

Z-TECH



# Product Catalogue

Acoustic & Electroacoustic Transducers

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## *Company Profile*

ZHENG TIAN TECHNOLOGY CO. LIMITED (Z-TECH) has been specialized in the manufacturing of professional acoustic transducers and related products for over 20 years.

Z-TECH utilizes the latest material and process in the design and production of its products, to ensure its transducers to be of high long-term stability, accuracy, and repeatability. Our microphones are widely applied in the fields of research, automotive, consumer electronics, aerospace, and other industries.

In recent years, Z-TECH is also expanding its product line to electroacoustic testing products and sound level meters.

It is our honor to supply the customers with the first-class and most cost-effective acoustic products.



### ***Automotive Parts Noise Testing***

The inspection of acoustic quality in the production of automotive parts can reduce the probability of NVH problems from the source. Accumulated testing experience and data can help guide the design and optimization of new model parts, and realize the beneficial interaction between solution design and manufacturing processes.

Z-TECH supplies you with various types of microphones for NVH testing of different sound pressure levels (SPL).

### ***Environmental Noise Monitoring***

Environmental noise monitoring has become a popular concern. Equipment often has to work outdoors for a long time under unattended condition.

The Z-TECH microphones and outdoor protection kits are with excellent performance and strong stability for environmental noise detection.

## ***Sound Field of Microphones***

Free-field microphones are used for measuring sound coming mainly from one direction. The frequency response curve is designed to compensate for the pressure at the diaphragm caused by interference and diffraction effects. Sound pressure levels tested are therefore equal to the level existing in the sound-field as if the microphone were not present.

Pressure- field microphones do not compensate for the pressure at the microphone diaphragm. They measure the actual sound pressure level at the diaphragm. Uses include measuring sound-pressure levels at a surface (the microphone is flush mounted), or in a closed cavity (where the microphone is part of the cavity wall). Pressure microphones can be used as free-field microphones if they are oriented at right angles to the direction of sound propagation, but their effective frequency range is then reduced.

Random-response microphones have a flat frequency response in diffuse sound fields where sound arrives from all angles.

Z-TECH supplies you with various types of microphones for testing sound pressure levels (SPL) in a wide range of applications.

## *Measurement Microphone Cartridges*

ZT measurement microphone cartridges use high-quality titanium film structure which has extremely high stability and accuracy even in harsh environments. Microphones are assembled in clean-room environment. Each microphone cartridge undergoes rigorous aging tests before leaving the factory.






ZT measurement microphone cartridges are with the sizes of 1/2 inch & 1/4 inch, and of free & pressure field. ZT microphone cartridges are of prepolarized type which is more convenient to use and is preferred in 'hand-held' applications such as sound level meters.

All ZT microphones comply with the IEC 61672 Class 1 standard.

