Berg Engineering
& Sales Company, Inc.

*Your Complete Source for NDT Testing Equipment*

# Pit and Dent Gauge

## User Manual

Berg Engineering & Sales Co., Inc
3893 Industrial Avenue
Rolling Meadows, IL 60008
www.bergeng.com

# Table of Contents

# KEEP THIS MANUAL – DO NOT LOSE

This manual provides important information about the Engineering & Sales Pit and Dent Gauge. Keep this manual for the life of the product. Pass on to subsequent users.

Please read the Instruction Manual thoroughly as to operation and maintenance. Should you require additional assistance in servicing this equipment, please contact Engineering & Sales directly at (847) 577-3980.

# Warranty Information

Berg Engineering & Sales warrants its Pit and Dent Gauge to be free from defects in design, workmanship and material under normal use and service for a period of **1 Year (365 days)**, after the date of shipment. Berg Engineering & Sales will repair or replace free of charge (excluding freight/shipping charges) all defective parts in systems which are returned to their headquarters in Rolling Meadows, Illinois, USA, within the above applicable warranty period, and provided further that the equipment has not been altered or repaired other than with authorization from Berg Engineering & Sales and by its approved procedures, not been subject to misuse, abuse, improper maintenance, negligence or accident, damage by excessive current or otherwise had its serial number or any part thereof altered, defaced or removed and warranty stickers are in place. All defective items released hereunder shall become the property of the seller.

**NO OTHER WARRANTIES ARE EXPRESSED OR IMPLIED INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. BERG ENGINEERING & SALES IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES.**

Berg Engineering & Sales shall not be liable for improper use of this equipment or data loss and user/owner shall carry full responsibility of its use. Berg Engineering & Sales shall not be responsible for any bodily injury or property damage that could occur with use of this equipment.

# Pit and Dent Gauge Specifications

**Design Intent**

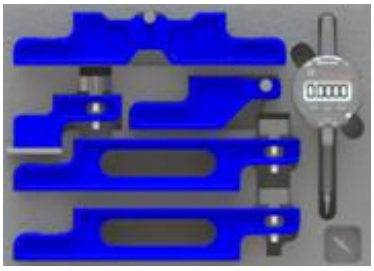
The Pit and Dent Gauge is a simple and rugged tool for measuring pits, dents and gouges. This modular tool kit consists of precision CNC machined aluminum components with a durable anodized finish. Setup is fast, easy, and does not require any tools. Both premium and economy kits come with magnetic attachments to hold the gauge to ferrous materials.

- IP67 rated dial indicator (Starrett gauge only)
- 1 inch [25mm] measuring range
- 0.0005" measurement accuracy
- Dial indicator face rotates 360 degrees for easy reading. (Starrett gauge only)
- Measures in inches and millimeters
- Simple extension arm installation
- Magnetic arms
- Removable standoffs, allows measurement over protrusions
- Modular design allows for custom size
- Fast assembly/disassembly

Shipping case:
Dimensions: 13.50" x 11.00" x 4.00"
Weight 4 Lbs.

Pit and Dent Gauge dimensions:
Dimensions: Max length 42.25" [1073MM]
Weight: Max 3.5 Lbs.

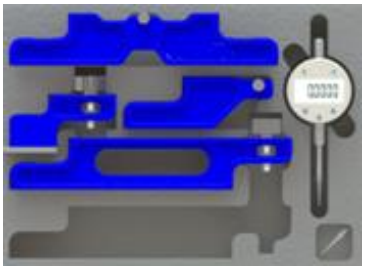
## Premium Kit



Premium Kit-Includes

- 1 Starrett dial indicator 1" [25mm] stroke
- 2 replaceable indicator tips
- 1 center gauge holder 9" [228mm]
- 1 blind end gauge holder 5" [127mm]
- 4 extension arms 7.5" [190mm]
- 2 magnetic extensions 1.625" [41mm]
- 2 standoffs .2" [5.08mm]
- 1 custom carry case
- Max length 42.25" [1073mm]

