

# DIN EN ISO 10360-7:2011-09 (E)

## Geometrical product specifications (GPS) - Acceptance and reverification tests for coordinate measuring machines (CMM) - Part 7: CMMs equipped with imaging probing systems (ISO 10360-7:2011)

---

<b>Contents</b>		<b>Page</b>
Foreword .....		4
Introduction .....		5
<b>1</b>	<b>Scope .....</b>	<b>6</b>
<b>2</b>	<b>Normative references .....</b>	<b>6</b>
<b>3</b>	<b>Terms and definitions .....</b>	<b>7</b>
<b>4</b>	<b>Symbols .....</b>	<b>12</b>
<b>5</b>	<b>Environmental and metrological requirements .....</b>	<b>13</b>
5.1	Environmental conditions .....	13
5.2	Operating conditions .....	13
5.3	Requirements for various configuration imaging probe CMMs .....	13
5.3.1	General .....	13
5.3.2	Length measurement errors .....	14
5.3.3	Probing errors .....	15
5.3.4	Repeatability range of the length measurement error, RB or RU .....	15
5.3.5	Workpiece loading effects .....	15
<b>6</b>	<b>Acceptance tests and reverification tests .....</b>	<b>16</b>
6.1	General .....	16
6.2	Length measurement errors .....	16
6.2.1	General .....	16
6.2.2	Measuring equipment .....	17
6.2.3	Length measurement error, EB or EU .....	18
6.2.4	Z length measurement error, EBZ or EUZ .....	19
6.2.5	XY length measurement error, EBXY or EUXY .....	20
6.2.6	Imaging probe length measurement error, EBV or EUV .....	20
6.3	Squareness error, ESQ .....	21
6.3.1	General .....	21
6.3.2	Measuring equipment .....	21
6.3.3	Measuring positions .....	22
6.3.4	Measuring procedure .....	22
6.3.5	Derivation of test results .....	23
6.4	Repeatability range of the length measurement error, RB or RU .....	24
6.5	Probing performance (PF2D) .....	24
6.5.1	Principle .....	24
6.5.2	Measuring equipment .....	24
6.5.3	Procedure .....	24
6.5.4	Derivation of test results .....	26
6.6	Probing error of the imaging probe, PFV2D .....	26
6.6.1	Principle .....	26
6.6.2	Measuring equipment .....	26
6.6.3	Procedure .....	26
6.6.4	Derivation of test results .....	2

<b>7</b>	<b>Compliance with specifications .....</b>	<b>27</b>
<b>7.1</b>	<b>Acceptance test .....</b>	<b>27</b>
<b>7.1.1</b>	<b>Acceptance criteria .....</b>	<b>27</b>
<b>7.1.2</b>	<b>Data rejection and repeated measurements .....</b>	<b>29</b>
<b>7.2</b>	<b>Reverification test .....</b>	<b>29</b>
<b>8</b>	<b>Applications .....</b>	<b>2</b>
<b>8.1</b>	<b>Acceptance test .....</b>	<b>29</b>
<b>8.2</b>	<b>Reverification test .....</b>	<b>30</b>
<b>8.3</b>	<b>Interim check .....</b>	<b>30</b>
<b>9</b>	<b>Indication in product documentation and data sheets .....</b>	<b>31</b>
	<b>Annex A (informative) Interim check .....</b>	<b>32</b>
	<b>Annex B (normative) Artefacts that represent a calibrated test length .....</b>	<b>33</b>
	<b>Annex C (informative) Alternative method for checking the squareness error .....</b>	<b>39</b>
	<b>Annex D (normative) Mathematical adjustments to low CTE artefacts .....</b>	<b>41</b>
	<b>Annex E (informative) Relation to the GPS matrix model .....</b>	<b>43</b>
	<b>Bibliography .....</b>	<b>44</b>