

## “Noise Immission” Sales Information

### 1 Introduction

On February 15 2003, the European Parliament and Council Directive 2003/10/EC (“Noise Directive”) came into effect in Europe, to be adopted as national legislation by February 15 2006 at the latest.

Directive 2003/10/EC is aimed at employers and establishes the minimum health and safety requirements for the protection of workers from exposure to the risks arising from noise. Previously noise protection was addressed by the Prevention of Accidents Legislation “Noise” (Employer Liability Law B3), which remains in force until the Directive is adopted, i.e. until 02.15.06 at the latest.

The new Directive brings in significant changes: a reduction in all accepted noise levels by 5 dB (A), and the introduction of maximum exposure levels, taking into account soundproofing provided by ear protection. What this means in concrete terms is that, in future, employers will have to take steps to significantly reduce noise exposure in the workplace.

It is assumed from this that in future we can expect more demands from machine operators for quieter machines.

### 2 Noise Emission/Noise Immission

When considering noise, a basic distinction is to be made between noise emission and noise immission. Emission describes the noise which is emitted into the environment or the workplace by machinery, for example. By immission, what is meant is the effect of these emissions on the environment or on the employee. Directive 2003/10/EC aims to limit noise immission, i.e. the exposure of employees to noise.

Noise immission from any machine in the workplace has many contributory factors. The most important factors are laid out in illustration 1.

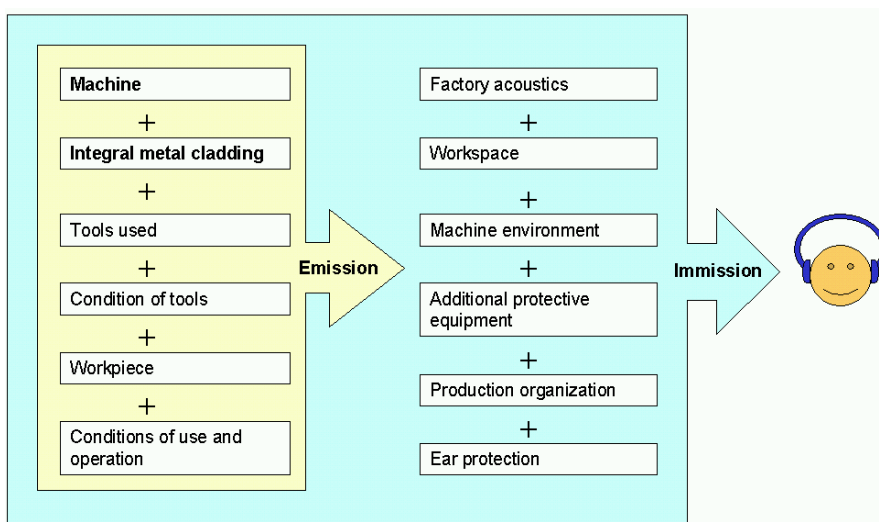


Illustration 1: Influencing variables on noise emission and immission

### 3 The Relationship between Noise Emission and Immission

There is a strong correlation between noise emission and noise immission, i.e. the greater the emission, the greater the immission. In addition to the factors which determine emissions, those which have a considerable effect on the immission level in particular are the characteristics of the workspace and other sources of noise, i.e. the number of machines and other operations going on nearby.

**For this reason, the (emission) noise level featured in the operating instructions for a machine cannot be relied upon as a guide to what immission level exists in any given working area or areas in the vicinity of the machinery or as to whether or not additional measures are needed on the part of the employer to keep within a certain immission level.**

### 4 Noise Measurement and Reporting

#### 4.1 Emission

The machine directive requires the machine manufacturer to provide noise emission data for the machine or range of machinery. Noise emission is determined using generally accepted, standardized methods of measuring emissions (e.g. EN ISO 3743-1, EN ISO 3743-2, EN ISO 3744 and EN ISO 3745). These methods differ mainly in terms of the accuracy of the measuring equipment used and the acoustic conditions in the area to be measured.

When measuring woodworking machines, insofar as these are available, the noise level needs to be kept within the parameters of the ISO 7960 Standard, and in this case the tool, the geometry of the workpiece and the operation of the machine are particularly important. By using these standardized parameters for taking measurements, it is intended to achieve comparability of the noise emissions of different machines by using otherwise constant parameters.

**ISO 7960 lays down "typical" parameters for measurement. The conditions which actually exist for operators can vary significantly from these and can lead to noticeably higher noise emission levels.**

The measured emission levels which are given in operating instructions are usually listed together with the measuring method used and the so-called resultant "environmental factor  $K_{2A}$ ", as the degree of (measuring) uncertainty (the more precise the method of measuring, the lesser is the  $K_{2A}$  factor).

#### 4.2 Immission

Immission measurements aim to provide the actual noise exposure level in the workplace. For this, during the course of a shift, workers are normally fitted with personal sound meters and recorders, with microphones fitted close to the ears, and the immission noise level is continuously recorded.

The recordings of immission noise levels are assessed according to a standardized method and from these recordings the so-called daily noise exposure level is determined. When the Noise Directive comes into effect, the daily noise exposure level may not exceed 87 dB (A), however this must take into account sound-proofing provided by ear protection, i.e. a constant value for sound-proofing is subtracted from the daily noise exposure level value, depending on the type of ear protection worn by the workers.

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Contact: Dr. Eckhard Licher  
Phone: +49 69 6603 – 1826  
Fax: +49 69 6603 – 2826  
E-Mail: eckhard.licher@vdma.org