

P/N **8400K**
DIGITAL OPTICAL MICROMER KIT

NSN 6650-01-220-8942
GSA GS24F0043N

J CHADWICK CO
John Chadwick Corporation

www.jchadwickco.com

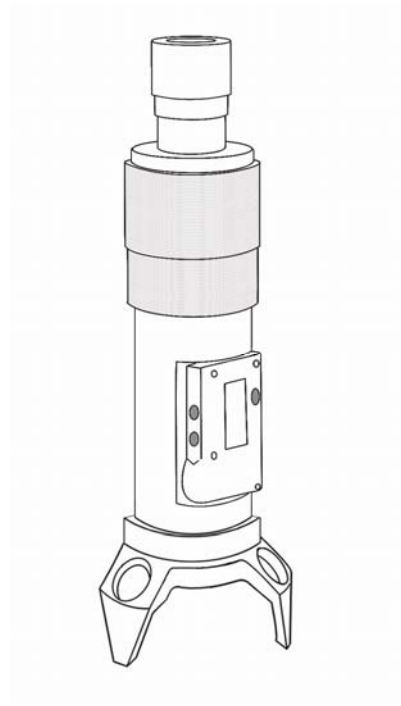
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MADE IN THE USA

8400K Manual
REV C NOV-2008

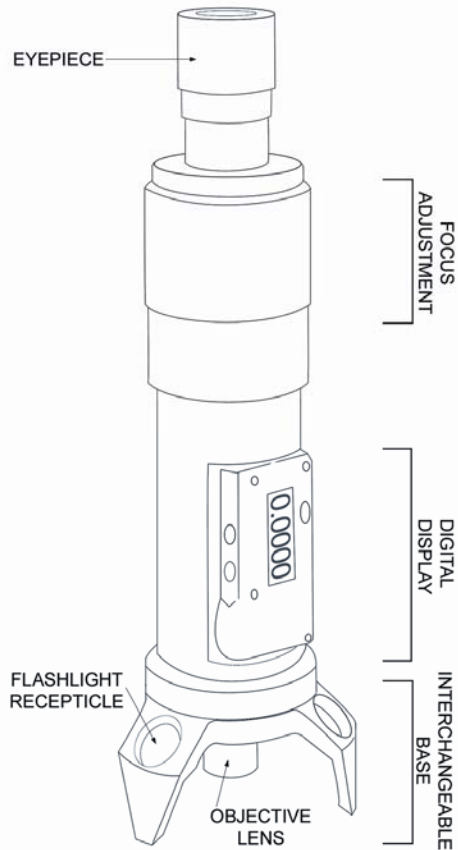


**INSTRUCTION
MANUAL**

P/N 8400K
DIGITAL OPTICAL MICROMETER

ALL 12 ITEMS BELOW ARE INCLUDED IN EACH KIT (P/N 8400K). USE THE PART NUMBERS BELOW TO ORDER REPLACEMENT PARTS.

PART#	ITEM
1	8400-0 Digital Optical Micrometer
2	8400-7 Base: 3 – Leg
3	8400-8 Base: 4 – Leg
4	8400-9 Base: Clear V-Block
5	8400-14 20X Eyepiece
6	8400-15R 10X Reticle Eyepiece
7	8400-16 10X Objective Lens
8	8400-17 4X Objective Lens
9	8400-23 Flashlight
10	8400-25 Case
11	8400-31 Allen Wrench
12	8400-32 Scratch Sample Plate



WARRANTY

The John Chadwick Corporation d.b.a. **J CHADWICK CO** warrants the **8400K Digital Optical Micrometer Kit**, herein referred to as the product, against defects in material or workmanship as follows;

LABOR

For a Period of **two (2) years** from the date of purchase, if the product is determined to be defective, J CHADWICK CO will repair the product at no charge to the buyer. If product is determined by J CHADWICK CO to be defective beyond repair, a replacement will be provided.

PARTS

For a period of **two (2) years** from the date of purchase, if the product or its components are determined defective, J CHADWICK CO will supply, at no charge to buyer, new or rebuilt parts.

DISCLAIMER

(1) This warranty does not cover **cosmetic damage** or damage due to **acts of God, accident, misuse, abuse, or negligence** to any part of the product.

(2) This warranty does not cover damage due to improper operation or maintenance. **Warranty is null and void if repair or modification is attempted by anyone other than J CHADWICK CO or its authorized representatives.**

Repair or replacement as provided under this warranty is the exclusive remedy of the consumer. J CHADWICK CO shall not be liable for any incidental or consequential damages for breach of any express or implied warranty on this product. Except to the extent prohibited by applicable law, any implied warranty of merchantability or fitness for a particular purpose on this product is limited in duration to the duration of this warranty.

To obtain warranty service, buyer must contact J CHADWICK CO prior to returning product to obtain an authorization to return the product for warranty service. Buyer is responsible for providing proof of sale, which may be required for warranty service. **The product should be returned, in either its original packaging or packaging affording an equal degree of protection, with a copy of the bill of sale to the address shown:**

J CHADWICK CO
WARRANTY SRVC
1005 S MOUNTAIN AVE
MONROVIA, CA 91016

INSTRUCTIONS FOR USE

A. NON-TRANSPARENT MATERIALS

USE 10X OBJECTIVE LENS AND 10X RETICLE EYEPIECE.

