



**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 :**

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**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 :**

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Advisor Final Project



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Head of Study Program Mechanical  
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## 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.

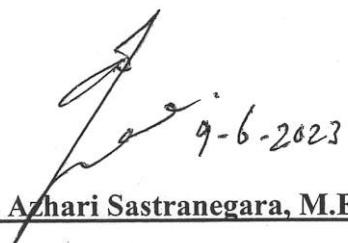
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Examiner I

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In my capacity as an active student of President University and as the author of the undergraduate final project business plan (underline that applies) stated below:

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Study Program : Mechanical Engineering  
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Cikarang, 16 Mei 2023



Adi Setiawan

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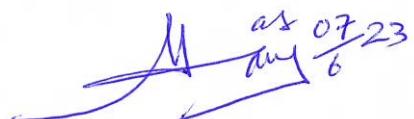
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Drs. Nanang Ali Sutisna, M.Eng.

# PLAGIARISM REPORT

## Final Project Mesin Bending Pipa

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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 penggerolan 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 penggerjaannya yang relative lebih singkat dan lebih safety saat proses penggeraan dan mengurangi terjadinya kecelakan di lingkungan kerja, untuk mampu mempersingkat proses penggerolan, 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 penggerolan 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

Dengan Memanjatkan puja dan puji syukur kehadirat Allah SWT yang telah melimpahkan rahmat, taufik dan hidayah-Nya sehingga penulis dapat menyelesaikan final project ini dengan judul : “**Rancang Bangun Konstruksi Mesin Bending Pipa Dengan Kapasitas Maksimum Diameter 1 inch**”, untuk syarat menyelesaikan pendidikan program Sarjana (S1) Program studi Teknik Mesin pada Fakultas Teknik di President University. Penulis menyadari bahwa final project ini tidak bisa terselesaikan tanpa ada dukungan, bantuan, bimbingan, dan nasehat dari berbagai pihak pada penyusunan final project ini, dalam kesempatan ini penulis menyampaikan terimakasih dengan tulus kepada :

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4. Kedua orang tua Saryadi dan Katemi yang tidak pernah lelah memberikan doa, dukungan dan kasih sayang yang luar biasa .
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6. Teman – teman Mechanical Engineering angkatan 2019

Penulis menyadari bahwa didalam final project ini masih banyak kekuranganya, untuk itu penulis sangat mengharapkan kritik dan saran yang bersifat membangun untuk karya kedepanya lebih baik. Mudah-mudahan final project ini bermanfaat.

## DAFTAR ISI

FINAL PROJECT APPROVAL .....	ii
PANEL OF EXAMINER APPROVAL .....	iii
STATEMENT OF ORIGINALITY .....	iv
SCIENTIFIC PUBLICATION APPROVAL FOR ACADEMIC INTEREST .....	v
ADVISOR'S APPROVAL FOR PUBLICATION .....	vi
PLAGIARISM REPORT .....	vii
GPT ZERO CHECKER .....	viii
ABSTRAK .....	ix
ABSTRACT .....	x
KATA PENGANTAR .....	xi
DAFTAR ISI .....	xii
DAFTAR GAMBAR .....	xv
DAFTAR TABLE .....	xvi
BAB I PENDAHULUAN .....	1
1.1. Latar Belakang Masalah .....	1
1.2. Rumusan Masalah .....	2
1.3. Batasan Masalah .....	2
1.4. Tujuan dan Manfaat .....	2
1.5. Sistematika Penulisan .....	3
BAB II DASAR TEORI .....	4
2.1. Pengertian Bending .....	4
2.2. Macam – Macam Mesin Bending Plat .....	4
2.2.1. Bending Plat Mekanikal .....	4
2.2.2. Bending Plat Manual .....	5
2.2.3. Bending Plat Hidrolik .....	5
2.3. Macam Macam Proses Bending Plat .....	5
2.3.1. Proses Angle Bending .....	6
2.3.2. Proses Brake Bending .....	6
2.3.3. Proses Draw Bending .....	6
2.3.4. Proses Roll Bending .....	6
2.3.5. Proses Roll Forming .....	6
2.3.6. Proses Seaming .....	7
2.3.7. Proses Straightening .....	7

