INTERNATIONAL STANDARD

ISO 11252

First edition
1993-09-15

Lasers and laser-related equipment — Laser device — Minimum requirements for documentation

Lasers et équipements associés aux lasers — Source laser — Exigences minimales pour la documentation

Reference number
ISO 11252:1993(E)

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.

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 11252 was prepared by Technical Committee ISO/TC 172, *Optics and optical instruments*, Sub-Committee SC 9, *Electro-optical systems*.

International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Lasers and laser-related equipment — Laser device — Minimum requirements for documentation

1 Scope

This International Standard specifies the minimum documentation and marking and labelling information requirements to be provided with laser devices.

The documentation is presented on two levels: as a technical data sheet (clause 5) and as an instruction manual (clause 6).

This International Standard does not apply to laser products which incorporate laser devices.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 11145:—[1], *Optics and optical instruments — Lasers and laser-related equipment — Terminology, symbols and units of measure for the specification and testing of lasers and laser assemblies.*

IEC 801-1:1984, *Electromagnetic compatibility for industrial-process measurement and control equipment — Part 1: General introduction.*

IEC 820:1986, *Electrical safety of laser equipment and installations.*

IEC 825:1984, *Radiation safety of laser products, equipment classification, requirements, and user's guide.*

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 11145 and IEC 825 apply.

NOTE 1 According to these definitions, a laser device is a part of a laser product or of a laser machine.

4 Units

Every value shall be stated in SI units.

5 Technical data sheet

The manufacturer shall specify the type of laser and provide information related to the various characteristics and requirements as described in this clause as part of the laser device documentation. This information is intended to assist users and manufacturers in the understanding and comparison of various types of laser device. The instructions to be supplied with the laser system are dealt with under clause 6.

1) To be published.

5.1 Beam output characteristics

As a minimum, the manufacturer shall state the following:

— beam diameter/widths;

— divergence angle(s);

— wavelength or wavelength range;

— maximum power and guaranteed power in case of continuous wave laser;

— maximum peak power, guaranteed peak power, pulse width range, and repetition rate range in case of pulsed laser.

5.2 Power supply

5.2.1 Electrical power supply

Specify the following:

— rated voltage and frequency and permissible fluctuations;

— maximum power consumption.

State the reference standards.

If a battery is used, specify the type and characteristics of the battery required to supply electrical power to the laser device and indicate whether such a battery is provided with the device.

State the duration of autonomous functioning on batteries.

5.2.2 Non-electrical power supply

For a laser needing external power not provided with the laser device (pumping laser for instance), specify the characteristics for the proper operation of the laser system.

5.3 Fluids

Provide information for every type of fluid (liquid, gas) to be used with the laser device (for instance active medium, solvent, heating and cooling agents) and specify the following:

— flowrate and pressure, or amount required;

— quality of the fluid;

— permissible extreme temperatures.

Also state the kind of connectors to be used with the reference to appropriate standards, in the case of standardized connectors.

5.4 Environmental conditions

Specify those environmental conditions the laser device will tolerate.

NOTE 2 Environmental conditions may include the following:

— air pressure, temperature and relative humidity range;

— shock and vibration;

— electromagnetic compatibility;

— air cleanliness;

— degree of protection provided by enclosure.

5.5 Mechanical interfaces

Provide drawing(s) with the following dimensions, characteristics and appropriate tolerances:

— external dimensions;

— location and orientation of the beam relative to a reference surface;

— location and characteristics of the fixing means (state if they are provided or not);

— fixing interfaces for external devices;

— mass of the laser device.

5.6 Safety

The manufacturer shall specify to which safety standard or document the laser device complies.

For safety concerning the laser radiation, the appropriate class in accordance with IEC 825 shall be stated and a legible reproduction of the required labels to be affixed.

For the chemical agents and any toxic substance used in the laser device, the information shall comply with the existing regulations.

5.7 Emitted radiations and disturbances

State limiting values or appropriate classes with the reference to the corresponding standards regarding the following:

— disturbances caused in electrical supply systems;

— electromagnetic disturbances (see IEC 801-1);

— sound emission.

6 Instruction manual

The information for use to be supplied with the laser device shall contain the following in addition to the technical data specified in clause 5:

— transportation, storage, installation and connecting instructions (power supply and fluid connections). Give appropriate diagrams when required;

— instructions for operating the laser device (hardware and software);

— comprehensive safety instructions;

— indications about waste disposal;

— information for maintaining the laser device, with all pertinent drawings and diagrams.

See IEC 825 for specific requirements for the manual.

7 Marking and labelling

Marking and labelling shall be in accordance with IEC 820 and IEC 825.

This page intentionally left blank

This page intentionally left blank

UDC 681.783.2:621.375.826

Descriptors: optics, optical equipment, laser, technical data sheets, instructions for use.

Price based on 3 pages