

M 645 自由场测量传声器

产品规格书

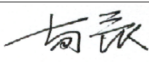
M 645 Free-field Measurement Microphone

Product Specification

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从此文件发布日期起，在此发表的是当前或者拟定的信息。由于我们会不断对产品进行改进和增加特征此出版物中的信息如有变动恕不另行通知。

From the date of this document's release, the information published here is current or proposed. As we will continuously improve and add features to our products, the information in this publication is subject to change without further notice.

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我们生产的测量用传声器，属于精密传感器，生产相关的各个方面都进行着严格管控，包括材料选择，生产工艺，测试管控，以及生产环境。



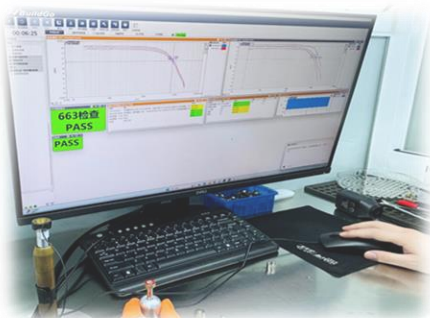
材料选择

经过多年持续改善，我们现采用特种镍合金材料作为膜片核心材料，相比其它合金材料有着更高灵敏度，更低失真率，以及更为稳定的长期使用表现；麦克风前置主体采用不锈钢材料使整支麦克风在各种装配产合下仍能拥有极为强壮的结构特性。



生产工艺

我们采用先进生产工艺，全自动化精密加工设备，最大程度减少了传统加工设备在进行二次装夹时带来的精度误差，从而显著提升了产品的尺寸一致性、几何精度及整体品质稳定性，为高要求的应用场景提供了可靠的技术保障。



测试管控

同时我们采用极其严苛的测试管控手段，对任何可能导致产品品质问题的环节都进行量化测试，并且进行测试顺序管控，防止跳站情况发生，完善的 MES 管控使得所有数据可追踪，确保传感器品质的高度一致性。



生产环境

所有我们的麦克风其整个生产流程均严格在无尘车间内完成，能最大程度降低空气中的灰尘数量，从而为传感器营造一个稳定、纯净的工作环境，以确保传感器长期稳定的寿命和并且在日常使用中始终展现出卓越的性能表现。

