TEMPEST™
TECHNOLOGY

Technical Documentation
Tempest MVU-125

Full Option Package

50" Scissor Lift Platform
+/- 30 Degree Tilting System
370-Degree Rotation System

MVU™
MOBILE VENTILATION UNIT

Tempest Technology, Inc.
4708 N. Blythe Ave. • Fresno, CA 93722
T: +1 559.277.7577 • 800.346.2143 • F: +1 559.277.7579
response@tempest-edge.com • www.tempest-edge.com

January 2009

TEMPEST™ TECHNOLOGY

MVU™ MOBILE VENTILATION UNIT

Ventilator Fan Assembly	U.S. Standard (Metric)
Inner Shroud Material:	Fiberglass (GRP)
Outer Shroud Material:	Fiberglass (GRP)
Inner Shroud Diameter:	50" (1250 mm)
Outer Shroud Diameter:	61" (1550 mm)
Shroud Length:	24" (600 mm)
Safety Grills:	Meets European Safety Standard EN 294
Fan Impeller:	6 blades, central positioned
Fan Impeller Material:	Carbon Fiber
Impeller RPM:	Approx. 1,850 RPM
Air Flow Rate:	Approx. 132,350 CFM (225.000 m^3/h)
Axial Thrust Pressure:	2,600 Pa(N)
Standard Color:	Red (RAL 3000)

Engine Unit for Ventilator	*Gasoline Engine Option*	*Diesel Engine Option*
Engine Model:	FORD 4-cylinder-4-stroke water cooled engine	FORD 4-cylinder diesel, water-cooled engine (manufactured in Germany)
Engine Power:	100 hp (75 kW)	109 hp (80 kW)
Engine RPM:	Max. 4,710 RPM	Max. 3,700 RPM
Engine Starter:	Electrical	Electrical
Fuel Tank Capacity:	12-gallons (45 liters) unleaded	12-gallons (45 liters) diesel fuel
Running Time:	2.5 hrs per tank load	2.5 hrs per tank load
Engine Drive:	Belt	Belt
Engine Battery:	12 V / 43 AH, silver-calcium, maintenance free	12 V / 60 AH, silver-calcium maintenance free

Fuel tank, battery box and battery are contained in separate enclosure mounted remote from the engine.

Water Mist System	
Integrated Misting Nozzles:	14 nozzles
Flow Rate:	Approx. 80 gpm @ 150 psi (300 l/min at 10 bar)
Average Particle Size:	Approx. 220 microns
Hose Connection:	Customer Specified (STORZ – C is standard)

External hose connection supplies water to water pipe mounted between the inner and outer shrouds.

Full Option Package shown, other configurations available. Contact your Tempest Dealer for more information.

Specifications exclude chassis and aluminum platform.

Shown on Ford F-350 Chassis

50" Scissors Lift Platform, 24V Electric Powered *

Maximum Elevation:	51" (1300 mm)
Base Frame Measurements:	41" x 24" (1030 x 600 mm)
Retracted Height:	14" (340 mm)
Frame Color:	Red (RAL 3000)

Powered by a 24V hydraulic drive.

Controlled via remote control with 16 foot (5 m) cable.

Safety Features: Auto-stop safety system, hydraulic pressure loss protection, and emergency stop switch.

Maintenance free scissors bearings. Biodegradable hydraulic oil.

+/- 30 Degree Tilting System, 24V Electric Powered *

Base Frame Measurements:	41" x 24" (1030 x 600 mm)
Retracted Height:	6" (150 mm)
Tilting Range:	+ / - 30-degrees
Frame Color:	Red (RAL 3000)

Powered by a 24V hydraulic drive.

Controlled via remote control with 16 foot (5 m) cable.

