

# ANECHOIC ROOM ANECHOIC BOX



# RION provides sound measurement environment as well as measurement instrument.

There is a strict demand for noise measurement environment from industries such as automobile and home appliance. Our anechoic box/room realizes sound field which is free from sound reflection coming from measurement object, while insulating ambient noise. This leads to accurate evaluation for the sound only emitted by the object.

## Anechoic Box AR Series

- Ideal for sound test of small precision devices under inspection or research and development
- Small and portable with casters
- Reduces noise reflection from walls, enabling very accurate measurement
- Uses a high performance wedge for better sound absorption
- Available as standard Type L, or Type H with higher sound-insulation and absorption performance



### Acoustic Performance

#### Sound Insulation Performance

- Values are measured according to JIS A 1417, but may vary slightly due to factors like the site structure (floor, walls, and ceiling) and/or surrounding ambient noise.

Type L							
Frequency	(63 Hz)	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
Noise Insulation	10 dB	15 dB	20 dB	30 dB	32 dB	35 dB	39 dB

Type H							
Frequency	(63 Hz)	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
Noise Insulation	25 dB	29 dB	35 dB	40 dB	45 dB	50 dB	57 dB

### Size & Weight

Type L			
Model	External dimensions	Internal dimensions	Weight
AR-11L	960 (H) × 930 (W) × 730 (D) mm	500 (H) × 600 (W) × 400 (D) mm	90 kg
AR-22L	1170 (H) × 1130 (W) × 930 (D) mm	700 (H) × 800 (W) × 600 (D) mm	130 kg
AR-33L	1380 (H) × 1330 (W) × 1130 (D) mm	900 (H) × 1000 (W) × 800 (D) mm	185 kg

Type H			
Model	External dimensions	Internal dimensions	Weight
AR-11H	1380 (H) × 1250 (W) × 1050 (D) mm	500 (H) × 600 (W) × 400 (D) mm	630 kg
AR-22H	1600 (H) × 1450 (W) × 1250 (D) mm	700 (H) × 800 (W) × 600 (D) mm	860 kg
AR-33H	1900 (H) × 1650 (W) × 1450 (D) mm	900 (H) × 1000 (W) × 800 (D) mm	1130 kg

### Delivery

Delivered as finished goods. (Wooden frame and barrier packaging)  
Lead time: approx. 3 months from ordering

#### Sound Absorption Performance

- Made using sound-absorbing materials with the following performance:

Type L		
Wedge type	100 (H) × 150 (W) × 100 (D) mm	
Glass wool type	32 kg/m <sup>3</sup>	

Type H		
Wedge type	100 (H) × 250 (W) × 100 (D) mm	
Glass wool type	32 kg/m <sup>3</sup>	

\*Urethane type with low particle-scattering is also available.

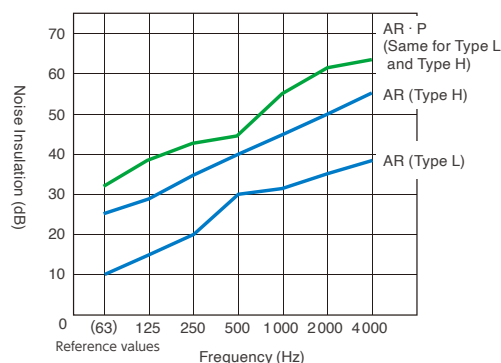
### Accessories

Same for Type L and Type H	
Electrical equipment	Lighting: incandescent lamp 25 W × 1, power IN cable: 4 m
Low voltage equipment	Connector boxes, microphone connectors (7 pin) × 2, BNC connectors × 2
Pipe for cabling	Steel pipe: 40 A × 1 (with cap) *For use when connector other than connector box is used
microphone jig	Wire mesh: φ3, 50 mm spaced mesh *For use when microphone to be hung from the ceiling

Estimated dimensions & weight after packaging:

