

S H E D

SEALED HOUSING FOR EVAPORATIVE DETERMINATIONS



(Photo courtesy of Subaru)

Webber EMI manufactures a wide range of SHEDs in a variety of sizes, ranging from 10 cu-ft Micro SHEDs to full sized Vehicle SHEDs capable of testing HD construction vehicles. Starting from one of our standard configurations, a SHED can be designed to customer specifications with regard to size, window placement, vehicle door type, and other performance or capability options.

All Webber EMI SHEDs incorporate a modular systems design that allows the basic Fixed Volume / Fixed Temperature (FV/FT) enclosure to be upgraded to full Variable Volume / Variable Temperature (VV/VT) enclosure. These upgrades can even be performed on-site, after installation.

FV/FT Vehicle SHED

The Webber EMI Model 101 Vehicle SHED is available as a Fixed-Volume / Fixed-Temperature (FV/FT) full-vehicle test chamber used for evaporative emissions testing. It is also suitable for testing motorcycles, small tractors and other machines & equipment of similar size.



(Photo courtesy of Harley Davidson)

VV/VT Vehicle SHED

The Webber EMI Model 101 Vehicle SHED is also available as a Variable Volume / Variable Temperature (VV/VT) SHED. This SHED is designed to support a full range of test protocols and temperature profiles between 45 °F and 120 °F. Using the Webber EMI moveable roof system, absolute SHED volume is automatically controlled to maintain zero-differential pressure between the SHED interior and ambient laboratory conditions. It is designed for testing large equipment such as cars, trucks, tractors and other large machinery



(Photo courtesy of Hyundai)

Micro SHED

The Webber EMI Model 103 Micro SHED is designed for testing discrete fuel system components such as fuel containers, hoses, and canisters as well as complete miniature systems or engines.



(Photo courtesy of Yachiyo of America)

Mini SHED

The Webber EMI Model 102 Mini SHED is suitable for testing small equipment such as ATVs, lawn mowers and other objects equivalent in size.



(Photo courtesy of the California Air Resources Board)

Running Loss SHED

The Webber EMI Model 106 Running Loss SHED is a modified version of our full-sized Vehicle SHED. This extra long SHED, equipped with special air handling equipment, a proportional speed fan, vehicle combustion makeup air, and an auxiliary personnel door, is combined with a centrally located dynamometer to accept both front and rear wheel drive vehicles. In addition to full exhaust emissions testing capability, this SHED supports all applicable diurnal evaporative emissions test protocols.



(Photo courtesy of the California Air Resources Board)

On-Board Refueling & Vapor Recovery

Webber EMI can provide On-Board Refueling / Vapor Recovery (OR/VR) capability for any of our SHEDs. Using several different methods, vehicles or other fuel-dependent machines can be re-fueled while the SHED is sealed.



(Photo courtesy of Volkswagen)

All Webber EMI SHEDs are available as full VV/VT enclosures, or as FV/FT enclosures that can later be upgraded to VV/VT capability.

SHED Systems

<u>Micro SHED</u> (10-100 cu ft)	<u>Mini SHED</u> (100-1000 cu ft)	<u>Vehicle SHED</u> (1000-2000 cu ft)
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Fixed Volume / Fixed Temperature (FV / FT)

<i>Standard Volume</i>	48 cu ft	288 cu ft	1680 cu ft
<i>ID (W x H x L)</i>	4'x4'x3'	6'x6'x8'	10'x8'x21'
<i>Temperature</i>	72 °F	72 °F	72 °F
<i>Vehicle Door</i>	Side-hinge	Side-hinge	Top-hinge
<i>Heat & Cool Unit</i>	Self contained	Self contained	Self contained
<i>Purge System</i>	Single poppet valve	Single poppet valve	Single poppet valve

Options

(Available at time of manufacture only.)

<i>Volume</i>	Custom volume	Custom length	Custom length
<i>Vehicle Door</i>	Guillotine or Top/Bottom-hinge	Guillotine or Top/Bottom-hinge	Guillotine
<i>Personnel Door</i>	--	--	Side-hinge
<i>Heating & Cooling Unit</i>	Facility dependent	Facility dependent	Facility dependent
<i>Purge System</i>	Dual poppet valves	Dual poppet valves	Dual poppet valves

Upgrades

(Available both at manufacture and after installation.)

