RANCANG BANGUN KONSTRUKSI MESIN BENDING PIPA DENGAN KAPASITAS MAKSIMUM DIAMETER 1 INCH

FINAL PROJECT REPORT

Submitted as one of the requirements to obtain

Sarjana Teknik

By :

ADI SETIAWAN

003201905005

FACULTY OF ENGINEERING

MECHANICAL ENGINEERING STUDY PROGRAM

CIKARANG

MEI 2023

FINAL PROJECT APPROVAL

RANCANG BANGUN KONSTRUKSI MESIN BENDING PIPA DENGAN KAPASITAS MAKSIMUM DIAMETER 1 INCH

By :

ADI SETIAWAN

003201905005

Approved By

Drs. Nanang Ali Sutisna, M. Eng	**Dr. Eng. Lydia Anggraini, S.T., M.Eng**
Advisor Final Project	Head of Study Program Mechanical Engineering

PANEL OF EXAMINER APPROVAL

The Panel of Examiners declare that the undergraduate final project entitled "**RANCANG BANGUN KONSTRUKSI MESIN BENDING PIPA DENGAN KAPASITAS MAKSIMUM DIAMETER 1 INCH**" that was submitted by Adi Setiawan majoring in Mechanical Engineering from the Faculty of Engineering was assessed and approved to have passed the Oral Examination on 16 Mei 2023.

Panel of Examiner

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Dr.Eng.Ir. Rudi Suhardi Rachmat, M.Eng

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Dr.Eng. Azhari Sastranegara, M.Eng

Examiner I

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Name : Adi Setiawan

Student ID Number : 003201905005

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NIDN : 0010126006

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ABSTRAK

Dalam proses bending pipa pada umumnya masyarakat bengkel – bengkel kelas menengah kebawah masih menggunakan metode manual dalam proses bendingnya, ada kekurangan dari proses bending manual diantaranya : proses pengerolan lama, hasil pipa yang bervariasi. Proses pembengkokan pipa secara manual dapat memakan waktu lama dan mengakibatkan hilangnya waktu dan hasil pembengkokan pipa. Hal tersebut menjadi faktor dibuatnya mesin bending pipa semi otomatis, disamping proses pengerjaannya yang relative lebih singkat dan lebih safety saat proses pengerjaan dan mengurangi terjadinya kecelakan di lingkungan kerja, untuk mampu mempersingkat proses pengerolan, diperlukan mesin bending pipa yang lebih efisien dan safety, perancangan mesin bending dengan metode otomatis dalam pengoperasian roll bendingnya dan untuk material pipa yang digunakan menggunakan pipa SCH 40 deiameter 1 inch. Mesin bending pipa ini dapatdioperasikan dengan metode manual dan automatis, dengan kapasitas pengerollan maksimum diameter pipa 1 inch, rangka mesin terbuat dari bahan dasar besi standard SNI spesifikasi besi UNP 3 mm x 50 mm x 35 mm. Mesin ini dapat melakukan pengerolan pada pipa dengan diameter 1 inch dan pada setiap tahap proses bending pipa sebesar 4 mm mesin dapat menerima gaya bending sebesar 22.991 N.

Kata kunci : Mesin Bending Pipa, Perancangan, Safety, roll, Design Mesin Bending, Proses bending pipa

ABSTRACT

In the pipe bending process, in general, the middle and lower class workshops still use the manual method in the bending process. There are drawbacks to the manual bending process, including: the long rolling process, the pipe results vary. The manual pipe bending process can take a long time and result in lost time and pipe bending results. This is a factor in making a semi-automatic pipe bending machine, in addition to the relatively shorter and safer work process during the work process and reducing the occurrence of accidents in the work environment, to be able to shorten the rolling process, a more efficient and safety pipe bending machine is needed, A bending machine with an automatic method of operating the bending roll and for the pipe material used SCH 40 pipe with a diameter of 1 inch. This pipe bending machine can be operated by manual and automatic methods, with a maximum rolling capacity of 1 inch pipe diameter, the machine frame is made of SNI standard iron, UNP iron specifications 3 mm x 50 mm x 35 mm. This machine can roll pipes with a diameter of 1 inch and in every stage of pipe bending process of 4 mm the machine can withstand bending force of 22.991 N.

Keywords : Pipe Bending Machine, Design, Safety, Roll, Bending Machine Design, Pipe Bending Process.

KATA PENGANTAR

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