International Standard $\textcircled{ISO}$ 6282

Plain bearings — Metallic thin-walled half bearings — Determination of the $\sigma_{0,01}$*-limit

*Paliers lisses — Demi-coussinets minces métalliques — Détermination de la limite élastique $\sigma_{0,01}$**

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (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 authorized 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.

International Standard ISO 6282 was developed by Technical Committee ISO/TC 123, *Plain bearings*, and was circulated to the member bodies in July 1981.

It has been approved by the member bodies of the following countries :

Austria	Italy	Sweden
Brazil	Korea, Rep. of	United Kingdom
Egypt, Arab Rep. of	Netherlands	USSR
France	Poland	Yougoslavia
Germany, F.R.	Romania	
India	Spain	

The member body of the following country expressed disapproval of the document on technical grounds :

USA

This International Standard cancels and replaces ISO Technical Report ISO/TR 6282-1979.

Plain bearings — Metallic thin-walled half bearings — Determination of the $\sigma_{0,01}$*-limit

1 Scope and field of application

This International Standard specifies a method of determining the $\sigma_{0,01}$*-limit for the steel backing of thin-walled multilayer half bearings for bearing diameters up to 80 mm. It can also be used for bearing diameters up to 160 mm.

2 References

ISO 3548, *Plain bearings — Thin-walled half bearings — Dimensions, tolerances and methods of checking.*

ISO 4383, *Plain bearings — Metallic multilayer materials for thin-walled plain bearings.*

ISO 4385, *Plain bearings — Compression testing of metallic bearing materials.*

ISO 6524, *Plain bearings — Methods of dimensional control — Peripherical length checking of thin-walled half bearings.*

3 Definitions

For the purpose of this Standard the following definitions apply.

3.1 $\sigma_{0,01}$*-limit : The compressive hoop stress in a half bearing which creates a permanent set of 0,01 %.

The $\sigma_{0,01}$*-limit is different from the usual $\sigma_{0,01}$-limit as a result of the geometry of the test specimen and the method of application of the test load. In order to make the distinction, the $\sigma_{0,01}$-limit of half bearings is marked with an asterisk (*).

3.2 **compressive hoop stress of a half bearing** : The quotient F/S, expressed in newtons per square millimetre, where F is the normal load, in newtons, applied to an area of cross-section S, in square millimetres, which is determined mathematically.

The area of cross-section S is calculated as follows for the most common material combinations :

$S = L \cdot e_1$ for steel/lead alloys or steel/tin alloys

$S = L \left(e_1 + \dfrac{e_2}{2} \right)$ for steel/copper alloys

$S = L \left(e_1 + \dfrac{e_2}{3} \right)$ for steel/aluminium alloys

where

L is the bearing width, in millimetres;

e_1 is the thickness of the steel backing, in millimetres;

e_2 is the thickness of the bearing metal layer, in millimetres.

NOTE — If annular grooves and/or chamfers extend into the steel backing, then the cross-section of the steel backing is to be reduced correspondingly for the calculation.

In the case of oil holes, the inclusion in the calculation should be subject to an agreement between manufacturer and user.

Dependent upon the shape of the locating nick at the joint face and the extent to which the load is carried by it there may be an effect on the measured $\sigma_{0,01}$*-limit.

4 Apparatus

4.1 Pressure testing machine, with hydraulic or pneumatic application of load, equipped with a load indicator having an accuracy of at least ± 1 % of the end scale value, and a length measuring device.

4.2 Master shell and checking block in accordance with the figure.