

# Climatic Dyno Facility

|   |   |
|---|---|
| Types   | MD/HD Trucks, RV's, Buses, Military   |
| Weight Classifications                        | Class 4 through 8   |
| Axle Configurations                           | 4x2, 4x4, 6x4, 6x6  |
| Nominal Vehicle Weight Range                  | 10,000 to 80,000 lbs  |
| Maximum Axle Weight                           | 40,000 lbs  |
| Chamber Size (Approx Interior)                | 60' L X 25' W X 21' H   |
| Vehicle Size (Approx Lengths)                 | Min - 5 ft / Max - 45 ft  |
| Temperature Range                             | -40F to 140F  |
| Solar Simulation                              | None (Protect for Full Spectrum)  |
| Hot Road Simulation                           | Moveable Blankets Controllable to 170°F   |
| Directed Air                                  | 50 sq Ft. Nozzle, 65mph wind at vehicle<br>65mph +/- 5mph across front of the truck |
| Air speed tracks vehicle speed                | Yes   |
| Fuel Types                                    | Diesel, Gasoline  |
| Combustion Air                                | Inside Cell   |
| Pull Down Rate (Unloaded Vehicle)             | 12 hours to -40°F   |
| Fuel Measurement and Temperature Conditioning | Diesel, Gasoline  |
| Remote Fuel Fill System                       | Diesel, Gasoline  |
| Video monitoring (DVR)                        | Yes   |
| Altitude (Option)                             | None  |
| Exhaust locations                             | Front, Center, Rear   |
| Access to dynamometer pit                     | Ladder from within chamber  |
| Nozzle Location                               | 3' from front of vehicle  |
| Return Air Location                           | Rear of chamber   |

## 3 Axle Dyno

|  |  |
|--|--|
| Roll Size  | 48"                                      |
| Nominal Wheelbase Range (tandem)   | 151" to 347"                             |
| Nominal Wheelbase Range (4x4)  | 125" to 386"                             |
| Tandem Axle to Axle Ranges   | 52", 54", 60" and 72" (52" to 72" range) |
| Front Axle Continuous Motoring + Absorbing Tractive Effort                   | 5,950 lbf (~0 – 30 MPH)                  |
| Rear Axle (R1 or R2) Continuous Motoring + Absorbing Tractive Effort         | 5,950 lbf (~0 – 30 MPH)                  |
| Rear Axle (R1 or R2) Continuous Absorbing (only) Tractive Effort             | 32,200 lbf (0 – 4 MPH)                   |
| Combined Rear Axle (R1 + R2) Continuous Motoring + Absorbing Tractive Effort | 11,900 lbf (0 – 30 MPH)                  |
| Combined Rear Axle (R1 + R2) Continuous Absorbing (only) Tractive Effort     | 64,400 lbf (0 – 4 MPH)                   |

## Tests Performed

|            |            |
|------------|------------|
| 15mph wind | @ -20deg F |
| 30mph wind | @ 20deg F  |
| 60mph wind | @ 20 deg F |

## Directed Air Performance

|   |   |
|---|---|
| Nozzle Area   | 50 sq. ft.                              |
| <b>Steady State Performance measured within 3 Ft of nozzle exit - empty tunne</b> |   |
| Velocity Uniformity   | +/- 5%                                  |
| Velocity Stability  | +/- 2 mph                               |
| Velocity Accuracy   | +/- 5% of reading                       |
| Temperature Stability - minimum to 20 mph   | +/- 2 F                                 |
| Temperature Stability - above 20 mph  | +/- 1 F                                 |
| Temperature Uniformity  | +/- 1 F                                 |
| Humidity Stability  | +/- 1% RH                               |
| Humidity Rate of Change   | Achieve set point 15 min after temp set |
| <b>Transient Performance with Driver's Trace (Tracking dynamometer speed)</b>     |   |
| Air Temperature Tracking  | +/- 5 F                                 |
| Air Humidity Tracking   | +/- 5% RH                               |
| Air Speed Tracking  | +/- 2 mph                               |
| <b>Driver's Trace Display (function of time)</b>                                  |   |
| Vehicle Speed   | mph/kmh                                 |
| Road Grade  | % Grade                                 |