN

### 1. 概述 Overview

SY-EX-10-4.8-15kW/4P-8(23deg)轴流式通风机系我公司与上海交通大学合作，借鉴日本、德国等国外先进技术基础上进行研制开发的新产品，具有可靠性高、高效率、低噪音等综合优势特点。公司工程技术中心致力于将理论技术进行不断创新研究开发和技术创新，与有关地铁设计院、隧道设计院和隧道安装公司广泛交流，充分调研海内外地铁、隧道、水利等工程系统，掌握该风机的使用要求，积累了产品技术、质量要求和使用条件等丰富经验。使该风机在效率和噪音等方面优于普通轴流风机，产品性能和结构设计达到国内外同类产品先进水平。

SY-EX-10-4.8-15kW/4P-8(23deg)轴流式通风机采用先进的工艺取得良好的质量保证，风机外壳采用进口专用机床旋压翻边成形，叶轮段内壁经金加工，既能保证机壳的同轴度和强度，又保证叶片径向间隙，外表经热浸镀锌处理，外形美观并防腐性能优良，风机叶片、轮毂采用全自动数控镗铣加工中心加工成型压铸模型腔，分别在高压铸造和低压铸造机进行铝合金高（低）压铸成型。经公路隧道、铁路隧道、水利大坝工程等用户实际使用证明，该风机各项性能指标及耐腐蚀、可靠性、经济性等技术、质量要求和经济指标完全能适应各类隧道、地铁的使用。

The SY-EX-10-4.8-15kW/4P-8(23deg) axial-fan is a new product jointly developed by our company and Beijing University of Aeronautics and Astronautics. It is based on advanced technologies from Japan, Germany and other countries and has comprehensive advantages such as high reliability, high efficiency and low noise. The technology center of company is focusing of research and innovation of sustainable development, have extensive exchanges with relevant metro design institutes, tunnel design institutes and tunnel installation companies, conduct comprehensive investigations into subway, tunnel, and water conservancy engineering systems both domestically and internationally, Master the use requirements of the fan, and accumulate rich experience in product technology, quality requirements and use conditions. The fan is superior to the ordinary axial fan in efficiency and noise, and the product performance and structure design reach the advanced level of similar products both domestically and internationally.

SY-EX-10-4.8-15kW/4P-8(23deg) axial-fan has high quality assurance depending on the advanced technology. The casing is forming by spinner. The tip of impeller is processed to make sure the alignment and the tip clearance. The hot dip galvanized surface provide good appearance and excellent anti-corrosive performance. The blades and hub are made of aluminum alloy by high/lw pressure die-casting by casting model which is made by Toshiba CNC. The application of SDS fan in highway tunnel, railway tunnel and dams project has proved that the performance, technical and quality requirement, i.e. anti-corrosive, reliability and economics as well as economic targets, completely meet with the requirement of tunnel and metro.

## 2. 产品特点 Product Features

### 可靠性高

风机采用先进 FEA 辅助设计反复优化及实验验证，有足够的的强度安全系数；设计时充分考虑叶轮材料 300°C 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 ISO G2.5（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。

### Reliability

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°C 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 ISO G2.5 (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.

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

### 高效率、低噪声

用国际最新航空航天气动设计技术，采用启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，确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。

每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。

### Efficiency and Low Noise

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.

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

### 3. 试验检测 Inspection and Test

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照国家、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。

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.

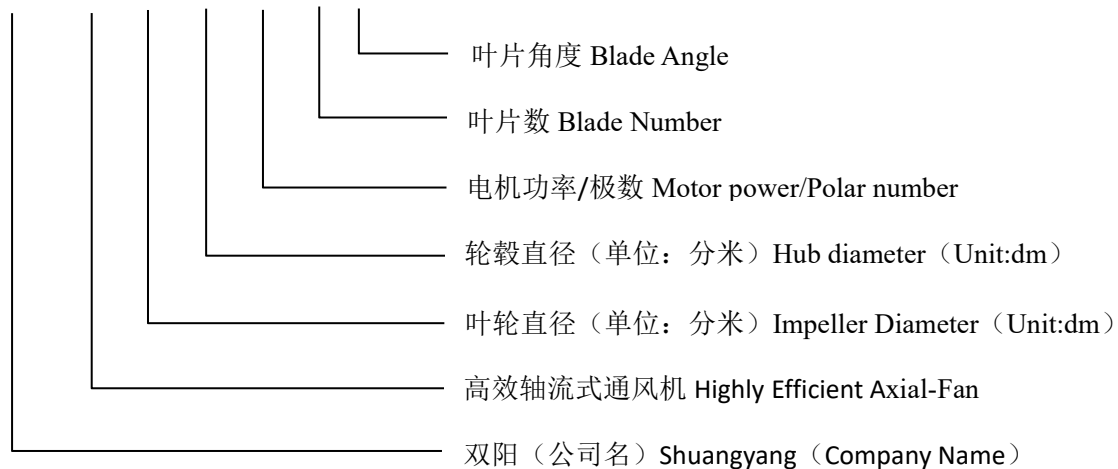
### 4. 命名方式 Naming Conventions

SY-EX-10 轴流式通风机命名方式：SY-EX-叶轮直径-轮毂直径-电机功率/极数-叶片数（叶片角度）；

SY-EX-10 axial-fan naming conventions:

