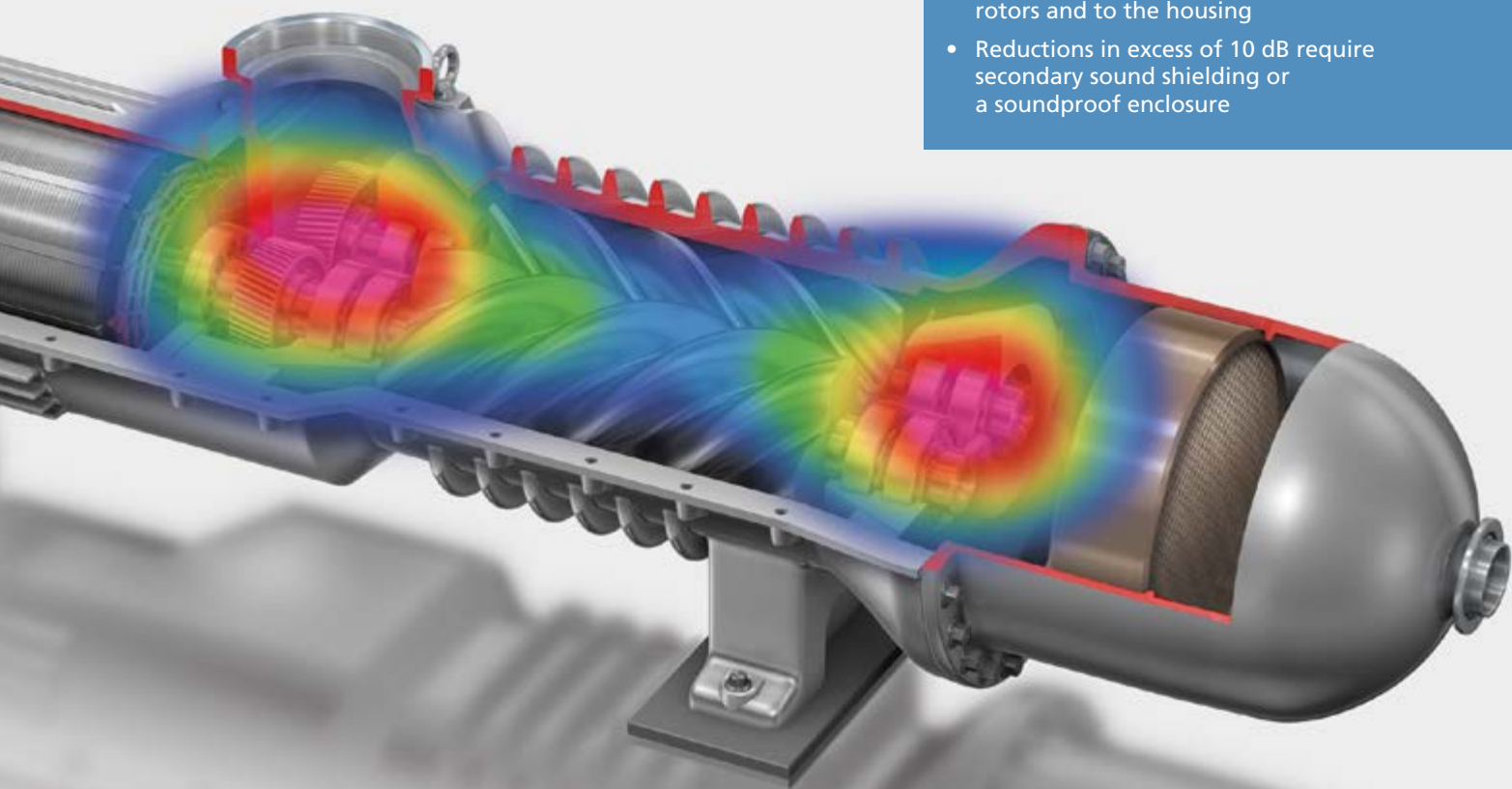


PRUFTECHNIK Service Center

## Measuring the noise level of machines remotely and online to purposefully reduce noise

- Continuous measurement over longer time periods with remote access
- Up to 5 dB noise reduction thanks to measures on the housing
- Up to 7 dB noise reduction thanks to modifications to the gearing, rotors and to the housing
- Reductions in excess of 10 dB require secondary sound shielding or a soundproof enclosure



# VIB 3.1 – Analyzing noises on rotating machines

## What is to be noted in relation to acoustic values?

Noise data is not definite. Emission and immission levels are defined differently and appropriate measurement technology and knowledge are required. Noises occur on the machine for which the cause is unknown or because production of such noises was heightened due to an increase in speed.

