

## Documents

Barszcz, T., Sawalhi, N.

**Fault detection enhancement in rolling element bearings using the minimum entropy deconvolution**  
(2012) *Archives of Acoustics*, 37 (2), pp. 131-141. Cited 21 times.

### Abstract

Minimum Entropy Deconvolution (MED) has been recently introduced to the machine condition monitoring field to enhance fault detection in rolling element bearings and gears. MED proved to be an excellent aid to the extraction of these impulses and diagnosing their origin, i.e. the defective component of the bearing. In this paper, MED is revisited and re-introduced with further insights into its application to fault detection and diagnosis in rolling element bearings. The MED parameter selection as well as its combination with pre-whitening is discussed. Two main cases are presented to illustrate the benefits of the MED technique. The first one was taken from a fan bladed test rig. The second case was taken from a wind turbine with an inner race fault. The usage of the MED technique has shown a strong enhancement for both fault detection and diagnosis. The paper contributes to the knowledge of fault detection of rolling element bearings through providing an insight into the usage of MED in rolling element bearings diagnostic. This provides a guide for the user to select optimum parameters for the MED filter and illustrates these on new interesting cases both from a lab environment and an actual case. Copyright © 2012 by PAN - IPPT.

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