# EUROPEAN TEST CENTRE PRAGUE

# YOUR ACCREDITED ENVIRONMENTAL TEST FACILITIES

- Vibration Testing and Earthquake Simulation
- Climate Simulation
- Thermodynamic Testing
- Electromagnetic Compatibility Testing

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ETC PRAGUE

# CLIMATE SIMULATION

Our test labs range from the smallest climatic chamber with the volume of 0.35 m³ to the biggest large-capacity climatic chamber in the Czech Republic with a volume of 630 m³.


**Climate Control Room 1**

- Room size: 21 m x 5 m x 6 m
- Temperature range: -32 °C to +60 °C
- Humidity control

**Climate Control Room 2a and 2b**

- Room size: 18.0 m x 4.5 m x 6.0 m
- Temperature range: +15 °C to +50 °C

**Climate Control Room 3**

- Room size: 8.2 m x 4.7 m x 2.9 m
- Temperature range: +15 °C to +50 °C
- Humidity control

**Calorimetric Test Lab 4**

- Chamber size: 3.1 m x 3.4 m x 3.0 m
- Temperature range: -35 °C to +60 °C

**Calorimetric Test Lab 5**

- Chamber size: 4.6 m x 3.4 m x 3.0 m
- Temperature range: -35 °C to +60 °C

**Climatic chamber 6**

- Chamber size: 1.5 m x 1.5 m x 1.1 m
- Temperature range: -40 °C to +180 °C
- Temperature gradient: 10 K/min
- Humidity control

**Climatic chamber 7**

- Chamber size: 0.58 m x 0.76 m x 0.75 m
- Temperature range: -70 °C to +180 °C
- Temperature gradient: 3 K/min
- Humidity control

# VIBRATION TESTING AND EARTHQUAKE SIMULATION

We test mechanical resistance of items, equipment, and devices against the effects of vibration and impact. Vibration tests can be combined with climatic tests.

**Specification of single-axial electrodynamic vibration and shock equipment**

- Peak force at sinusoidal vibration: 49 kN
- RMS force at random vibration: 48 kN
- Maximum deviation amplitude: 50 mm
- Maximum acceleration: 100/224 $m/s^2$
- Maximum sample weight: 900 kg
- Frequency range: 2 Hz to 2000 Hz
- Vibration test can be combined with a climatic chamber:
  - chamber size: 1.5 m x 1.5 m x 1.1 m

**Specification of Multi-Axial vibration and shock equipment**

- Electro-hydraulic loading system with 24 independent control channels with acquisition system for acceleration and displacement
- Multi-axial stress (3 axis on the same time) in all 6 degrees of freedom (16 independent measurement channels, 8 independent control channels)
- Fixation base: 12 m x 8 m with a universal modular fixation system,
- 3 stands – with a maximum sample weight 10,000 kg (frame size: 3.5 m x 2.5 m),
- Maximum peak force in horizontal direction: 126 kN, in second direction: 63 kN
- Maximum peak force in vertical direction: 252 kN
- Frequency range: 2 Hz to 200 Hz

# THERMODYNAMIC TESTING

We are capable to evaluate cooling and heating capacity, energy consumption, and airflow as well as various HVAC unit systems, refrigeration systems, heat exchangers, and fan parameters.


**HVAC Test Lab 1**

- Hot (Ambient) chamber: size 3.6 m x 5.5 m
- Temperature range: +15 °C to +60 °C
- Airflow range: 50 $m^3$/h to 12,000 $m^3$/h
- Static pressure: -400 Pa to +1,200 Pa
- Humidity range: 20 % to 95 %
- Maximum cooling capacity: 35 kW

**HVAC Test Lab 2**

- Hot (Ambient) chamber: size 3.6 m x 6 m entrance gates 2.8 m x 4 m
- Temperature range: +15 °C to +60 °C
- Airflow range: 100 $m^3$/h to 16,800 $m^3$/h
- Static pressure: -400 Pa to +1,200 Pa
- Humidity range: 20 % to 95 %
- Maximum cooling capacity: 45 kW

