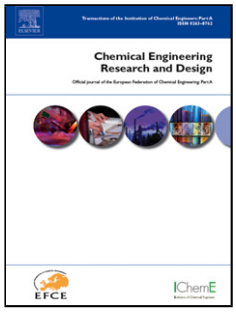

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CFD simulation for the effect of the header match on the flow distribution in a central-type parallel heat exchanger

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Highlights

- The flow distribution in parallel manifolds has been numerically investigated.
- Three types of flow distribution have been analyzed.
- The effect of the header match on the flow distribution have been investigated.
- The best choice of DCR for different types of flow distribution are given.

Abstract

The present study numerically investigates the effect of the header match on the flow distribution in a central-type heat exchanger. Past studies have shown that the appropriate choice in two different header diameters (header match) will significantly help improve the flow distribution in the Z-type and U-type parallel heat exchangers. Under this circumstance, investigations are carried out on the central-type heat exchangers. According to our previous work on the effect of the geometric parameters on the flow distribution in a central-type exchanger[14], three different types flow distribution have been pointed out. Considering the differences in characteristics among three types of the flow distribution. The investigations have been separately made on each type of flow distribution. The results indicate that for the different types of the flow distribution, the best choice of the cross-sectional area ratio of dividing