

Imada Analog Mechanical Force Gauge, 100 lb

Imada Analog Mechanical Force Gauge User Manual

Model: Analog Mechanical Force Gauge, 100 lb

Brand: Imada

1. INTRODUCTION

This manual provides essential information for the safe and effective operation, maintenance, and troubleshooting of your Imada Analog Mechanical Force Gauge. This device is designed for precise measurement of push and pull forces up to 100 lbs, offering reliability and ease of use without requiring external power.

2. SAFETY INFORMATION

Always read and understand all instructions before operating the force gauge. Failure to follow safety guidelines may result in injury or damage to the instrument.

- Do not exceed the maximum rated capacity of 100 lbs. The overload capacity is 165 lbs, but continuous operation beyond 100 lbs can affect accuracy and lifespan.
- Ensure the gauge is securely held or mounted during testing to prevent accidental drops or impacts.
- Avoid applying sudden shock loads, which can damage the internal mechanism.
- Keep the instrument clean and free from dust, moisture, and corrosive substances.
- This device is intrinsically safe in hazardous environments as it requires no batteries or external power.

3. PRODUCT OVERVIEW

The Imada Analog Mechanical Force Gauge is a robust and reliable instrument for various force measurement applications. Its design emphasizes durability and accuracy.

Key Features:

- **Simple, Rugged Design:** Built for longevity and minimal maintenance.
- **High Accuracy:** Retains a high degree of accuracy (0.3% FS) over extended periods.
- **Ergonomic Construction:** Heavy-duty metal construction for comfortable and secure handling.
- **No Batteries Needed:** Operates mechanically, making it suitable for environments where electrical devices are

restricted.

- **Push and Pull Measurement:** Measures forces in both compression (push) and tension (pull).
- **Real Time and Peak Mode:** Allows for instantaneous readings and capturing the maximum force applied.
- **Tare Ring:** A rotational ring on the analog dial for zeroing the reading.
- **Accessories:** Includes a full set of accessories and a carrying case for convenience.



Figure 3.1: Imada Analog Mechanical Force Gauge. This image displays a white, handheld analog mechanical force gauge with a circular dial displaying measurements in pounds. It features 'PULL' and 'PUSH' indicators at its ends, and a 'push-pull scale' label near the top.

4. SETUP

1. **Unpacking:** Carefully remove the force gauge and all accessories from its carrying case. Inspect for any signs of damage during transit.
2. **Accessory Attachment:** Select the appropriate attachment (e.g., flat head, hook, chisel) for your specific measurement application. Securely screw the attachment onto the threaded shaft at either the 'PULL' or 'PUSH' end of the gauge.
3. **Initial Check:** Before first use, gently apply a small force to the gauge to ensure the needle moves smoothly and returns to zero when the force is removed.
4. **Zero Adjustment (Tare):** If the needle does not rest precisely at zero, rotate the tare ring on the analog dial until the needle aligns with the zero mark.

5. OPERATING INSTRUCTIONS

5.1. Basic Force Measurement (Real Time Mode)

1. Ensure the gauge is zeroed using the tare ring.
2. For **Push** (compression) measurements, apply force to the 'PUSH' end of the gauge. For **Pull** (tension) measurements, apply force to the 'PULL' end.
3. Apply force smoothly and gradually. Read the current force value directly from the analog dial as the needle moves.
4. Once the force is removed, the needle will return to zero.

5.2. Peak Mode Measurement

The gauge is equipped with a peak hold feature, allowing it to retain the maximum force applied during a test.

1. Before starting, ensure the peak hold needle (often a secondary, black needle) is reset to zero by rotating the knob on the side of the gauge.
2. Apply force as described in Section 5.1. The main needle will move with the applied force, and the peak hold needle will follow, stopping at the maximum force reached.
3. After the test, remove the force. The main needle will return to zero, but the peak hold needle will remain at the maximum value.
4. Record the peak value. To reset for the next measurement, rotate the side knob to bring the peak hold needle back to zero.

6. MAINTENANCE

Proper maintenance ensures the longevity and accuracy of your force gauge.

- **Cleaning:** Wipe the exterior of the gauge with a soft, dry cloth. For stubborn dirt, a slightly damp cloth with mild soap can be used, ensuring no moisture enters the internal mechanism. Do not use abrasive cleaners or solvents.
- **Storage:** Store the gauge in its original carrying case in a dry, clean environment, away from extreme temperatures, humidity, and direct sunlight.
- **Calibration:** While the gauge is designed to retain accuracy, periodic calibration by a qualified technician is recommended, especially for critical applications or after significant use. Refer to the manufacturer's recommendations for calibration intervals.
- **Inspection:** Regularly inspect the gauge for any signs of physical damage, loose parts, or unusual needle movement.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
Needle does not return to zero.	Tare ring not adjusted, or internal mechanism obstruction/damage.	Rotate the tare ring to zero. If issue persists, contact support for service.
Inaccurate readings.	Overload applied, gauge needs calibration, or improper application of force.	Ensure force is within capacity. Apply force smoothly. Consider professional calibration.
Needle movement is sticky or jerky.	Internal friction or damage.	Do not attempt to repair. Contact support for service.
Peak hold needle not working.	Peak hold mechanism needs reset or is damaged.	Ensure the side knob is rotated to reset the peak hold needle. If still not working, contact support.

8. SPECIFICATIONS

- **Accuracy:** 0.3% Full Scale (FS)
- **Display:** Analog dial with rotational tare ring
- **Capacity:** 100 lbs (push and pull)
- **Overload Capacity:** 165 lbs on all ranges

- **Modes:** Real time and peak mode
- **Construction:** Ergonomic, heavy-duty metal
- **Power Source:** Mechanical (no batteries required)
- **Included:** Full set of accessories and carrying case

9. WARRANTY INFORMATION

This Imada Analog Mechanical Force Gauge comes with a **2-year guarantee** from the date of purchase. This warranty covers defects in materials and workmanship under normal use. It does not cover damage resulting from misuse, abuse, accidents, unauthorized repairs, or normal wear and tear. Please retain your proof of purchase for warranty claims.

10. CUSTOMER SUPPORT

For technical assistance, service, or warranty inquiries, please contact Imada customer support. Refer to the contact information provided with your product packaging or visit the official Imada website for the most current support details. When contacting support, please have your product model and serial number (if applicable) ready to expedite assistance.

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