

Sharp Edge Tester

UL 3300 robot safety application and related sharp-edge test methods



PRIMARY APPLICATION

UL 3300 SCIEE robot sharp-edge evaluation

RELATED TEST METHOD

16 CFR 1500.49

TEST PRINCIPLE

Rotating steel mandrel with pressure-sensitive TFE tape

TYPICAL TEST FORCE

1.35 lbf / 6.00 N for 16 CFR 1500.49



Product Overview

Compact electric Sharp Edge Tester for controlled evaluation of accessible edges. The instrument applies a defined contact force while a TFE-tape-covered mandrel rotates against the test edge. Final configuration should be confirmed against the applicable standard, edition and clause.

Technical Specifications

The parameters below separate publicly defined 16 CFR 1500.49 requirements from product-specific KINGPO information. UL 3300 mandrel details should be verified against the standard edition used by the laboratory.

Parameter	Specification / Requirement
Instrument	Electric Sharp Edge Tester
Test method	Rotating cylindrical mandrel with pressure-sensitive TFE tape
Nominal test force	1.35 lbf / 6.00 N for 16 CFR 1500.49
Mandrel rotation	One complete revolution for 16 CFR 1500.49
Tangential velocity	1.00 +/- 0.08 in/s (25.4 +/- 2.0 mm/s) during the center 75% of rotation
Mandrel material	Steel
Mandrel hardness	>= Rockwell C 40 for 16 CFR 1500.49
Mandrel surface roughness	<= 0.40 um for 16 CFR 1500.49
Mandrel diameter	9.35 +/- 0.12 mm for 16 CFR 1500.49; UL 3300 configuration to be confirmed by edition
TFE tape backing thickness	0.066-0.089 mm for 16 CFR 1500.49
Tape width	>= 6 mm for 16 CFR 1500.49
Test orientation	90 deg +/- 5 deg to the edge / tangent for the CFR method
Instrument dimensions	Approx. 290 x 190 x 100 mm (KINGPO current product listing)
Instrument weight	Approx. 4 kg (KINGPO current product listing)
Force checking	1.35 lbf checking / adjustment device listed with current KINGPO configuration
Power	Electronic; destination voltage / adapter to be confirmed before quotation

Configuration note: UL 3300 Edition 1 was revised on April 16, 2025, and the revision summary specifically notes a correction to the mandrel diameter used in the sharp-edge test (Section 7.2.12.3). Confirm the exact UL 3300 mandrel and acceptance criteria before ordering.

Product Views



Test Principle and Evaluation

Under 16 CFR 1500.49, the cylindrical mandrel is wrapped with a single layer of pressure-sensitive TFE tape, applied to the test edge with a normal force of 1.35 lbf (6.00 N), and rotated through one complete revolution while preventing linear movement along the edge.

For this CFR method, the mandrel axis is positioned at 90 deg +/- 5 deg to a straight edge, or to the tangent at the contact point of a curved edge. An edge is identified as sharp when the tape is completely cut through for a length of at least 1/2 inch (13 mm). This pass/fail criterion should not automatically be applied to UL 3300 or ISO 8124-1 without verifying the relevant clause.

Typical Laboratory Applications

- UL 3300 SCIEE robot development and pre-compliance work
- Robot enclosure and structural-edge evaluation
- Third-party product safety and inspection laboratories
- Toy / children-product sharp-edge evaluation where the selected standard requires it
- R&D prototype and sheet-metal edge checks
- Quality-control verification of accessible burrs and edges

What to Confirm Before Quotation

- Applicable standard and edition
- Relevant clause / test item
- Product or sample type
- UL 3300 robot application or toy / product-safety application
- Required mandrel and TFE tape specification
- Calibration / inspection documentation requirement
- Destination power supply
- Any laboratory-specific procedure or fixture requirement

Standards and Compliance Notes

UL 3300 Applies to qualifying Service, Communication, Information, Education and Entertainment (SCIEE) robots. Current UL information identifies Section 7.2.12.3 as the sharp-edge test and notes a 2025 mandrel-diameter correction.	16 CFR 1500.49 Publicly defines the sharp metal / glass edge test method for toys and other articles intended for children under 8, including force, mandrel, tape and evaluation requirements.	ISO 8124-1:2022 Addresses mechanical and physical safety of toys and includes structural criteria concerning sharp points and edges. Confirm the exact ISO test requirement and edition before equipment compliance is stated.
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Typical Kit and Supply Notes

The product images show a portable Sharp Edge Tester set with the tester body, carrying case, foot switch, TFE tape / consumable pack and connecting accessories. Final included accessories and packing scope should be confirmed in the quotation.

Technical Inquiry & Expert Support Please send KINGPO the applicable standard, edition, clause, sample description and required documentation. Our team can review the requested sharp-edge method and confirm the appropriate mandrel, tape, force-check arrangement and accessories before quotation. KingPo Technology Development Limited Factory Address: No.9 University Road, Songshan Lake, Dongguan City, Guangdong Province 523770, China Tel: +86-769-81627526 sales@kingpo.hk www.dgkingpo.com	 Website
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Technical References

UL 3300, Edition 1 (published May 14, 2024; revised April 16, 2025); 16 CFR 1500.49, Technical requirements for determining a sharp metal or glass edge; ISO 8124-1:2022, Safety of toys - Part 1; current KINGPO product information for instrument size, weight and supplied force-check device.