

praktijkrichtlijn

NPR-ISO/TS 16630 (en)

Metallic materials - Method of hole expanding test (ISO/TS 16630:2003, IDT)

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- ISO/TS 16630:2003, IDT

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Preview

**Metallic materials — Method of hole
expanding test**

Matériaux métalliques — Méthode d'essai d'expansion de trou



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Foreword

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An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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ISO/TS 16630 was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 2, *Ductility testing*.

Introduction

Modern methods of manufacture of automobile components such as wheels, suspension parts and structural components using sheet steel involve, primarily, shearing, bending and stretch drawing operations.

Included with these processes is the bending up (plunging) of flanges (rims) around pierced holes and this may result in rupture of the material.

Various test methods are available to establish the suitability of the sheet metal for the forming processes involved. The hole expansion test is one of the best methods for evaluating the suitability of the sheet steel for forming such "flanges" because it closely resembles the process used under production conditions to form such flanges (plunged rims) starting with punched holes.

Because of the details given in this Technical Specification, the relevance of the test will be immediately apparent. By adhering to the laid-down procedures in the specification, scatter in the test results will be minimized.

Orbbeel
Preview

Metallic materials — Method of hole expanding test

1 Scope

This Technical Specification describes a method of determining the hole expansion ratio in metallic sheets and strips with a thickness range of 1,2 mm to 6 mm inclusive and a width of at least 90 mm.

NOTE This test is normally applicable to steel sheets and is used to assess the suitability of the product for forming flanges.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 497, *Guide to the choice of series of preferred numbers and of series containing more rounded values of preferred numbers*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

limiting hole expansion ratio

amount of hole expansion obtained in a circular punched hole of a test piece when a conical expansion tool is forced into the hole until any one crack in the hole edge extends through the test piece thickness

3.2

clearance

(between die and punch) gap present when punching a hole in a test piece, expressed as the ratio of the gap to the test piece thickness

4 Symbols and designations

Symbols and corresponding designations are given in Table 1.

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