# Acceptance tests for Nd:YAG laser beam welding machines - Machines with optical fibre delivery - Part 2: Moving mechanism

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#### EESTI STANDARDI EESSÕNA NATIONAL FOREWORD

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Käesolev dokument on jõustatud 28.12.2005 ja selle kohta on avaldatud	This document is endorsed on 28.12.2005 with the notification being published in the
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<b>Käsitlusala:</b> This part of ISO 22827 covers acceptance testing of equipment for 2D manipulation and also, to some extent, movements along the Z-axis.	<b>Scope:</b> This part of ISO 22827 covers acceptance testing of equipment for 2D manipulation and also, to some extent, movements along the Z-axis.
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# EUROPEAN STANDARD NORME EUROPÉENNE **EUROPÄISCHE NORM**

# EN ISO 22827-2

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**English Version** 

### Acceptance tests for Nd:YAG laser beam welding machines -Machines with optical fibre delivery - Part 2: Moving mechanism (ISO 22827-2:2005)

Essais de réception pour les machines de soudage par faisceau laser Nd:YAG - Machines avec transport de faisceau par fibre optique - Partie 2: Mécanisme de positionnement (ISO 22827-2:2005)

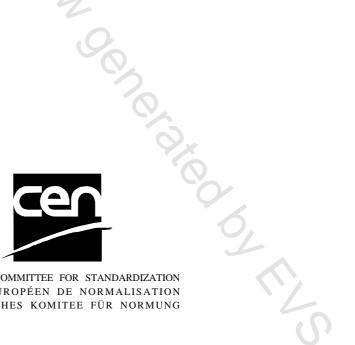
Abnahmeprüfungen für Nd:YAG-Laserstrahlschweißmaschinen - Maschinen mit Versorgung durch Lichtleitfaser - Teil 2: Mechanische Bewegungseinrichtung (ISO 22827-2:2005)

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EUROPEAN COMMITTEE FOR STANDARDIZATION COMITÉ EUROPÉEN DE NORMALISATION EUROPÄISCHES KOMITEE FÜR NORMUNG

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#### Foreword

This document (EN ISO 22827-2:2005) 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of an identical text or by endorsement, at the latest by April 2006, and conflicting national standards shall be withdrawn at the latest by April 2006.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 22827-2:2005 has been approved by CEN as EN ISO 22827-2:2005 without any modifications.

# **INTERNATIONAL STANDARD**



First edition 2005-10-15

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

Part 2: Moving mechanism

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

Partie 2: Mécanisme de positionnement

Reference number ISO 22827-2:2005(E)

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# Foreword

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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 22827-2 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

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## Introduction

dis via r. 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.

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

# Part 2: Moving mechanism

#### 1 Scope

This part of ISO 22827 covers acceptance testing of equipment for 2D manipulation and also, to some extent, movements along the Z-axis.

NOTE Welding robots and similar 3D equipment for manipulation are covered by other standards, notably ISO 9283.

This part of ISO 22827 specifies two methods for the testing of the accuracy of the moving mechanism. The first method (type 1 test) provides a test method capable of classification of the moving mechanism rigorously according to the required accuracy. The second method (type 2 test) provides a simpler method for testing the moving mechanism by marking. The selection of the test method is optional. However, for large-size laser beam welding machines, such as a laser beam welding machine using 2D moving optics or an X-Y table, the type 2 test is applicable.

This part of ISO 22827 is not applicable for welding cells with manual positioning of the welding head and/or the component, and for fixed-position welding without the moving mechanism.

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.

NOTE The beam generating system, the optical delivery system and the devices for shielding and assist gasses are covered in ISO 22827-1.

This part of ISO 22827 can be applied to a part of the acceptance conditions for the delivery of the laser beam welding machine.

#### 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 230-2, Test code for machine tools — Part 2: Determination of accuracy and repeatability of positioning numerically controlled axes

ISO 15616-2:2003, Acceptance tests for  $CO_2$ -laser beam machines for high quality welding and cutting — Part 2: Measurement of static and dynamic accuracy

ISO/TS 17477:2003, Acceptance tests for CO<sub>2</sub>-laser beam machines for welding and cutting using 2D moving optics type