On the flow analysis of the dual screw compressors

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ABSTRACT

Application of the types of compressors are reciprocating, centrifugal, screw, vacuum pump, liquid pump and heterogeneity. Recent with fully provident and efficiency and stability of analytical tools in the help of design, through one-dimensional model of fluid through the experiment was confirmed base on the numerical method. Further improvement the intake valve of the gas flow and the loss of results and how are shape of the impact of these pressure and exhaust temperature, the deformation of machine parts a great influence on performance. The use of CFD analysis and the results and three-dimensional computer-aided design system together. This article describes how CFD software design by others, through the merger of the double helix was interactive compressor control throughout the design process of an indispensable management. Description of the method has a cheak number of opportunities and can be use not only in terms of spiral compressors but also for any types of or another types of double helix rotor machines or another types of machines, for example, reciprocating, centrifugal, screw, vacuum pump.

Keywords : screw compressors , CFD analysis , auxiliary design , compressor kind

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REFERENCES

[1] N. Stosic, I.K. Smith and A. Kovacevic, "Optimisation of crew compressors" , Centre for Positive Displacement Compressor Technology, February 2003.

[2] J. Vimmr, "Mathematical modelling of compressible inviscid fluid flowthrough a sealing gap in the screw compressor",Department of Mechanics, Faculty of Applied Sciences, CZ-306, February2002.

[3] D. Zaytsev and C.A. Infante Ferreira, "Profile generation method for twin screw compressor rotors basedon the meshing line" , Mechanical Engineering and Marine Technology, February 2005.

[4] Wu Huagen, Xing Ziwen and Shu Pengcheng, "Theoretical and experimental study on indicator diagram of twin screw refrigeration compressor" , School of Energy and Power Engineering , January 2004.

[5] Long Fu, Guoliang Ding and Chunlu Zhang, "Dynamic simulation of air-to-water dual-mode heat pump with screw compressor" , Department of Power and Energy Engineering, April 2003.

[6] Yu-Ren Wu and Zhang-Hua Fong, "Improved rotor profiling based on the arbitrary sealing line for twin-screw compressors" , Department of Mechanical Engineering, July 2007.

[7] Nikola Stosic , Elvedin Mujic and Ian K. Smith ,"Cfd integra Desing of Screw Compressors", Centre for Positive Displacement Compressor Technology, 2007.

[8] 賴欣池，"螺旋式壓縮機轉子優良齒形之設計"，機械月刊，第二十七卷第十期，第266-271 頁，2001。

[9] 黃明祥，具非對稱行螺桿螺旋式壓縮機之設計，大葉大學機械工程研究所碩士論文，2000。
[10] 游育權，雙螺旋式真空螺桿幾何設計及性能分析，大葉大學機械工程研究所碩士論文，2002。
[11] 謝家駿，雙螺旋式真空幫浦轉子幾何研究，大葉大學機械工程研究所碩士論文，2008。
[12] 楊炳春、李建風、邢子文、李躍倉，無油螺杆空氣壓?機轉子變形分析，西安交通大學壓?机研究所，?西，2005。
[13] 蔡明全，"螺旋式壓縮機軸承排列及應用"，機械月刊，第二十二卷第十期，1996年十月。
[14] http://www.ecct.org.tw/print/image/13_89air-4.doc [15] http://www.ecct.org.tw/print/image/13_89air-2.doc [16] http://www.cfd.pme.nthu.edu.tw