

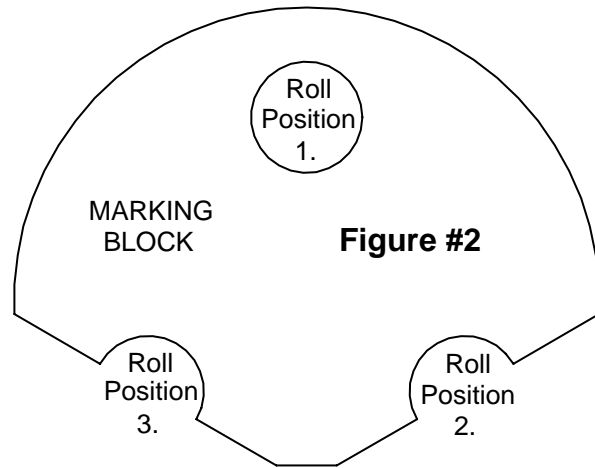
# Starrett®

**1130 EXTERNAL BENCH THREAD GAGE  
AND  
1131 EXTERNAL PORTABLE THREAD GAGE**

**SETTING & OPERATING INSTRUCTIONS**

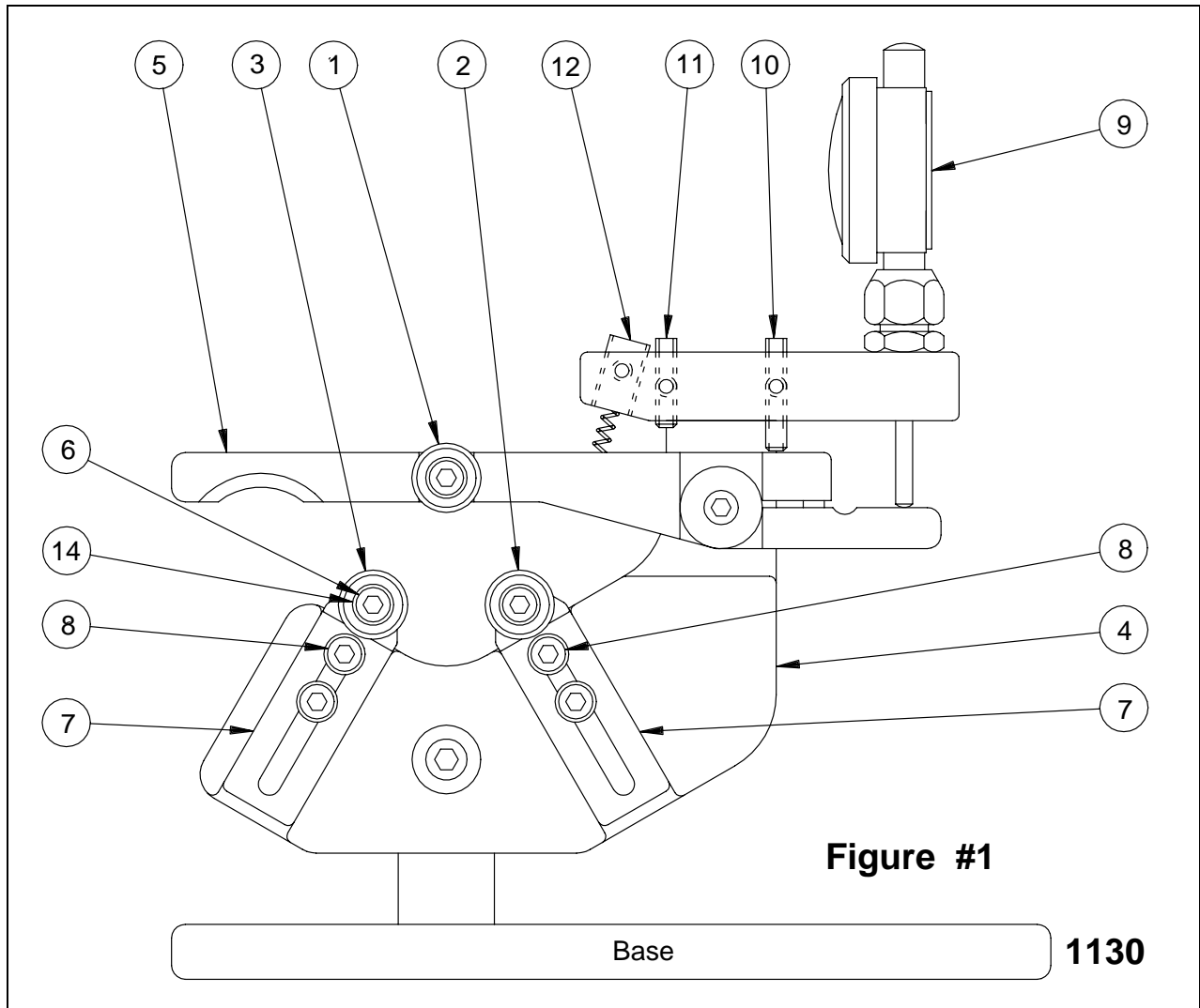
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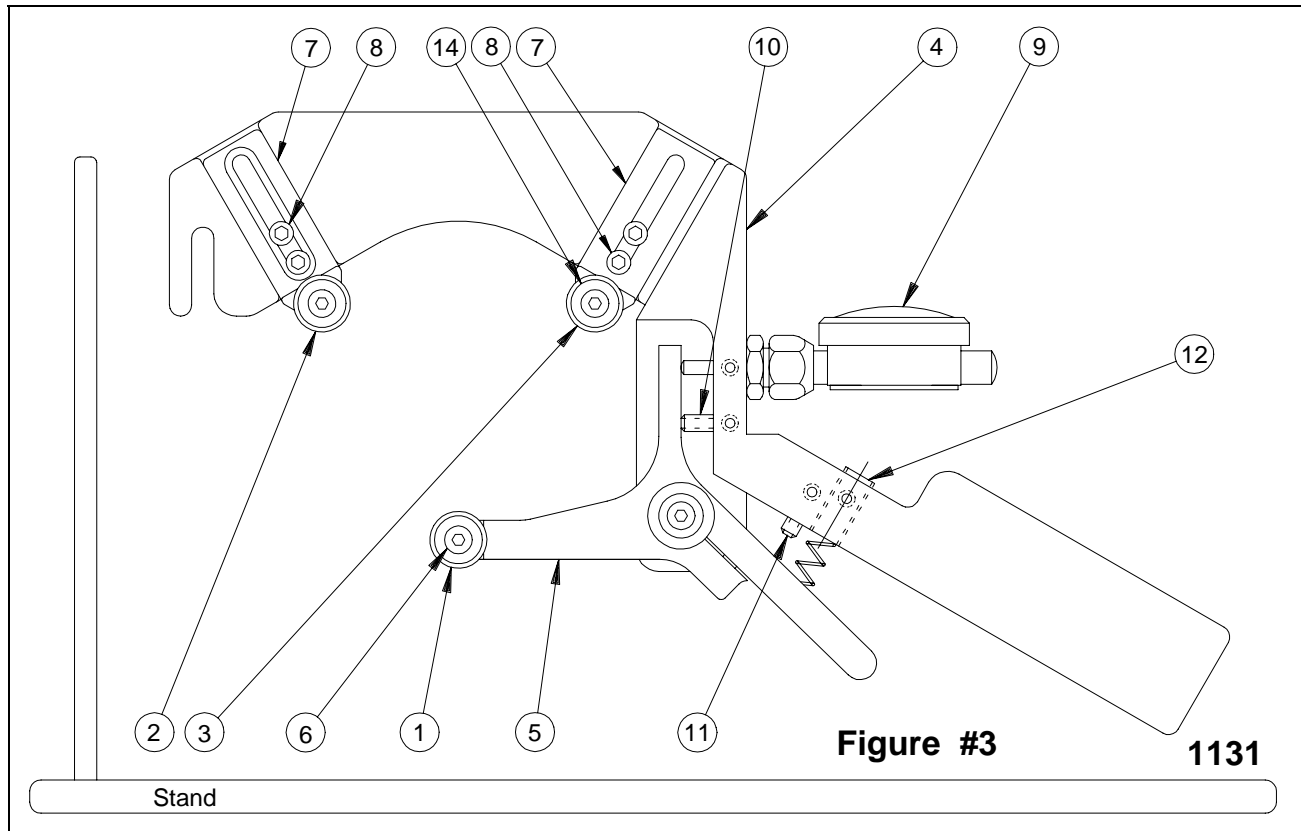
1. Roll #1 position
2. Roll #2 position
3. Roll #3 position
4. Gage frame
5. Gage pivot arm
6. Roll retaining screws
7. Roll slide arms
8. Roll slide arm screws
9. Indicator
10. Under travel stop screw
11. Over travel stop screw
12. Spring tension adjustment screws
13. Template
14. Roll studs



