



**INTERNATIONAL STANDARD ISO/TS 14253-2:1999**  
**TECHNICAL CORRIGENDUM 1**

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

**Geometrical Product Specifications (GPS) — Inspection by  
measurement of workpieces and measuring equipment —**

**Part 2:  
Guide to the estimation of uncertainty in GPS measurement, in  
calibration of measuring equipment and in product verification**

**TECHNICAL CORRIGENDUM 1**

*Spécification géométrique des produits (GPS) — Vérification par la mesure des pièces et des équipements de  
mesure —*

*Partie 2: Guide pour l'estimation de l'incertitude dans les mesures GPS, dans l'étalonnage des équipements de  
mesure et dans la vérification des produits*

*RECTIFICATIF TECHNIQUE 1*

Technical Corrigendum 1 to ISO/TS 14253-2:1999 was prepared by Technical Committee ISO/TC 213,  
*Dimensional and geometrical product specifications and verification.*

Page 2, Clause 2

Replace "ISO 1:1975, *Standard reference temperature for industrial length measurements*" by:

"ISO 1:2002, *Geometrical Product Specifications (GPS) — Standard reference temperature for geometrical product specification and verification*".

Replace "ISO 9001:1994, *Quality systems — Model for quality assurance in design, development, production, installation and servicing*" by:

"ISO 9001:2000, *Quality management systems — Requirements*".

Replace "ISO 14253-3:—<sup>1</sup>), *Geometrical Product Specifications (GPS) — Inspection by measurement of workpieces and measuring instruments — Part 3: Procedures for evaluating the integrity of uncertainty of measurement values*" by:

"ISO 14253-3:2002, *Geometrical Product Specifications (GPS) — Inspection by measurement of workpieces and measuring equipment — Part 3: Guidelines for achieving agreements on measurement uncertainty statements*".

Delete Footnote 1).

Replace "ISO 9004-1:1994, *Quality management and quality system elements — Part 1: Guidelines*" by:

"ISO 9004:2000, *Quality management systems — Guidelines for performance improvements*".

Page 4, 3.10

In Note 2, replace "the requirements of 4.11.1, 4.11.2 of ISO 9001:1994, 13.1 of ISO 9004-1:1994 and ISO 14253-1" by:

"the requirements of 7.6 and 8.2.4 of ISO 9001:2000, 7.6 and 8.2.3 of ISO 9004:2000 and ISO 14253-1".

Page 18, 8.2.2

In the 6th paragraph, change the end of the sentence to: "... from Table 2."

In the 6th paragraph, change Footnote "2)" to: "1)".

In the 8th paragraph, after Equation (5), replace " $s$ " by: " $s_{\bar{x}}$ ".

Replace Equation (6) by:

$$u_{xx} = s_{\bar{x}} \times h \quad \left( s_{\bar{x},n} = \frac{s_{x,n}}{\sqrt{n}} \right)$$

Page 19, 8.2.2

In Table 2, last line in 1st column, replace " $\leq 10$ " by: " $\geq 10$ ".

*Page 36, A.6.1*

Replace the equation under “ $u_{RS}$  — **Reference standard (ring)**” by:

$$u_{RS} = \frac{U}{k} = \frac{0,8 \mu\text{m}}{2} = 0,8 \mu\text{m} \times 0,5 = 0,4 \mu\text{m}$$

*Page 37, A.6.1*

Replace the equation under “ $u_{RR}$  — **Repeatability/resolution**” by:

$$u_{RR} = \frac{0,7 \mu\text{m}}{6} = 0,12 \mu\text{m}$$

Replace the 2nd equation under “ $u_{TD}$  — **Temperature difference between the two rings**” by:

$$u_{TD} = 1,1 \mu\text{m} \times 0,7 = 0,77 \mu\text{m}$$

Replace the 1st equation under “ $u_{TA}$  — **Difference in temperature expansion coefficients**” by:

$$u_{TA} = \frac{1,1 \mu\text{m}}{(100 \text{ mm} \times ^\circ\text{C})} \times 1 ^\circ\text{C} \times 100 \text{ mm} \times 10 \% = 0,11 \mu\text{m}$$

*Page 38, A.6.3*

Replace the 1st equation by:

$$u_c = \sqrt{u_{RS}^2 + u_{EC}^2 + u_{PA}^2 + u_{RR}^2 + u_{TD}^2 + u_{TA}^2 + u_{RO}^2}$$

*Page 41, B.1*

In the 6th paragraph, replace the word “lover” by: “lower”.

*Page 49, B.2.5.5*

In Table B.3, replace the caption of the 5th column by: “Percentage of  $u_c^2$  [%]”.

In Table B.3, 5th column, 1st cell directly under the caption, replace “23” by: “22”.

In Table B.3, 1st column, 3rd line, replace “( $u_{ML}$  Micrometer – flatness 2)” by: “( $u_{MF}$  Micrometer – flatness 2)”.

In the 3rd line under Table B.3, replace the end of the line by: “... from 7,6  $\mu\text{m}$  to 4,4  $\mu\text{m}$ .”

*Page 53, B.3.6.3*

Replace the 1st equation for  $u_c$  by:

$$u_c = \sqrt{u_{SL}^2 + u_{RR}^2 + u_{TD}^2 + u_{TA}^2}$$

Replace the 2nd equation for  $u_c$  by:

$$u_c = \sqrt{(0,36^2 + 0,29^2 + 0,20^2 + 0,14^2)} \mu\text{m}^2 = 0,5 \mu\text{m}$$

Replace " $u_{25\text{ mm}} = 0,5 \mu\text{m} \times 2 = 1,0 \mu\text{m}$ " by:

$$U_{25\text{ mm}} = 0,5 \mu\text{m} \times 2 = 1,0 \mu\text{m}$$

Replace " $u_{0\text{ mm}} = 0,4 \mu\text{m} \times 2 = 0,8 \mu\text{m}$ " by:

$$U_{0\text{ mm}} = 0,4 \mu\text{m} \times 2 = 0,8 \mu\text{m}$$

Page 57, B.4.5.6

Replace " $\text{MPE}_{\text{MF}} - U = 1,00 \mu\text{m} - 0,15 \mu\text{m} = 0,85 \mu\text{m}$ " by:

$$\text{MPE}_{\text{MF}} - U = 1,00 \mu\text{m} - 0,12 \mu\text{m} = 0,88 \mu\text{m}$$

Page 59, B.5.5.1

Evaluation of  $u_{\text{SP}}$ , 1st paragraph, replace " $\text{MPE}_{\text{SF}}$ " by: " $\text{MPE}_{\text{SP}}$ "

Evaluation of  $u_{\text{RR}}$ , replace the equation by:

$$u_{\text{RR}} = \frac{d}{2} \times 0,6 = \frac{0,3 \mu\text{m}}{2} \times 0,6 = 0,09 \mu\text{m}$$

Page 60, B.5.5.3

Replace the 2nd equation by:

$$u_c = \sqrt{(0,06^2 + 0,09^2 + 0,09^2)} \mu\text{m}^2 = 0,14 \mu\text{m}$$