

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 1115

FINISHES WITH EXTERNAL SCREW THREAD FOR GLASS CONTAINERS
AND GAUGES FOR THE INSPECTION OF SCREW CLOSURES

1st EDITION

September 1969

COPYRIGHT RESERVED

The copyright of ISO Recommendations and ISO Standards belongs to ISO Member Bodies. Reproduction of these documents, in any country, may be authorized therefore only by the national standards organization of that country, being a member of ISO.

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 1115, *Finishes with external screw thread for glass containers and gauges for the inspection of screw closures*, was drawn up by Technical Committee ISO/TC 63, *Screw threads for glass containers and closures*, the Secretariat of which is held by the Úřad pro normalizaci a měření (CSN).

Work on this question led to the adoption of a Draft ISO Recommendation.

In February 1968, this Draft ISO Recommendation (No. 1469) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Chile	Israel	South Africa, Rep. of
Czechoslovakia	Italy	Sweden
Denmark	Japan	Switzerland
France	Netherlands	United Kingdom
Germany	Norway	Yugoslavia
India	Poland	
Ireland	Romania	

One Member Body opposed the approval of the Draft :

New Zealand

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in September 1969, to accept it as an ISO RECOMMENDATION.

FINISHES WITH EXTERNAL SCREW THREAD FOR GLASS CONTAINERS AND GAUGES FOR THE INSPECTION OF SCREW CLOSURES

INTRODUCTION

This ISO Recommendation has been prepared with the object of establishing certain basic rules for the manufacture of external screw thread finishes and at the same time of reducing the number of types and facilitating the interchangeability of screw closures.

This ISO Recommendation has been prepared on the basis of the following considerations :

Finishes for glass containers

To select thread characteristics which would not give rise to difficulties due to excessive depth of thread and excessive height of finish.

To facilitate filling and capping by defining the minimum through bore and the minimum wall thickness at the top of the finish.

- To provide for the use of certain special methods and types of closure in a series of tall finishes, but restricted to a smaller range of diameters.

Screw closures

No definite specifications can be recommended for screw closures due to the wide range of materials used. The characteristics of screw closures vary according to the materials used (aluminium, tinplate, thermoplastics, thermosetting resins, etc.), which affect their shape, thread profile and tolerances.

The intention has therefore been to recommend gauges for the inspection of threaded closures.

1. SCOPE

This ISO Recommendation defines the characteristics of glass finishes with external screw threads and provides a method of inspecting the corresponding screw closures.

It applies to

- shallow finishes with continuous thread of one or more starts;
- tall finishes with single start continuous thread.

2. SYMBOLS

The following symbols should be used to define finishes with screw threads for glass containers :

d	major diameter
d_1	minor diameter
d_2	pitch diameter
d_3	through bore diameter
d_4	internal diameter at the top of the finish*
c	height of thread
s	lead
P	pitch
k	factor**
α	included angle
β	relief angle on bead
n	number of starts of thread
R_1	radius at the top of the thread
R_2	radius at the root of the thread
R_3	radius joining the minor diameter to the bead
t	minimum wall thickness
b	width of thread
h	overall height of the finish
h_1	height of the start of thread

3. PRINCIPLES

This ISO Recommendation is based on the following principles :

- 3.1 The threads are right-handed.
- 3.2 The R 20 series of preferred numbers*** is used as a basis for the selection of diameters.
- 3.3 The pitch diameter is stated as a theoretical basis for the construction of the thread and for the calculation of the helix angle for determining the angle of inclination of the cutter. The inclusion of the pitch diameter thus provides a complete definition of the thread.
- 3.4 The included angle of the thread flanks is fixed at 60° .
- 3.5 The width of the thread is defined as the product of the pitch and a factor k :

$$b = P \times k$$

- 3.6 The height of the thread is fixed at half the width of the thread :

$$c = \frac{b}{2}$$

* The symbol d_4 is included to enable users, should they so desire, to define it on the basis of the minimum wall thickness t measured at a distance of 2 to 3 mm below the sealing surface of the finish.

** See clause 3.5.

*** See ISO Recommendation R 3, *Preferred numbers – Series of preferred numbers*.