

# ILNAS

Institut luxembourgeois de la normalisation  
de l'accréditation, de la sécurité et qualité  
des produits et services

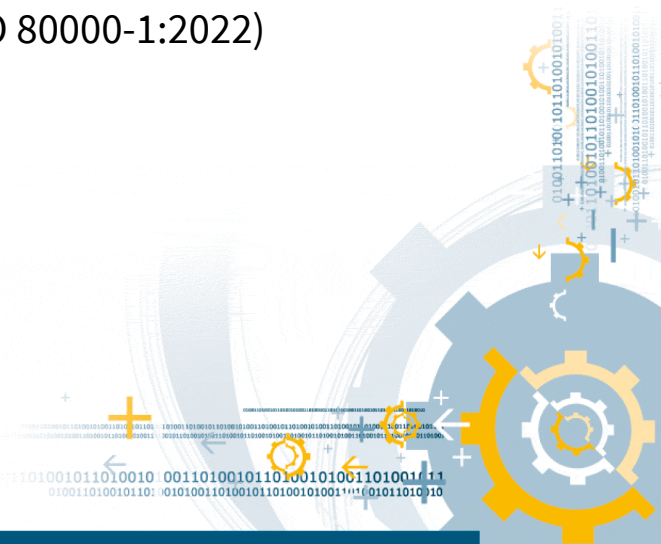
## ILNAS-EN ISO 80000-1:2022

### Quantities and units - Part 1: General (ISO 80000-1:2022)

Größen und Einheiten - Teil 1:  
Allgemeines (ISO 80000-1:2022)

Grandeurs et unités - Partie 1: Généralités  
(ISO 80000-1:2022)

12/2022



## National Foreword

This European Standard EN ISO 80000-1:2022 was adopted as Luxembourgish Standard ILNAS-EN ISO 80000-1:2022.

Every interested party, which is member of an organization based in Luxembourg, can participate for FREE in the development of Luxembourgish (ILNAS), European (CEN, CENELEC) and International (ISO, IEC) standards:

- Participate in the design of standards
- Foresee future developments
- Participate in technical committee meetings

<https://portail-qualite.public.lu/fr/normes-normalisation/participer-normalisation.html>

### **THIS PUBLICATION IS COPYRIGHT PROTECTED**

Nothing from this publication may be reproduced or utilized in any form or by any mean - electronic, mechanical, photocopying or any other data carries without prior permission!

ILNAS-EN ISO 80000-1:2022

EUROPEAN STANDARD **EN ISO 80000-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2022

ICS 01.060

Supersedes EN ISO 80000-1:2013

English Version

## Quantities and units - Part 1: General (ISO 80000-1:2022)

Grandeurs et unités - Partie 1: Généralités (ISO 80000-1:2022)

Größen und Einheiten - Teil 1: Allgemeines (ISO 80000-1:2022)

This European Standard was approved by CEN on 2 December 2022.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

| <b>Contents</b>               | <b>Page</b> |
|-------------------------------|-------------|
| <b>European foreword.....</b> | <b>3</b>    |

ILNAS-EN ISO 80000-1:2022 - Preview only Copy via ILNAS e-Shop

## European foreword

This document (EN ISO 80000-1:2022) has been prepared by Technical Committee ISO/TC 12 "Quantities and units" in collaboration with CCMC.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2023, and conflicting national standards shall be withdrawn at the latest by June 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 80000-1:2013.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

## Endorsement notice

The text of ISO 80000-1:2022 has been approved by CEN as EN ISO 80000-1:2022 without any modification.

ILNAS-EN-ISO 80000-1:2022  
**INTERNATIONAL  
STANDARD**

**ISO  
80000-1**

Second edition  
2022-12

---

---

**Quantities and units —**

**Part 1:  
General**

*Grandeurs et unités —  
Partie 1: Généralités*



Reference number  
ISO 80000-1:2022(E)

© ISO 2022

**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2022

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](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

|  | Page      |
|--|-----------|
| <b>Foreword</b> .....  | <b>iv</b> |
| <b>Introduction</b> .....  | <b>v</b>  |
| <b>1 Scope</b> .....   | <b>1</b>  |
| <b>2 Normative references</b> .....                                    | <b>1</b>  |
| <b>3 Terms and definitions</b> .....                                   | <b>1</b>  |
| <b>4 Quantities</b> .....  | <b>1</b>  |
| 4.1 The concept of quantity.....                                       | 1         |
| 4.2 System of quantities — Base quantities and derived quantities..... | 2         |
| 4.3 Universal constants and empirical constants.....                   | 2         |
| 4.4 Constant multipliers in quantity equations.....                    | 3         |
| 4.5 International System of Quantities, ISQ.....                       | 3         |
| <b>5 Dimensions</b> .....  | <b>3</b>  |
| <b>6 Units</b> .....   | <b>5</b>  |
| 6.1 General.....   | 5         |
| 6.2 Units and numerical values.....                                    | 5         |
| 6.3 Mathematical operations.....                                       | 5         |
| 6.4 Quantity equations and numerical value equations.....              | 6         |
| 6.5 Coherent systems of units.....                                     | 7         |
| <b>7 Printing rules</b> .....  | <b>7</b>  |
| 7.1 Symbols for quantities.....  | 7         |
| 7.1.1 General.....   | 7         |
| 7.1.2 Subscripts.....  | 7         |
| 7.1.3 Combination of symbols for quantities.....                       | 8         |
| 7.1.4 Expressions for quantities.....                                  | 9         |
| 7.1.5 Expressions for dimensions.....                                  | 10        |
| 7.2 Numbers.....   | 10        |
| 7.2.1 General.....   | 10        |
| 7.2.2 Decimal sign.....  | 10        |
| 7.2.3 Multiplication and division.....                                 | 11        |
| 7.2.4 Error and uncertainty.....                                       | 12        |
| 7.3 Chemical elements and nuclides.....                                | 13        |
| 7.4 Greek alphabet.....  | 14        |
| <b>Annex A (normative) Specific terms used for quantities</b> .....    | <b>15</b> |
| <b>Annex B (normative) Rounding of numbers</b> .....                   | <b>19</b> |
| <b>Bibliography</b> .....  | <b>22</b> |