

The main objective of **Directive 2000/14/EC**, as amended by Directive **2005/88/EC**, is to promote noise reduction and requires manufacturers to comply with noise emission limits, for the machines listed in art. 12, and the affixing of the noise marking for the machines listed in art. 13. It applies to machines and equipment designed to operate outdoors.

The Directive 2000/14/EC requires **noise marking** for 57 types of equipment used outdoors: for 22 of these types of equipment, the directive also sets noise limit values.

For all types of equipment covered by the directive, the procedures and operating conditions for the measurement of the sound power level are specified.



The intervention of the **Notified Body** is mandatory for the machines listed in art. 12 of Directive 2000/14/EC, including:

- compaction media,
- compressors,
- hand-held demolition hammers,
- construction winches,
- dozers,
- dump truck,
- hydraulic excavators,
- backhoe,
- graders,
- waste compactors with bucket loading shovels,
- lawn mowers,
- loaders.

For the machines listed in art. 13, it is sufficient to draft a technical documentation associated with a rigorous internal manufacturing control by the manufacturer. The directive is being revised to move some machines now included in the art. 13 in the list referred to in art. 12, as well as a review of the limits.

The **conformity assessment procedure** consists of the following activities:

- examination of the technical file sent by the manufacturer to the notified body.
- inspection of the machine made available at the place indicated by the manufacturer, by means of instrumental tests during normal operation of the same according to the standard methods specified in Annex III.

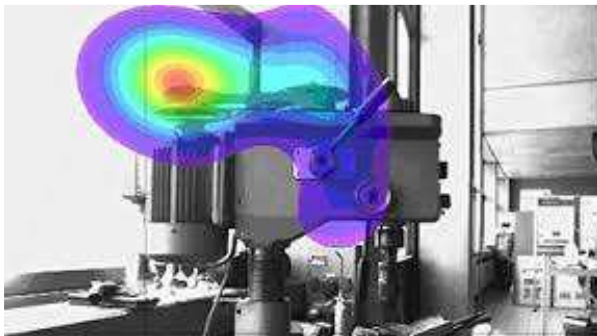
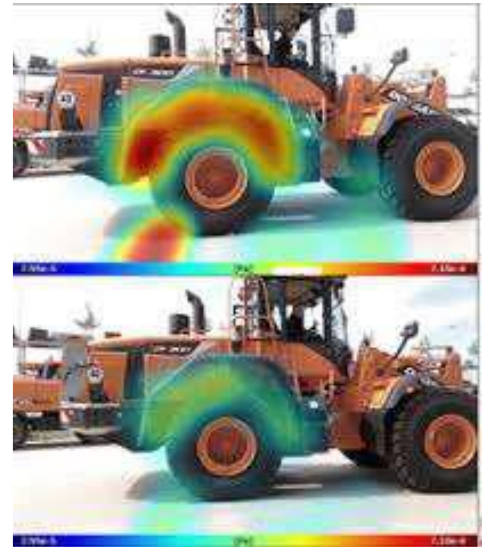
At the end of the checks a **Certificate of conformity** is issued according to Annex VII (single product) or a **Certificate of approval** of the management system in case of mass production according to Annex VI.

HOW THE SYSTEM WORKS

Thanks to a powerful array of microphones, the change in **sound pressure detected** by the sensors is converted into a set of pixels returned to video.

The result is a series of high definition images or videos able to precisely identify, in both frequency and level, the points where the acoustic emission is most problematic.

Thanks to this innovative system, it is possible to **optimize the design of machines**, equipment and components, but also to remedy problems related to noise emissions during construction.



LOCALIZATION OF ACOUSTIC SOURCES IN HIGH DEFINITION

The acoustic localization system with the **intensimetric method** allows to create high definition acoustic maps or videos with high visual impact and easily interpretable.

THE MICROPHONE MATRIX

Spacing, matrix size and number of microphones determine the **dynamic range** and **resolution of the instrument**. With 120 microphones (underlying instrument) it is possible to perform surveys starting from 40 Hz.