## Economy Kit



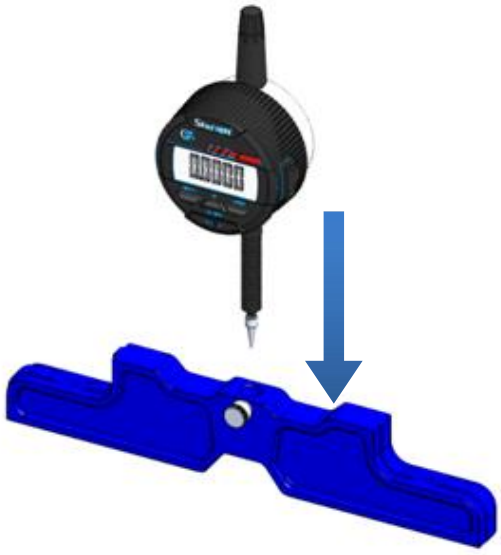
Economy Kit-Includes

- 1 Fowler dial indicator 1" [25mm] stroke
- 2 replaceable indicator tips
- 1 center gauge holder 9" [228mm]
- 1 blind end gauge holder 5" [127mm]
- 2 extension arms 7.5" [190mm]
- 2 magnetic extensions 1.625" [41mm]
- 2 standoffs .2" [5.08mm]
- 1 custom carry case
- Max length 27.25" [692mm]

# Pit and Dent Gauge Setup

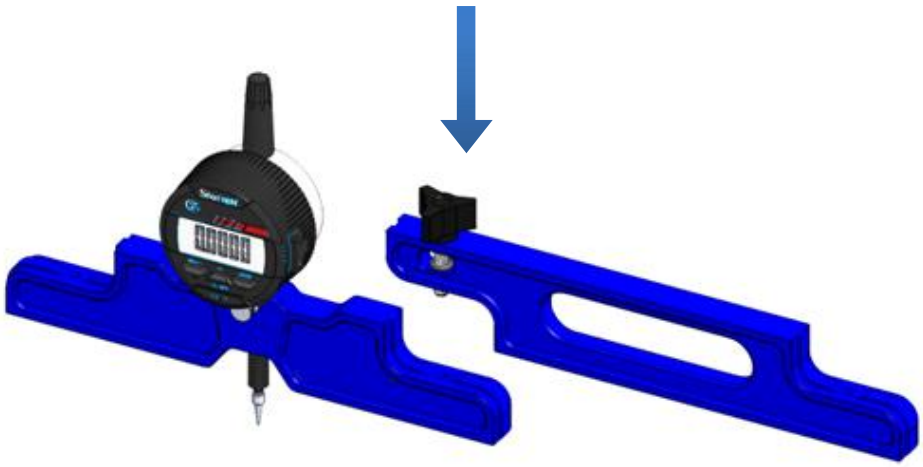
**Installing the Gauge**

Insert the gauge into either the center or blind end holder and tighten the thumb screw to hold in place.



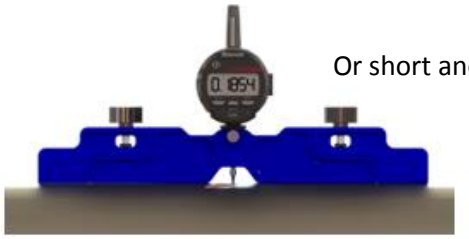
**Adding an extension arm**

Align the extension arm thumb screw with the threaded hole and tighten them together. You can add as many extension arms together as needed. Make sure the thumb screws are tight to maintain accuracy**.**

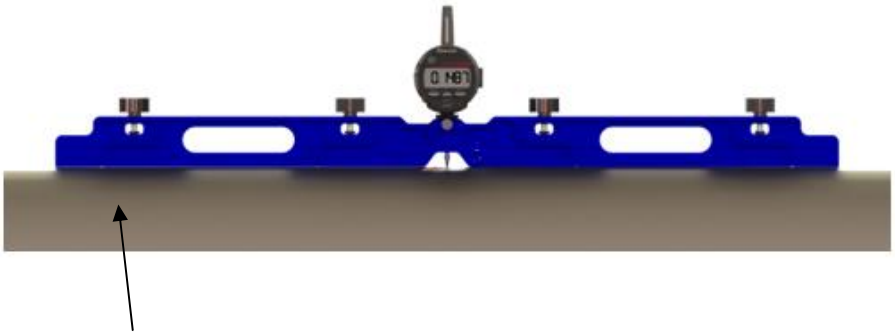


# Setup Examples

Extend up to 42”



