

Australian Standard[®]

**LABORATORY GLASSWARE
INTERCHANGEABLE
CONICAL GROUND
GLASS JOINTS**

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Chambers of Commerce (N.S.W., Vic.)
Chief Secretary's Department, Victoria
Commonwealth Serum Laboratories
Confederation of Australian Industry
CSIRO, Division of Applied Physics
Department of Agriculture, N.S.W.
Department of Science and the Environment
Government Chemical Laboratories, W.A.
National Standards Commission
Railways of Australia Committee
Royal Australian Chemical Institute
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CONICAL GROUND
GLASS JOINTS**

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PREFACE

This standard was prepared by the Association's Committee on Laboratory Glassware and Related Apparatus under the direction of the Chemical Standards Board as one of a series of standards for general laboratory glassware. It is based on ISO 383, Laboratory Glassware—Interchangeable Ground Glass Joints, which lists the series of joints already widely used.

This standard is intended to ensure interchangeability between standard conical ground glass joints, irrespective of where they are manufactured. In order to achieve interchangeability, it is necessary that each of the following requirements be adequately specified, including appropriate tolerances:

- (a) Taper.
- (b) Large end diameter.
- (c) Length of tapered zone.
- (d) Surface finish.

From the practical point of view, and especially because of the difficulty of carrying out precise measurements on the tapered portions of the finished joints, it is desirable to apply a gauging system which allows rapid checking of the essential dimensions. The definition of these dimensions in Clause 5 is an integral part of this standard, but the system of gauging described in Appendix A, although it has been proved in practice as fully satisfactory, is not the only one which can be applied for the purpose.

This standard requires reference to the following standards:

- AS 1100 Drawing Practice
Part 11—Indication of Surface Texture
- AS 1349 Bourdon Tube Pressure and Vacuum Gauges

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
INTERCHANGEABLE CONICAL GROUND
GLASS JOINTS

1 SCOPE. This standard specifies the essential geometric requirements for interchangeability in relation to four series of conical ground glass joints (viz k2, k4, k6, k8) with ground surfaces for incorporation in laboratory glassware. The k6 series is preferred.

2 TAPER. The taper of the joints shall be such as to give one increment on diameter for ten increments on axial length, with a tolerance of ± 0.006 on the diameter increment, i.e. a taper of $(1.00 \pm 0.006)/10$.

NOTE: Manufacturing techniques normally result in components in which the departures from nominal size are considerably less than the tolerance specified. However owing to the lack of sufficient experimental evidence, it is not possible to reduce the specified tolerance.

3 LARGE END DIAMETERS. The following series of nominal large end diameters of the joints, in millimetres, shall be adopted:

5, 7.5, 10, 12.5, 14.5, 18.8, 21.5, 24, 29.2, 34.5, 40, 45, 50, 55, 60, 71, 85, 100.

4 CLASSIFICATION OF JOINTS AND LENGTH OF TAPERED ZONE. The four series of joints listed in Table 1 are classified according to the value of the constant k which may be 2, 4, 6 or 8.

The length of the tapered zone of the joint is then calculated from the following formula:

$$l = kd^{1/2}$$

where

l = length of tapered zone, in millimetres

k = a constant

d = large end diameter, in millimetres

The calculated length shall be rounded off to the nearest whole number.

5 TOLERANCES ON DIAMETER AND LENGTH. The diameter and length of the tapered zone of the joint shall be such that, when the joint is placed with its axis in the plane of the dimensional frame shown in Fig. 1, it fits in such a way that the upper and lower edges of the tapered surface fall within the zones of height h_1 and h_2 respectively, the values of d , l , h_1 and h_2 for any particular joint size being taken from Table 2. For special purposes, the tapered surface may extend beyond these limits, provided that the zone of length l is always included within this tapered portion.

A system of gauging suitable for determining whether joints fall within these limits is described in Appendix A.