Studi sistem perpipaan untuk sistem pendingin mesin pada kapal TUG boat 2 x 1600 HP = study of piping system for engine cooling system on TUG boat vessels 2 x 1600 HP

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Abstrak

[Seiring dengan semakin banyaknya kapal yang beroperasi pada saat ini seharusnya menuntut pihak pemilik dan pembuat kapal untuk meningkatkan kehandalan mesin utama kapal dalam proses pembuatan kapalnya melalui rancangan sistem pendukungnya yang optimum maupun ekonomis. Mesin yang dipasang pada kapal dirancang untuk bekerja dengan efisiensi maksimal dan berjalan selama berjam-jam lamanya. Hilangnya energi paling sering dan maksimum dari mesin adalah dalam bentuk energi panas. Untuk menghilangkan energi panas yang berlebihan harus menggunakan media pendingin untuk menghindari gangguan fungsional mesin atau kerusakan pada mesin. Salah satu bagian yang harus diperhatikan adalah sistem pendingin untuk mesin kapal. Sistem pendingin adalah salah satu bagian penting pada sebuah kapal yang memerlukan perhatian yang cukup, karena lancar atau tidaknya pengoperasian kapal sangat tergantung pada hasil kerja mesin, sebab dalam mesin diesel dinding silinder selalu dikenai panas dari pembakaran. Jika silinder tidak didinginkan, maka minyak yang melumasi torak akan encer dan menguap dengan cepat, sehingga torak maupun silinder dapat rusak akibat suhu tinggi hasil dari pembakaran. Sistem pendingin pada kapal tentunya akan optimal jika dilakukan perancangan yang baik melalui perhitungan yang tepat dan dilaksanakan sepraktis mungkin dengan minimum bengkokan dan sambungan las atau brazing untuk memperkecil adanya kerugian pada aliran pipa. Begitu juga dengan perhitungan dari sistem pompa harus dibuat secara efisien agar kinerja pompa menjadi optimum sehingga terciptanya rancangan sistem perpipaan untuk sistem pendingin mesin pada kapal yang dapat bekerja secara optimal. Pada penulisan ini bertujuan untuk mempelajari mengenai perhitungan kerugian aliran yang terjadi pada aliran sistem perpipaan untuk sistem pendingin mesin pada kapal tug boat 2 x 1600 HP sehingga dapat dijadikan pembelajaran dalam menentukan atau meningkatkan kinerja dari sistem pendingin mesin kapal. ......Along with the increasing number of vessels operating at this time should sue the owners and shipbuilders to improve the ship's main engine reliability in the process of making his ship through optimum support system design as well as economical. Engine mounted on a vessel is designed to work with maximum efficiently and runs for hours on end. Loss of the most frequent and maximum energy from the engine is in the form of heat energy. To get rid of excess heat energy must use the cooling medium to avoid functional impairment or damage to the machine engine. One part that must be considered is the cooling system for ship engines. The cooling system is one of the important parts on a ship that requires considerable attention, as well whether or not the operation of the vessel depends on the work of the machine, because the diesel engine cylinder wall is always subjected to the heat of combustion. If the cylinder is not cooled, the oil that lubricates the piston will dilute and evaporates quickly, so that the piston and the cylinder can be damaged by high temperatures result from combustion. The cooling system on the ship would be optimal if done good design through precise calculations and implemented as practical as possible with minimum bends and welded or brazed

connections to minimize the loss in pipe flow. So also with the calculation of the pump system must be made efficiently in order to be the optimum performance of the pump so that the creation of the design of piping systems for engine cooling systems on ships that can work optimally. In this study aims to learn about the calculation of losses in pipe flow for

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