TEMPLATE (13)

**NOTE:** Nos. 10, 11 and 12 have locking screws perpendicular to them.





## I. Setting the Gage for Use

(See Figure #1,#2, & #3 Above for Easy Reference)

- A. Observe Figure #1, #2, and #3 for familiarity. A picture is worth a thousand words.
- B. Position gage pivot arm (5) as shown in Figure #1 or #3. Under travel stop screw (10) may be adjusted to achieve this position.
- C. Loosen the 4 roll slide arm lock screws (8) so that roll slide arms (7) slide freely.
- D. At this time, rolls (1), (2) and (3) should be removed by loosening roll retaining screws (6) and sliding the roll off the roll stud (14).
- E. Select the proper template (13) for the thread size diameter. This diameter appears on one side of the template. The holes in the template are at 120° to match the desired position of the roll studs (14).
- F. Simultaneously move both roll slide arms into position so that the template (13) slides over the roll studs (14). Tighten the 4 roll slide arm screws (8). Remove template.
- G. Select the proper rolls for the number of threads per inch. For example, you want to measure a .500-20 UNF thread. You just used a .500 template to set the diameter. Now you need to select the 20 T.P.I. (threads per inch) rolls for either multi-rib or cone and vee. In each case the rolls are marked with the T.P.I. and numbered 1, 2,

and 3, which corresponds to roll position (1), (2) and (3).

- H. Place rolls on Roll Studs (14) in a 1,2,3 position for Right Hand Threads or 1,3,2 position for Left Hand Threads. Replace Roll Retaining Screws(6) to hold rolls on. Rolls should spin freely.
- I. With the gage pivot arm(5) in open position adjust the over travel screw (11) so that the outside diameter of the master passes between outside diameter of rolls 1 and 3 on the 1130 system, or rolls 1 and 2 on the 1131 system, with 1/8" clearance between .
- J. Engage master. At this time the under travel screw (10) should not be touching the gage pivot arm (5). Insert indicator (9) while set plug master is engaged, zero the indicator.
- K. Adjust the indicator (9) to a zero set position. Disengage and engage the master set plug a few times to assure gage repeatability. Adjust spring tension (12) accordingly. Then do a final zero set position. **Note:** Gage should repeat within .0002" to .0003".
- L. Set indicator (9) tolerance hands for the tolerance zone specified in the standards hand book.

## **II. Gage Usage and Inspection Procedures**

- A. You are using either, bench or portable, System 22 gaging. This gaging requires two measurements. One measurement is **pitch diameter size** and measured using cone and vee rolls. The other measurement is **functional diameter size** and measured using multi-rib rolls. Note the difference between the two gages.
- B. To measure **functional size**, engage the product part threads over the entire length of the multi-rib rolls and rotate product part one turn to note the largest indicated value. This value must be within the tolerance zone.
- C. To measure **pitch diameter size**, engage the product threads entering, center, and trailing, one at a time over the cone and vee rolls (length of engagement permitting) and rotate the product part one turn to note the smallest indicated value at all 3 locations. This value must be within the tolerance zone.
- D. Product within the specified tolerance zone is dimensionally conforming. If any portion of the thread projects beyond the tolerance zone for either pitch diameter size and/or functional diameter size, product is dimensionally nonconforming.

## **III. Gage Calibration**

- A. At the time of purchase, Certifications of Calibration to the latest thread gage standards may be purchased to accompany your setting masters.
- B. Calibration should occur annually or by your industry standards for usage. At this time you may call the Starrett Thread Gage Department for details at (978) 249-3551.

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