International Standard

ISO 18501

First edition
2025-03

Performance rating of positive displacement refrigerant compressor

Détermination des performances des compresseurs frigorifiques à déplacement positif

Reference number
ISO 18501:2025(en)

© ISO 2025



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025
All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword ... **iv**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **1**

4 Rating requirements ... **4**
4.1 General requirements ... 4
4.2 Rating conditions ... 4

5 Published rating ... **5**
5.1 General requirements ... 5
5.2 Individual published rating ... 6
5.3 Number of individual published ratings requirement ... 6
5.4 Polynomial equations ... 6
5.5 Published data ... 7
5.6 Application envelope ... 8

6 Tolerance ... **8**

7 Marking provisions ... **10**

Annex A (informative) **Method to handle zeotropic mixtures** ... **11**

Annex B (informative) **Superheat correction** ... **13**

Bibliography ... **14**

© ISO 2025 – All rights reserved

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 86, *Refrigeration and air-conditioning*, Subcommittee SC 4, *Testing and rating of refrigerant compressors*.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

© ISO 2025 – All rights reserved

Performance rating of positive displacement refrigerant compressor

1 Scope

This document specifies normative references, terms and definitions, rating requirements, published rating, tolerance and marking provisions of positive displacement refrigerant compressors. This document applies to positive displacement refrigerant compressors and their performance in air-conditioning, heating, refrigeration and dehumidification applications. Single stage, two-stage and refrigerant-injected compressors without intermediate temperature load (only one evaporator) are included in this document. Subcritical operation and transcritical operation are also included in this document.

Compressors for other applications, compression types and operations can also refer to this document. The manufacturer is solely responsible for the determination of values to be used in the published product information.

This document is intended as guidance for the industry, including manufacturers, engineers, installers and service contractors. It defines the minimum amount of information in a standard form to enable the evaluation and comparison of different compressors for use in an application.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 18976, *Testing of refrigerant compressors*

ISO 817, *Refrigerants — Designation and safety classification*

IEC 60038, *IEC standard voltages*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 18976 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
positive displacement refrigerant compressor
machine that increases the pressure of a refrigerant vapour by reducing the compression chamber volume

3.2
fixed displacement compressor
compressor with only one displacement capacity

3.3
modulating compressor
compressor with more than one displacement capacity, either continuous or discrete modulating capacities

© ISO 2025 – All rights reserved