



**Trane European
Large HVAC Test Facility**
Proving performance in the toughest conditions

TRANE
TECHNOLOGIES

Marlene Baumann

Trane: designed to be the best - tested to prove it

Ongoing innovation, unmatched expertise, relentless commitment and over 100 years of experience in the design and manufacture of HVAC equipment. This is the Trane promise, seen at first hand in our European test facility.



Sintesis unit RTAF 310T under test

Exhaustive tests guarantee that what we install on your site fully conforms to our strictest performance criteria.

Standard Eurovent tests are a well-recognized industry practice, performed by all HVAC manufacturers. However, actual operating conditions can vary significantly because every application is different. Data centers, hospitals and retail locations all have specific and unique requirements. As a result, standardized tests are often incapable of confirming that a unit will operate exactly as the client requires.

That's why Trane designed and built an industry-leading test facility, capable of evaluating performance under customer-defined parameters.

State-of-the-art testing facility

The Trane European Research and Development Laboratory in Epinal, France has been designed to function as a validation center for new product development. It is capable of simulating the widest range of operating conditions encountered by HVAC equipment.

Trane customers can actually observe their newly acquired equipment under test for their specific application and ambient conditions.

Before the equipment leaves the factory, its performance is validated under the conditions at which it should operate once installed.

Additionally, this testing facility enables the optional Eurovent certification of air-cooled chillers above 600 kW.

The new Trane Laboratory is resourced to validate the performance of the entire Trane portfolio, including large capacity chillers, air to water heat pumps and multi-pipe units. Temperature extremes from -25°C to $+55^{\circ}\text{C}$ can be simulated, regardless of outdoor ambient conditions.

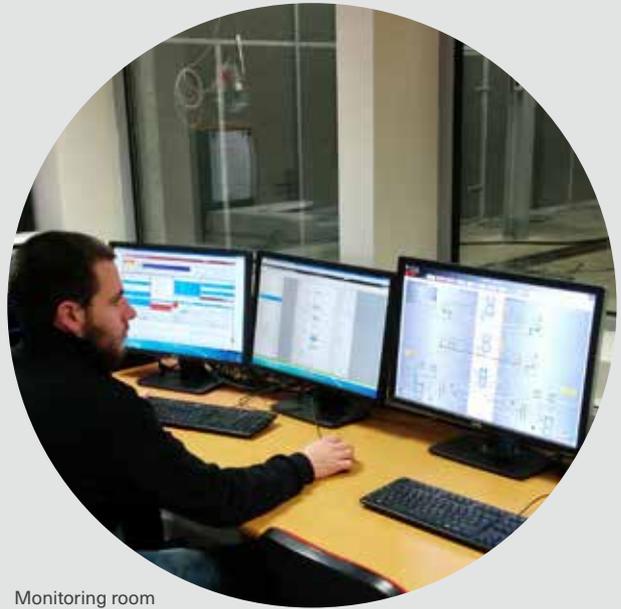
Heat and cold production room



Testing and proof-of-performance

The range of Trane test packages and proof-of-performance options is unsurpassed in the industry. It includes:

- Standard Eurovent tests
- Custom test points
- Part load test points
- Sound tests
- Heat recovery and heat pump tests
- Free cooling
- Glycol tests
- Variable primary flow
- Cold start
- Rapid restart
- Pressure drop
- Unloading capabilities
- Unit security check.



Monitoring room

Test results you can depend on

Accuracy and precision are a way of life at Trane and our equipment test procedures reflect that commitment to quality. We employ multiple procedures to ensure that test methodology and data are accurate and reliable.

Test instrument calibration

To ensure our testing meets or exceeds accuracy requirements, testing equipment is verified by the Trane metrology lab with traceability to National Standards (Cofrac). A copy of the latest certification is available on request.

Each test loop facility is equipped with a data acquisition system which tracks:

- Entering and leaving water temperature
- Water flow rate
- Electrical data
- Pressure drop
- Cooling / Heating capacity
- EER / COP.

Tolerances

The rapid and accurate control system ensures stable and homogenous testing conditions within EN 14511 and Eurovent standard requirements.

