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**Rotary tool for threaded fasteners —
Hydraulic impulse tools — Performance
test method**

*Outils rotatifs pour éléments de fixation filetés — Outils hydraulique à
impulsion — Méthode d'essai des caractéristiques de fonctionnement*



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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms, definitions and symbols	1
4 Method for measurement of performance	5
5 Evaluation of test results	11
6 Presentation of data	12
Annex A (informative) Explanation and justification of the method	13
Annex B (informative) Clamp force tester	15
Annex C (informative) Torque coefficient (K) dependence on speed	21
Annex D (informative) Example of form for hydraulic impulse tool performance test	25
Bibliography	27

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 2.

The main task of technical committees is to prepare International Standards. 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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TS 17104 was prepared by Technical Committee ISO/TC 118, *Compressors and pneumatic tools, machines and equipment*, Subcommittee SC 3, *Pneumatic tools and machines*.

Introduction

The test method specified in this Technical Specification is designed to measure the overall performance and capability of hydraulic impulse tools.

This ISO/Technical Specification is intended to give users of impulse tools a means for measuring and comparing the performance of hydraulic impulse tools under controlled conditions.

Every effort has been made to specify all critical characteristics of the test fixtures conforming to this Technical Specification. However, test results from different test fixtures can be affected by differences in dynamic characteristics, thereby making direct comparisons difficult.

The ISO/TS can be used for comparing the torque capabilities of impulse tools. It has not so far been possible to achieve acceptable reproducibility of the correlated torque scatter and it is hoped that data accumulated through experience of using the ISO/TS enables improvements to be made when it is reviewed three years after publication. In the meantime, when comparing the performances of different tools, quoted differences in correlated torque scatter (as a percentage of mean correlated torque) of fewer than ten percentage points should be viewed with caution/treated as insignificant, until verified by the potential user or purchaser of the tools.

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Rotary tool for threaded fasteners — Hydraulic impulse tools — Performance test method

1 Scope

This Technical Specification specifies a laboratory performance test method for hydraulic impulse tools for installing threaded fasteners. It gives instructions on the procedure, performance parameters to test and how to evaluate and present the test data.

Justification for the test method is found in Annex A.

The test method is not intended as a routine in-plant inspection method.

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 2787, *Rotary and percussive pneumatic tools — Performance tests*

ISO 5393, *Rotary tools for threaded fasteners — Performance test method*

3 Terms, definitions and symbols

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

3.1

hydraulic impulse tool

powered assembly tool for tightening threaded fasteners, which applies torque to a fastener in discontinuous increments through a hydraulic impulse unit

3.1.1

automatic shut-off tool

powered assembly tool for tightening threaded fasteners, which is provided with a control mechanism or system that shuts off or disconnects the power to the motor when a predetermined output level is attained

3.1.2

non shut-off tool

powered assembly tool for tightening threaded fasteners, which continues to apply torque impulses as long as the throttle remains in the “on” position

3.2

standard deviation

s

measure of the dispersion (scatter) based on the mean-squared deviation from the arithmetic mean derived from a sample of a statistical population