



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

## ILNAS-EN ISO/ASTM 52924:2023

### **Additive manufacturing of polymers - Qualification principles - Classification of part properties (ISO/ASTM 52924:2023)**

Fabrication additive des polymères -  
Principes de qualification - Classification  
des propriétés de la pièce (ISO/ASTM  
52924:2023)

Additive Fertigung von Polymeren -  
Qualifizierungsgrundsätze -  
Klassifizierung von Bauteileigenschaften  
(ISO/ASTM 52924:2023)

08/2023



## National Foreword

This European Standard EN ISO/ASTM 52924:2023 was adopted as Luxembourgish Standard ILNAS-EN ISO/ASTM 52924:2023.

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/ASTM 52924:2023

EUROPEAN STANDARD **EN ISO/ASTM 52924**

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2023

---

ICS 25.030

English Version

**Additive manufacturing of polymers - Qualification  
principles - Classification of part properties (ISO/ASTM  
52924:2023)**

Fabrication additive des polymères - Principes de  
qualification - Classification des propriétés de la pièce  
(ISO/ASTM 52924:2023)

Additive Fertigung - Qualifizierungsgrundsätze -  
Güteklassen für additiv gefertigte Kunststoffbauteile  
(ISO/ASTM 52924:2023)

This European Standard was approved by CEN on 16 July 2023.

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**

---

| Contents               | Page |
|------------------------|------|
| European foreword..... | 3    |

## European foreword

This document (EN ISO/ASTM 52924:2023) has been prepared by Technical Committee ISO/TC 261 "Additive manufacturing" in collaboration with Technical Committee CEN/TC 438 "Additive Manufacturing" the secretariat of which is held by AFNOR.

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 February 2024, and conflicting national standards shall be withdrawn at the latest by February 2024.

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.

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/ASTM 52924:2023 has been approved by CEN as EN ISO/ASTM 52924:2023 without any modification.

First edition  
2023-08

---

---

## Additive manufacturing of polymers — Qualification principles — Classification of part properties

*Fabrication additive des polymères — Principes de qualification —  
Classification des propriétés de la pièce*



Reference number  
ISO/ASTM 52924:2023(E)

© ISO/ASTM International 2023

**COPYRIGHT PROTECTED DOCUMENT**

© ISO/ASTM International 2023

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. In the United States, such requests should be sent to ASTM International.

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

ASTM International  
100 Barr Harbor Drive, PO Box C700  
West Conshohocken, PA 19428-2959, USA  
Phone: +610 832 9634  
Fax: +610 832 9635  
Email: [khooper@astm.org](mailto:khooper@astm.org)  
Website: [www.astm.org](http://www.astm.org)

# 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 Symbols and abbreviations</b>  | <b>2</b>  |
| 4.1 Symbols   | 2         |
| 4.2 Abbreviations   | 2         |
| <b>5 Classification system</b>  | <b>3</b>  |
| 5.1 Definition of the classes of part property  | 3         |
| 5.2 Typical classification of important material classes and usage of the classification system for part properties | 4         |
| <b>6 Test specimens for determining the characteristic values for the classification system</b>                     | <b>6</b>  |
| 6.1 General   | 6         |
| 6.2 Tensile properties  | 6         |
| 6.3 Dimensional accuracy  | 6         |
| 6.4 Density   | 6         |
| 6.5 Labelling   | 7         |
| 6.6 Orientation, grid arrangement, and distribution in the build space  | 7         |
| 6.6.1 General   | 7         |
| 6.6.2 Orientation and grid arrangement to be used   | 7         |
| 6.6.3 Distribution in the build space   | 7         |
| 6.7 Manufacturing   | 11        |
| <b>7 Determination of characteristic values and classification in the classification system</b>                     | <b>12</b> |
| 7.1 General   | 12        |
| 7.2 Mechanical properties   | 12        |
| 7.2.1 General   | 12        |
| 7.2.2 Determination of characteristic values  | 12        |
| 7.2.3 Classification in the classification system   | 13        |
| 7.3 Dimensional accuracy  | 13        |
| 7.3.1 General   | 13        |
| 7.3.2 Determination of characteristic values  | 13        |
| 7.3.3 Classification in the classification system   | 14        |
| 7.4 Relative part density   | 14        |
| 7.4.1 General   | 14        |
| 7.4.2 Determination of characteristic values  | 14        |
| 7.4.3 Classification in the classification system   | 14        |
| 7.5 Classification in classes of part properties  | 14        |
| <b>8 Initial classification and regular checking of the classifications</b>   | <b>15</b> |
| 8.1 Standard classification procedure   | 15        |
| 8.2 Initial classification  | 15        |
| 8.3 Regular checking  | 15        |
| 8.4 Renewed determination of the classifications in case of replacement of relevant machine components              | 15        |
| <b>Annex A (informative) Form for part property classification in accordance with this document</b>                 | <b>17</b> |
| <b>Bibliography</b>   | <b>18</b> |