

UL 498 Plugs and Socket Outlets Gauge

Professional Technical Datasheet (Enhanced Version)



Standards: UL 498 (Attachment Plugs and Receptacles)

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Product Overview

The KingPo UL 498 Plugs and Socket Outlets Gauge is a precision-engineered test instrument designed to verify the dimensional accuracy, structural integrity, and compliance of attachment plugs, receptacles, and related components according to the UL 498 standard. These high-precision Go/No-Go gauges enable manufacturers and testing laboratories to perform reliable quality control, incoming inspection, design validation, and pre-certification testing for products destined for the North American market.

By replicating critical dimensions and geometric features defined in specific UL 498 figures, the gauges help ensure protection against improper insertion, correct blade/pin dimensions, grounding provisions, retention characteristics, and accessibility of live parts. This supports UL listing processes and reduces the risk of non-compliance in electrical safety certification.

Key Advantages

- **High-Grade Hardened Steel Construction**

Engineering: Manufactured from premium hardened steel with high hardness grade (typically >50–60 HRC) and excellent dimensional stability.

Benefit: Delivers superior wear resistance and long-term precision even under repeated high-volume testing, minimizing gauge drift and ensuring consistent results over time.

- **Precision Machining to UL 498 Figures**

Engineering: Tight tolerance control and precision machining replicate exact critical dimensions and geometries from specific UL 498 figures (e.g., Figure 9.1, 10.1, 31.1, 69.1, 94.1, etc.).

Benefit: Guarantees accurate Go/No-Go verification, enabling reliable pass/fail decisions that align directly with UL requirements.

- **Comprehensive Figure Coverage**

Engineering: Available as individual gauges or complete configurable sets covering key UL 498 figures for articulated probes, flat probes, reference plugs, improper insertion test blades, test pins, receptacle fixtures, and more.

Benefit: Provides a one-stop solution for full compliance verification of plugs and receptacles, reducing the need for multiple suppliers.

- **Traceable Dimensional Verification**

Engineering: Each gauge undergoes factory dimensional verification before shipment, with documentation provided as standard. Optional ISO/IEC 17025 accredited third-party calibration available.

Benefit: Ensures measurement traceability and audit readiness for quality systems, certification bodies, and regulatory submissions.

- **Robust Go/No-Go Methodology**

Engineering: Designed for straightforward, repeatable insertion and retention testing with proper force application and alignment.

Benefit: Simplifies testing procedures, reduces operator variability, and accelerates quality control and incoming inspection processes.

- **Customizable Configurations**

Engineering: Supports individual gauges, complete sets, or custom configurations tailored to specific UL 498 figures or customer requirements.

Benefit: Offers flexibility for laboratories and manufacturers to match exact testing needs without over-purchasing unnecessary gauges.

Technical Specifications

3.1 General Parameters

Parameter	Specification	Remark / Notes
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Applicable Standard	UL 498 (latest applicable edition)	Attachment Plugs and Receptacles
Material	High-grade hardened steel	Excellent dimensional stability and wear resistance
Hardness	High hardness grade (typically >50–60 HRC)	Maintains precision during repeated use
Manufacturing Process	Precision machining with tight tolerance control	Ensures consistency and repeatability
Dimensional Verification	Factory verified before shipment	Documentation provided as standard
Customization	Supported	Individual gauges or complete sets available
Typical Use	Go/No-Go dimensional and structural verification	Quality control, inspection, pre-certification

3.2 Common UL 498 Gauge Configurations (Examples)

No.	Standard Drawing No.	Gauge Name
1	UL498-Figure 9.1	Articulated probe with web stop
2	UL498-Figure 10.1	Probe
3	UL498-Figure 31.1	Flat probe
4	UL498-Figure 69.1	Reference plug
5	UL498-Figure 94.1	Improper insertion test blades
6	UL498-Figure 105.1 / 105.2	Test plug / Test blade
7	UL498-Figure 118.1 / 118.3 / 118.5	Receptacle test fixture / Push out tool / Bridge
8	UL498-Figure 119.1–119.4	Test pin A / Test pin B / 57g ground pin / 113g ground pin
9	UL498-Figure 129.2	No.14 AWG test pin
10	UL498-Figure 132.1 / 132.2	Test probe
11	UL498-Figure 144.2	Fixture for assembly security test
12	UL498-Figure SD13.2	Over size ground pin

Note: Full list and additional figures available upon request. Sets can be configured to customer requirements.

Test Procedure & Best Practices (UL 498 Compliance Verification)

1. Select the correct gauge corresponding to the specific UL 498 figure required for the test (e.g., probe for accessibility, reference plug for retention, improper insertion blades, etc.).
2. Visually inspect the gauge for damage, wear, or contamination before use.
3. Align the gauge properly with the plug or receptacle under test.
4. Apply steady, controlled force in the correct orientation and direction as specified in the relevant UL 498 section.
5. Observe pass/fail criteria (Go/No-Go) for dimensional fit, retention, improper insertion protection, or other structural requirements.
6. Record results with gauge identification, test conditions, and operator details. Perform periodic verification of gauge dimensions, especially for high-volume testing.

Fully compliant with UL 498 requirements for dimensional and structural verification of attachment plugs and receptacles.

Typical Applications

- Plug and receptacle manufacturers — Dimensional verification during development and production
- Electrical safety testing laboratories — Pre-certification and routine compliance testing
- Certification bodies and UL inspection activities — Supporting listing and ongoing compliance
- Quality assurance departments — Incoming inspection and process control

- R&D teams — Design validation of new plug/receptacle configurations for North American markets

Optional Modules & Models

Optional Upgrades

- ISO/IEC 17025 accredited third-party calibration report with full dimensional traceability
- Custom gauge sets or additional UL 498 figures not listed above
- Extended verification documentation packages

Standard Offering

Individual gauges or complete configurable sets corresponding to UL 498 figures (MOQ: 1 set, typical delivery: 15 working days). Specific figure combinations quoted upon request.

Compliance & Manufacturer

This equipment is designed and manufactured in strict accordance with UL 498 (Attachment Plugs and Receptacles) for precision dimensional and structural verification. All critical dimensions are controlled and verified to match the referenced standard figures. Factory dimensional verification documentation is included as standard. ISO/IEC 17025 accredited third-party calibration is available upon request.

The system is manufactured under ISO 9001, ISO 14001, and ISO 45001 quality management systems.

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