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Fasteners — Preloading test for the detection of hydrogen embrittlement — Parallel bearing surface method

Éléments de fixation — Essai de précharge pour la détection de la fragilisation par l'hydrogène — Méthode des plaques parallèles

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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 preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 15330 was prepared by Technical Committee ISO/TC 2, *Fasteners*, Subcommittee SC 1, *Mechanical properties of fasteners*.

Introduction

When atomic hydrogen enters steels, it can cause loss of ductility or load-carrying ability, cracking (usually as submicroscopic cracks) or catastrophic brittle failures at applied stresses well below the yield strength or even the normal design strength for the alloys. This phenomenon often occurs in alloys that show no significant loss in ductility when measured by conventional tensile tests, and is frequently referred to as hydrogen-induced delayed brittle failure, hydrogen stress cracking or hydrogen embrittlement. The hydrogen can be introduced during heat treatment, gas carburizing, cleaning, pickling, phosphating, electroplating and in the service environment as a result of cathodic protection or corrosion reactions. Hydrogen can also be introduced during fabrication, for example during roll forming, machining, and drilling due to coolant or lubricant break-down as well as during welding or brazing operations.