



## ISO 7176-11 Wheelchairs Test Dummies

**Advanced Anthropomorphic Test Devices for Stability, Performance, and Durability Testing**

### 1. Executive Summary

The **ISO 7176-11 Wheelchairs Test Dummies** are high-precision, professional-grade anthropomorphic test devices engineered by **KingPo**. Designed to simulate the exact mass, mass distribution, and kinematic characteristics of human occupants, these dummies are the industry standard for verifying the structural integrity and safety of manual and powered wheelchairs in full accordance with **ISO 7176-11** regulatory requirements.

### 2. Engineering Excellence & Technical Precision

KingPo's design philosophy prioritizes **Repeatability, Accuracy, and Durability**. Each unit is constructed to meet the most stringent laboratory demands:

- **Multi-Segment Biomechanical Structure:** Features three rigid segments—Torso, Thigh, and Lower Leg—linked by high-precision mechanical pivots.
- **Precision-Engineered Pivots:** Hip and knee pivot locations are strictly maintained within **(78 ± 25) mm** in both X and Y directions, ensuring human-like weight distribution and movement.
- **Standard-Compliant Mass Distribution:** Manufactured to the precise formulae defined in ISO 7176-11 Tables B.1 and C.1–C.3. Segmental masses are calibrated to **0.1 kg** and linear dimensions to **1 mm**.
- **Advanced Load Transfer:** Rigid internal loading plates are shielded by industrial-grade high-density foam cushions. This configuration ensures realistic pressure distribution on

Website: [www.kingpo.hk](http://www.kingpo.hk)

Tel: 0086 769 81627526

Address: No.9, University Rd., Songshan Lake, Dongguan, Guangdong, China

E-mail: [sales@kingpo.hk](mailto:sales@kingpo.hk)

Fax: 0086 769 89032367



# Kingpo Technology Development Limited

the wheelchair seat and backrest while protecting the specimen from unrepresentative damage.

- **On-Site Adjustability:** The overall Center of Mass (CoM) is fully adjustable, allowing laboratories to configure the dummy for any specific test mass within the **25 kg to 300 kg** range.

### 3. Technical Specifications

**Table 1: Nominal Location of Overall Centre of Mass (CoM)**

Dummy Mass (kg)	Overall CoM X (mm)	Overall CoM Y (mm)	Application Context
25	189	178	Paediatric & Light-duty Testing
50	204	198	Standard Reference Dummy
75	220	217	Common Adult Test Mass
100	235	236	Typical Heavy Adult Reference
150	266	222	Mid-range Bariatric Testing
225	313	201	Extended Heavy-duty Reference
300	359	180	Maximum Load Capacity Dummy

**Table 2: Segmental Precision Standards**

Parameter	Manufacturing Tolerance	Regulatory Reference
Segmental Mass	± 0.1 kg	ISO 7176-11 Annex C
Linear Dimensions	± 1.0 mm	ISO 7176-11 Technical Drawings
Pivot Positioning	± 25 mm (X/Y)	Kinematic Verification

### 4. Industrial Applications & Lab Scenarios

- **Tier-1 Wheelchair Manufacturers:** Static/dynamic stability testing and fatigue life evaluation.
- **Accredited Certification Bodies (UL, SGS, Intertek):** Rigorous compliance auditing and Type Testing.
- **R&D and Prototyping:** Center-of-gravity optimization for new chassis designs.
- **Regulatory Submission:** Provision of empirical data for FDA, CE, and other international

Website: [www.kingpo.hk](http://www.kingpo.hk)

E-mail: [sales@kingpo.hk](mailto:sales@kingpo.hk)

Tel: 0086 769 81627526

Fax: 0086 769 89032367

Address: No.9, University Rd., Songshan Lake, Dongguan, Guangdong, China



# Kingpo Technology Development Limited

---

medical device registries.

## 5. Strategic Procurement Advantages

- **High-Throughput Testing:** Comprehensive 12-configuration sets minimize setup time for diverse product lines.
- **Certified Manufacturing:** Produced in an ISO 9001/14001/45001 certified facility with ISO 17025 traceable calibration capabilities.
- **Global Reliability:** Each unit is engineered for thousands of dynamic cycles and is backed by a full 1-year warranty and lifetime engineering support from our Dongguan headquarters.

---

*Note: To ensure maximum repeatability and mitigate common errors, KingPo recommends periodic verification of the Overall Centre of Mass using the Balance Method as described in Annex A. Replacement of foam cushions is recommended if compression set exceeds 10%.*

Website: [www.kingpo.hk](http://www.kingpo.hk)

Tel: 0086 769 81627526

Address: No.9, University Rd., Songshan Lake, Dongguan, Guangdong, China

E-mail: [sales@kingpo.hk](mailto:sales@kingpo.hk)

Fax: 0086 769 89032367