

# CALORIMETER FOR THE CHARACTERIZATION OF AIR-WATER HEAT PUMPS

**Innovations and benefits** - The "ENEA calorimeter" is able to certify the COP (Coefficient Of Performance) of air-water heat pumps up to 50 kW<sub>th</sub> in compliance with the UNI EN 14511:2011 and UNI EN 14825:2013 standards.

The experimental activity carried out by ENEA provides useful elements for the use of heat pump technology to achieve the objectives of energy efficiency, energy saving and reduction of climate-altering gas emissions established by the various European Directives.

**Uses** - Definition and experimental development of new components, new circuit solutions and control systems.

**Past and present activities** - ENEA carries out experimental tests on heat pump prototypes using natural refrigerants (for example CO<sub>2</sub>) or synthetic refrigerants for the production of hot water and/or space heating. CO<sub>2</sub> machines were built and tested within the framework of the European project NxtHPG (Next Heat Pump Generation working with natural fluids) and the Programme Agreement drawn up between the Ministry of Economic Development and ENEA (Annual Implementation Plans 2014 and 2015 and 2016).



*ENEA Calorimeter*



*Heat Pump under test*

**CUSTOM** For the characterization, certified instrumentation is used. The service is "customizable" in relation to the needs of the manufacturer.