



## XSW4301 Impedance Tube Sound Absorption Kit

## XSW4331 Impedance Tube Sound Absorption and Insulation Kit

### Features:

- Acoustical properties of material measurements based on the transfer-function method according to not only absorption coefficient standard of GB/T 18696.2, GB/J 88, ISO 10534-2 and ASTM E1050-12, but also transmission loss standard of ASTM E2611-17.
- Separable sample holder tube is convenient for placement of materials to be test.
- Faster and more accurate compared to the standing wave ratio method.
- Combined measurements with different microphone spacings can cover a wider frequency range.
- The inner diameter is 50mm, which lies between the commonly used 100mm and 29mm pipes in the market. It meets the requirements for inter-pipe sealing and snap connection structure in the conventional frequency band. The structure has been improved, significantly enhancing the sealing and sound insulation performance, and making the pipe installation more convenient and rapid.



### Applications:

- Quantitative measurement of acoustic properties of materials
- Measure the acoustic coefficients of materials which required for simulation software

### Introduction

**XSW** series impedance tubes are a new type of impedance tube product designed by BSWA based on the transfer-function method. They were designed and processed by ZKXY. The impedance tubes are compact in design, lightweight, and easy to assemble, making material replacement more convenient and rapid. As a supplement to the SW series impedance tubes, they are suitable for users who are concerned about the mid-frequency performance of the materials. One set of tubes can complete the required frequency band testing. If a wider frequency range is needed, please choose the impedance tubes of the SW series.

The XSW series impedance tubes are designed based on the two-microphone transfer function method. Paired with the MCR impedance tube software, the measurable material parameters include: sound absorption coefficient, reflection coefficient, acoustic impedance rate, acoustic admittance rate, transmission loss, propagation wave number, etc.

### Impedance Tube/Transmission Loss Tube

Type	SW4301	SW4331
Standard	GB/T 18696.2, GB/J 88、ISO 10534-2, ASTM E1050-12	GB/T 18696.2, GB/J 88、ISO 10534-2, ASTM E1050-12, ASTM E2611-17
Frequency Range	100 Hz~4 kHz	100 Hz~4 kHz
Diameter	50 mm	50 mm
Microphone Spacing	30mm/70mm	30mm/70mm



Matching Microphone	2*1/4" microphone	4*1/4" microphone
Length of Tube <sup>1</sup>	757 mm	1087 mm
Zero Absorption	50 Hz~4 kHz: <5 % (calculated in 1/3-octave band)	
Operating Environment	Temperature: -10 °C~50 °C, Humidity: 5 %RH~95 %RH (non-condensing)	
Vocalization Unit	4 Ω speaker, rated power 10 W, peak power 30 W, banana plug	

Note 1: The length is the minimum combination state.

## Kit Including

XSW4301 includes: T50L, T50-AS; XSW4331 includes: T50L, T50-AS, T50-TS, T50-E, T50-A.



<b>T50-L</b>	Sound tube; Built-in speaker with three microphone slots. The speaker has a diameter of 3.5 inches, a power of 10 watts, an impedance of 8 ohms, and a working frequency range of 100Hz to 4000Hz.
<b>T50-AS</b>	Adjustable sound-absorbing test piece tube; hard wall, supported sample thickness range 0 - 160mm
<b>T50-TS</b>	Sound insulation test piece tube; The thickness range of the supported sample is 0 - 100mm
<b>T50-E</b>	Sound insulation extension tube; used for sound insulation testing, with three microphone slots.
<b>T50-A</b>	Strong sound-absorbing end tube; Built-in strong sound-absorbing material

## Attachment

XSW4301	PA50 Power Amplifier <sup>1</sup> x 1 MC3322 Data Acquisition <sup>1</sup> x 1 MPA416 Microphone <sup>1</sup> x 2 BNC to SMB Data Cable <sup>1</sup> x 2 BNC to BNC Data Cable <sup>1</sup> x 1
XSW4331	PA50 Power Amplifier <sup>1</sup> x 1 MC3242A Data Acquisition <sup>1</sup> x 1 MPA416 Microphone <sup>1</sup> x 4 BNC to SMB Data Cable <sup>1</sup> x 4 BNC to BNC Data Cable <sup>1</sup> x 1

Note 1: Not standard configuration. The specific model may vary depending on the application.