

[12] Patent

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[54] COMPRESSOR STARTING TORQUE CONVERTER

[57] Abstract: The subject invention involves a compressor starting torque converter (CSTC) to enable starting up single-shaft gas turbine driven compressor sets. The CSTC is part of a power transmission system for driving a process load such as a process load centrifugal compressor in a liquefied natural gas (LNG) plant includes a single-shaft gas turbine with an output shaft coaxially connected to the input shaft of the CSTC's torque converter, in turn whose output shaft drives the process load centrifugal compressor. The CSTC operates as a fluid coupling whereby the gas turbine and the compressor shafts are coupled via the working fluid (oil). Gradual filling of the torque converter allows the gas turbine to gradually bring the load centrifugal compressor up to speed. Once the process load compressor is up to speed. A lock up device is engaged to mechanically couple the gas turbine directly to the compressor and then the torque converter is drained. The required switch-over from an unlocked, filled torque converter "Start-Up" mode to the locked-up, drained torque converter "Normal Operation" mode also involves a change from less efficient power transmission mode to a much higher efficient power transmission mode. This is due to the much higher efficiency of the lock-up device as compared to the much lower efficiency of the torque converter in the CSTC.

No. of claims: 12

No. of figures: 3

