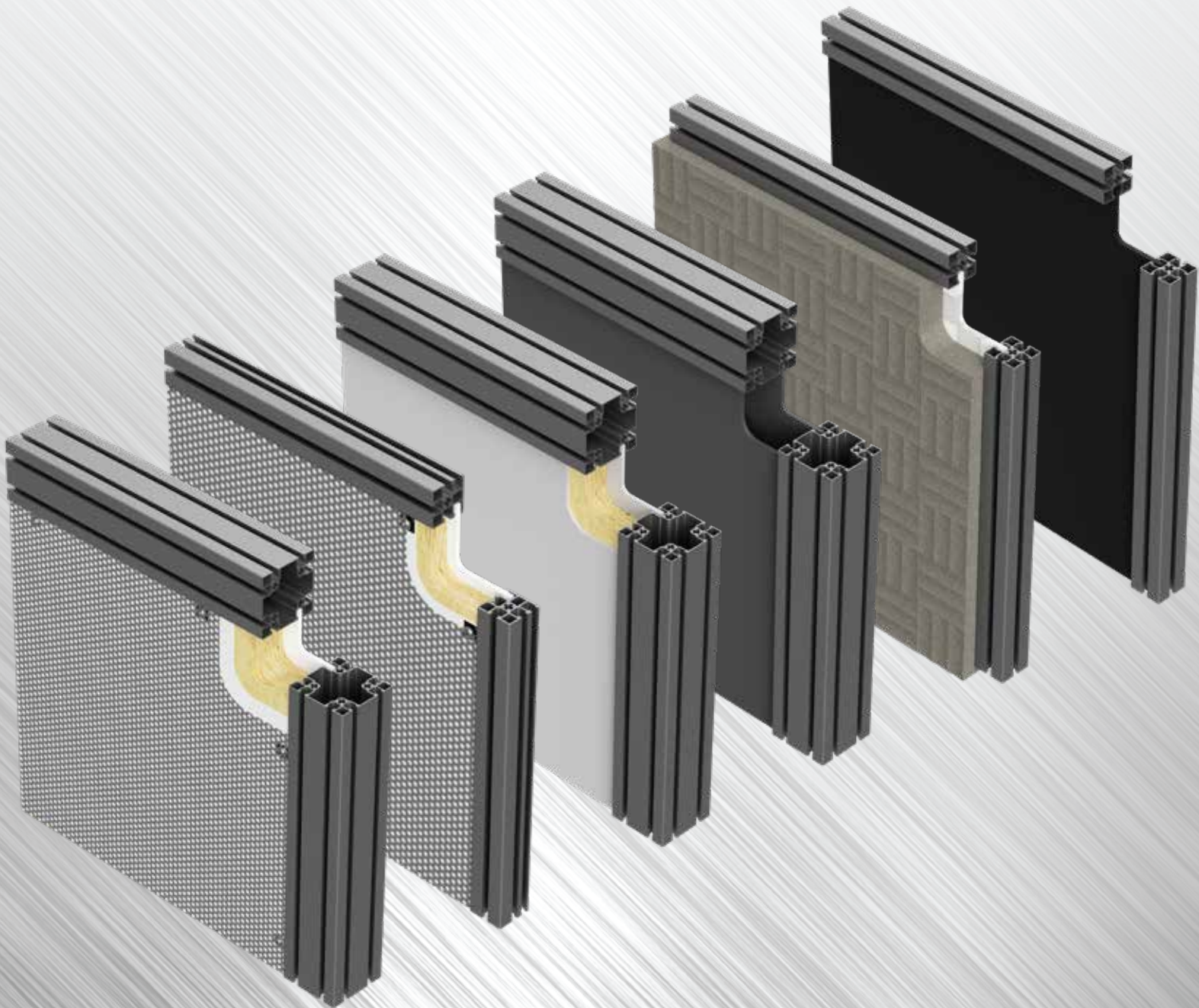




Sound & Temperature Enclosures

Competitive Advantages



Laboratory-Tested Acoustic Performance

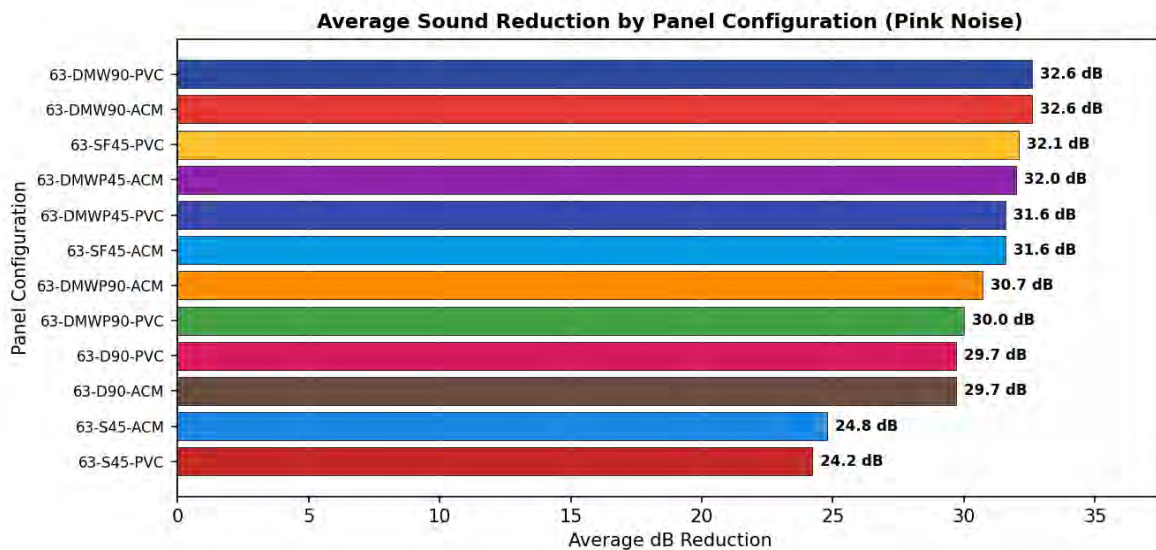
Modular Solutions sound enclosure systems are engineered from the ground up to deliver measurable, laboratory-verified acoustic performance. This presents real data from volume-based pink noise testing, along with the key advantages of the product line.

1. Proven Data

- **Best Average Reduction:** 32.6 dB — PVC Double w/ Mineral Wool 90mm
- **Peak Reduction Recorded:** 34.0 dB in a single measurement
- **Overall Average (All Configs):** 30.1 dB across 12 configurations
- **Consistent Performance:** Tested from 60.0 dB to 117.0 dB source levels
- **Thermal Protection:** R-Values up to 10.1 with insulated configurations
- **Fire Rated:** Fire rating varies based on material and configuration

Top Performing Configurations

Figure	Configuration	Avg dB Reduction	Max dB Reduction
D	PVC Double w/ Mineral Wool 90mm	32.6	34.0
D	ACM Double w/ Mineral Wool 90mm	32.6	34.0
C	PVC w/ Sound Foam 45mm	32.1	35.0
E	PVC w/ Mineral Wool + Perforated Board 45mm	31.6	34.0



