

# ISO 23280:2022-05 (E)

## Electrically propelled mopeds and motorcycles - Test method for evaluation of energy performance using motor dynamometer

---

<b>Contents</b>		<b>Page</b>
Foreword .....		iv
<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>Principle .....</b>	<b>2</b>
<b>5</b>	<b>Determination of resistance torque to traction motor system .....</b>	<b>3</b>
5.1	Running resistance of vehicle .....	3
5.2	Resistance torque for central drive system .....	3
5.3	Resistance torque for in-wheel drive system .....	5
<b>6</b>	<b>Test conditions .....</b>	<b>6</b>
6.1	Motor dynamometer .....	6
6.2	Driving mode .....	7
6.3	Operation for the motor dynamometer .....	7
6.3.1	Resistance torque to traction motor .....	8
6.3.2	Load motor system .....	8
6.3.3	Torque and speed sensors .....	8
6.4	DC Power supply .....	8
6.5	Power meter .....	8
6.6	Measurement of voltage and current .....	9
6.7	Measurement of temperature .....	9
<b>7</b>	<b>Performance calculation .....</b>	<b>9</b>
7.1	Consumed energy .....	9
7.2	Travelled distance .....	9
7.3	Motor system efficiency .....	9
7.4	Reference energy consumption .....	10
<b>8</b>	<b>Presentation of results .....</b>	<b>10</b>
<b>Annex A (informative)</b>	<b>Classification of equivalent inertia mass and the running resistance for motorcycles .....</b>	<b>11</b>
<b>Annex B (informative)</b>	<b>Classification of equivalent inertia mass and the running resistance for mopeds ..</b>	<b>13</b>
<b>Annex C (informative)</b>	<b>Derivation of traction motor torque for central drive system .....</b>	<b>15</b>
<b>Annex D (informative)</b>	<b>Derivation of traction motor torque for in-wheel drive system .....</b>	<b>19</b>
<b>Annex E (normative)</b>	<b>Test report - test motor and test conditions .....</b>	<b>20</b>
<b>Bibliography .....</b>		<b>22</b>