DEPTH MEASUREMENT

1. Set the height of the OBJECTIVE LENS at approx. 0.250" over the target.
2. Shine the FLASHLIGHT down through the top of the EYEPIECE. A small light "spot" will appear beneath the OBJECTIVE lens, use this to locate or "spot" the target.
3. Insert the FLASHLIGHT into base.
4. Look through EYEPIECE and focus and position over target.
5. Hold the base of micrometer for support while focusing to prevent it from moving.
6. Bring undamaged surface near scratch (*surface A in diagram on next page*) into sharp focus, and press the "ON/ZERO" button (display should now read "0.0000").
7. Focus into bottom of scratch (*surface B in diagram on next page*), without moving micrometer. DEPTH is shown on digital display.
8. Repeat steps 5.-6 for verification and record results.

WIDTH MEASUREMENT

DO NOT USE 4X OBJECTIVE LENS WITH RETICLE EYEPIECE TO MEASURE WIDTH, READINGS WILL BE INACCURATE.

1. Locate target per steps
2. 1. – 4. above.
3. Focus on target.
Rotate EYEPIECE to align scale with target.
5. Observe and record width.

WIDTH RANGE:
0.000"-0.040" (0.00-1.00mm),

B. TRANSPARENT MATERIALS

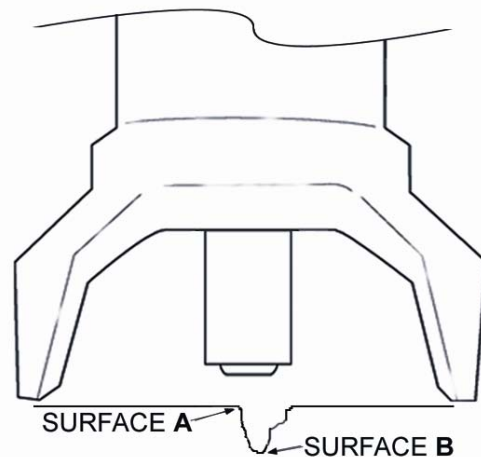
USE 4X OBJECTIVE LENS and 10X RETICLE EYEPIECE.

NOTE: 4X OBJECTIVE LENS FOCUSES APPROX. 1.30" OVER THE TARGET.

THICKNESS MEASUREMENT

1. Focus on nearside, set display to 0.0000"
2. Focus on far side and record depth.
3. Multiply result by 1.5 (index of refraction for most transparencies. Check index of subject material).

RANGE:
UP TO APPROX. 1.8" THICK
TRANSPARENCY.



CALIBRATION

Calibration is recommended once per year to ensure proper function and accuracy.

Metrology labs can provide a NIST traceable certificate of calibration (with measurement data) using this procedure.

RECOMMENDED PROCEDURE

A. EQUIPMENT

One set of gage blocks, current and traceable to N.I.S.T.

B. INSTRUCTIONS

1. Slide one gage block lengthwise across the top of the other, creating a step at the end. (The blocks "ring" together with this method.)
2. Place micrometer over the "step" and Focus on the top of the upper gage block. Position so approx. one-half of the viewing field is on the upper block.
3. Set digital display to "0.0000"
4. Focus on lower gage block. Display should show thickness of upper block.

Suggested gage block sizes:

BOTTOM 0.1000"
TOP 0.0625", 0.2000",
0.5000", 1.0000".
*(Use 4X Objective for 0.2500"
and above.)*

CALIBRATION CERTIFICATE IS ATTACHED.

Subsequent calibrations are the responsibility of the customer. Kit may be returned to J CHADWICK CO for calibration (charge applies), call for details.

SPECIFICATIONS

A DIMENSIONS & WEIGHT

1. 8400K KIT IN CASE

16" x 7" x 5", 5 LBS

2. 8400-0 MICROMETER ONLY

9" HEIGHT

2" DIA STEM, 3" DIA BASE

1.5 LBS

B ACCURACY & RESOLUTION

In inches, the digital readout shows 4 Decimal places; "0.0000". The far right (ten-thousandths) rounds-off and reads "0" or "5" (0.0000 or 0.0005).

In millimeters, the readout shows 2 Decimal places; "0.00". The far right (hundredth-mm) place reads in 0.01 mm increments.

RESOLUTION 0.0005" / 0.01 mm

ACCURACY +/- 0.001" / 0.02mm

C RANGE

1. 10X OBJECTIVE LENS

Vertical range (or depth):

0.250" (6.4mm)

from surface to bottom of scratch.

A Width of

0.040" (0.02mm)

can be measured with the reticle eyepiece and 10X objective lens.

Overall field width: 0.065".

2. 4X OBJECTIVE LENS

Vertical range (or depth) 1.250" (32mm)

from surface to bottom of scratch.

Overall field width: 0.150"

D TEMPERATURES

OPERATING

0°C to 40°C / 32°F to 140°F

STORAGE

-10°C to 60°C / 14°F to 140°F