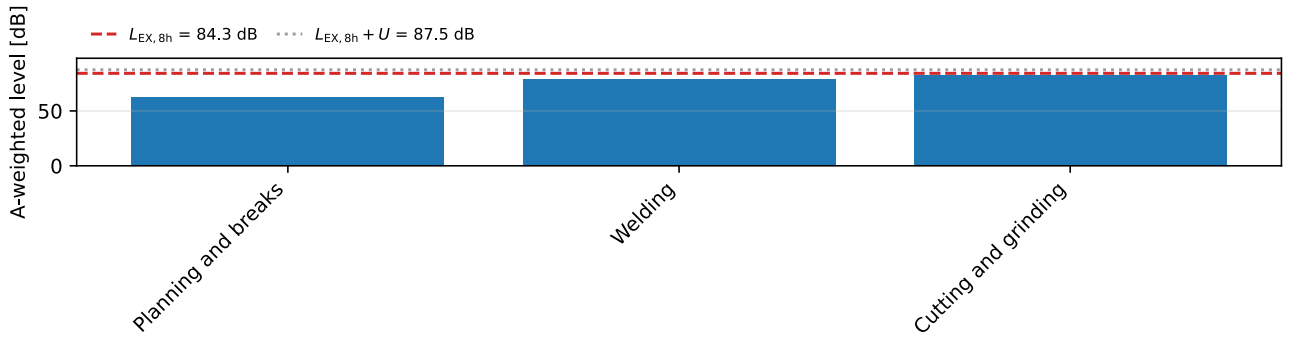
# Occupational noise exposure determination

Determination of occupational noise exposure per ISO 9612:2009 (engineering method); task-based measurement (Clause 9).

| | | | |
|---|---|---|---|
| Company: | Example fabrication works | Worker(s) / job: | Welders (homogeneous exposure group, 4 workers) |
| Workplace: | Steel assembly hall, line 2 | Date of test: | 2026-07-20 |
| Instrumentation: | Personal sound exposure meter (IEC 61252), s/n 0042 | Calibration: | Calibrator IEC 60942 class 1, s/n 0117; field checks before/after each series within 0.3 dB |

## Work analysis

| Task | $T_m$ [h] | Samples I | $L_{p,A,eqT,m}$ [dB] | Contribution $L_{EX,8h,m}$ [dB] |
|---|---|---|---|---|
| Planning and breaks | 1.5 | 1 | 70.0 | 62.7 |
| Welding | 5.0 | 3 | 80.8 | 78.7 |
| Cutting and grinding | 1.5 | 6 | 90.1 | 82.8 |
| **Nominal day** | **8.0** | | | **84.3** |




Daily noise exposure level $L_{EX,8h}$ = **84.3 dB**
U = 3.2 dB

Coverage factor k = 1.65 (one-sided 95 %)
Combined standard uncertainty u = 2.0 dB
Upper limit $L_{EX,8h}$ + U = 87.5 dB

## Assessment against Directive 2003/10/EC exposure values

| Directive 2003/10/EC value | Threshold | Measured | Result |
|---|---|---|---|
| Lower exposure action value | 80 dB(A) | $L_{EX,8h}$ = 84.3 dB | ● Exceeded |
| Upper exposure action value | 85 dB(A) | $L_{EX,8h}$ = 84.3 dB | ● Not exceeded |
| Exposure limit value | 87 dB(A) | $L_{EX,8h}$ = 84.3 dB | ● Not exceeded |
| One-sided 95 % upper limit $L_{EX,8h}$ + U | – | 87.5 dB | – |

Result vs requirement: $L_{EX,8h}$ = 84.3 dB, exposure limit value ≤ 87 dB(A) → **PASS**

The ISO 9612 sampling rules recommend additional measurements (3 dB spread rule of Clauses 9.3/11.3, Table C.4 threshold of Clause 10.4, or the Table 1 minimum cumulative duration).

Noise exposure level and measurement uncertainty are stated as separate values (ISO 9612:2009 Clause 15); U = k·u with k = 1.65 gives the one-sided 95 % confidence interval (Clause 14, Annex C).

When applying the exposure limit value, Directive 2003/10/EC (Article 3) takes account of the attenuation of the individual hearing protectors worn; the measured $L_{EX,8h}$ stated above does not include it.

**Laboratory:** Phonometry reference example
**Report no.:** EXAMPLE-9612
**Date:** 2026-07-20
**Notes:** Reproduces the ISO 9612:2009 Annex D task-based worked example.
Operator: phonometry  Signature: _____

■ The results relate only to the tested specimen.