Predicted unit performance is measured to the tightest tolerances:

	Avg.	Indiv.
Entering water T°	+/- 0.2°C	+/- 0.5°C
Leaving water T°	+/- 0.3°C	+/- 0.6°C
Air temp	+/- 0.3°C ¹	+/- 1°C ¹
Voltage	+/- 4%	+/- 4%
Water flow	+/- 1%	+/- 2.5%

¹ For chiller with condensing surface greater than 5 m², tolerances are doubled.

Test facility size and operating range

The Trane testing facility at Epinal consists of a 5000m³ climate chamber with advanced ambient temperature and humidity control. This enables us to simulate a wide range of operating modes to ensure we can cover the diverse portfolio of Trane products.

Chamber dimensions

- Length: 21m
- Height: 12.5m
- Width: Total = 20m; Effective = 9m
- Maximum unit size: 16m x 3.5m x 3.5m

Capacity range

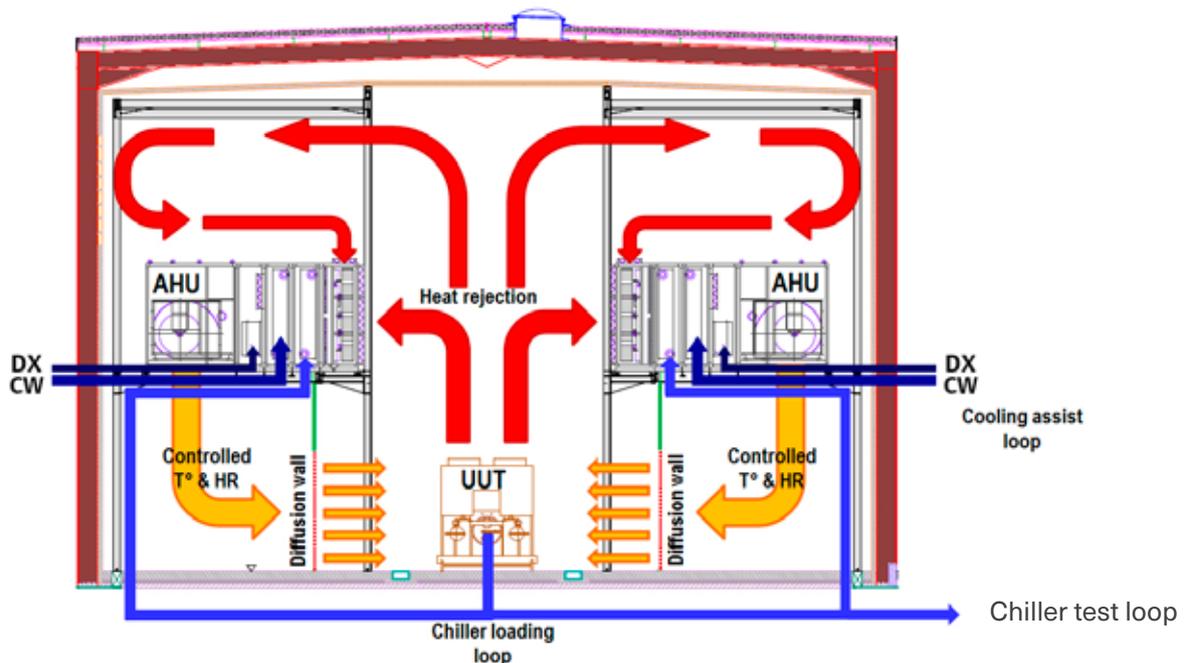
- AC units 200 to 1700 kW @ Eurovent conditions (12/7°C - 35°C)
- HP units 200 to 1000 kW @ Eurovent conditions (40/45°C - 7/6°C)
- WC units 200 to 1450 kW @ Eurovent conditions (12/7°C - 30/35°C)

Operating range

- Entering Air T°: -25°C/+55°C
- Leaving Water T°: -12°C/+65°C (Below 4°C with glycol)
- Humidity: 10 – 90% max @ 7°C dry bulb.

Note: Maximum capacity handled in the lab is function of the test conditions. In case of test out of standard conditions, feasibility must be checked by the lab.

Note: Maximum of 30 °C variation on air T° within the same day is tolerated.



Trane – by Trane Technologies (NYSE: TT), a global climate innovator – creates comfortable, energy efficient indoor environments through a broad portfolio of heating, ventilating and air conditioning systems and controls, services, parts and supply. For more information, please visit trane.eu or tranetechnologies.com.