

# ISO 23308-1:2020-05 (E)

## Energy efficiency of industrial trucks - Test methods - Part 1: General

---

<b>Contents</b>	<b>Page</b>
<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>2</b>
<b>3 Terms and definitions</b> .....	<b>2</b>
<b>4 Test conditions</b> .....	<b>3</b>
4.1 General.....	3
4.2 Test equipment.....	3
4.2.1 Test area.....	3
4.2.2 Test track.....	3
4.2.3 Test load and / or towing capacity.....	3
4.3 Truck conditions.....	3
4.4 Environmental conditions.....	4
4.5 Truck maintenance.....	4
4.6 Battery condition.....	4
<b>5 Measurement procedure</b> .....	<b>5</b>
5.1 General.....	5
5.2 Operating sequence.....	5
5.3 Electric trucks.....	5
5.3.1 General.....	5
5.3.2 Truck measurement.....	5
5.3.3 Battery efficiency.....	6
5.3.4 Charger efficiency.....	7
5.4 Internal combustion (IC)-trucks.....	7
5.5 Hybrid trucks.....	7
5.6 Measurement accuracy.....	7
5.7 Calculation.....	8
<b>6 Documentation</b> .....	<b>8</b>
6.1 Test report.....	8
6.2 Declaration.....	9
6.2.1 Truck energy consumption.....	9
6.2.2 Battery efficiency.....	9
6.2.3 Charger efficiency.....	9
<b>Annex A (normative) Determination of battery efficiency by using the synthetic discharge cycle</b>	<b>10</b>
<b>Annex B (normative) Simplified procedure to calculate the battery and charging efficiency for lead-acid batteries</b> .....	<b>15</b>
<b>Annex C (informative) Calculation of the carbon dioxide equivalent</b> .....	<b>17</b>
<b>Bibliography</b> .....	<b>20</b>