# Pengurangan hambatan kapal dengan riblet yang tersegmentasi = Ship drag reduction with segmented riblets

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Abstrak

Pengurangan hambatan kapal sangat penting untuk mengurangi konsumsi bahan bakar. Hambatan-hambatan tersebut adalah hambatan gesek dan hambatan sisa, tetapi yang dominan dalam hambatan kapal merupakan hambatan gesek. Pengurangan hambatan kapal dapat dilakukan dengan menggunakan permukaan riblet. Struktur riblet yang paling umum ditemukan di alam adalah struktur riblet yang terputus-putus atau yang tersegmentasi (segmented riblet). Struktur riblet dengan perbedaan perbandingan tinggi dan jarak antar dinding (h/s ratio) menjadi fokus utama dalam penelitian ini. Dari hasil penelitian, struktur riblet mampu mengurangi hambatan total kapal hingga 14%.

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Drag reduction is the most crucial step in order to reduce the use of gas for ships. The ship?s resistances consist of frictional resistance and residual resistance, but in the first one is more dominant in most drag cases. This has caused many researchers to find a way to reduce frictional resistance and one of many ways to do so is by applying a grooved structured surface, mostly known as riblets. Riblets can reduce the shear stress that any object makes when moving in fluid. There are many types of riblets in nature but mostly these types are segmented grooved structures rather than continuous ones. Given that riblet surfaces consist of aligned structures like walls, thus the main focus of this research is to analyze the difference in drag reduction by a riblet surface on ship hull when the ratio of riblet`s walls height and their distance with each other is varied. The result shows that a riblet surfaced ship?s hull can reduce drag up to 14 percent.