## Frequently asked questions

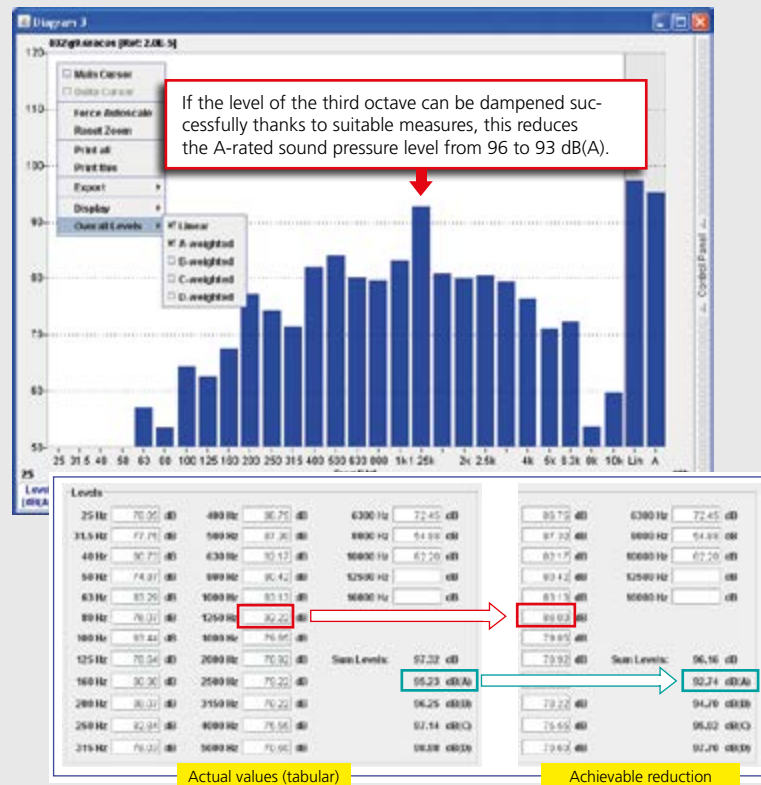
What noise levels are affecting the system and what are the causes? Does the machine conform to the state-of-the-art? What are appropriate active and passive sound reduction measures? How high are the exposure levels?

## How is noise measured?

PRUFTECHNIK conducts acceptance measurements for both noise emission and noise immission using category 1 measurement technology and compares the results against the state-of-the-art and against statutory requirements. A special feature of PRUFTECHNIK's solution is that measurements can be taken remotely over the course of complete working days and weeks. Should the need arise, a search for suitable noise reduction measures is carried out and a recommendation is made.

Information for the workforce													
Information and instructions													
General advice on occupational health													
Hearing protection													
Distribution of hearing protection													
Use of hearing protection													
Occupational medical care													
Private health care						Public health care							
Further measures													
Identification, or marking of noisy areas													
Noise reduction program													
79	80	81	82	83	84	85	86	87	88	89	90	91	$L_{A,85}$ in dB (A) →
													$L_{pC,peak}$ in dB (C) →

Top image: Third octave spectrum of the sound pressure level with a tonality.  
Bottom image: The dbSpectra program makes it possible to estimate the achievable reductions.



Noise is harmful to health and can result in irreparable hearing damage. Across the EU, legislation has reduced noise levels by 5 dB and obligated machine and system manufacturers to provide information about noise emissions, for example, in operating instructions. Machine operators are obligated to purchase low-noise machines and are obligated to check the noise levels.

## A real-life measurement example

Resident of a wind turbine had complained about the noise being too loud. PRUFTECHNIK was commissioned to measure the noise pollution and to search for the cause of the noise. From both the third octave and narrow band spectra it was possible to identify the tooth

mesh frequency in the gear output stage as the dominant source of the noise. A wear pattern displacement and loose bearing seat were detected during a wear pattern inspection. This is how the cause of the noise was found and corrective measures were recommended.



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