Model	Packed size (case packaging)	m <sup>3</sup>	Packed weight
AR-11L	1200 (L) × 1000 (W) × 1300 (H) mm	1.56	238 kg
AR-22L	1400 (L) × 1200 (W) × 1500 (H) mm	2.52	356 kg
AR-33L	1600 (L) × 1400 (W) × 1750 (H) mm	3.92	586 kg

### Sound Insulation Performance



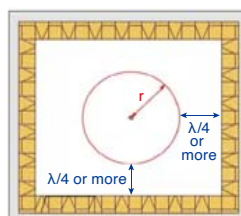
### Sound Absorption Performance

The range of space (Free-field) that can be achieved without measurement results being affected by reflections depends on sound absorption capacity and the size of the room.

#### Free field are (Radius): r (m)

Please note that the area where the free sound field is established varies with the target frequency.

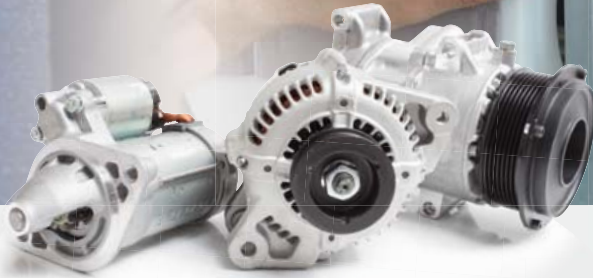
Frequency (Hz)	125	160	200	250	315	400	500
AR · P-11L (r)	—	0.12	0.23	0.31	0.38	0.44	0.48
AR · P-22L (r)	0.24	0.30	0.43	0.76	0.83	0.89	0.93
AR · P-33L (r)	0.29	0.37	0.53	1.21	1.28	1.34	1.38



- Distance from test microphone and reflective wall surface (interior surfaces)

We recommend test microphone be at least 1/4 wavelength from the interior surface for the test frequency.

r : Radius (m) of sphere required by sound absorption performance  
λ : Wavelength of target frequency (m)



## Assembly Type Anechoic Room AR/P Series

- On-site assembly type to be installed in existing buildings cuts costs
- Options such as enhanced sound insulation performance or additional equipment is available
- Available as standard Type L, or Type H with higher sound-insulation and absorption performance

### Acoustic Performance

#### Sound Insulation Performance

- Values are measured according to JIS A 1417, but may vary slightly due to factors like the site structure (floor, walls, and ceiling) and/or surrounding ambient noise.

Same for Type L and Type H							
Frequency	(63 Hz)	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
Noise Insulation	32 dB	39 dB	43 dB	44 dB	56 dB	62 dB	64 dB

\*Deviation -3 dB or greater      \*Inside ( ) are reference values

### Size & Weight

Type L			
Model	External dimensions	Internal dimensions	Weight
AR.P-11L	3010 (H) × 2700 (W) × 2100 (D) mm	2160 (H) × 1900 (W) × 1300 (D) mm	3400 kg
AR.P-22L	3010 (H) × 3600 (W) × 3000 (D) mm	2160 (H) × 2800 (W) × 2200 (D) mm	5200 kg
AR.P-33L	3010 (H) × 4500 (W) × 3900 (D) mm	2160 (H) × 3700 (W) × 3100 (D) mm	7200 kg
AR.P-44L	3010 (H) × 5400 (W) × 4800 (D) mm	2160 (H) × 4600 (W) × 4000 (D) mm	9500 kg

Type H			
Model	External dimensions	Internal dimensions	Weight
AR.P-22H	3410 (H) × 3600 (W) × 3000 (D) mm	2160 (H) × 2400 (W) × 1800 (D) mm	6200 kg
AR.P-33H	3410 (H) × 4500 (W) × 3900 (D) mm	2160 (H) × 3300 (W) × 2700 (D) mm	8600 kg
AR.P-44H	3410 (H) × 5400 (W) × 4800 (D) mm	2160 (H) × 4200 (W) × 3600 (D) mm	11300 kg

#### Sound Absorption Performance

- Made using sound-absorbing materials with the following performance:

Type L		
Wedge type	200 (H) × 250 (W) × 200 (D) mm	
Glass wool type	32 kg/m <sup>3</sup>	

Type H		
Wedge type	200 (H) × 450 (W) × 200 (D) mm	
Glass wool type	32 kg/m <sup>3</sup>	

\*Urethane type with low particle-scattering is also available.

