應用雜訊清除技術監測滾珠軸承初期破壞

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摘 要

滾珠軸承是機械系統中最重要的元件之一，其廣泛的應用於支撐旋旋轉軸與承受負荷，軸承的工作狀態不僅深遠地影響機械工作之性能，甚至於系統工作安全。軸承之初期破壞之振動訊號的量測過程中，往往由於其機械背景振動訊號能量強大，而掩蓋了初期破壞之振動訊號。如此在訊噪比(SNR)極大的狀況下，量測出的結果則無法直接判斷出初期破壞。 本文之目的便是期望藉由訊號處理的技術，來建立主動式訊號處理系統(ANC System，Adaptive Noise Cancellation System)，加以處理訊噪比(SNR)極大的振動訊號，並獲取零件(如：軸承)真確的運轉訊號，更進一步判定零件在機械系統中運轉之狀況。建立此技術便可在無須機械停止運轉的狀態下探知零件狀況，真正達成即時監控的目的，並配合軸承損傷監測的方式來判定軸承狀況。

關鍵詞 : 滾珠軸承，主動式訊號處理，破壞監控，軸承診斷

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