NATIONAL PHYSICAL LABORATORY

STANDARDS DVISION

Ref: MOY/SCMI/29 (Issue 3)

SPECIFICATION OF ACCURACY

for

A FIDUCIAL INDICATOR

Type: A fiducial indicator based on the designs shown on NPL Drawings Nos. 950, 1559 or 1634.

The indicator may be adjusted to give a working force in the range of 8 to 22 oz (Model 1) or a larger working force (Model 2).

LIMITING VALUE OR MAXIMUM PERMISSIBLE ERROR

1. **GENERAL**

- 1.1 The general workmanship and finish shall be in conformity with a precision instrument of this class.
- 1.2 The indicator shall be marked with :-
 - (i) An identification number.
 - (ii) The maker's name or trademark
 - (iii) Based on NPL Design.
 - (iv) The model number and working force, viz.:-Model 1: 8 to 12 oz wt Model 2: oz wt

2. INDICATOR POINTER

- 2.1 The pointer shall have a free travel of at least 3/16 in. each side of the fiducial line.
- 2.2 The pointer shall be clear of the indicator casing when the measuring plunger is fully depressed.

3. **MAGNIFICATION**

3.1 The magnification of the indicator shall be not less than:-

(i) Types made to Drgs. 950 or 1559

(ii) Type made to Drg. 1634 375 times

4. BEARING SHANK

4.1 The bearing shank of the indicator shall be straight and uniform in diameter

0.0002 in. (0.005 mm)

LIMITING VALUE OR MAXIMUM PERMISSIBLE ERROR

4.2 The diameter of the bearing shank shall not deviate from its nominal size, (usually ½ in. or 9/16 in.) by more than

+0

-0.0002 in. (0.005 mm)

5. **REPETITION**

5.1 It shall be possible to obtain repetition of reading to within:-

(i) Types made of Drgs. 950 or 1559 0.000 02 in. (0.000 5 mm)
(ii) Type made to Drg. 1634 0.000 01 in. (0.000 25mm)

6. WORKING FORCE

6.1 The force required to operate the indicator shall lie between:-

(i) Model 1 8 and 12 oz wt (250 g) (340 g) Within $\pm 10\%$ of the value marked on the indicator.

7. MEASURING FACE

7.1 The measuring face shall be hardened Minimum 800 DPN

7.2 The face shall be lapped, well finished and flat 0.000 02 in. (0.000 5 mm)

7.3 The face shall be square to the bearing shank:-

(i) Types made to Drgs. 950 or 1559

*0.000 03 in.
(0.000 8 mm)

*0.000 02 in
(0.000 5 mm)

*over diameter of face

G.B.B.M Sutherland Director

Superintendent, Standards Division

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