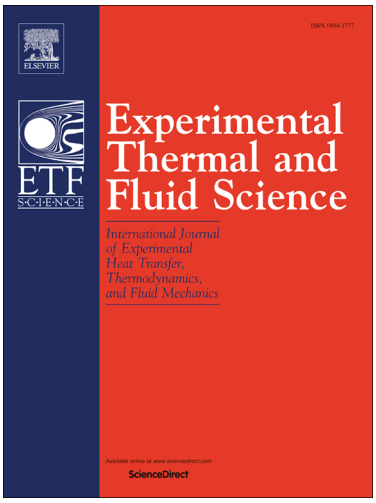

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ABSTRACT: In order to study the operation reliability of spiral wound heat exchangers (SWHEs) applied in floating liquefied natural gas (FLNG) offshore platforms, an experimental device of dual mixed refrigeration (DMR) and a six-DOF (degree of freedom) sloshing platform are constructed. The effects of yawing, pitching, heaving and surging motions on the pressure drop characteristics of SWHE are analyzed experimentally at different sloshing angles, periods and amplitudes. The results show that pressure drop characteristics of gas-phase mixed refrigerant are influenced much more significantly under sloshing conditions, compared with feed gas and liquid-phase mixed refrigerant. In addition, heaving and pitching motions have a larger influence on tube-side pressure drop characteristics than surging and yawing, under the same conditions.
Keywords: Spiral wound heat exchanger; FLNG; Experimental; Pressure drop; Sloshing

1. Introduction

Natural Gas is currently the third largest global energy source due to its availability and versatility [1-3]. The LNG plants can successfully bring many large remote gas fields to the markets that are unreachable by pipeline. DMR liquefaction process is considered as a suitable process for LNG process [4]. However, many gas fields are located in deep water. As a result, floating LNG

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