### Measurement Microphone Cartridges - 1/2 inch-Free Field & Pressure Field

	ZT-331	ZT-332	ZT-333	ZT-334	ZT-371	ZT-372
Picture						
Sound field type	Free field type	Pressure field type	Free field type	Pressure field type	Free field type	Pressure field type
Sensitivity (@ 250 Hz ± 2 dB)	40 mV/Pa	31.6 mV/Pa	50 mV/Pa	50 mV/Pa	12.5 mV/Pa	12.5 mV/Pa
Sensitivity (@ 250 Hz ± 2 dB)	-28 dB re 1V/Pa	-30 dB re 1V/Pa	-26 dB re 1V/Pa	-26 dB re 1V/Pa	-38 dB re 1V/Pa	-38 dB re 1V/Pa
Frequency response (±2 dB)	3.15Hz-16kHz	3.15Hz-10kHz	3.15Hz-20kHz	3.15Hz-10kHz	3.15Hz-40kHz	3.15Hz-20kHz
Polarization voltage	0V(pre-polarization)	0V(pre-polarization)	0V(pre-polarization)	0V(pre-polarization)	0V(pre-polarization)	0V(pre-polarization)
Typical capacitance	18pF	17pF	15pF	17pF	13pF	13pF
Upper limit of dynamic range (re. 20 uPa)	≥140dB(distortion < 3%)	≥140dB(distortion < 3%)	≥146dB(distortion < 3%)	≥146dB(distortion < 3%)	≥160dB(distortion < 3%)	≥160dB(distortion < 3%)
Lower limit of dynamic range (re. 20 uPa)	≤16dB(A)	≤16dB(A)	≤15dB(A)	≤15dB(A)	≤20dB(A)	≤20dB(A)
Range of operating temperature	-20°C -60°C	-20°C -60°C	-30°C -80°C	-30°C -80°C	-30°C -80°C	-30°C -80°C
Temperature coefficient (-10 °C to 50 °C)	0.012dB/°C	0.012dB/°C	0.012dB/°C	0.012dB/°C	0.005dB/°C	0.005dB/°C
Static pressure coefficient	-0.01dB/kPa	-0.01dB/kPa	-0.01dB/kPa	-0.01dB/kPa	-0.01dB/kPa	-0.01dB/kPa
Relative humidity range (without condensation)	0-90%RH	0-90%RH	0-90%RH	0-90%RH	0-90%RH	0-90%RH
Relative humidity coefficient	<0.1dB(0 - 90% RH without condensation)	<0.1dB(0 - 90% RH without condensation)	<0.1dB(0 - 90% RH without condensation)	<0.1dB(0 - 90% RH without condensation)	<0.1dB(0 - 90% RH without condensation)	<0.1dB(0 - 90% RH without condensation)
Pressure equalization method	Post-pressure equalization	Post-pressure equalization	Post-pressure equalization	Post-pressure equalization	Post-pressure equalization	Post-pressure equalization
IEC 61094-4 Designation	WS2F	WS2F	WS2F	WS2F	WS2F	WS2P
Height (with protective grid)	16.3mm	16.2mm	16.3mm	16.2mm	12.6mm	12.6mm
Diameter (including protective grid)	13.2mm	13.2mm	13.2mm	13.2mm	13.2mm	13.2mm
Height (without protective grid)	15.2mm	15mm	15.2mm	15mm	11.5mm	11.5mm
Diameter (without protective grid)	12.7mm	12.7mm	12.7mm	12.7mm	12.7mm	12.7mm
Preamplifier with thread	11.7mm-60UNS	11.7mm-60UNS	11.7mm-60UNS	11.7mm-60UNS	11.7mm-60UNS	11.7mm-60UNS
Protective grid thread	12.7mm-60UNS	12.7mm-60UNS	12.7mm-60UNS	12.7mm-60UNS	12.7mm-60UNS	12.7mm-60UNS

