عنوان مقاله:

(Nonlinear control of Serge phenomenon in centrifugal compressors based on Lyaponov rules (Radical function

نویسندگان:

Behnam Shahkolaei - *M.Sc Student, Mechanical Engineering, Qaemshahr Branch, Islamic Azad University, Qaemshahr, Iran.*

Mehdi Miyansari - *Assistant Professor, Mechanical Engineering, Qaemshahr Branch, Islamic Azad University, Qaemshahr, Iram.*

خلاصه مقاله:

The rotary machine used for compressing gases in the industry is called centrifugal compressors. The turbulence and fluctuations in the compressor gas flow andpressure resulting from the decrease in the inlet current to the compressor are called surges. The surge causes unwanted fluctuations in the compressor discharge, which can damage it. In this paper we discuss the nonlinear control of the Serge phenomenon in centrifugal compressors based on Lyapunov theory. We also used the Moore-Gritzer model, which expresses the dynamic state and behavior of the centrifugal compressor, which controls the unsteady phenomenon of the surge by controllers designed based on Lyapunov theory. At the outlet of the compressor and inlet of the compressed air reservoir is a control valve called the Close Coupled Valve. Using a controller makes it easy to design, implement, and troubleshoot the system. The advantages of this method (Lyapunov-based controller design) over the conventional industrial method are the greater variety of design controls, the expansion of the security margin, resulting in higher efficiency, simplicity and lower cost. But because of the high cost and sensitivityof industrial compressors and the popularity of their controllers, which have made their way back in the industry, this method has been used far less frequently edge.

کلمات کلیدی:

Centrifugal compressor, Nonlinear control of surge phenomenon, Lyapanov's law.

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