

## **RVS Technology® in Wind Turbine Gearbox in Denmark, 2011 (Brand and type: Vestas W44, 600 kW)**

**RVS Technology is now successfully tested in a gearbox on a Vestas wind turbine, test conducted by AP Mechanical engineering in Varde by Preben Kristensen.**



After having a dialogue with the owner of the AP Mechanical engineering in Varde, Preben Kristensen, we came to the conclusion that the gearbox in his Vestas wind turbine should have an RVS treatment. Preben told that it progressively gave quite a noise, why it was time to do something.

We did send an RVS Technology Professional Gel off to him (intended for large devices), and awaited anxiously for the result.

It didn't take long before Preben returned with the following observations:

*"This a brief description of what we have observed by filling RVS.*

*The Wind Turbine is a Vestas W44 of 600 KW. It was erected and launched in March 1998 and it has been running without major problems since then. It had until 3.10. 2011 produced 16,698,288 KW.*

*Over time the gear had started to give noise and when I heard about RVS, I thought that RVS couldn't at least cause any harm. I spoke with Sören and we were sent RVS.*

*Before applying the RVS, on 3.10.2011, we changed the oil and oil filter and on 4.10. 2011, I recorded a noise measurement at the basement of the tower at wind speed of 9.5 to 9.8 m / sec. The reading of the noise meter **was 97.2 dB.***

*The amount of oil in the gearbox is 125 liters. I stopped the mill and filled in 125ml of RVS gel diluted in one liter of oil into the gearbox. The mill was re-started and operated normally until 30.11.2011, when the wind speed was again on comparable level to the measurement taken on 4.10.2011. I took a new noise measurement at the basement of the tower at a wind speed of 9.8 to 10.1 m / sec. The noise meter gave a reading **85.3 dB.** I repeated it a few times to be totally sure. The conclusion is that there is no doubt about that RVS has a very positive effect to the noise and I will add RVS at each oil change. "*

*Preben Kristensen*

The reduction of the generated noise level is very very significant. Below, we have written a bit about how to measure the decibels, and here we can read how extreme the reduction actually is.

This test opens the chances for a massive reduction of generated noise, in particular where older wind turbines are operated.

Similarly, you may be sitting with other problems and thinking, wondering if RVS can help here, so please call us or send us an email and let's weigh the question together.

A little about decibels:

Decibel, shortened dB, reflects the volume of sound pressure, on either the human tympanic membrane or membrane of the microphone of the sound level meter. The scale is logarithmic and it is important to know because it means that the decibel values can not be treated as mere numbers.

For example, the sound pressure level at 60 dB is not twice the sound pressure level at 30 dB. It is as much as 5 times as large. This is due to the logarithmic scale is arranged so that the sound pressure doubles every time we increase 6 dB up the scale. From 30 dB to 60 dB we have increases of 6 dB up the scale 5 times ( $5 \times 6 \text{ dB} = 30 \text{ dB}$ ).

However, the fact is that the human perception of sound is different than the dry figures of

the sound level meter. For some reason human perceive the first volume level as doubled when we climb 10 dB up the scale. For example, 60 dB is perceived as twice as loud as 50 dB and four times greater than 40 dB.

It does actually mean that the noise level has more than halved, due to the effects of RVS Technology, as we humans perceive sound/noise reduction from 97 db to 85 db.

If you take the db scale, actually only 1/3 of the sound/noise level is remaining now, as it has fallen 12 db and for each 6 dB the sound/noise is doubled/halved ...

It's actually a huge improvement and reduction.

*"The results are very good as typical for RVS Technology, but what's amazing in this case, the results **have been reached with half dosage of RVS Technology compound**. The normal instructed dosing is 2 ml of RVS Gel per 1 liter of oil."*

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