### Measurement Microphone Cartridges - 1/4 inch-Free Field & Pressure Field

	ZT-341	ZT-342	ZT-343	ZT-351	ZT-352
Picture					
Sound field type	Free field type	Pressure field type	Free field type	Free field type	Pressure field type
Sensitivity (@ 250 Hz ± 2 dB)	4 mV/Pa	1.6 mV/Pa	4 mV/Pa	15.8 mV	15.8dBmV
Sensitivity (@ 250 Hz ± 2 dB)	-48 dB re 1V/Pa	-56 dB re 1V/Pa	-48 dB re 1V/Pa	-36 dB re 1 V/Pa	-36 dB re 1 V/Pa
Frequency response (±2 dB)	4Hz-40kHz	4Hz-70kHz	4Hz-90kHz	4Hz-40kHz	4Hz-20kHz
Polarization voltage	0V(pre-polarization)	0V(pre-polarization)	0V(pre-polarization)	0V	0V
Typical capacitance	7pF	7pF	7pF	7 pF (250 Hz)	7 pF (250 Hz)
Upper limit of dynamic range (re. 20 uPa)	≥160dB(distortion < 3%)	≥170dB(distortion < 3%)	≥165dB(distortion < 3%)	≥140dB(distortion < 3%)	≥140dB(distortion < 3%)
Lower limit of dynamic range (re. 20 uPa)	≤30dB(A)	≤30dB(A)	≤30dB(A)	≤20dB(A)	≤20dB(A)
Range of operating temperature	-20°C -60°C	-20°C -60°C	-30°C -80°C	-20°C -60°C	-20°C -60°C
Temperature coefficient (-10 °C to 50 °C)	0.01dB/°C	0.015dB/°C	0.01dB/°C	0.015dB/°C	0.015dB/°C
Static pressure coefficient	-0.01dB/kPa	-0.01dB/kPa	-0.01dB/kPa	-0.01dB/kPa	-0.01dB/kPa
Relative humidity range (without condensation)	0-90%RH	0-90%RH	0-90%RH	0-90%RH	0-90%RH
Relative humidity coefficient	<0.1dB(0-90% RH without condensation)	<0.1dB(0-90% RH without condensation)	<0.1dB(0-90% RH without condensation)	<0.1dB(0-90% RH without condensation)	<0.1dB(0-90% RH without condensation)
Pressure equalization method	Average side pressure	Average side pressure	Average side pressure	Average side pressure	Average side pressure
IEC 61094-4 Designation	WS3F	WS3P	WS3F	WS3F	WS3F
Height (with protective grid)	10.5mm	10.5mm	10.5mm	10.5mm	10.5mm
Diameter (including protective grid)	7mm	7mm	7mm	7mm	7mm
Height (without protective grid)	9mm	9mm	9mm	9mm	9mm
Diameter (without protective grid)	6.35mm	6.35mm	6.35mm	6.35mm	6.35mm



### Microphone Preamplifiers

ZT preamplifiers use Constant Current Power and have the characteristics of high input impedance, low output impedance, low noise, wide frequency response range, and etc. It is suitable for various occasions such as electro-acoustic tester system and multi-channel noise analysis.

	ZT-507	ZT-508	ZT-510	ZT-512	ZT-547
Picture					
Microphone Cartridge Size to Fit	1/2"	1/2"	1/2"	1/2"	1/4"
Frequency response range	20 Hz - 50 kHz ( $\pm 0.2$ dB), 10 Hz - 100 kHz ( $\pm 0.5$ dB)	20 Hz - 50 kHz ( $\pm 0.2$ dB), 10 Hz - 100 kHz ( $\pm 0.5$ dB)	20 Hz - 50 kHz ( $\pm 0.2$ dB), 10 Hz - 100 kHz ( $\pm 0.5$ dB)	20 Hz - 50 kHz ( $\pm 0.2$ dB), 10 Hz - 100 kHz ( $\pm 0.5$ dB)	10 Hz - 80 kHz ( $\pm 0.2$ dB)
Input impedance	>10 G $\Omega$ / 0.5 pF	>10 G $\Omega$ / 0.5 pF	>10 G $\Omega$ / 0.5 pF	>2 G $\Omega$ / 0.5 pF	>2 G $\Omega$ / 0.5 pF
Output impedance	<20 $\Omega$	<20 $\Omega$	<20 $\Omega$	<20 $\Omega$	<20 $\Omega$
Distortion factor (THD)	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Max. output voltage	>5.0 Vrms (+24 V available)	>5.0 Vrms (+24 V available)	>5.0 Vrms (+24 V available)	>5.0 Vrms (+24 V available)	>5.0 Vrms
Power Supply Mode	IEPE (2 mA - 10 mA)	IEPE (2 mA - 10 mA)	IEPE (2 mA - 10 mA)	IEPE (2 mA - 10 mA)	IEPE (2 mA - 10 mA)
Noise (A-weighted)	<3 $\mu$ Vrms	<3 $\mu$ Vrms	<3 $\mu$ Vrms	<3 $\mu$ Vrms	<3 $\mu$ Vrms
Noise, linear (20 - 20 kHz)	<10 $\mu$ Vrms	<10 $\mu$ Vrms	<10 $\mu$ Vrms	<10 $\mu$ Vrms	<10 $\mu$ Vrms
Gain	-0.3dB	-0.3dB	-0.3dB	-0.3dB	0 dB
Port type	BNC	BNC	SMB	SMB	SMB
Applicable temperature range	-30 $^{\circ}$ C - +70 $^{\circ}$ C	-30 $^{\circ}$ C - +70 $^{\circ}$ C	-30 $^{\circ}$ C - +70 $^{\circ}$ C	-30 $^{\circ}$ C - +70 $^{\circ}$ C	-30 $^{\circ}$ C - +70 $^{\circ}$ C
Thread interface	11.7mm x 60UNS (M11.7x0.423mm)	11.7mm x 60UNS (M11.7x0.423mm)	11.7mm x 60UNS (M11.7x0.423mm)	11.7mm x 60UNS (M11.7x0.423mm)	5.7mmx60UNS (M5.7x0.423mm)
Diameter	12.7mm (1/2")	61mm	12.7mm (1/2")	12.7mm (1/2")	6.35mm(1/4")
Typical operating current	4 mA	4 mA	4 mA	4 mA	4 mA