2. Complete Product Lineup

Every configuration is available in both PVC Foam Board and Aluminum Composite Panel (ACM) materials, giving you full control over aesthetics, performance, and cost.

Figure	SKU	Description	Profile	Avg Sound Reduction	R-Value	Fire Rating	Performance	Affordability	Panel Material
A	63-S45-PVC	Single Panel	45mm	24.3dB	0.13	B	Low	\$	PVC
B	63-D90-PVC	Double Panel	90mm	29.7 dB	0.26	B	Medium	\$	PVC
C	63-SF45-PVC	Single Panel with Sound Foam	45mm	32.1 dB	N/A	B	High	\$\$	PVC
D	63-DMW90-PVC	Double Panel with MW	90mm	33.1 dB	7.5	B	High	\$\$\$	PVC
E	63-DMWP45-PVC	Panel+MW+perf - 45	45mm	32.1 dB	4.1	B	High	\$\$	PVC
F	63-DMWP90-PVC	Panel+MW+perf - 90	90mm	32.3 dB	10.1	B	High	\$\$\$	PVC
A	63-S45-ACM	Single Panel	45mm	24.4 dB	0.12	A	Low	\$	ACM
B	63-D90-ACM	Double Panel	90mm	29.7 dB	0.24	A	Medium	\$	ACM
C	63-SF45-ACM	Single Panel with Sound Foam	45mm	31.9 dB	N/A	A	High	\$\$	ACM
D	63-DMW90-ACM	Double Panel with MW	90mm	32.6 dB	7.5	A	High	\$\$\$	ACM
E	63-DMWP45-ACM	Panel+MW+perf - 45	45mm	31.5 dB	4.1	A	High	\$\$	ACM
F	63-DMWP90-ACM	Panel+MW+perf - 90	90mm	32.1 dB	10.1	A	High	\$\$\$	ACM

