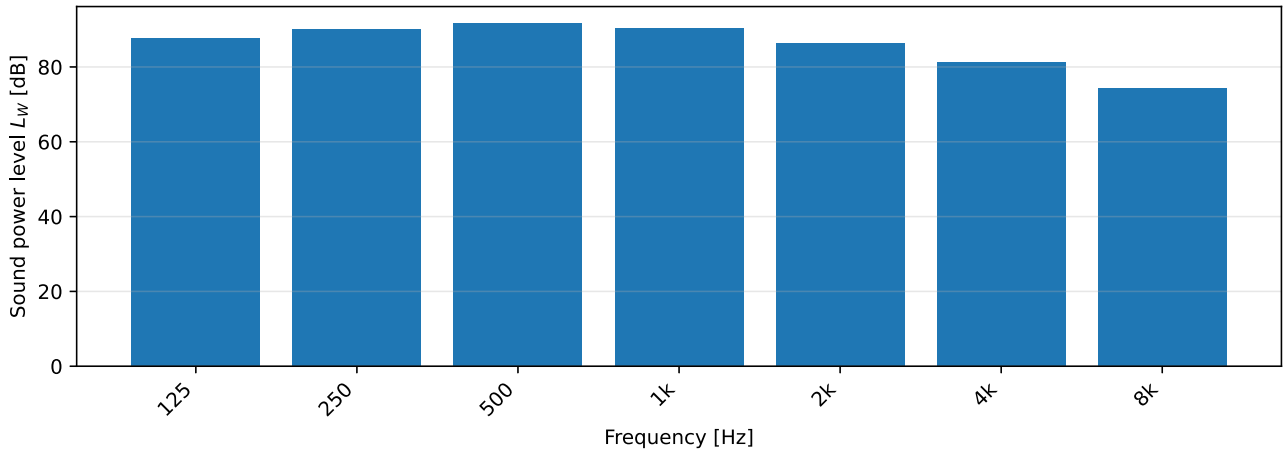
Sound power determination

Determination of the sound power level from the mean sound pressure level in a qualified reverberation test room, direct method using the room equivalent absorption area (ISO 3741:2010, precision method, accuracy grade 1).

Client:	Example manufacturing plant	Noise source:	Hydraulic power pack (floor-standing)
Test environment:	Qualified reverberation room, V = 200 m3, T60 = 2.0 s	Instrumentation:	Class 1 sound level meter (IEC 61672-1), s/n 0042
Temperature [°C]:	20	Relative humidity [%]:	50
Ambient pressure [kPa]:	101.325	Date of test:	2026-07-22

Octave-band sound power levels

f [Hz]	L_p [dB]	L_W [dB]
125	80.0	87.6
250	83.0	90.0
500	85.0	91.6
1000	84.0	90.4
2000	80.0	86.3
4000	75.0	81.2
8000	68.0	74.2



Sound power level L_{WA} = 94.3 dB(A) re 1 pW

Total L_W = 96.7 dB re 1 pW
Determination method: direct method (room absorption)

Result vs requirement: L_{WA} = 94.3 dB(A), declared limit ≤ 96.0 dB(A) → **PASS**

The mean room level L_p is the energy average over the microphone positions corrected for background noise (K1, ISO 3741:2010 Eq. 14); $L_W = L_p + 10\,\lg(A/A_0) + 4.34\,(A/S) + 10\,\lg(1 + S\,c\,/(8\,V\,f)) + C1 + C2 - 6$, A_0 = 1 m² (Eq. 20), with the Sabine absorption area $A = (55.26/c)(V/T_{60})$ and c = 343.2 m/s. Applied meteorological corrections C1 = –0.15 dB, C2 = –0.06 dB.

The A-weighted sound power level L_{WA} combines the band levels with the A-weighting band corrections of ISO 3741:2010 Annex F (Eq. F.2, reusing the ISO 3744:2010 Annex E corrections). Levels are referenced to the reference sound power 1 pW.

Laboratory: Phonometry reference example
Report no.: EXAMPLE-3741
Date: 2026-07-22
Notes: Reverberation-room direct method (ISO 3741:2010, precision grade 1).
Operator: phonometry Signature: _____

■ The results relate only to the tested specimen.

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