产品简介

M 645 自由场测量传声器



M 645 是 1/4 英寸预极化自由场测量传声器,用于测量传声器放入声场前的无畸变的真实声压。

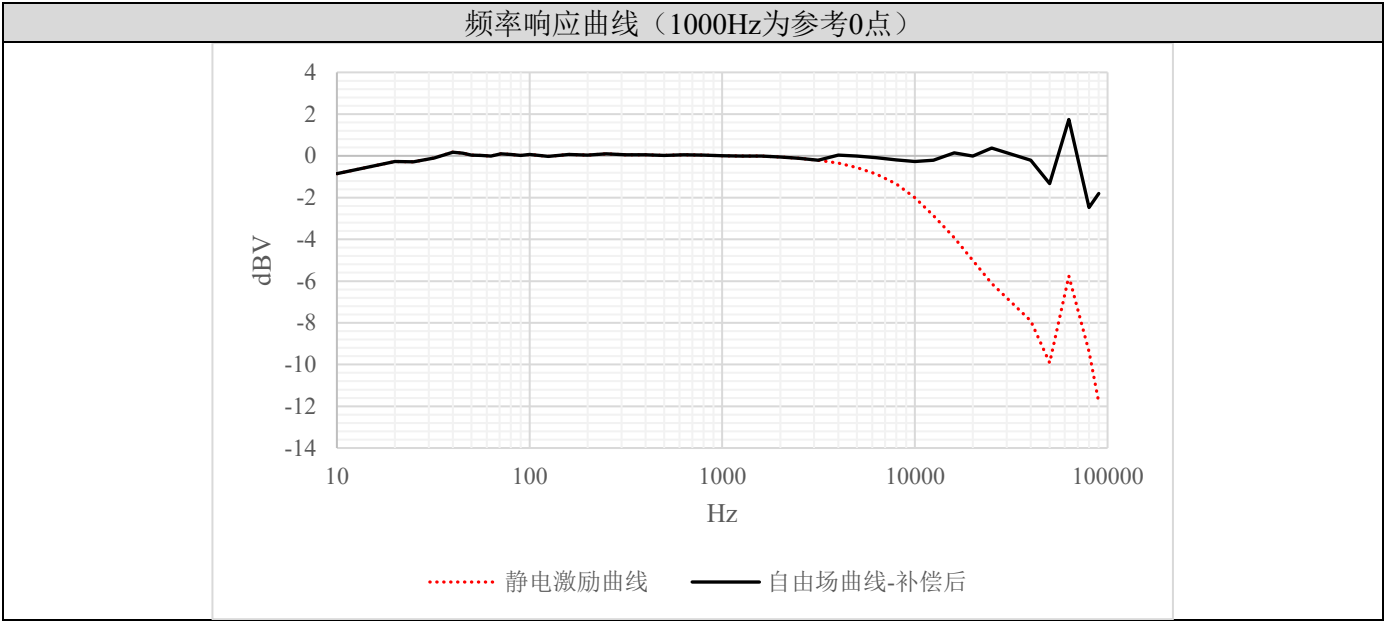
功能特点

- 符合 IEC 61094-4 对于 WS3F 型测量传声器要求
- 宽频率范围，宽动态范围

规格参数

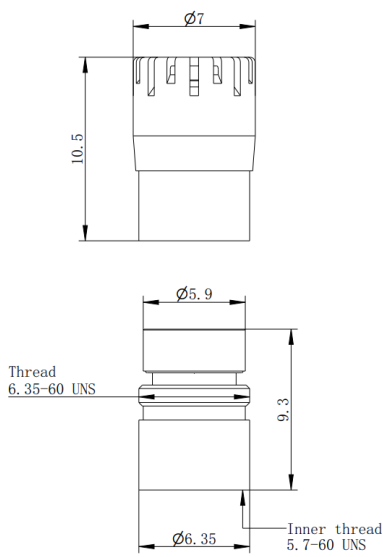
整体参数	
声场类型	自由场
极化电压	0V（预极化）
频率响应	10Hz-100kHz ±3dB 20Hz-50kHz ±2dB
动态范围	37dBA - 154dB（1000 Hz 失真<3%）
本底噪声	<37dBA
灵敏度 mV/Pa (dBV/Pa)	（5±1）mV/Pa （-46.0±2）dB re 1V/Pa
典型电容	<7.0pF
工作温度范围	-30°C - 85°C
温度系数	-0.012dB/°C
相对湿度	0% - 90%无凝结
湿度系数	<0.1dB (0% - 90%无凝结)
静压系数	-0.01dB/kPa
储存条件	温度：25°C±5°C，湿度：50%±15%RH（保证传感器的长期稳定性）
净重	1.7g
毛重	95g
外包装尺寸	16cm*10cm*4.5cm(L*W*H)
主体材料	不锈钢
膜片	镍
背极板	不锈钢
绝缘子	石英
驻极体	铁氟龙

频响曲线



机械尺寸

机械尺寸	
高度（含保护栅）	10.5mm
直径（含保护栅）	7mm
高度（不含保护栅）	9.3mm
直径（不含保护栅）	6.35mm
前置级配合螺纹	5.7mm - 60 UNS
保护栅配合螺纹	6.35mm - 60 UNS



订购信息

PN号	型号	说明
900001-07	M 645	1/4 英寸预极化自由场测量传声器
920011-05	M 645+A 811	IEPE 1/4 英寸预极化自由场测量传声器套件

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The measuring microphones we produce are precision sensors, and all aspects related to production are strictly controlled, including material selection, production processes, testing control, and production environment.



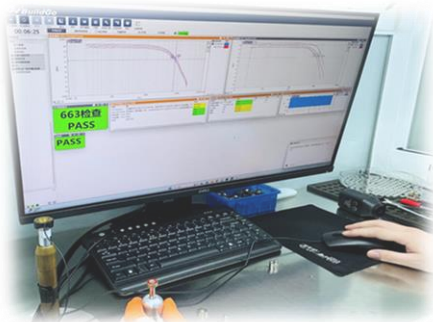
Material selection

After years of continuous improvement, we now use special nickel alloy materials as the core material for the diaphragm. Compared to other alloy materials, it exhibits higher sensitivity, lower distortion rate, and more stable long-term performance. The front body of the microphone is made of stainless steel, ensuring that the entire microphone maintains extremely robust structural characteristics even under various assembly conditions.



Production process

We adopt advanced production processes and fully automated precision machining equipment, which significantly reduces the accuracy errors caused by secondary clamping in traditional machining equipment. This greatly enhances the dimensional consistency, geometric accuracy, and overall quality stability of the products, providing reliable technical support for demanding application scenarios.



Testing control

At the same time, we employ extremely rigorous testing and control measures, conducting quantitative testing on any links that may lead to product quality issues, and implementing test sequence control to prevent skip-station situations. The comprehensive MES control enables all data to be traceable, ensuring a high degree of consistency in sensor quality.



Production environment

The entire production process of all our microphones is strictly carried out in a dust-free workshop, which can minimize the amount of dust in the air, thus creating a stable and pure working environment for the sensors. This ensures a long and stable lifespan for the sensors and maintains their excellent performance throughout daily use.

Product introduction



M 645 Free-Field Measurement Microphone

The M 645 is a 1/4-inch pre-polarized free-field measurement microphone designed to capture the true, undistorted sound pressure before the microphone's presence alters the acoustic field.