**Calorimetric Test Lab 1**

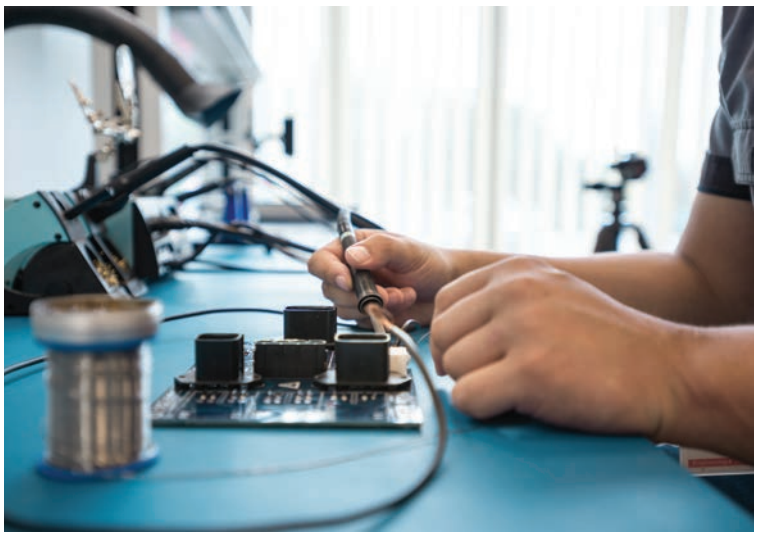
- Chamber size: 2.8 m x 3.4 m x 3 m
- Temperature range: -35 °C to +60 °C
- Measurement of cooling capacity up to 26 kW, measurement of condensing capacity up to 50 kW

**Calorimetric Test Lab 2**

- Chamber size: 4.2 m x 3.1 m x 3 m
- Temperature range: -35 °C to +60 °C
- Measurement of heating capacity up to 7 kW, measurement of cooling capacity up to 26 kW, measurement of condensing capacity up to 50 kW

# ELECTROMAGNETIC COMPATIBILITY TESTING

We carry out wide variety of EMC testing. If necessary, we can provide expertise on how to modify the equipment in order to make it compliant with mandatory standards. We focus on pre-compliance and development testing and provide our customers with high confidence of passing certification tests.

**Radiated emissions – Automotive, Industrial & Rail**

- 9 kHz to 2 GHz
- Rod, Biconical and Logaritmic antennas
- Pre-complience only
- UNECE R10, CISRP 25, EN 55011, EN 50121-3-2

**Conducted emissions – Automotive**

- Up to 600 V DC, 100 A, 100 kHz to 200 MHz
- CISPR 25

**Conducted emissions – Industrial & Rail**

- 3x 400 V, 50 A, 10 kHz to 80 MHz
- 1x 230 V, 16 A, 10 kHz to 30 MHz
- EN 55011, EN 50121-3-2

**Immunity – Automotive**

- Fast & slow transients 80 V, 100 A
- Load dump: 60 V, 200 A
- Bulk current injection: 100 kHz to 400 MHz
- ISO 7637, ISO 16750-2, ISO 11452-4, SAE-1113-11, LV 124, LV 148, VDA 320

**Immunity – Industrial & Rail**

- Up to 3x 480 V, 63 A
- Burst up to 5 kV
- Surge up to 8 kV
- RF fields 150 kHz to 80 MHz
- EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 50121-3-2

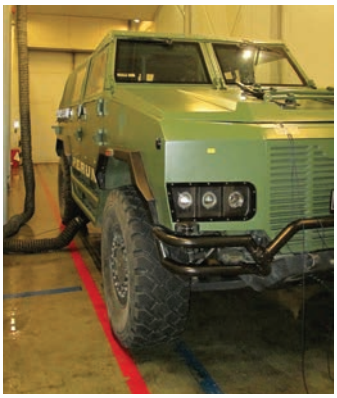
**ESD – Automotive, Industrial & Rail**

- Up to +/- 30 kV
- RC modules 150/330 pF, 300/2000 Ω
- ISO 10605, EN 61000-4-2, EN 50121-3-2

# OUR CUSTOMERS

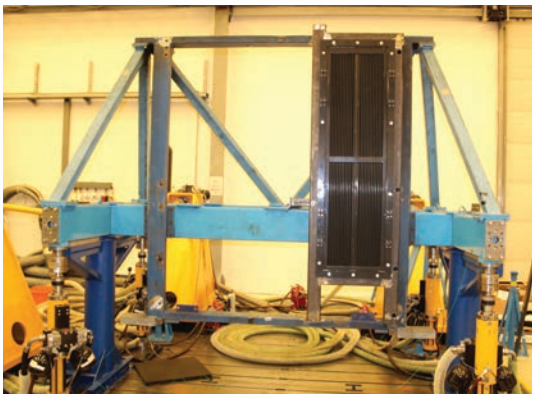
Army Industry

Transportation Indusry



Automotive Indusry

Electric and Electronic Industry



HVAC and Refrigeration Industry

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