

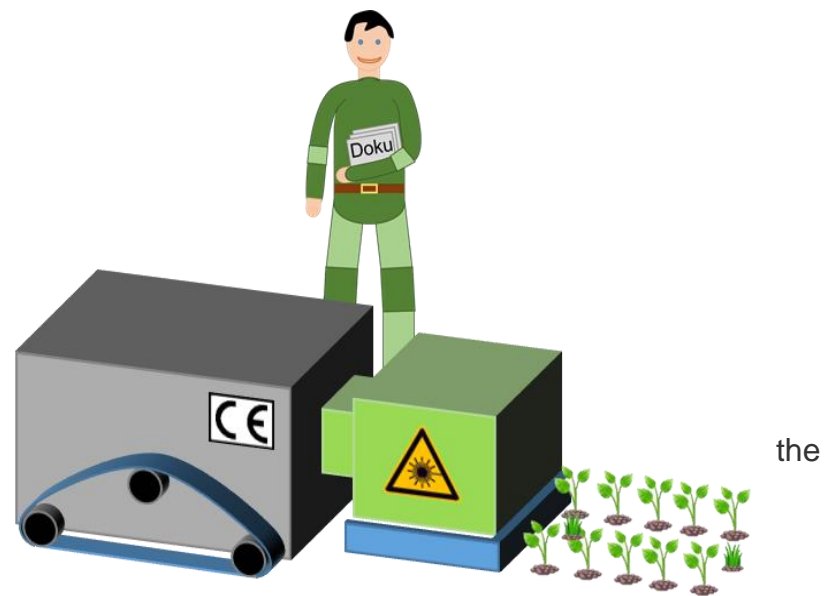
## Boundary conditions for the operation of a laser robot

### Requirements for the manufacturer

In principle, a laser robot that is operated autonomously outdoors for weed control must be CE-compliant in accordance with the Machinery Directive 2006/42/EC in conjunction with the subordinate regulations. This ensures that the system design meets all safety requirements and that residual risks are identified. In the case of the application under consideration, the complete system should achieve laser class 1 according to EN 60825-1. Therefore, the system must be intrinsically safe; it must not pose a risk to operators or outsiders, neither during intended operation nor in foreseeable cases of failure.

### Requirements for the operator

A risk assessment must be carried out to counteract hazards that may occur during intended operation, in foreseeable cases of failure or during maintenance work, despite the technical and design measures taken by the manufacturer. This includes, among other things, the specific hazards due to laser radiation as well as hazards resulting from the driving operation of the robot. After implementation of the protective measures derived from the risk analysis, operating instructions must be prepared for the operators of laser robot.



No laser-specific qualification is required for the exclusive operation of a class 1 laser robot. However, if maintenance service work is also to be carried out where activation of the laser with irradiances above the exposure limit values for the eyes and the skin is possible or necessary, a laser protection officer must be appointed. In addition, special training must be provided on the device with regard to laser safety.

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