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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 18490.1-2017

**Safety of machinery -- Laser processing machines -- Part 1:
General safety requirement
(English Translation)**

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1 Scope

This Part of GB/T 18490 describes hazards generated by laser processing machines, and specifies the safety requirements relating to radiation hazards and hazards generated by processed materials and substances. It also specifies the information to be supplied by the manufacturers of such equipment.

Requirements dealing with noise as a hazard from laser processing machines are not included in this Part. They will be included in GB/T 18490.3-2017.

This Part is not applicable to laser products, or equipment containing such products, which are manufactured solely and expressly for the following applications:

- photolithography;

- stereolithography;
- holography;
- medical applications;
- data storage.

2 Normative references

The following documents are indispensable for the application of this document.

For the dated references, only the editions with the dates indicated are applicable to this document. For the undated references, the latest edition (including all the amendments) are applicable to this document.

GB/T 2893 (all parts) Graphical symbols - Safety colours and safety signs

[ISO 3864 (all parts)]

GB 5226.1-2008 Electrical Safety of Machinery - Electrical Equipment of
Machines - Part 1: General Requirements (IEC 60204-1:2005, IDT)

GB 7247.1-2012 Safety of laser products - Part 1: Equipment classification and
requirements (IEC 60825-1:2007, IDT)

GB/T 15706-2012 Safety of machinery - General principles for design - Risk assessment
and risk reduction (ISO 12100:2010, IDT)

GB/T 16855.1-2008 Safety of machinery - Safety-related parts of control systems - Part 1:
General principles for design (ISO 13849-1:2006, IDT)

GB/T 7247.4-2016 Safety of laser products - Part 4: Laser shields (IEC 60825-4:2011, IDT)

GB/T 18831-2010 Safety of machinery - Interlocking devices associated with guards -
Principles for design and selection (ISO 14119:1998 and
Amd.1:2007, MOD)

GB/T 19670-2005 Safety of machinery - Prevention of unexpected start-up (ISO
14118:2000, MOD)

GB/T 18490.3-2017 Safety of machinery - Laser processing machines - Part
3: Noise reduction and noise measurement methods for laser processing machines and
hand-held processing devices and associated auxiliary equipment (accuracy grade 2) (ISO
11553-3:2013, MOD)

ISO 11252:2013 Lasers and laser-related equipment - Laser device -
Minimum requirements for documentation

3 Terms and definitions

For the purposes of this document, the terms and definitions given in GB/T 15706-2012 and GB 7247.1-2012 and the following apply.

3.1 Machine

Assembly of linked parts or components, at least one of which moves, with the appropriate actuators, control and power circuits, joined together for a specific application, in particular for the processing, treatment, moving or packaging of a material.

3.2 Laser processing machine

Machine in which (an) embedded laser(s) provide(s) sufficient energy/power to melt, evaporate, or cause a phase transition in at least a part of the workpiece,