### *Microphone Sets*

Z-TECH provides customer with different type of microphone sets for different applications. The microphone sets are with BNC or SMB slot, to be easily connected to most professional measurement system.


ZT measurement microphone cartridges use high-quality titanium film structure which has extremely high stability and accuracy even in harsh environments. Microphones are assembled in clean-room environment. Each microphone cartridges undergoes rigorous aging tests before leaving the factory.


### Microphone Sets

	ZT-331-507 microphone sets	ZT-333-507 microphone sets	ZT-371-507 microphone sets	ZT-341-547 microphone sets	ZT-343-547 microphone sets	ZT-351-547 microphone sets	ZT-363 microphone sets
Picture							
Diameter	1/2 inch	1/2 inch	1/2 inch	1/4 inch	1/4 inch	1/4 inch	1/4 inch
Sound field type	Free field type	Free field type	Free field type	Free field type	Free field type	Free field type	Free field type
Sensitivity, mV/Pa (dBV/Pa)	40 mV (-28 dB) ± 2 dB	50 mV (-26 dB) ± 2 dB	12.5 mV (-38 dB) ± 2 dB	4mV±3dB / -48dBV/Pa±3dB	4mV±3dB / -48dBV/Pa±3dB	15.8mV±2dB / -36dBV/Pa±2dB	50mV (-26 dB) ± 2 dB
Frequency response range	3.15 Hz - 16 kHz (±2 dB)	10 Hz - 20 kHz (±2 dB)	10 Hz - 40 kHz (±2 dB)	4 Hz - 40 kHz (±2 dB)	10 Hz - 90 kHz (±2 dB)	4 Hz - 40 kHz (±2 dB)	20 Hz - 20 kHz (±2 dB)
Polarization voltage	0V	0V	0V	0V	0V	0V	0V
Dynamic range (based on 20 uPa)	16 - 138dB	16 - 138dB	20 - 150dB	30 - 160dB	30 - 160dB	20 - 140dB	30 - 126dB
Upper limit of dynamic range (based on 20 uPa)	≥138dB (250Hz, distortion < 3%)	≥138dB (250Hz, distortion < 3%)	≥150dB (250Hz, distortion < 3%)	≥160dB (250Hz, distortion < 3%)	≥160dB (250Hz, distortion < 3%)	≥140dB (250Hz, distortion < 3%)	≥126dB (250Hz, distortion < 3%)
Equivalent noise (based on 20 uPa)	≤16dBA (250Hz)	≤16dBA (250Hz)	≤20dBA (250Hz)	≤30dBA (250Hz)	≤30dBA (250Hz)	≤20dBA (250Hz)	≤30dBA (250Hz)
Range of operating temperature	-20°C - +60°C	-30°C - +70°C	-30°C - +70°C	-20°C - +60°C	-30°C - +70°C	-20°C - +60°C	-10°C - +50°C
Temperature coefficient	0.012dB / °C (-10°C - +50°C, 250Hz)	0.012dB / °C (-10°C - +50°C, 250Hz)	0.005dB / °C (-10°C - +50°C, 250Hz)	0.012dB / °C (-10°C - +50°C, 250Hz)	0.01dB / °C (-10°C - +50°C, 250Hz)	0.015dB / °C (-10°C - +50°C, 250Hz)	0.01dB / °C (-10°C - +50°C, 250Hz)
Static pressure coefficient	-0.01dB / kPa	-0.01dB / kPa	-0.01dB / kPa	-0.01dB / kPa	-0.01dB / kPa	-0.01dB / kPa	-0.01dB / kPa