SY—EX—Impeller diameter—Hub diameter—Motor power/Polar number—Blade Number (Blade Angle)；

SY — EX — □ — □ — □ — □ (□)



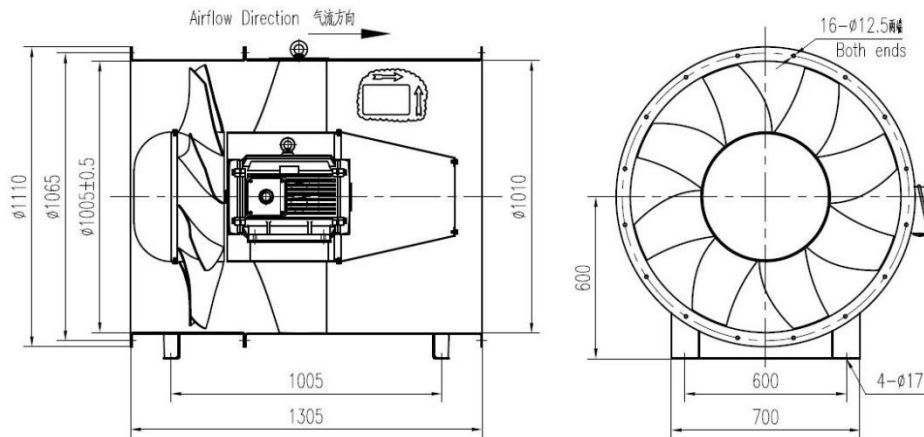
型号示例 Model example:

例：叶轮直径为 10 分米的轴流式通风机，型号为 SY—EX—10—4.8—15kW/4P—8（23deg）；

Case:Axial flow fan with impeller diameter of 10 decimeter, Mode:SY—EX—10—4.8—15kW/4P—8（23deg）

## 5. SY-EX-10-4.8-15kW/4P-8(23deg)轴流式通风机外形尺寸图

### Outline Dimension of SY-EX-10-4.8-15kW/4P-8(23deg) Axial Fan



## 6. SY-EX-10-4.8-15kW/4P-8(23deg)轴流式通风机性能参数表

### Performance Data of SY-EX-10-4.8-15kW/4P-8(23deg) Axial Fan

转速 speed (rpm)	序号 serial number	流量 flow (m <sup>3</sup> /s)	全压 T-pres sure (Pa)	静压 S-pres sure (Pa)	轴功率 shaft power (kW)	全压效率 T- pressure efficiency (η(%))	通风机能效指 数 Energy efficiency index of ventilation fan (FEI)	声功率级 Sound Power level (dB(A)) LwoA
1450	1	16.996	281	0	9.734	49	1.06	113
	2	15.965	451	203	11.341	63.3	1.23	113
	3	14.781	600	388	12.704	69.6	1.30	112
	4	13.197	724	556	13.669	69.7	1.27	110
	5	10.919	806	691	13.969	62.7	1.13	108
	6	7.987	815	753	12.846	50.5	0.92	108
	7	5.782	1123	1091	17.361	37.2	0.67	
	8	3.821	1365	1351	20.010	25.9	0.47	

— 各项性能额定值不包括附属物(附件)的影响。

— Performance ratings do not include the effects of appurtenances (accessories).

— 经认证的性能是 B 类安装：自由入口，管道出口。

— Performance certified is for installation type B: free inlet, ducted outlet.