Fire Rating Key: A = ASTM E84 Class A | B = UL E84 Class A, B, C Abbreviations: MW = Mineral Wool | Perf = Perforated Steel

Panel Configuration Gallery



Figure A
PVC: 63-S45-PVC
ACM: 63-S45-ACM
Single Panel



Figure B
PVC: 63-D90-PVC
ACM: 63-D90-ACM
Double Panel

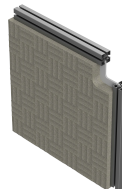


Figure C
PVC: 63-SF45-PVC
ACM: 63-SF45-ACM
Single Panel with Sound Foam



Figure D
PVC: 63-DMW90-PVC
ACM: 63-DMW90-ACM
Double Panel with MW

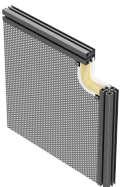


Figure E
PVC: 63-DMWP45-PVC
ACM: 63-DMWP45-ACM
Panel+MW+perf - 45

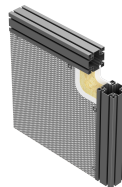


Figure F
PVC: 63-DMWP90-PVC
ACM: 63-DMWP90-ACM
Panel+MW+perf - 90

3. Recommended Applications

Indoor Environments (Offices, Studios, Classrooms)

Sound Foam panels (Figure C) deliver excellent sound absorption — up to 32 dB reduction.

Industrial Environments (Manufacturing, Mechanical Rooms)

Double panels with mineral wool insulation and perforated board provide a combination of sound absorption and attenuation while offering durable protection against dust, debris, and moisture.

Wet Environments (HVAC, Water Treatment, Humid Areas)

Single and double panels (Figures A, B) provide basic moisture resistance, while double panels with mineral wool (Figures D, F) offer enhanced moisture resistance, thermal protection, and sealed-system acoustic performance.

Panel Selection Guidance



Sound Enclosure Panel Assembly

Choosing the right panel configuration is essential for optimal performance in your specific environment.

Industrial Environments (Figures D, E, F): Double panels with mineral wool insulation and perforated board provide a combination of sound absorption and attenuation while offering durable protection against dust, debris, and moisture.

Clean Environments (Figures C): Sound foam configurations provide superior sound absorption and are best for labs, offices, and medical spaces where hygiene and easy cleaning are priorities.

Wet Environments (Figures A, B, D): Double panels with mineral wool excel in high-humidity or washdown areas, offering both sound and thermal insulation.

General Purpose (Figures A, B): Single or double panels in PVC or ACM offer a balance of cost, weight, and performance for most applications.

The Modular Solutions team can recommend the best configuration for your needs, ensuring you get the right balance of sound reduction, durability, and cost.

