

Standard 23.1-2010 -- Methods of Testing for Rating the Performance of Positive Displacement Refrigerant Compressors and Condensing Units That Operate at Subcritical Temperatures

This standard is a revision of ASHRAE Standard 23-2005. ASHRAE is in the process of developing a companion standard, Standard 23.2, that will address the testing of positive displacement compressors and condensers using refrigerants like CO₂ that operate at supercritical temperatures.

This standard applies to the methods of testing for rating the thermodynamic performance of single-stage positive-displacement refrigerant compressors and condensing units that operate at subcritical temperatures of the refrigerant which either (a) do not have liquid injection or (b) incorporate liquid injection that is achieved by compressor motor power. This standard applies to all of the refrigerants listed in ASHRAE Standard 34,1 Designation and Safety Classification of Refrigerants, that fall within the scope defined in Section 2.1. Standard 23.1 also clarifies some of the procedures of Standard 23-2005 and updates its references. Standard 23.1 retains all of the improvements that were made when the 2005 edition of Standard 23 was published. In addition to the azeotropic refrigerants that were the focus of the 1993 edition, it covers zeotropic alternative refrigerants as well. It provides the choice of six different test methods for determining refrigerant mass flow rates, and it allows the same test to be used for the primary and confirming tests " provided that the primary and confirming tests are simultaneous and completely independent. It includes test methods that properly account for the effects of liquid refrigerant injection within the scope of the standard, and it includes computations of compressor efficiencies that harmonize the standard with relevant standards promulgated by ARI, ISO, and other entities.

It is intended that, after Standards 23.1 and 23.2 have been published, ASHRAE Standard 23-2005 will be withdrawn.

Table of Contents

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Units: Dual

Product Code(s): 86051