



HEURISTIC METHODS FOR MINIMIZING CUT BARS AND USING LEFTOVERS FROM THE ONE-DIMENSIONAL CUTTING PROCESS

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Abstract. The cutting problems consist in cutting a set of objects available in stock in order to produce the desired items in specified quantities and sizes. The one-dimensional cutting stock problem involves only one of the relevant dimensions in the cutting process, as in cutting bars, rolls and tubes. The cutting process can generate leftover (which can be reused in a new demand) or losses (which are discarded). This paper presents two heuristic methods for minimizing the number of cut bars in the one-dimensional cutting process, satisfying the items demand in an unlimited bars quantity of just one type. The results of simulations are compared with methods from literature and with the limiting values

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for this considered type of problem. The results show that proposed heuristics reduce processing time and the number of bars needed in cutting process, while it provides a greater leftover (by grouping losses) for the one-dimensional cutting stock problem. The heuristics contribute to reduction of raw materials or manufacturing costs in industrial processes, such as the automotive industry, construction, bicycle manufacturing and other purposes.