

---

---

**Geometrical product specifications  
(GPS) — Surface texture: Profile  
method — Calibration of contact  
(stylus) instruments**

*Spécification géométrique des produits (GPS) — État de surface:  
Méthode du profil — Étalonnage des instruments à contact (palpeur)*

**iTeh Standards**  
**(<https://standards.iteh.ai>)**  
**Document Preview**

[ISO 12179:2021](https://standards.iteh.ai/catalog/standards/iso/75c23903-d283-4027-af12-8e3342c11ee9/iso-12179-2021)

<https://standards.iteh.ai/catalog/standards/iso/75c23903-d283-4027-af12-8e3342c11ee9/iso-12179-2021>



**iTeh Standards**  
**(<https://standards.iteh.ai>)**  
**Document Preview**

[ISO 12179:2021](https://standards.iteh.ai/catalog/standards/iso/75c23903-d283-4027-af12-8e3342c11ee9/iso-12179-2021)

<https://standards.iteh.ai/catalog/standards/iso/75c23903-d283-4027-af12-8e3342c11ee9/iso-12179-2021>



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2021

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
Foreword.....	v
Introduction.....	vi
<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 Conditions of use.....</b>	<b>3</b>
4.1 Components and configurations of the contact (stylus) instrument.....	3
4.2 Calibration of a configuration.....	3
4.3 Place of calibration.....	3
4.4 Defects.....	3
<b>5 Measurement standards.....</b>	<b>3</b>
<b>6 Contact (stylus) instrument metrological characteristics.....</b>	<b>6</b>
6.1 General.....	6
6.2 Residual profile calibration.....	6
6.3 Vertical profile component calibration.....	6
6.4 Horizontal profile component calibration.....	6
6.5 Profile coordinate system calibration.....	6
6.6 Total contact (stylus) instrument calibration.....	6
<b>7 Calibration.....</b>	<b>7</b>
7.1 Preparation for calibration.....	7
7.2 Evaluation of the residual profile.....	7
7.3 Calibration of the vertical profile component.....	7
7.3.1 Overall objective.....	7
7.3.2 Procedure.....	7
7.4 Calibration of the horizontal profile component.....	8
7.4.1 Overall objective.....	8
7.4.2 Procedure.....	8
7.5 Calibration of the profile coordinate system.....	8
7.5.1 Overall objective.....	8
7.5.2 Procedure.....	8
7.6 Calibration of the total contact (stylus) instrument.....	8
7.6.1 Overall objective.....	8
7.6.2 Procedure.....	9
7.7 Other calibrations.....	9
<b>8 Measurement uncertainty.....</b>	<b>9</b>
8.1 Information from the calibration certificate for a measurement standard.....	9
8.2 The uncertainty of the values measured during calibration of a measuring instrument using a measurement standard.....	9
<b>9 Contact (stylus) instrument calibration certificate.....</b>	<b>10</b>
<b>10 General information.....</b>	<b>10</b>
<b>Annex A (normative) Calibration of instruments measuring parameters of the motifs method.....</b>	<b>11</b>
<b>Annex B (normative) Calibration of simplified operator instruments for the measurements of surface texture.....</b>	<b>13</b>
<b>Annex C (informative) Example: roughness measurement standard parameter <i>Ra</i>.....</b>	<b>14</b>
<b>Annex D (informative) Concept diagram.....</b>	<b>17</b>
<b>Annex E (informative) Overview of profile and areal standards in the GPS matrix model.....</b>	<b>18</b>

<b>Annex F (informative) Relation to the GPS matrix model</b> .....	<b>19</b>
<b>Bibliography</b> .....	<b>20</b>

**iTeh Standards**  
**(<https://standards.itih.ai>)**  
**Document Preview**

[ISO 12179:2021](https://standards.itih.ai/catalog/standards/iso/75c23903-d283-4027-af12-8e3342c11ee9/iso-12179-2021)

<https://standards.itih.ai/catalog/standards/iso/75c23903-d283-4027-af12-8e3342c11ee9/iso-12179-2021>