

# ISO 3611:2010-11 (E)

## Geometrical product specifications (GPS) - Dimensional measuring equipment: Micrometers for external measurements - Design and metrological characteristics

---

<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>Design characteristics .....</b>	<b>2</b>
4.1	General design and nomenclature .....	2
4.2	Main dimensions .....	3
4.3	Types of indicating devices .....	3
4.3.1	General .....	3
4.3.2	Analogue indicating devices .....	4
4.3.3	Digital indicating devices, with mechanical digital display .....	5
4.3.4	Digital indicating devices with electronic digital display .....	6
4.4	Protection for field use .....	6
4.5	Frame .....	7
4.6	Measuring faces .....	7
4.7	Measuring force limiting device .....	7
4.8	Adjustment devices .....	7
4.9	Design characteristics (manufacturer's specification) .....	7
<b>5</b>	<b>Metrological characteristics .....</b>	<b>8</b>
5.1	General .....	8
5.2	Effect of spindle clamp .....	8
5.3	Maximum permissible error of indication (limited by MPE) .....	8
5.3.1	General .....	8
5.3.2	Full surface contact error, J (limited by MPEJ ) .....	8
5.3.3	Repeatability, R (limited by MPER) .....	8
5.3.4	Partial surface contact error, E (limited by MPEE) .....	8
5.4	Measuring forces (limited by MPL) .....	8
5.5	Instrument specification sheet .....	8
<b>6</b>	<b>Proof of conformance with specifications .....</b>	<b>9</b>
<b>7</b>	<b>Marking .....</b>	<b>9</b>
<b>Annex A (informative)</b>	<b>Example of an error-of-indication curve .....</b>	<b>10</b>
<b>Annex B (informative)</b>	<b>Example of data sheet for micrometers for external measurements .....</b>	<b>11</b>
<b>Annex C (informative)</b>	<b>Calibration of metrological characteristics .....</b>	<b>12</b>
<b>Annex D (informative)</b>	<b>Error tests .....</b>	<b>13</b>
<b>Annex E (informative)</b>	<b>Notes on use .....</b>	<b>15</b>
<b>Annex F (informative)</b>	<b>Relation to the GPS matrix model .....</b>	<b>16</b>
<b>Bibliography</b> .....		<b>18</b>