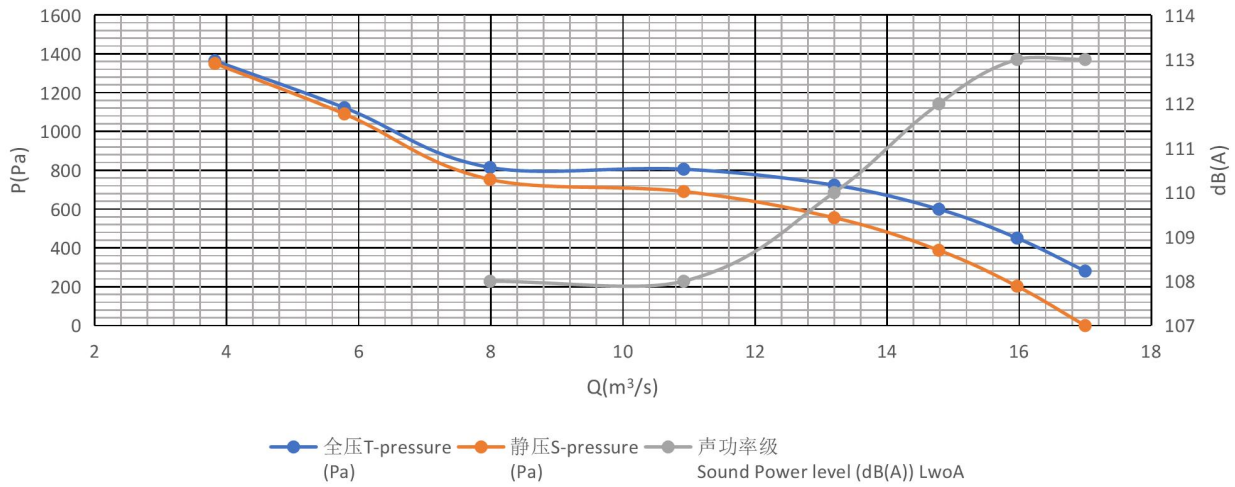
— 所示 A 加权声音性能额定值已按 AMCA International 标准 301 计算。所示值为安装类型 B: 自由入口、管道出口的声功率级(出口 LwoA)。额定值包括管道端部校正影响。

— The A-weighted sound ratings have been calculated per AMCA International Standard 301. Values shown are for outlet LwoA sound power levels for installation type B: free inlet, ducted outlet. Ratings include the effects of duct end correction.

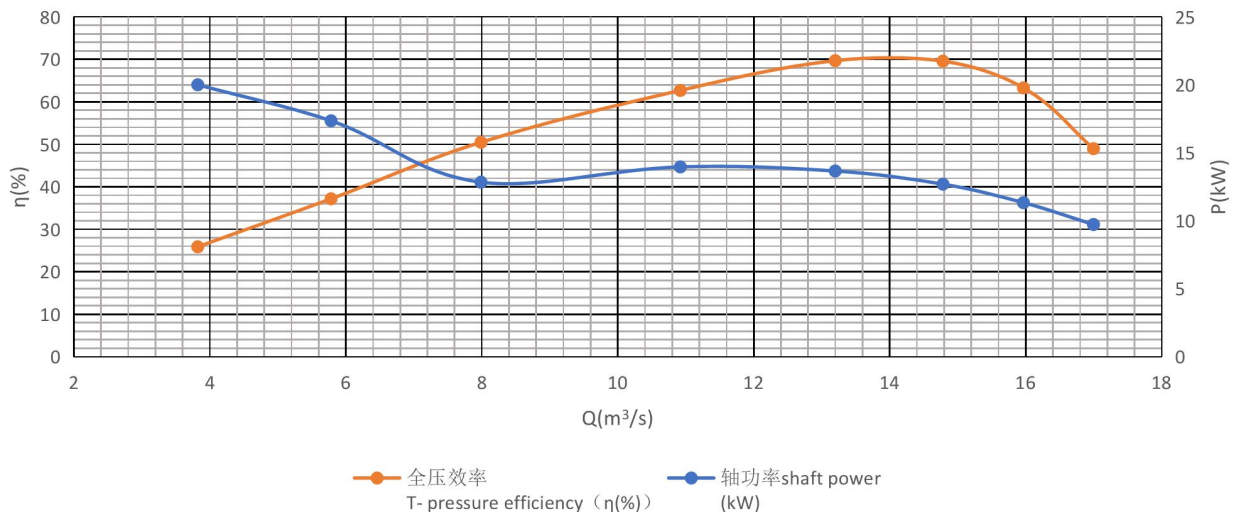
- FEI<sub>T</sub> 计算根据默认电机。

- FEI<sub>T</sub> calculation is based on default motor.

全压、静压、声功率级曲线  
Total pressure, static pressure, and sound power level curves



轴功率、全压效率曲线  
Shaft power and total pressure efficiency curve



一各项性能额定值不包括附属物(附件)的影响。

一 Performance ratings do not include the effects of appurtenances (accessories).

一 经认证的性能是 B 类安装：自由入口，管道出口。

一 Performance certified is for installation type B: free inlet, ducted outlet.

一 所示 A 加权声音性能额定值已按 AMCA International 标准 301 计算。所示值为安装类型 B: 自由入口、管道出口的声功率级(出口 LwoA) 。额定值包括管道端部校正影响。

一 The A-weighted sound ratings have been calculated per AMCA International Standard 301. Values shown are for outlet LwoA sound power levels for installation type B: free inlet, ducted outlet. Ratings include the effects of duct end correction.