Relative humidity range	0 ~ 90% (without condensation)	0 - 90% (without condensation)	0 - 90% (without condensation)	0 - 90% (without condensation)	0 - 90% (without condensation)	0 - 90% (without condensation)	0 - 90% (without condensation)
Relative humidity coefficient	<0.1dB (0 - 90% without condensation)	<0.1dB (0 - 90% without condensation)	<0.1dB (0 - 90% without condensation)	<0.1dB (0 - 90% without condensation)	<0.1dB (0 - 90% without condensation)	<0.1dB (0 - 90% without condensation)	<0.1dB (0 - 90% without condensation)
Pressure equalization method	Post-pressure equalization	Post-pressure equalization	Post-pressure equalization	Post-pressure equalization	Post-pressure equalization	Post-pressure equalization	Post-pressure equalization
Input impedance	>10GΩ/0.5pF	>10GΩ/0.5pF	>10GΩ/0.5pF	>2GΩ/50pF	>2GΩ/50pF	>2GΩ/50pF	>10GΩ/0.5pF
Output impedance	<20Ω, <0.1%	<20Ω, <0.1%	<20Ω, <0.1%	<20Ω	<20Ω	<20Ω	<20Ω, <0.1%
Power supply	IEPE (2mA - 10mA)	ICP (2mA - 10mA)	ICP (2mA - 10mA)	ICP (2mA - 10mA)	ICP (2mA - 10mA)	ICP (2mA - 10mA)	ICP (2mA - 10mA)
Rated operational current	4mA	4mA	4mA	4mA	4mA	4mA	4mA
Noise (A-weighted)	<3μVrms	<3μVrms	<3μVrms	<3μVrms	<3μVrms	<3μVrms	<3μVrms
Linearity (20 - 20 KHz)	<10μVrms	<10μVrms	<10μVrms	<10μVrms	<10μVrms	<10μVrms	<10μVrms
Gain	-0.7dB	-0.7dB	-0.7dB	-1.2dB	-1.2dB	-1.2dB	-0.7dB
Connector	BNC port	BNC port	BNC port	SMB port	SMB port	SMB port	SMB port

### Ear Simulators-Couplers

Ear simulator/coupler is a device that simulates the physical characteristics of the human ear. It includes a microphone and an acoustic network with a structure similar to the acoustic characteristics of the human external ear. It is used to make quantitative and qualitative evaluations of the performance of headphone equipment.

ZT-711 Ear Simulator / Coupled Cavity	
Picture	
Applicable Standards	IEC 60318-4 (IEC60711) ; ITU-T Rec. P.57 Type 2
Frequency range	20Hz~16kHz (for coupled cavity)
Height	23mm (excluding microphone)
Diameter	23.77mm
Weight	45g (excluding microphone)
Optional Items	
Microphone	ZT-372/332
Preamplifier	ZT-508 (IEPE, BNC)

ZT-318 Ear Simulator / Coupled Cavity	
Picture	
Applicable Standards	IEC 60318-1 ITU-T Rec. P.57 Type 1
Height	32mm (including adapter to be connected)
Diameter	60mm
Weight	208g (including adapter to be connected)
Optional Items	
Microphone	ZT-372/332
Preamplifier	ZT-508 (IEPE, BNC)