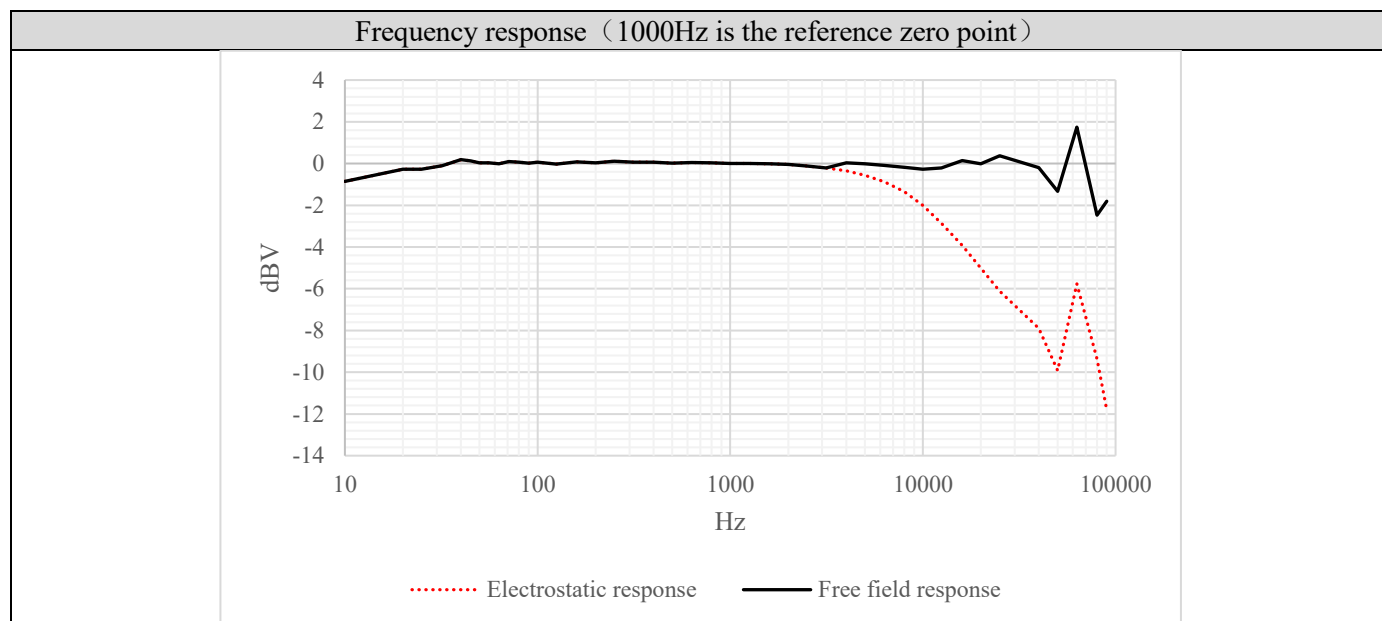
Features

- Complies with the requirements of IEC 61094-4 for WS3F type measurement microphones
- Wide frequency range, broad dynamic range

Specification parameters

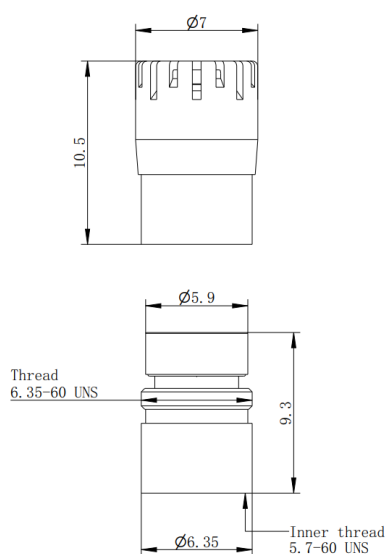
Parameters	
Sound field type	Free field
Polarization voltage	0 V (Pre-polarized)
Frequency response	10 - 100kHz ± 3 dB 20 - 50kHz ± 2 dB
Dynamic range	37dBA - 154dB (1000 Hz THD < 3%)
Inherent noise	< 37dBA
Sensitivity mV/Pa (dBV/Pa)	(5 ± 1) mV/Pa (-46 ± 2) dB re 1V/Pa
Typical capacitance	< 7.0pF
Operating temperature range	-30°C to 85°C
Temperature coefficient	-0.012 dB
RH	0% to 90% (no condensation)
Humidity coefficient	< 0.1dB (0% to 90% no condensation)
Static pressure coefficient	-0.01dB/kPa
Storage conditions	Temperature: 25° C $\pm$ 5° C, Humidity: 50% $\pm$ 15% RH (ensures long-term stability of the sensor)
Net weight	1.7g
Gross weight	95g
Outer packaging dimensions	16cm*10cm*4.5cm(L*W*H)
Main Body	Stainless steel
Diaphragm	Nickel
Backplate	Stainless steel
Insulator	Quartz
Electret	PTFE (Teflon)

Frequency response



Mechanical dimensions

Mechanical dimensions	
Height (with protective guard)	10.5mm
Diameter (with protective guard)	7mm
Height (without protective guard)	9.3mm
Diameter (without protective guard)	6.35mm
Front-end mounting thread	5.7mm-60 UNS
Protective guard retaining thread	6.35mm-60 UNS



Ordering Information

PN	Model	Description
900001-07	M 645	1/4inch pre-polarized free-field measurement microphone
920011-05	M 663+A 802	IEPE 1/4 inch pre-polarized free-field measurement microphone kit

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