

Compression Driver Diaphragm Longevity

Several forum members have put forward the question of compression driver diaphragm longevity. Here is some information.

Context - 2410/2420/2421/2425/2426/2440/2441/2445/LE175/LE85/375/376

The power and efficiency ratings of these compression drivers can be found on the JBL Pro website or in our Library.

The following information is courtesy of **JBL** -

"The fatigue life of materials depends on amplitude of deflection. There is also a threshold. Meaning that if a diaphragm never sees more than a certain level it will never fatigue."

"It was felt that these diaphragms (aluminum) would probably last 2 hours at full power before starting to crack. The derating we believe to be that the life will extend about 10 times for each halving of power."

"The whole thing is of course complicated by spectrum. The above assumes the 2" drivers crossover around 1,000 Hz and the 4" drivers about 500 Hz."

"Titanium has about 10 times the fatigue resistance of aluminum. However the threshold is much higher as far as never fatiguing. Aluminum continues to fatigue at very low levels."

"The stress in the diamond surround is higher and thus would fatigue easier."

"The basic improvement of the diamond surround is that it moves the second resonance way up to 17,000 Hz or more. So they are simply broader band."