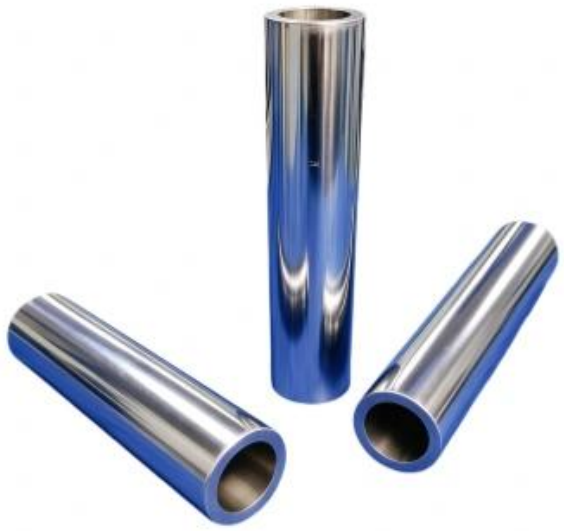
IEC 60601-2-52 Cylinder Tool

Figure 201.103 b Entrapment Test Tool for Medical Beds



Standard: IEC 60601-2-52 Figure 201.103 b (Medical bed entrapment test tool)
Manufacturer: KingPo Test Equipment Co., Ltd. www.dgkingpo.com Tel: +86-769-81627526

1. Product Overview

The KingPo IEC 60601-2-52 Cylinder Tool is a precision steel test fixture designed to assess potential patient entrapment gaps in medical beds. It checks whether a patient's head, neck, or body could pass through openings between the mattress, side rails, headboard, footboard, or other bed components.

The tool is applied to various entrapment zones to verify compliance with safety requirements in IEC 60601-2-52, helping manufacturers, testing laboratories, and certification bodies identify and mitigate hazards to support patient safety and regulatory compliance.

2. Applicable Standards

- **IEC 60601-2-52 Figure 201.103 b** — Medical electrical equipment – Part 2-52: Particular requirements for basic safety and essential performance of medical beds (Entrapment test tool)

3. Test Purpose

The tool is physically applied to gaps between the mattress and side rails, as well as between the headboard, footboard, and other bed components. If the cylinder can pass through or become lodged in these gaps, it indicates a possible risk that a patient's head, neck, or limbs could become entrapped.

This method evaluates whether medical bed designs meet the entrapment prevention requirements in IEC 60601-2-52, providing a practical and repeatable approach to ensure patient safety.

4. Key Features

- **Precision Steel Construction** — High-quality steel for durability, dimensional stability, and long service life.
- **Marked Centre Line & Weight Adjustment Hole** — Facilitates accurate positioning and repeatable test results.
- **Standardized Dimensions** — Φ60 mm diameter × 318 mm length for consistent entrapment gap evaluation.
- **Surface Roughness 1.6** — Ensures consistent and repeatable contact during gap assessment.
- **Weight Adjustable** — 3.34 kg ± 0.05 kg with drilling hole for weight adjustment to maintain testing accuracy.

5. Technical Specifications

Parameter	Specification	Notes
Applicable Standard	IEC 60601-2-52 Figure 201.103 b	Entrapment test tool for medical beds
Material	Steel	High durability and dimensional stability
Diameter	Φ60 mm	Standardized dimension for consistent evaluation
Length	318 mm	Effective for testing various bed component gaps
Weight	3.34 kg ± 0.05 kg	Includes weight adjustment capability
Surface Roughness	1.6	Ensures consistent and repeatable contact
Design Features	Marked centre line, weight adjustment hole	Facilitates accurate positioning and repeatable results
Construction Type	Precision-machined solid steel cylinder	Robust for frequent laboratory and production use

6. Typical Test Procedure

1. Prepare the medical bed and ensure correct mattress and side rail positioning.
2. Apply the cylinder tool to the gap between mattress and side rails, headboard, footboard, etc.

3. Observe whether the cylinder passes through or becomes lodged in the gap.
4. Record the test location and result (pass or entrapment risk).
5. Repeat for all relevant entrapment zones and document findings.

7. Applications

- Medical Bed Manufacturers — Product design and development to evaluate entrapment risks
- Testing Laboratories — Compliance testing of medical beds according to IEC 60601-2-52
- Certification Bodies — Regulatory approval processes for medical beds
- Hospitals and Research Institutions — Safety verification of medical beds

8. Standard Configuration

The standard configuration includes:

- Precision steel cylinder with marked centre line and drilling hole for weight adjustment
- High durability and dimensional stability for repeated use

Note: Keep the tool clean and free from damage or deformation. Inspect regularly for wear, surface damage, or deformation.

9. Ordering Information

Please confirm the following when requesting a quotation:

- Quantity required
- Whether any accessories or calibration certificate is needed
- Any specific application or documentation requirements

KingPo Technology Development Limited
Factory Address: No.9 University Road, Songshan Lake,
Dongguan City, Guangdong Province 523770, China
Tel: +86-769-81627526 | Email: sales@kingpo.hk | Website: www.dgkingpo.com

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