370-Degree Rotation System, 24V Electric Powered *

Rotation Base Diameter:	30" (750 mm)
Drive System:	24V electric
Rotation Range:	370-degree

Electrically adjusted rotation, 185-degree left, 185-degree right

** **NOTE:** Installer is responsible for providing 24V power supply for the scissors lift, rotation and tilt systems. Requires a second vehicle battery and a battery separator. Tempest Technology will provide wiring and installation instructions.*

Dimensions and Weight - ventilator and engine only (without Scissors, Tilt and Rotation)

Length:	Approx. 70" (1765 mm)
Width:	Approx. 63" (1590 mm)
Height:	Approx. 67" (1680 mm)
Weight (without options and fuel):	Max. 750 lbs. (340 kg)

Overall Dimensions and Weight of MVU (with Scissors, Tilt and Rotation)

Length:	Approx. 70" (1765 mm)
Width:	Approx. 63" (1590 mm)
Height:	Approx. 96" (2430 mm)
Weight (without fuel):	Max. 1,962 lbs. (890 kg)

Explanation of MVU Airflow Performance

There is no standard for third-party certification of the airflow performance of the Mobile Ventilation Unit. The Cubic Feet Per Minute (CFM) data that is published in our literature is based upon calculations that take into consideration the diameter of the fan shroud and the wind speed.

The Tempest MVU-125 generates a wind speed of approximately 110 MPH (9,680 feet per minute) with a 50" diameter shroud (13.6 sq. ft.). Based upon these numbers, the CFM of the MVU-125 would be:

9,680 fpm x 13.6 sq. ft. = 131,648 CFM

This same method can be used to estimate the CFM of any large mobile fan. Every manufacturer has their own methods for estimating CFM.

The MVU and Air Pressure (Pascal)

The effectiveness of a PPV blower is dependant upon its ability to increase the air pressure inside a structure. The greater the pressure generated by the blower, the more effectively a blower can replace the interior atmosphere with cool, fresh air. While CFM is an important measure of a PPV blower's performance, pressure is a more accurate reflection of the performance of a particular PPV blower.

Independent Pressure Experiments

A recent experiment by the National Institute of Standards and Technology (NIST) measured the amount of pressure generated by two different large diameter PPV blowers.

Pressure sensors within the structure measured the increase in pressure above ambient at 13 different locations. The data from these experiments were measured in Pascal (100 Pascal = 0.01 psi).

*** The full report of the NIST tests are available on the NIST web site at www.fire.gov/PPV/index.htm**

	Average Pressure Increase (Pascal) *	
Event	*Other Fan*	*Tempest MVU™*
Hallway Pressure	16.1 (± 1.6)	22.7 (± 2.3)
Fire Room 1 Open	8.2 (± 0.8)	14.7 (± 1.5)
Fire Room 1 Closed	13.2 (± 1.3)	20.9 (± 2.1)
Hallway Door 1 Open	5.9 (± 0.6)	13.2 (± 1.3)
Hallway Door 1 Closed	10.7 (± 1.1)	21.7 (± 2.2)
Gym Door 2 Open	7.6 (± 0.8)	17.0 (± 1.7)
Gym Door 2 Closed	9.9 (± 1.0)	19.3 (± 1.9)
Hallway Door 2 Open	9.1 (± 0.9)	13.2 (± 1.3)
Hallway Door 2 Closed	13.4 (± 1.3)	22.6 (± 2.3)
Fire Room 4 Open	8.5 (± 0.9)	15.5 (± 1.6)
Fire Room 1 Open	5.1 (± 0.5)	11.3 (± 1.1)
Fire Room 1 Closed	8.8 (± 0.9)	16.2 (± 1.6)
Fire Room 4 Closed	10.6 (± 1.1)	20.5 (± 2.1)
End of test		

MVU™ positioned 21.5 ft from the doorway


Other Fan positioned 12 ft from the doorway

TEMPEST TECHNOLOGY

Tempest Technology, Inc.
4708 N. Blythe Ave. • Fresno, CA 93722
T: +1 559.277.7577 • 800.346.2143 • F: +1 559.277.7579
response@tempest-edge.com • www.tempest-edge.com