

1982

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G., D.G. D., "Analysis of Compressor Bolt Fasteners Subjected to Dynamic Loading" (1982). *International Compressor Engineering Conference*. Paper 376.

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ANALYSIS OF COMPRESSOR BOLT FASTENERS
SUBJECTED TO DYNAMIC LOADING

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Abstract:

Predominant cause of fractures of bolts subjected to cyclic loading is attributable to a lack of attention to proper design considerations for elastic joints.

In this paper, fundamentals of bolted elastic joints subjected to cyclic loading are reviewed. A case history involving use of elastic joint techniques involving the piston bolt of a small air compressor is given. In the example, analysis of dynamic loads acting on the joint, elastic joint properties and stress analysis of the bolt are presented.

In conclusion, factors of safety are developed that enable the designer to comparatively evaluate various bolt joint options that may be available.