Accepted Manuscript

Performance Analysis and Optimization of Reciprocating Compressor with Stepless Capacity Control System under Variable Load Conditions

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 PII:
 S0140-7007(18)30250-0

 DOI:
 https://doi.org/10.1016/j.ijrefrig.2018.07.013

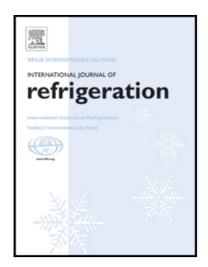
 Reference:
 JIJR 4043

To appear in: International Journal of Refrigeration

Received date:24 September 2017Revised date:11 June 2018Accepted date:16 July 2018

Please cite this article as: Yao Wang, Zhinong Jiang, Jinjie Zhang, Chao Zhou, Wenhua Liu, Performance Analysis and Optimization of Reciprocating Compressor with Stepless Capacity Control System under Variable Load Conditions, *International Journal of Refrigeration* (2018), doi: https://doi.org/10.1016/j.ijrefrig.2018.07.013

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Highlights

- A model of a reciprocating compressor under variable load conditions is developed.
- The influence of key parameters on capacity regulation performance is analyzed.
- The 360 N hydraulic force of the unloader is chosen as an optimal value.
- The displacement of 1.75mm is preferable for the unloader over that of 2 mm.
- The optimal withdraw velocity of 1.1m s⁻¹ is obtained to minimize the impact stress.

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