Definition

A slot width go/no-go gauge is a precision limit gauge designed to rapidly verify whether the width of a slot (or groove) in a component meets specified tolerance limits. It consists of two distinct measuring sections: a **go end** (minimum tolerance) and a **no-go end** (maximum tolerance). The gauge provides a quick pass/fail assessment without requiring numerical measurements, making it ideal for high-efficiency quality control in manufacturing.

Functions

1. **Width Conformance Check**:
    - **Go End**: Must fit into the slot if the width is at or above the minimum allowable dimension.
    - **No-Go End**: Must **not** fit into the slot if the width is at or below the maximum allowable dimension.
2. **Rapid Inspection**: Eliminates the need for time-consuming measurements with calipers or micrometers, improving production efficiency.
3. **Tolerance Compliance**: Ensures slots meet design specifications for fit and function (e.g., compatibility with mating components like keys, pins, or slides).

Structural Components

1. **Go End**:
    - The smaller-dimensioned section, machined to the minimum allowable slot width.
    - Often marked with "GO" or a smaller numerical size (e.g., "6.00 mm").
2. **No-Go End**:
    - The larger-dimensioned section, machined to the maximum allowable slot width.
    - Marked with "NO-GO" or a larger numerical size (e.g., "6.05 mm").
3. **Handle/Body**:
    - Provides a grip for manual operation, typically made of corrosion-resistant materials (e.g., aluminum or plastic).
    - May include clear labeling or color coding (e.g., green for GO, red for NO-GO) for quick identification.
4. **Material**:
    - Measuring surfaces: Hardened steel or carbide for wear resistance, often chrome-plated.
    - Body: Lightweight materials (e.g., anodized aluminum) for ergonomic handling.
5. **Optional Features**:
    - **Depth Stop**: For gauges inspecting both width and depth in stepped slots.
    - **Threaded Ends**: For mounting on fixtures in automated inspection setups.

Application Scenarios

- **Manufacturing Industries**:
    - **Sheet Metal Fabrication**: Inspecting slots in panels, brackets, or enclosures.
    - **Machining**: Verifying slot widths in milled or broached components (e.g., gears, valve bodies, or aerospace parts).
    - **Plastics and Woodworking**: Checking slots in injection-molded parts or pre-

fabricated wood components.

- **Assembly Lines**: Rapidly screening components for fit before assembly (e.g., slots for fasteners, hinges, or connectors).
- **Quality Control Laboratories**: As a secondary check alongside precision measuring instruments.

Maintenance

1. **Cleaning**:
    - Wipe with a soft, lint-free cloth after each use to remove chips, coolant, or oil.
    - Use a non-abrasive solvent (e.g., acetone) for stubborn residue, then dry thoroughly to prevent corrosion.
2. **Calibration**:
    - Regularly compare against a master gauge or coordinate measuring machine (CMM) (e.g., every 3–12 months).
    - Recalibrate or replace if wear causes the GO end to fail on a known-good part or the NO-GO end to pass.
3. **Storage**:
    - Store in a padded case or dedicated tray in a dust-free, temperature-controlled environment.
    - Avoid stacking gauges to prevent damage to measuring surfaces.
4. **Wear Inspection**:
    - Regularly check for burrs, scratches, or rounding on GO/NO-GO edges.
    - Replace the gauge if measuring surfaces show significant wear (e.g., visible gaps when checked against a master).

