

# ISO 10360-12:2016-10 (E)

## Geometrical product specifications (GPS) - Acceptance and reverification tests for coordinate measuring systems (CMS) - Part 12: Articulated arm coordinate measurement machines (CMM)

---

<b>Contents</b>		<b>Page</b>
Foreword .....		iv
Introduction .....		v
<b>1</b>	<b>Scope .....</b>	<b>1</b>
<b>2</b>	<b>Normative references .....</b>	<b>1</b>
<b>3</b>	<b>Terms and definitions .....</b>	<b>1</b>
<b>4</b>	<b>Symbols .....</b>	<b>6</b>
<b>5</b>	<b>Rated operating conditions .....</b>	<b>7</b>
5.1	Environmental conditions .....	7
5.2	Operating conditions .....	8
<b>6</b>	<b>Acceptance tests and reverification tests .....</b>	<b>8</b>
6.1	General .....	8
6.2	Probing size and form errors .....	8
6.2.1	Principle .....	8
6.2.2	Measuring equipment .....	8
6.2.3	Procedure .....	8
6.2.4	Derivation of test results .....	10
6.3	Articulated location errors .....	10
6.3.1	Principle .....	10
6.3.2	Measuring equipment .....	10
6.3.3	Procedure .....	10
6.3.4	Derivation of test results .....	11
6.4	Length measurement errors .....	11
6.4.1	Principle .....	11
6.4.2	Measuring equipment .....	12
6.4.3	Procedure .....	12
<b>7</b>	<b>Compliance with specification .....</b>	<b>16</b>
7.1	Acceptance tests .....	16
7.1.1	Acceptance criteria .....	16
7.1.2	Data rejection and repeated measurements .....	16
7.2	Reverification tests .....	17
<b>8</b>	<b>Applications .....</b>	<b>17</b>
8.1	Acceptance test .....	17
8.2	Reverification test .....	17
8.3	Interim check .....	18
<b>9</b>	<b>Indication in product documentation and data sheets .....</b>	<b>19</b>
<b>Annex A (informative) Forms .....</b>		<b>20</b>
<b>Annex B (normative) Artefacts that represent a calibrated test length .....</b>		<b>22</b>

<b>Annex C (informative) Alignment of artefacts .....</b>	<b>28</b>
<b>Annex D (informative) Interim testing .....</b>	<b>29</b>
<b>Annex E (normative) Testing a scanning probing system of an articulated arm CMM .....</b>	<b>31</b>
<b>Annex F (normative) Length error measurement by concatenating test lengths .....</b>	<b>32</b>
<b>Annex G (informative) Optional probing articulated size and forms errors .....</b>	<b>37</b>
<b>Annex H (informative) Optional repeatability range of the length measurement error .....</b>	<b>38</b>
<b>Annex I (informative) Relation to the GPS matrix model .....</b>	<b>39</b>
<b>Bibliography .....</b>	<b>40</b>