THE TWO-MACHINE FLOW-SHOP SERIAL-BATCHING SCHEDULING PROBLEM WITH LIMITED BATCH SIZE

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Abstract
We consider the two-machine flow-shop serial-batching scheduling problem where the batches have limited size. Two criteria are considered here. The first criterion is to minimize the number of batches. This criterion reflects situations where processing of any batch induces a fixed cost, which leads to a total cost proportional to the number of batches. The second criterion is the makespan. We study the complexity of the problem and propose polynomial-time algorithms for some particular cases and an approximation algorithm with a guaranteed performance for the general case.

Keywords: two-machine flow-shop, serial batching, limited batch size, makespan, batch cost.