

**DYNAMIC EVALUATION OF A THREE POINT MOUNT BASEPLATE FOR A MOTOR
DRIVEN, CENTRIFUGAL COMPRESSOR PACKAGE (TP068)**

Joseph S. Kubany IV
Dresser-Rand, Olean, NY, USA

Joseph A. Tecza
Dresser-Rand, Wellsville, NY, USA

Per Gustafsson
Dresser-Rand, Kongsberg, Norway

ABSTRACT:

Maintaining acceptable alignment can be an issue for rotating machinery on off-shore floating platforms. Distortion arising from motion within the platform can change the alignment of the production machinery if that machinery is mounted rigidly to the platform. One way to eliminate the effects of such distortion is to attach the machinery on its own baseplate, which is connected to the platform using a three point mounting system. Anti-Vibration Mounts (AVMs) are used at each support location, and these devices are effective in isolating the baseplate and its machinery from the surrounding structure. The package discussed in this paper consists of a centrifugal compressor, a gear, and a 6.3 MW (8500 hp) variable speed motor (1000 – 1890 RPM) mounted on a baseplate. The equipment train has vibratory modes that could not be moved from the operating speed range. Some of these mode shapes show coupled motion between the motor and the baseplate. Test results were compared to the detailed Harmonic Response Finite Element Analysis (FEA) of the coupled structure, which predicts both baseplate resonance and motor rotor response amplitudes. Both analysis and testing demonstrate that these modes do not have a significant effect on package operation.

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