Variable Volume / Variable Temperature (VV / VT)

<i>Volume System</i>	Moveable Roof, Mass-Flow Balance, or Bag system	Moveable Roof, Mass-Flow Balance, or Bag system	Moveable Roof, Mass-Flow Balance, or Bag system
<i>Standard Temp Range</i>	65 °F - 105 °F	65 °F - 105 °F	65 °F - 105 °F
<i>Extended Temp Range</i>	45 °F - 145 °F	45 °F - 145 °F	45 °F - 145 °F

Fuel Tank Temperature Management System (FTTMS)

<i>Heater Outlets</i>	1	Up to 3	Up to 3
<i>Heater Power</i>	2kW / outlet	2kW / outlet	2kW / outlet
<i>Auxiliary Outlets</i>	1	Up to 2	Up to 2
<i>Auxiliary Power</i>	20A / outlet	20A / outlet	20A / outlet

Onboard Re-fueling / Vapor-Recovery (OR / VR)

<i>Nozzle Access</i>	Quick Disconnects	Glove & Nozzle Boots or Quick Disconnects	Glove & Nozzle Boots or Quick Disconnects
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If you need additional equipment not shown here, contact us with your requirements.

Why choose a Webber EMI SHED?

Each Webber EMI SHED uses our exclusive 'Ure-lok' interlocking panel design, which serves to double the sealing surface between each panel. Panels are held together by a patented mechanical interlocking system to further increase sidewall rigidity and live load ratings. Each panel employs a chemically bonded cross-section with an exterior surface of aluminum, an interior surface of type-304 stainless steel, and a 4" thick fire retardant urethane foam core. The panels contain no organic materials (i.e., wood or other cellulose-based materials), which can warp or naturally deform. All panel-mounted windows use triple-pane safety glass and are fully sealed and trimmed inside and out. This ensures that all Webber EMI SHEDs have a durable and attractive exterior and an easy to clean interior surface that is impermeable and non-reactive to both hydrocarbons and test fuels.

Webber EMI SHEDs can be fitted with either a top-hinged, tilt-up or vertical-sliding, 'guillotine' style vehicle door. Vehicle SHEDs can also include a separate, side-opening personnel door. All door styles feature pneumatic seals and triple-pane safety glass windows.

Every Webber EMI SHED structure fully complies with the leakage limits and HC retention requirements stated in CFR 40 86.117-96. Additionally, the SHED structure is designed to safely withstand an internal-to-external pressure differential of +/- 2 "H₂O (+/- 0.5 kPa) without deformation or other negative effect.

In addition to our exclusive Moveable-Roof volume compensation system, Webber EMI is the only manufacturer to offer a Mass-Flow Balance (MFB) orifice system, and a conventional 'bag-based' volume compensation system. These systems are all designed to maintain a zero pressure differential relative to outside ambient conditions across the SHED's entire temperature range. While all three systems provide excellent accuracy and repeatability, the Webber EMI Moveable-Roof system has been designed to eliminate the need for Tedlar bags or other artificial devices to facilitate SHED expansion. By eliminating the 'dead space' typically required in a 'bag-based' SHED, the working volume of a Moveable-Roof SHED is reduced, thereby resulting in improved testing accuracy – an absolute must for the new 'zero evap' regulations. Additionally, the Moveable-Roof system provides precise feedback of SHED volume at ALL times during the test procedure, thus allowing for real-time reporting of HC mass values.

Webber EMI SHEDs use dedicated, self-contained HVAC systems as standard equipment. Each system is sized according to the SHED enclosure and the customer's temperature requirements. In the case of VV/VT SHEDs, the HVAC systems are capable of moving the SHED air temperature between 65 and 105 °F in approximately 1 hour. Custom systems are available to produce and maintain SHED air temperatures below 40 and above 140 °F. In all cases, Webber EMI SHEDs are capable of maintaining temperatures required for diurnal emission and hot soak testing as described in CFR 40-86.117.96 and CFR 40 part 86 subpart B, respectively.

All Webber EMI SHED systems utilize a Windows-based, proprietary SHED data acquisition and control system. This system is versatile, powerful and very user-friendly. It contains a menu of all pertinent U.S. EPA and California ARB SHED test procedures, ready for immediate use. It also provides the ability to easily develop and save custom test procedures for internal product development. This control system is capable of being used with a variety of HC analyzers. In addition to the PC-based controller, Webber EMI SHED systems include a local control panel, which allows for full manual operation of the SHED and various sub-systems.

All Webber EMI SHED systems are supplied with a number of safety systems such as a Low Explosion Limit (LEL) detection system and pressure / temperature limiting switches. Optional safety equipment includes fire suppression systems, retractable vehicle grounding straps, rotating light beacons, and audible alarms. All safety systems are interlocked with both the manual and computer control systems to ensure safe operation.

Webber EMI SHEDs... recognized for their accuracy, durability, and quality... since 1975