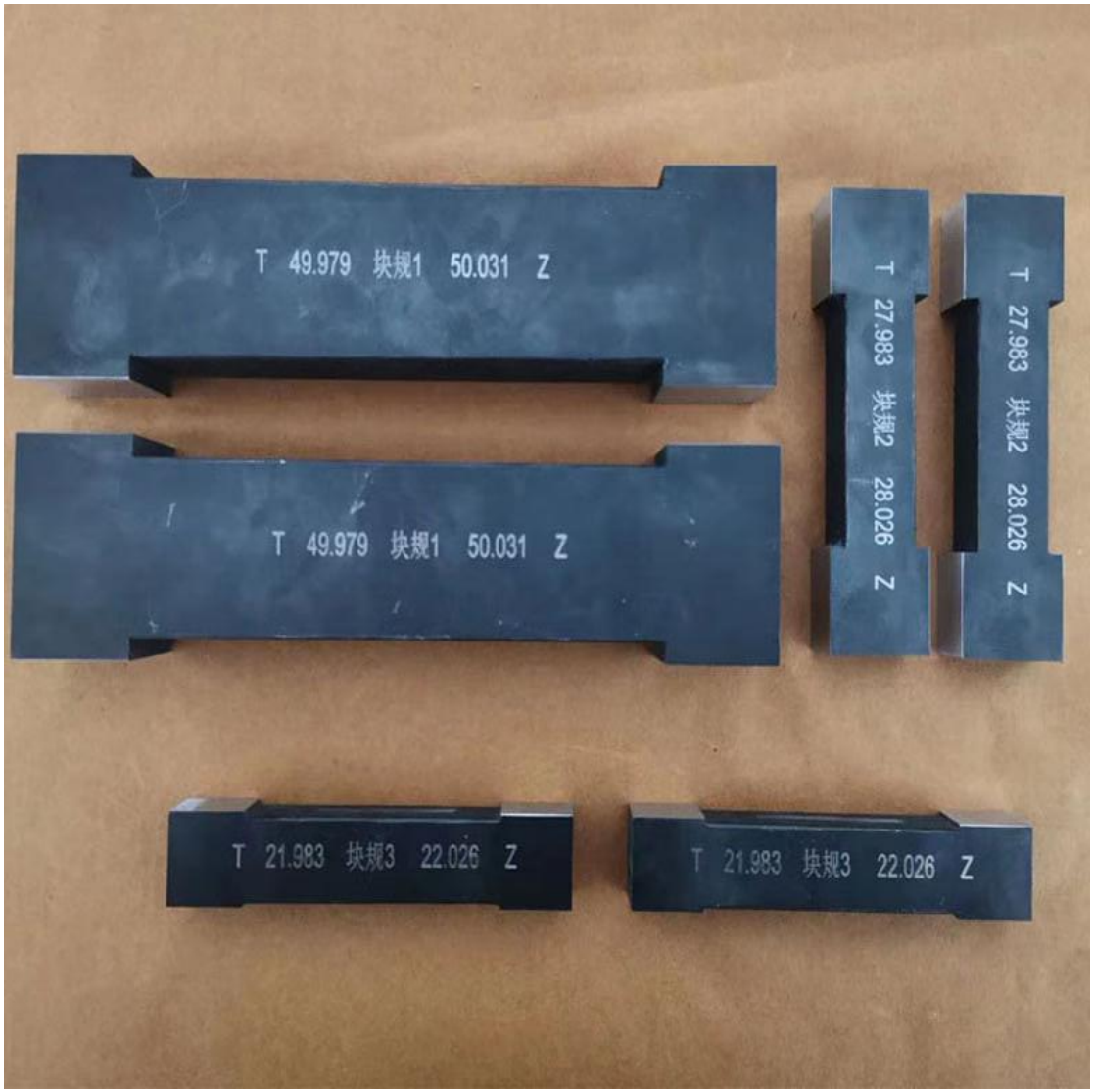
Troubleshooting (Fault 排除)

Issue	Possible Cause	Solution
GO end does not fit	- Slot width is too narrow. - Gauge is contaminated or damaged.	- Measure the slot with a micrometer. - Clean the gauge or inspect for burrs (e.g., on the GO end).
NO-GO end fits	- Slot width is too wide. - Gauge is worn or mis-calibrated.	- Re-inspect the slot with a precision tool. - Recalibrate the gauge or replace it if worn.
Gauge sticks in the slot	- Debris in the slot. - Rough surfaces on the gauge or slot edges.	- Clean the slot and gauge. - Deburr the slot or polish the gauge's edges (if minor wear).

Issue	Possible Cause	Solution
Inconsistent results between operators	- Variations in insertion force or angle.	- Train operators to insert the gauge perpendicular to the slot with gentle, consistent pressure.
Corrosion on measuring surfaces	- Exposure to moisture or coolant.	- Apply a light coating of rust-preventive oil after cleaning. - Store in a dry environment.

Performance Characteristics

1. **Precision**:
   - Tolerance accuracy: Typically ±0.002–0.01 mm, depending on industry requirements (e.g., ISO 9001, AS9100 for aerospace).
   - Compliance with standards like **ISO 1 塞规通止规标准** or **ANSI B1.2** for limit gauges.
2. **Durability**:
   - Hardened measuring surfaces (60+ HRC) resist wear from frequent use.
   - Corrosion-resistant coatings (e.g., nickel-phosphate) extend lifespan in harsh environments.
3. **Ergonomics**:
   - Lightweight design and non-slip handles for comfortable, fatigue-free operation.
   - Clear, permanent markings for easy GO/NO-GO identification.
4. **Speed and Efficiency**:
   - Inspection time: <5 seconds per slot, ideal for high-volume production.
   - Reduces human error compared to manual measurement techniques.
5. **Versatility**:
   - Available in standard sizes (e.g., 3 mm to 50 mm slot widths) or custom-designed for non-standard applications.
   - Can be adapted for both through-slots and blind slots (with depth-stop features).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