

**Acceptance tests for Nd:YAG laser beam
welding machines - Machines with optical
fibre delivery - Part 1: Laser assembly**

Acceptance tests for Nd:YAG laser beam welding
machines - Machines with optical fibre delivery - Part
1: Laser assembly

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 22827-1:2005 sisaldab Euroopa standardi EN ISO 22827-1:2005 ingliskeelset teksti. Käesolev dokument on jõustatud 28.12.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN ISO 22827-1:2005 consists of the English text of the European standard EN ISO 22827-1:2005. This document is endorsed on 28.12.2005 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.
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Käsitlusala: This part of ISO 22827 specifies basic requirements and test methods for acceptance testing of high-power (average power more than 100 W), lamp-pumped or laser-diode-pumped Nd:YAG laser beam welding machines for seam welding with optical fibre delivery systems.	Scope: This part of ISO 22827 specifies basic requirements and test methods for acceptance testing of high-power (average power more than 100 W), lamp-pumped or laser-diode-pumped Nd:YAG laser beam welding machines for seam welding with optical fibre delivery systems.
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English Version

Acceptance tests for Nd:YAG laser beam welding machines -
Machines with optical fibre delivery - Part 1: Laser assembly
(ISO 22827-1:2005)

Essais de réception pour les machines de soudage par
faisceau laser Nd:YAG - Machines avec transport de
faisceau par fibre optique - Partie 1: Ensemble laser (ISO
22827-1:2005)

Abnahmeprüfungen für Nd:YAG-
Laserstrahlschweißmaschinen - Maschinen mit Versorgung
durch Lichtleitfaser - Teil 1: Lasereinrichtung (ISO 22827-
1:2005)

This European Standard was approved by CEN on 26 September 2005.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN ISO 22827-1:2005) has been prepared by Technical Committee ISO/TC 44 "Welding and allied processes" in collaboration with Technical Committee CEN/TC 121 "Welding", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2006, and conflicting national standards shall be withdrawn at the latest by April 2006.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of ISO 22827-1:2005 has been approved by CEN as EN ISO 22827-1:2005 without any modifications.

**Acceptance tests for Nd:YAG laser beam
welding machines — Machines with
optical fibre delivery —**

**Part 1:
Laser assembly**

*Essais de réception pour les machines de soudage par faisceau laser
Nd:YAG — Machines avec transport de faisceau par fibre optique —*

Partie 1: Ensemble laser



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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 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.

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 22827-1 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 10, *Unification of requirements in the field of metal welding*.

ISO 22827 consists of the following parts, under the general title *Acceptance tests for Nd:YAG laser beam welding machines — Machines with optical fibre delivery*:

- *Part 1: Laser assembly*
- *Part 2: Moving mechanism*

Introduction

Requests for official interpretations of any aspect of this part of ISO 22827 should be sent to the Secretariat of ISO/TC 44/SC 10 via the member body in the user's country, a complete listing of which can be found at www.iso.org.

Acceptance tests for Nd:YAG laser beam welding machines — Machines with optical fibre delivery —

Part 1: Laser assembly

1 Scope

This part of ISO 22827 specifies basic requirements and test methods for acceptance testing of high-power (average power more than 100 W), lamp-pumped or laser-diode-pumped Nd:YAG laser beam welding machines for seam welding with optical fibre delivery systems.

The requirements can also be applied as a part of verification testing as part of maintenance, as appropriate.

If modifications are made to a laser beam machine (rebuilding, repairs, modifications to the operating conditions, etc.) that have an effect on the acceptance testing, a repeat test may be necessary to cover the machine parameters affected by such modifications.

This part of ISO 22827 applies to the beam generating system, the optical delivery system and the devices for shielding and assist gases.

NOTE The moving mechanism is covered by ISO 22827-2.

This part of ISO 22827 can be applied as a part of the acceptance conditions for the delivery of the optic laser beam welding cell.

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 11553-1, *Safety of machinery — Laser processing machines — Part 1: General safety requirements*

ISO 11554, *Optics and photonics — Lasers and laser-related equipment — Test methods for laser beam power, energy and temporal characteristics*

ISO 15614-11, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 11: Electron and laser beam welding*

ISO 17662, *Welding — Calibration, verification and validation of equipment used for welding, including ancillary activities*

ISO 22827-2, *Acceptance tests for Nd:YAG laser beam welding machines — Machines with optical fibre delivery — Part 2: Moving mechanism*

IEC 60204-1, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements*

IEC 60825-1, *Safety of laser products — Part 1: Equipment classification, requirements and user's guide*