



BSI Standards Publication

**Dynaload — Design and construction
— Use and maintenance**

National foreword

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**Dynaload — Design and construction
— Use and maintenance**

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Contents

Page

Foreword.....	iv
Introduction.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 General.....	1
5 Relationship with standards.....	3
6 Design.....	4
6.1 Preferred sizes.....	4
6.2 Test tool.....	4
6.2.1 Type 1: 1 piece — Solid formed tool piece and tool foot.....	4
6.2.2 Type 2: Two pieces — Tapered end tool piece with a mating tool foot.....	5
7 Cooling.....	6
7.1 Low pressure air cooling.....	6
7.2 Alternative cooling.....	7
8 Operational features.....	7
9 Maintenance.....	8
10 Construction.....	8
Annex A (informative) Type 1 Single piece square-end Dynamic load.....	10
Annex B (informative) Type 2 Single piece taper-end Dynamic load.....	12
Annex C (informative) Design and constructional details.....	14
Annex D (informative) Recoil spring.....	29
Bibliography.....	31

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The measurement of physical parameters such as noise and vibration from hand-held tools has been the subject of investigation for many years. The means by which these parameters can be obtained have resulted in a number of devices to provide for a "working load" for the tool being investigated.

The resulting data can provide the customer with relevant information using a well-defined method that is both repeatable and reproducible. The last two issues, repeatability and reproducibility, are vital where the data obtained is required to demonstrate compliance with legislative requirements.

The equipment used to provide a "load" against which the hand-held power tool can "work" should be easily constructed from common materials and provide for ease of maintenance. This publication is intended to provide the specifications and guidance for such a loading device.

The information provided is primarily intended to instruct and supplement guidance given in standards for the measurement of noise, vibration of percussive hand-held power tools.

At the time of publication of this guidance document, dynamic loading devices, such as the ones described herein, had been used for many years in conjunction with the testing of percussive power tools. In particular, the vibration test code, ISO 28927-10, specified the use of such loading devices for testing a range of power tools, including chipping hammers, rock drills and concrete breakers. However, since the published standard not specified the design of the loading device in detail, there were inevitably many small differences between the loading devices which were manufactured. The question then arose as to whether these differences affected the measured results of the tests, for which the loading devices were used.

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Dynaload — Design and construction — Use and maintenance

1 Scope

This document specifies the design, construction, guidance on use and maintenance of a dynamic loading device for the following categories of hand-held power tools:

- percussive;
- rotary-percussive.

The device can be used when measurements are being made for vibration and noise, including when required for specification in test standards.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 General

The dynamic loading device is given the common name of DYNALOAD. The device consists of a metallic cylinder filled with steel balls on which the hand-held power tool is brought to bear and which absorbs the energy transmitted by the tool. The device can either be fixed to a surface or buried below the working floor level.

[Figure 1](#) identifies the essential items making up a Dynaload. The specification of each item is identified later in this publication.

The Dynaload device absorbs the blow energy from the power tool. Much of the shock wave is absorbed by the steel balls, however some 15 % to 20 % is reflected to the power tool, as would be the case in a normal working situation.