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Selecting the most economical drive system for centrifugal compressors

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Abstract

Centrifugal compressors are a key equipment of any oil and gas production or processing plant. Selection of the drive system for centrifugal compressors is an important step in the engineering phase. To find the most economical drive system is a challenge for every rotating machinery specialist. "Fixed speed" or "variable speed", turbine or electric driver need to be evaluated. Developments have emerged in the drive industry giving the engineer a broader base from which to select a drive system for compressors requiring a variable speed operating range.

The paper focuses on applications requiring variable compressor speed and discusses the different drive systems and the driver selection process. Application of a mechanical variable speed drive (variable speed planetary gear) used in combination with a fixed speed electric motor is explained. Selection criteria and main characteristics required for an evaluation are given. Based on a case study the variable speed planetary gear is being compared to other electric variable speed drive systems.