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**INTERNATIONAL STANDARD**



**383**

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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**Laboratory glassware — Interchangeable conical ground joints**

*Verrerie de laboratoire — Assemblages coniques rodés interchangeables*

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ISO 383-1976 (E)

## FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 48 has reviewed ISO Recommendation R 383 and found it technically suitable for transformation. International Standard ISO 383 therefore replaces ISO Recommendation R 383-1964 to which it is technically identical.

ISO Recommendation R 383 was approved by the Member Bodies of the following countries :

Australia	Germany	Romania
Austria	Greece	Spain
Belgium	India	Sweden
Canada	Israel	United Kingdom
Chile	Japan	U.S.A.
Colombia	Netherlands	U.S.S.R.
Czechoslovakia	New Zealand	
France	Poland	

The Member Body of the following country expressed disapproval of the Recommendation on technical grounds :

Italy\*

\* Subsequently, this Member Body approved the Recommendation.

No Member Body disapproved the transformation of ISO/R 383 into an International Standard.

# Laboratory glassware – Interchangeable conical ground joints

## 0 INTRODUCTION

The purpose of this International Standard is 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 ground zone;
- d) surface finish.

The nominal dimensions listed below are based on the series of joints already widely used in many countries; in particular, the series of large end diameters represents the nearest acceptable compromise to the R 40/3 series of preferred numbers (5, 3, ..., 100) laid down in ISO 3, *Preferred numbers – Series of preferred numbers*.

From the practical point of view, and especially because of the difficulty of carrying out precise measurements on the ground 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 6 is an integral part of this International Standard, but the system of gauging described in annex A, while it has been proved in practice as fully satisfactory, is not the only one which can be applied for the purpose.

The leakage test described in annex B is one which is commonly used for testing joints, but its inclusion in this International Standard is not intended to preclude the use of other tests which may be found more convenient for particular purposes. Attention is specifically drawn to the method of pneumatic gauging.<sup>1)</sup>

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the essential geometric requirements for interchangeability in relation to four series of conical ground glass joints for laboratory use.

## 2 REFERENCE

ISO/R 468, *Surface roughness*.

## 3 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  $\pm 0,006$  on the diameter increment, i.e. a taper of  $(1,00 \pm 0,006)/10$ .

NOTE – Actual manufacturing techniques normally result in a tighter tolerance than that given above, but owing to the lack of experimental evidence it is not yet possible to reduce the specified value.

## 4 LARGE END DIAMETERS

The following series of large end diameters shall be adopted :

5 – 7,5 – 10 – 12,5 – 14,5 – 18,8 – 21,5 – 24 – 29,2 –  
34,5 – 40 – 45 – 50 – 60 – 71 – 85 – 100 mm

## 5 LENGTH OF GROUND ZONE

The length of the ground zone  $l$ , in millimetres, is calculated using the formula

$$l = k\sqrt{d}$$

where

$k$  is a constant;

$d$  is the large end diameter, in millimetres.

1) This method is described in *Laboratory practice*, March 1958, Vol. 7, No. 3, "Pneumatic gauging applied to standard ground glass joints", by I.C.P. Smith.