

NATIONAL PHYSICAL LABORATORY

METROLOGY CENTRE

Ref: **MOY/SCMI/97** **SPECIFICATION OF ACCURACY**
(Issue 4)

for

A DUAL PURPOSE OPTICAL ROTARY TABLE WITH PROJECTION SCREEN

Type: 12 in and 16 in diameter Dual Purpose Optical Rotary Tables.

Made by: Optical Measuring Tools Division.

LIMITING VALUE OR MAXIMUM PERMISSIBLE ERROR

1. GENERAL

- 1.1 The general workmanship and finish shall be in keeping with a precision measuring tool of this class.
- 1.2 The table shall be marked with an identification number, and with the maker's name or trade mark.

2. CENTRE PLUG

- 2.1 The plug shall bear an identification number.
- 2.2 The working surfaces of the plug shall be hard and well finished. 800 HV minimum
- 2.3 The parallel portion of the plug shall be cylindrical 0.001 mm (0.000 04 in)
- 2.4 The parallel and tapered portions of the plug shall be concentric. 0.001 mm (0.000 04 in) i.e.
0.002 mm (0.000 08 in) FIM
- 2.5 The parallel and tapered portions shall be straight. 0.001 mm (0.000 04 in)

3. TABLE

- 3.1 The upper surface of the table shall be flat, whether the table is clamped or unclamped. 0.008 mm
(0.0003 in)
- 3.2 The base and the abutment face of the table shall be flat so as to be quite free from rock when each is placed on a truly flat surface.
- 3.3 The bearing area of the base and the abutment face shall be adequate. 20% minimum
- 3.4 The upper surface of the table shall rotate truly. 0.005 mm (0.0002 in) FIM
- 3.5 The upper surface of the table and the under surface of the base shall be parallel for all relative positions. Maximum lack of parallelism
0.008 mm (0.0003 in)

LIMITING VALUE OR
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3.6 When the table is mounted in the vertical position the surface of the work table shall be square to the abutment face for all rotational positions of the work table. 0.008 mm (0.0003 in) over the diameter of the table

Note: This shall apply when the table carries a load equivalent to a moment of 40 Nm (354 lb in) about the table surface.

4. CLAMPING

The action of clamping the table shall not: -

- (i) Cause a change in the table height relative to the base. 0.0025 mm (0.0001 in)
- (ii) Give rise to any visible movement of the scale viewed on the screen.

5. CENTRE PLUG SOCKET

5.1 The centre plug shall be a good fit in the socket and when fitted in the socket its axis shall be concentric with the axis of rotation of the table. 0.0025 mm (0.0001 in) i.e. 0.005 mm (0.0002 in) FIM

6. FINE SETTING

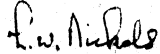
6.1 The fine setting device shall operate smoothly and freely.

7. SCALES

7.1 The graduations of the main optical scale and those of the graticule scales shall be cleanly cut, and free from blemishes.

7.2 The main and graticule scales shall focus simultaneously on the projection screen.

7.3 The maximum error between any two readings, including both graticule and optical micrometer scales, shall not exceed 10 seconds of arc

(Signed) 

for Director

