

## Windnoise reduction figures for Rycote windshielding devices

Rycote has developed its own technique for measuring wind noise that uses real wind and a real-time differential comparison. The technique compares the behaviour of two microphones under identical conditions, one with a particular windnoise reduction device fitted and the other without, and produces a statistical curve of the result corrected for response and gain variations.

The graphs shown are for a Sennheiser MKH60 microphone – a representative short rifle microphone – *without any LF attenuation* in a wideband (20Hz-20kHz) test rig.

When a windnoise reduction device is fitted, its effect on the audio response is a constant factor – if it causes some loss of HF it will do it at all times. However the amount it reduces windnoise by depends on how hard the wind is blowing. If there is a flat calm it will have no beneficial effect at all and the sole result will be a degradation of the audio performance of the microphone. However in a strong gale a small deviation from a perfect flat response may be a minor compromise to make for a recording with >30dB reduction in windnoise. Rycote strongly recommends fitting the minimum shielding necessary at any time.

### Windnoise and audio attenuation

The spectrum of windnoise is low frequency. For a naked MKH60 the energy is almost entirely below 800Hz rising to a peak of 40dB at about 45Hz. It is the effect of a shield at these lower frequencies that is most important. Cavity windshields inevitably produce a slight decrease in LF response in directional microphones but this is not usually noticeable. Basket types have very little effect on HF. Fur coverings, while having a major effect in reducing LF noise, will also attenuate some HF.

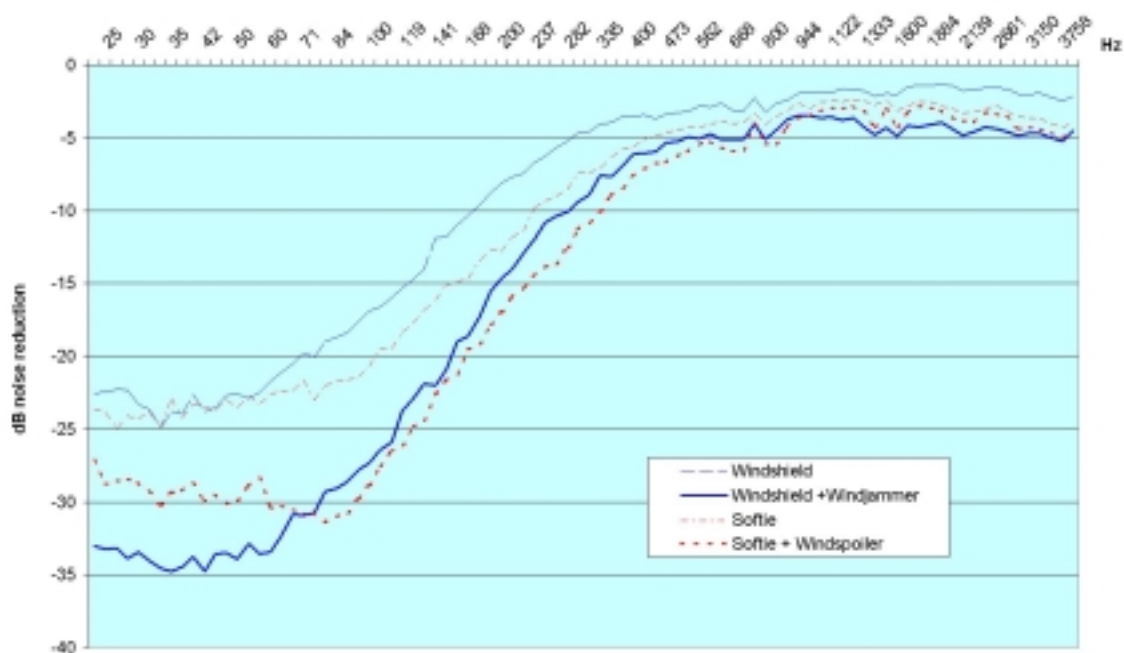
Adding the LF attenuation available on many microphones or mixers (which is usually necessary to prevent infrasonic overload and handling noise when hand-holding or booming a microphone) may give extra windnoise reduction improvements of >10dB at the cost of some LF signal loss.

### Rycote Standard Windshield and Windjammer

The standard (basket) windshield shows up to 25dB windnoise attenuation at 35Hz while giving almost no signal attenuation. Adding a Windjammer will give an improvement of some 10dB at LF – 35dB. The attenuation of the Windjammer is approximately 5dB at frequencies above 6kHz although this will increase if it is damp or allowed to get matted. Overall this combination gives the best performance of wideband windnoise reduction against signal attenuation.

### Rycote Softie and Windspoiler

The Softie is a simple integrated cavity windshield and a permanent fur cover and produces a windnoise reduction of about 25dB – the same as a plain windshield (no Windjammer). Having a fur covering it suffers from some HF attenuation – about 7dB at 6kHz. Adding a Windspoiler alters the LF curve shape and improves it by about 8dB at 85Hz – a very useful addition since there is no extra signal attenuation.



Wind noise reduction options - MKH60 under real wind conditions (means of 20 readings)