



## LARGE CLIMATIC TEST CHAMBER

### EXTREME TEMPERATURE TESTING OF HEAVY CONSTRUCTION EQUIPMENT, OFF-HIGHWAY VEHICLES AND AEROSPACE APPLICATIONS

Modern construction equipment, aerospace applications, and off-highway vehicles must be able to start and operate smoothly and reliably in remote locations and at extreme temperatures, ranging from -40°C to -60°C in north Siberia, inner Mongolia and Canada, from +45°C to +55°C in some desert areas like India, Australia and the middle east. These extreme requirements can only be guaranteed by extreme testing and extensive validation methodologies. The availability of a very large climate chamber able to handle massive weights and the broad temperature capabilities is essential to the industry. OWI-Lab's large climate chamber, with main focus on validation testing of components for large multi-MW

### SPECIFICATIONS

#### MAIN FOCUS

Intended to test and validate large and heavy wind turbine components in the field of extreme temperature testing: gearboxes, transformers, yaw systems, hydraulic units, hydraulic drive trains,... Other components from different industries who deal with large machinery can be tested as well: heavy industry applications; off-highway vehicles, mining equipment, aerospace, power aggregates, radar systems, wave & tidal converters,...

#### LOCATION

Zuidnatie Breakbulk terminal, Port of Antwerp. The large climate chamber is embedded in the OWI-Lab test facility which is located in the Port of Antwerp nearby the Zuidnatie breakbulk terminal. All logistics are available on site to handle large and heavy machinery up to 300 ton, its quay has a load capacity of 45 ton/m<sup>2</sup>.



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## SPECIFICATIONS

### MAXIMUM DIMENSIONS TEST SPECIMEN

Length: 10,6m  
Width: 7m  
Height: 8m  
Test area space: 593m<sup>3</sup>

TEMPERATURE TEST RANGE -60°C till +60°C

TEMPERATURE ACCURACY  $\pm 1$ K after stabilization time

TOTAL INSTALLED ELECTRICAL POWER OF MACHINERY 408kW

MAXIMUM WEIGHT TEST SPECIMEN 300 ton

MAXIMUM FLOOR LOAD CLIMATE CHAMBER >45 ton/m<sup>2</sup>

COOLING DOWN RATE  $\pm 0,022$ K/min (20°C to -60 °C in 60 hours for 100 ton steel) ( $\pm 1$  hour to cool the empty chamber down from +60°C to -40°C)

HEATING UP RATE  $\pm 0,028$  K/min (-60°C to 20°C in 48 hours for 100 ton steel)

MAXIMUM COOLING CAPACITY at -60°C 40 kW (250 kW at -20°C)

MAXIMUM COOLING CAPACITY at +60°C 150 kW

MAIN ENTRANCE TEST SPECIMEN 7m x 8m (width x height)  
double wing door

ENTRANCE LOCK GATE 0.9m x 2m (width x height)

### AVAILABLE

- Advanced temperature control & programmable temperature cycles
- Provisions for the extraction of exhaust gases from the facility
- Surface heated operator window to follow up tests
- Adaptive cable penetration up to  $\varnothing 90$ mm (multi-diameter module system)
- NI data-acquisition equipment able to log more than 80 sensors simultaneously
- Flexible power supply in-and outside test chamber: wide range of voltages, 50 or 60Hz, up to a maximum power of 2MVA.
- 315kW motor to drive rotating parts able to deliver 10 KNm breakaway torque
- Mobile spraying system to simulate ice formation



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