

Decibels

In measuring noise one factor measured is sound pressure level. The sound pressure at the 'threshold of pain' is about one million times that at the 'threshold of audibility'.

Noise levels are given in decibels(dB). The decibel scale is logarithmic and in acoustic work is referred to a reference pressure equivalent to the threshold of audibility, 0.0002 dyne/cm² (0.00002 N/m²).

This decibel scale represents the range of pressure levels from threshold of audibility to threshold of pain by a range of 120 decibels units.

Decibel arithmetic

Because the decibel scale is logarithmic, care is essential in manipulating decibel values.

Two equally noisy sources together produce 3 dB more than each separately. Thus, for example,

$$80 \text{ dB} + 80 \text{ dB} = 83 \text{ dB}$$

$$96 \text{ dB} + 96 \text{ dB} = 99 \text{ dB}$$

Noise at a point receiving all the energy from a multiplicity of equal sources

No. of sources	DB above noise of one source
2	3
3	5
4	6
5	7
6	8
10	10

Typical Wool Fibre Diagrams

Material	Dry	Oil	
Mean fibre length (mm)	Hauteur	65,0	71,3
	Barbe	78,0	84,4
CV %	Hauteur	44,8	40,8
	Barbe	34,5	37,0
Short fibre content	(% less than 20mm)	5,5	2,0
	(% less than 30mm)	18,0	5,8
	(% less than 50mm)	36,0	26,5
5% of fibres are longer than	109mm	120mm	
1% of fibres are longer than	125mm	138mm	
Fibre fineness (micron)	21,0	21,0	