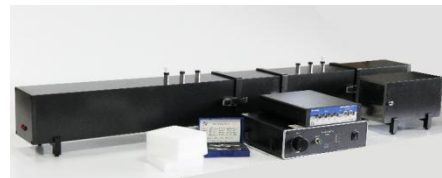




F100/F50 Square Impedance Tube

Features:

- Acoustical properties of material measurements based on the transfer-function method according to not only absorption coefficient standard of GB/T 18696.2, 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
- Frequency range can cover high and low bands, depends on various diameter of tube and the different microphone spacing
- Improved sealing and connecting structures between tubes are convenient for measurement and has much better sealing and sound insulation performance



Applications:

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

Introduction

F100/F50 square impedance tube is designed base on transfer-function method, according to GB/T 18696.2, ISO 10534-2, ASTM E1050-12, and ASTM E2611-17 standards, including absorption tube kit and transmission loss tube kit.

The absorption tube kit of **F100/F50** is based on two-microphone transfer-function method. The normal incidence sound absorption coefficients and specific acoustic impedance ratios of materials in the full measurement frequency range can be obtained only by one test. Compared with the tube designed based on the standing wave ratio method, it significantly improves the test efficiency of material acoustic properties. And the transmission loss tube kit is based on four-microphone transfer-function method. The transmission loss of materials to be measured can be obtained by measuring the sound pressure level at four fixed positions in tube with two different terminations and calculating a complex transfer function.

The inner side length of **F100** impedance tube is 102 mm, test frequency range is 45 Hz ~ 1.6 kHz. The inner side length of **F50** impedance tube is 50mm, test frequency range is 800 Hz ~ 3.45 kHz. Made of hard aluminum alloy, with compact design, light weight and easy to assemble, which is convenient for measuring acoustic properties of materials at various places.

Impedance Tube

Type	Absorption Tube		Transmission Loss Tube	
	F100	F50	F100	F50
Standard	GB/T 18696.2, ISO 10534-2, ASTM E1050-12		ASTM E2611-17	
Frequency Range	F100: 45 Hz ~ 1.6 kHz F50: 800 Hz ~ 3.45 kHz			
Side Length	102 mm	50 mm	102 mm	50 mm
Length of Tube ¹	828 mm	703 mm	1288 mm	1074 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)			

Note 1: The length is the minimum combination state.

**Loudspeaker**

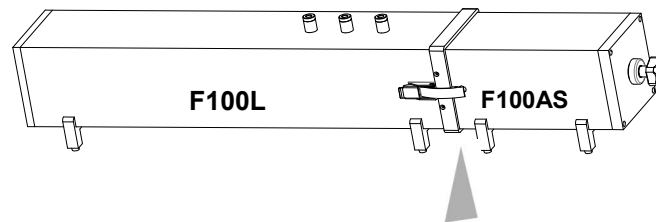
Rated Impedance	4 Ω
Diameter	3.5-inch
Sensitivity	89.8 dB (2.83 V@1 m)
Rated Power	10 W (continuous)
Peak Power	30 W (short duration: duty cycle 1/3, on time 50 s)
Audio Interface	Banana socket

Measurement Microphone

Type	MPA416 Prepolarization Microphone
Diameter	1/4"
Sensitivity (± 2 dB)	50 mV/Pa (-26 re 1 V/Pa)
Output Impedance	< 110 Ω
Dynamic Range	29 dBA ~ 127 dB
Self-generated Noise	29 dBA
Power Supply	ICCP

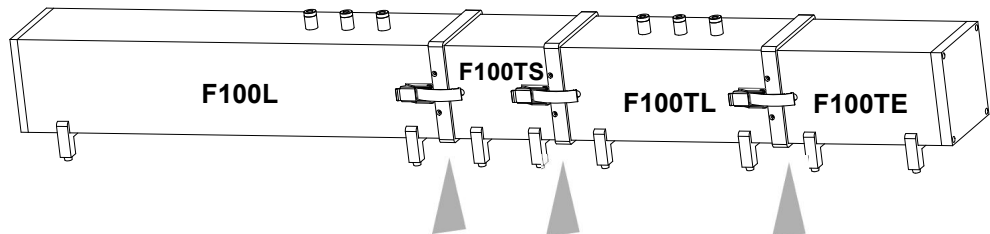
Kit Including

F100
45 Hz~1.6 kHz

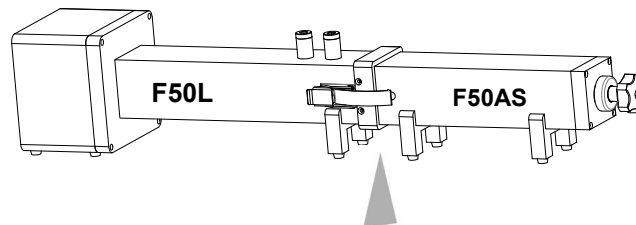


F100L Type of tube
▲ Split part

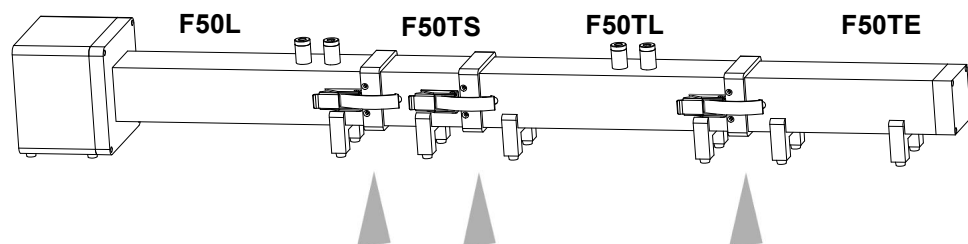
F100
45 Hz~1.6 kHz



F50
800 Hz~3.45 kHz



F50
800 Hz~3.45 kHz





Ordering Information

	Type	Frequency Range	Type of Tube	Other Accessories	Description
Absorption	F100	45 Hz~1.6 kHz	Test tube with loudspeaker F100L Absorption sample holder F100AS	MPA416 microphone ¹ x 2 Calibration sample x 1 (depends on side length of tubes)	Sound absorption coefficient
	F50	800 Hz~3.45 kHz	Test tube with loudspeaker F50L Absorption sample holder F50AS	Dummy microphone x 1 PA50 power amplifier ¹ MC3242A data acquisition ¹	
Transfer Loss	F100	45 Hz~1.6 kHz	Test tube with loudspeaker F100L Transmission loss sample holder F100TS Transmission loss test tube F100TL Absorption terminal tube F100TE	MPA416 microphone ¹ x4 Calibration sample x 1 (depends on side length of tubes)	Sound absorption coefficient, and Transmission loss
	F50	800 Hz~3.45 kHz	Test tube with loudspeaker F50L Transmission loss sample holder F50TS Transmission loss test tube F50TL Absorption terminal tube F50TE	Dummy microphone x 2 PA50 power amplifier ¹ MC3242A data acquisition ¹	

Note 1: Optional, the type may vary according to the applications.

Photo of All Tubes



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