### Accessories

Same for Type L and Type H	
Electrical equipment	Lighting: LED 7 W (AR.P-11L × 1) (AR.P-22L/22H × 2) (AR.P-33L/33H × 4) (AR.P-44L/44H × 6) Indicator lamp: LED 4 W (Indicates measurement in progress) Power outlet: 100 V (2PE) × 1 Distribution board: ELB ×1, NF4 circuit (primary power supply after distribution board installed separately)
Low voltage equipment	Connector box, microphone connectors (7 pin) ×2, BNC connectors ×2
Pipe for cabling	Steel pipe: 40 A ×1 (with cap) *For use when connector other than connector box is used
Microphone jig	4 hooks hanging from ceiling, set of 4 hooks mounted on the walls.

### Delivery

Parts are sent ahead of time and then assembled on-site. (Assembly: Approx. 9 to 15 days by adequate number of workers)

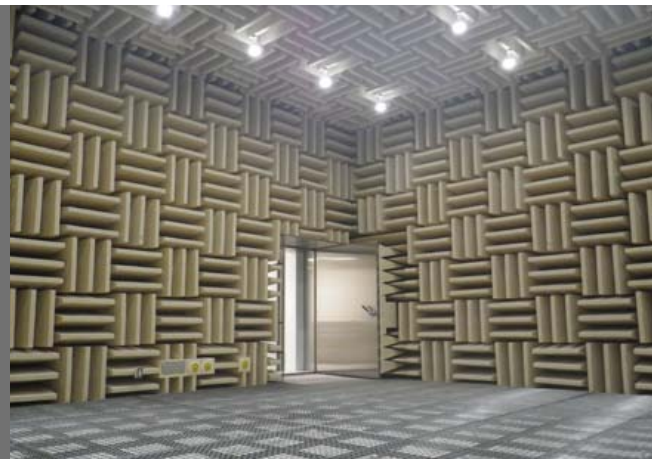
\*Assembly time varies with the size of room. We dispatch a supervisor with specialized knowledge of acoustics for construction management and perform test once work is completed.

Test report is provided.

Shipped (by sea freight) approx. 3 months after contract.

### Please Contact Us

- Proposals for measuring instruments, test subject and microphone fixtures, etc., that meet noise measuring standards
- Design & construction of larger dedicated testing facilities
- Enhancing sound insulation performance
- Proposals for microphone and test object mounting jigs and moving equipment such as microphone traverse
- Proposals for auxiliary equipment such as ventilation and AC
- Installation of lighting, CCTV, intercoms, fire alarms, etc.
- Incorporation into production lines



Construction example for large anechoic room

## Information for producing quotes

Consultation and site survey

Test object

Size of test object

Range of sound pressure level to be tested

Frequency range to be measured

Application

Installation location

Relevant standard



Create a quote



**JCSS**  
JCSS 0197

RION CO., LTD. is recognized by the JCSS which uses ISO/IEC 17025 as an accreditation standard and bases its accreditation scheme on ISO/IEC 17011. JCSS is operated by the accreditation body (IA Japan) which is a signatory to the Asia Pacific Accreditation Cooperation (APAC) as well as the International Laboratory Accreditation Cooperation (ILAC). The Quality Assurance Section of RION CO., LTD. is an international MRA compliant JCSS operator with the accreditation number JCSS 0197.



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