

## An experimental study of Wedge flowmeter for sodium flow measurement

정민환<sup>†</sup>, 김병호, 윤정, 이제환  
한국원자력연구원  
(minhwan@kaeri.re.kr<sup>†</sup>)

Flow meters used to measure the flow rate of liquid sodium must meet the limiting conditions to withstand high operating temperatures, chemical reaction properties of sodium. In particular, when measuring the flow rate of the liquid sodium, it is difficult to measure with a general differential pressure flow meter because it is necessary to take into account the blockage caused by the remaining sodium and the uncertainty of the flow rate measurement.

Wedge flowmeter has the advantages of easy dissipation of sodium, low pressure loss, wide range of applied Reynolds number and bi-directional measurement. Therefore, the Wedge Flowmeter was selected for the flow measurement and the conceptual design was made. The CFD was used to evaluate the change of discharge coefficient according to the Reynolds number, the ratio of tightening, and the Wedge angle. The Wedge Flowmeter was also fabricated to measure the change in discharge coefficient with the Reynolds number under specific conditions ( $h / D = 0.5$ ,  $20^\circ \text{C}$  water).

In this paper, the results of the Wedge Flowmeter performance test are described and compared with CFD results.