ZY-319 Ear Simulator / Coupled Cavity	
Picture	
Applicable Standards	IEC 60318-5
Frequency Response (FR)	125Hz~8kHz
Sensitivity ±2 dB	12.5mV/Pa
Sensitivity ±2 dB	-38dB re 1V/Pa
Polarization voltage	0V(pre-polarization)
Upper limit of dynamic range (re 20 uPa)	160dB
Lower limit of dynamic range (re 20uPa)	20dB(A)
Operating temperature	-30℃ ~80℃
Temperature coefficient (-10 ℃ - 50 ℃)	0.005dB/℃
Relative humidity range	0~90% (without condensation)
Power Supply of Preamplifier	IEPE(2~10mA)
Connection Mode of Preamplifier	SMB coaxial plug
Optional Items	
Microphone	ZT-372/332
Preamplifier	ZT-510 (IEPE, SMB)

## Pinnas

Pinna for Ear Simulator is a wide-band ear simulator for testing calls. It is designed to measure the actual response of a telephone call.

ZT-712 High-Leak Pinna for Ear Simulator can simulate the average human ear loss of the telephone handset far away from the human ear (high leakage). It should be used with the ear simulator (ZT-711) and preamplifier in accordance with IEC 60318-4.

ZT-713 Low-Leak Pinna for Ear Simulator can simulate the average human ear loss when the handset is close to the human ear (low leakage). It should be used with the ear simulator (ZT-711) and preamplifier in accordance with IEC 60318-4.

	ZT-713 Low-Leak Pinna for Ear Simulator	ZT-712 Low-Leak Pinna for Ear Simulator
Picture		
Standard	IEC 60318-4	IEC 60318-4
Ear simulator	ZT-711	ZT-711
Preamplifier	ZT-508 (IEPE, BNC)	ZT-508 (IEPE, BNC)

## Mouth Simulators

ZT mouth simulator is used to simulate the sound source of the sound field near the mouth of the human. It is suitable for the test of the acoustic parameters of telephone microphones and microphones used in voice communication.

	ZT-602	ZT-609
Picture		
Standard	IEEE 269, IEEE 661; ITU-T P51	IEEE 269, IEEE 661; ITU-T P51
Min. continuous output SPL	200 Hz - 10 kHz: 110 dB (@ 25mm MRP) 100 Hz - 10 kHz: 100 dB (@ 25mm MRP)	200 Hz - 10 kHz: 110 dB (@ 25mm MRP) 100 Hz - 10 kHz: 100 dB (@ 25mm MRP)
Frequency response curve	Output sound pressure after compensation: 94 dB ±1 dB (100 Hz - 10 kHz)	Output sound pressure after compensation: 94 dB ±1 dB (100 Hz - 10 kHz)
Impedance	4Ω	4Ω
Max. continuous power	10W	20W
Max. instantaneous power	50W (1s)	100W (1s)
Sound aperture	Ø20mm	Ø20mm
Lip ring	O.D.: Ø 51 mm, Height:25 mm	O.D.: Ø 45 mm, Height: 25 mm
Diameter	Ø100mm	Ø104mm
Height	88mm	94mm
Net weight	1.30kg	1.32kg
Interface	BNC	BNC

## *Accessories*

Z-TECH provides customers with different types of acoustics testing accessories such as cables of different lengths and connectors, wind screens with different sizes for different microphones.

### *Cables- BNC/SMB-at Customized Lengths*



### *Sphere Wind Screens*

Sphere Wind Screens of 50mm and 90mm diameters, for 1/2 inch or 1/4 inch microphones.



# Z-TECH

;O ?@8>1@5B5=8O MB>9 ?@>4C:F88  
8 ?>;CG5=8O B5E=8G5A:>9 ?>445@6:8  
>1@0I09B5AL 2 :><?0=8N  
«"5;;C@ -;5:B@>=8:A»  
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