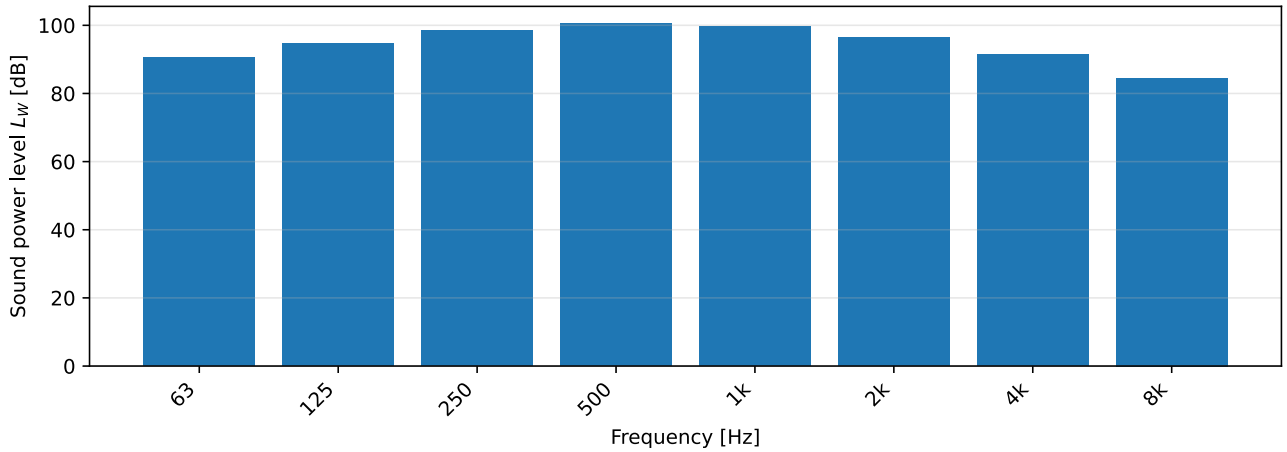
Sound power determination

Determination of the sound power level from sound pressure over an enveloping measurement surface (ISO 3744:2010, engineering method, accuracy grade 2).

Client:	Example manufacturing plant	Noise source:	Hydraulic power pack (floor-standing)
Test environment:	Hemi-anechoic room over a reflecting floor	Instrumentation:	Class 1 sound level meter (IEC 61672-1), s/n 0042
Temperature [°C]:	21	Relative humidity [%]:	45
Ambient pressure [kPa]:	101.1	Date of test:	2026-07-20

Octave-band sound power levels

f [Hz]	L_p [dB]	L_W [dB]
63	70.5	90.5
125	74.5	94.5
250	78.5	98.5
500	80.5	100.5
1000	79.5	99.5
2000	76.5	96.5
4000	71.5	91.5
8000	64.5	84.5



Sound power level L_{WA} = 103.7 dB(A) re 1 pW

Total L_W = 105.8 dB re 1 pW
Expanded uncertainty U = 3.0 dB
Measurement surface S = 100.53 m²

Result vs requirement: L_{WA} = 103.7 dB(A), declared limit ≤ 105.0 dB(A) → **PASS**

Surface level L_p is the energy average over the microphone positions corrected for background noise (K1, ISO 3744:2010 Eq. 16) and the test environment (K2, Eq. A.2); $L_W = L_p + 10\,\lg(S/S_0)$, S_0 = 1 m² (Eq. 18). Applied corrections K1 = 0.5 dB, K2 = 1.0 dB.

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

Laboratory: Phonometry reference example
Report no.: EXAMPLE-3744
Date: 2026-07-20
Notes: Enveloping-surface pressure method over a hemisphere (ISO 3744:2010, engineering grade 2).
Operator: phonometry Signature: _____

■ The results relate only to the tested specimen.

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