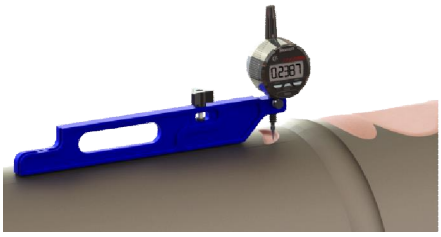
Or short and simple



Using magnetic brackets

Using steel standoffs on the magnets

Using blind side bracket



# Dial Indicator

**Operating Instructions**

1. Install batteries (included with indicator).
2. Lightly clean the contact point.
3. Secure the indicator to an appropriate holding device.
4. Press the ON/OFF button (or move the spindle) to turn the indicator on.
5. Select the unit of measure (inch or mm) by pressing the IN/mm button.
ME indicators have this function but standard metric indicator models do not.
6. Place the indicator perpendicular to the reference surface being measured.
Allow enough movement to be able to take a higher or lower measurement.
7. Press the ZERO button to reset the display.
8. Lift the spindle and remove the reference surface. Then, place the work piece and carefully position the spindle on to its surface. The measured value will be shown on the LCD.
9. Press and hold the ON/OFF button to turn the indicator off.

For more detailed operating instructions please see the included user manual for the dial indicator.

**Guidelines for Indicator Care**

1. Avoid dropping the indicator.
2. Avoid extreme temperatures and direct sunlight for extended periods.
3. Avoid shocks to the contact point and spindle.
4. Do not apply radial force to the spindle.
5. Protect it from being hit or bumped to avoid stem/case mechanical alignment damage.
6. Do not over-tighten the thumb screw holding the indicator.
7. Clean the spindle frequently with a dry cloth or a chamois to prevent sluggish or sticky movement. Isopropyl alcohol may be used to remove gummy deposits on metallic parts. Do not apply lubricant to the spindle or use solvents.
8. Do not disassemble or modify the indicator.

**Replacing the dial indicator contact points**

The dial indicator tip is easily changed by unscrewing. When replacing make sure the new tip is a 4-48 thread pitch. Additional tips can be ordered by contacting Berg Engineering & Sales.

# Battery Replacement

**Starrett Dial Indicator**

To replace the batteries, remove the two Phillips screws that secure the battery drawer, slide out and remove the battery drawer and discard the old batteries. Place two new CR2032 batteries into the tray with the positive (+) side facing up.  Slide the tray carefully into the indicator and secure with the two screws.


**Fowler Dial Indicator**

To replace the batteries, pinch the tabs together that secure the battery drawer, slide out and remove the battery drawer and discard the old battery. Place one new CR2032 battery into the tray with the positive (+) side facing down.  Slide the tray carefully into the indicator and secure by making sure the tabs are latched to the housing.

Zeroing the Dial Indicator

Once you have the Pit and Dent Gauge assembled you will need to zero the gauge for accurate readings. Place the assembly on a flat surface and press “zero” on the gauge face plate. Select whether you are taking measurements in inches or millimeters by selecting on the face plate. The face of the Starrett dial indicator can be rotated either direction to make reading the gauge easier.


# List of Components

| ITEM | PART NUMBER | DESCRIPTION |
|---|---|---|
| 1 | PG-001 | DIGITAL GAUGE HOLDER |
| 2 | PG-002 | DIGITAL GAUGE HOLDER-BLIND |
| 3 | PG-003 | EXTENSION ARM |
| 4 | PG-004 | MAGNETIC ARM |
| 5 | PG-005 | STANDOFF |
| 6 | PG-006 | MITUTOYO TIP SHORT |
| 7 | PG-007 | DISC SPRING |
| 8 | PG-008 | O-RING |
| 9 | PG-009 | GROMMET 3/8" ID |
| 10 | PG-010 | THUMB SCREW 6-32 X 1/4 SS |
| 12 | PG-012 | STARRETT DIGITAL INDICATOR 1" STROKE |
| 13 | PG-013 | FOWLER DIGITAL INDICATOR 1" STROKE |
| 14 | PG-014 | MITUTOYO TIP LONG |
| 15 | PG-015 | O-RING SPACER ECONOMY GAUGE |
| 16 | WS-005 | THREE ARM KNOB, 1" THREAD |