



DOSE-RATE MEASURING

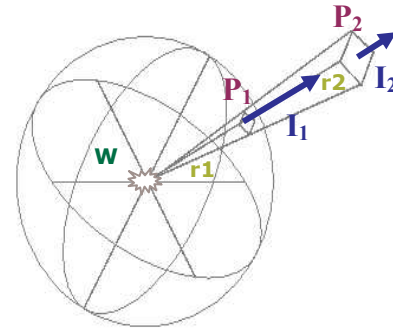


Data sheet nr 107A

The acoustic dose-rate measuring is an analysis technique :

- **TO DETERMINE THE SOUND POWER**
- **FOR THE SOUND MAPPING**
- **FOR THE LOCATION OF SOUND DEFECTS**

in order to quantize a source, to model it and to reduce its acoustic dispersion.



Intensity = Pressure * interstitial velocity

Power = Intensity * Area

$$L_w = L_I + 10 \times \log \left(\frac{1}{4\pi r^2} \right)$$

Any machine that vibrates irradiates some sound energy.

The sound pressure round a machine can give some information about the noise of the machine in its environment.

The sound intensity defines a sound energy flux by an area unit ($W.m^{-2}$)

The sound power of a machine characterizes the dispersed energy by a time unit. It's a predefined value which is environment-independent.

BENEFITS :

- The determination of the sound power by the dose-rate measuring can be made **on site, in spite of a noisy environment.**
- Contrary to the sound pressure which gives only information about the amplitude, the intensity is a vectorial quantity, which means that an amplitude and a direction are both measured at once; it is then possible **to locate the noise origin.**
- The measurement standard gives some information in real-time about the measurement accuracy class.

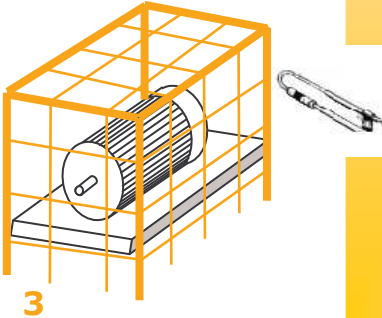
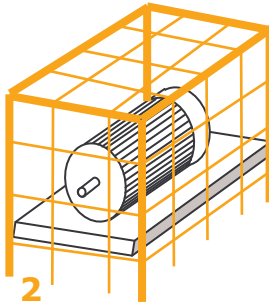
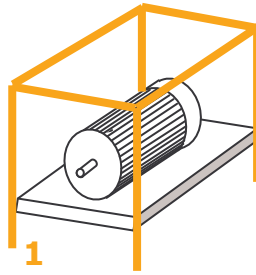
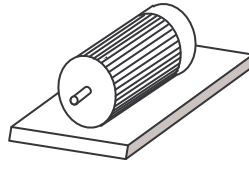


METHODOLOGICAL APPROACH ACCORDING TO THE NF STANDARD IN 9614-1

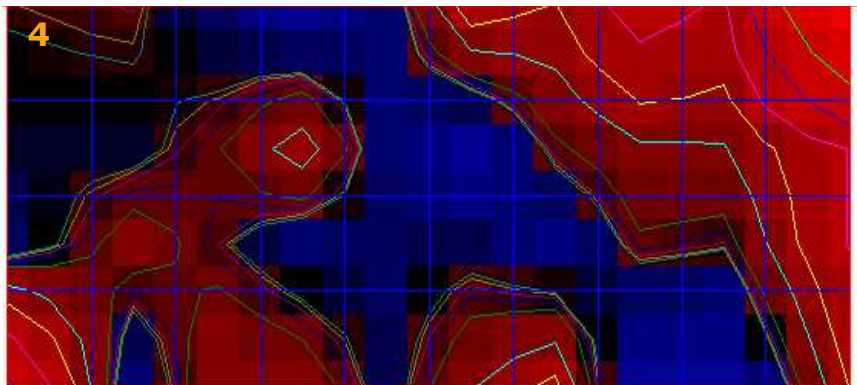
This standard defines the measurement methods stage-by-stage.

1. Determination of the volume enveloping the source to be defined (parallelepiped, hemisphere)
2. Meshing of this volume in area panels \Rightarrow area hashing in small area panels, equivalent to a point measure.
3. Measurement at each point.
4. Presentation of the results in real-time on the software. Each area panel (=measure point) is taken into consideration for a global visual display of data with :

- The sound mapping,
- The intensity level,
- The pressure level,
- The power level,
- The iso-outlines of levels.



Example of one side of the measuring envelope



METHODOLOGICAL APPROACH ACCORDING TO THE NF STANDARD IN 9614-2

This standard defines the measurement method by scanning.

1. Definition of a volume enveloping the source to be defined.
2. Continuous measurement of each side by scanning.
3. Global presentation of the results on the software with :
 - the intensity level,
 - the pressure level,
 - the power level.



L'expertise "dynamique"