Testing Methodology

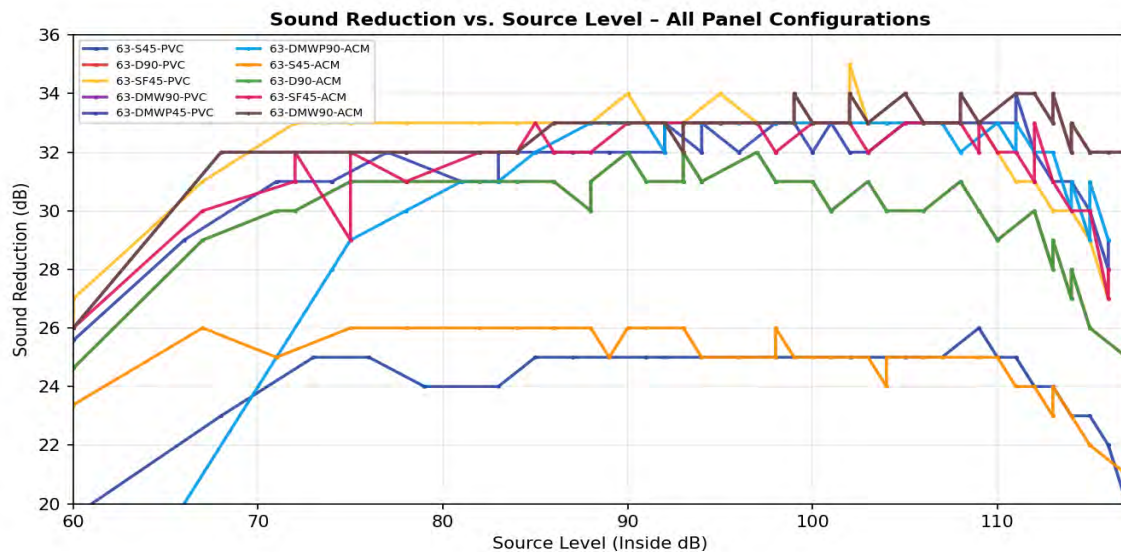
All tests were conducted using a calibrated decibel reader microphone placed exactly 6 inches from the edge of the panel being tested. The same pink noise source was used for every test to ensure consistency and comparability across all configurations. Pink noise is a type of broadband noise signal in which the energy is distributed so that each octave band carries equal power. Pink Noise distributes equal energy per octave, making it ideal for evaluating real-world sound attenuation.

Each measurement was taken over a 10-second interval, during which the mode (most frequent value) of the decibel readings was recorded to minimize the impact of outliers and transient noise fluctuations. This approach ensures that the reported sound reduction values accurately reflect typical performance, not just momentary peaks or dips.

Actual field performance may vary based on enclosure design, openings, mounting conditions and other characteristics.

4. Performance Across All Source Levels

Real test data demonstrates consistent sound reduction from maximum to minimum source levels — exactly what you need for real-world reliability.



Key Advantages

Laboratory-Verified Performance

Every dB reduction claim is backed by real, repeatable test data — not estimates. Pink noise testing at variable volumes proves consistent performance across the full operational range, from 60 dB to 117 dB source levels.

Superior Sound Reduction — Up to 34 dB

Premium configurations deliver up to 34 dB of sound reduction and can significantly reduce perceived noise levels in demanding environments.

Modular, Flexible Configuration System

Choose from single-panel, double-panel, insulated, or perforated configurations in 45mm or 90mm profiles. The Modular Solutions system adapts to your exact acoustic, thermal, and budgetary requirements — no costly custom engineering required.

Dual Material Options — PVC & ACM

Select PVC Foam Board for cost-effective, lightweight solutions or Aluminum Composite Panel (ACM) for premium durability and aesthetics. Both materials carry fire ratings per UL E84 or ASTM E84.

Industry-Leading Thermal Insulation

Mineral wool configurations achieve R-Values up to 10.1 — providing significant thermal protection alongside acoustic performance. This dual-purpose capability reduces HVAC costs and eliminates the need for separate thermal barriers.

Comprehensive Fire Safety Compliance

Fire performance varies by material and configuration. Please see Product Lineup for rating details.

Consistent Performance at All Volume Levels

Testing demonstrates that sound reduction remains remarkably consistent whether the source is at maximum output (117 dB) or moderate levels (70 dB).

Strong Cost-to-Performance Ratio

Our basic, single-panel configurations deliver 24–25 dB reduction at the lowest price point. Premium configurations scale up to 34 dB without exponential cost increases. The system allows incremental improvement by adding insulation or switching to perforated configurations.

Application-Specific Solutions

We provide tailored recommendations for every environment. Wet environments benefit from mineral wool between double panels. Dirty environments typically use solid and perforated panels with mineral wool — a combination of sound absorption & attenuation — for washable, durable protection. Clean environments are best served by sound foam configurations — providing superior sound absorption.

Proven Across Multiple Test Methods

Beyond pink noise, panels are tested with linear sweep, sine wave, and fixed-volume pink noise protocols. This multi-method validation ensures performance claims hold under any real-world noise profile.