2.3.8. Proses Flanging .....	7
2.4. Kegagalan Proses Bending .....	7
2.4.1. Kegagalan Sobek Pada Benda .....	8
2.4.2. Kegagalan Springback.....	8
2.4.3. Kegagalan Patah Benda.....	8
2.5. Faktor Yang Berpengaruh Pada Proses Bending.....	8
2.5.1. Ketebalan Pada Plat.....	9
2.5.2. Metode Pada Proses Bending .....	9
2.5.3. Ukuran Pada Material.....	9
2.6. Komponen Komponen Mesin Bending .....	9
2.6.1. Rangka Mesin Bending .....	9
2.6.2. Poros Atau Shaft.....	10
2.6.3. Roller .....	11
2.7. Cara Kerja Mesin Bending .....	12
2.8. Bahan Yang Digunakan.....	15
2.9. Material Pipa Yang Digunakan .....	15
2.10. Faktor Keamanan (Safety Factor).....	16
2.11 Analisis Gaya.....	17
BAB III METODOLOGI.....	18
3.1 Diagam Alir.....	18
3.1.1. Identifikasi Masalah .....	19
3.1.2. Pemilihan Komponen .....	19
3.1.3. Tinjauan Lapangan .....	19
3.1.4. Perancangan.....	20
BAB IV ANALISA PERANCANGAN MESIN BENDING PIPA .....	21
4.1. Analisa Gaya Yang Dibutuhkan .....	21
4.1.1 Luas Penampang Pipa.....	21
4.1.2 Gaya Pembengkokan Pipa .....	22
4.1.3 Torsi Pada Roller .....	23
4.2. Analisa Tegangan Poros .....	24
4.2.1. Analisa Tegangan Tekan Pada Poros .....	24
4.2.2. Analisa Tegangan Geser Poros.....	26
4.3. Analisa Tegangan Pada Roller .....	27
4.4. Design Mesin Bending .....	29
4.5. Perancangan Dan Pengujian Mesin Bending.....	32
4.5.1 Hasil Perancangan Mesin .....	32

4.5.2 Langkah Pengoperasian Mesin.....	35
4.5.3 Hasil Pengujian Mesin.....	36
BAB V KESIMPULAN DAN SARAN.....	37
5.1.    Kesimpulan.....	37
5.2.    Saran .....	37
DAFTAR PUSTAKA .....	38

## DAFTAR GAMBAR

Gambar 2.1	Rangka mesin bending pipa .....	10
Gambar 2.2	Poros.....	11
Gambar 2.3	Roller .....	12
Gambar 2.4	Proses pertama pipa masuk (1).....	13
Gambar 2.5	Proses penempatan pipa (2).....	13
Gambar 2.6	Proses roll 3 diturunkan (3).....	14
Gambar 2.7	Proses pembentukan pipa (4) .....	14
Gambar 3.1	Diagram alir metedologi penelitian.....	18
Gambar 4.1	Luas penampang pipa.....	21
Gambar 4.2	Gaya yang terjadi pada pipa .....	23
Gambar 4.3	Torsi roller.....	23
Gambar 4.4	Tegangan tekan poros.....	25
Gambar 4.5	Tegangan geser poros .....	26
Gambar 4.6	Roller.....	27
Gambar 4.7	Design mesin bending pipa .....	29
Gambar 4.8	Design mesin bending pipa .....	30
Gambar 4.9	Proses fabrikasi dan perakitan.....	32
Gambar 4.10	Proses pemasangan motor dan pengujian bending.....	33
Gambar 4.11	Proses pengujian dengan metode manual dan auto .....	34
Gambar 4.12	Langkah pengujian sistem kerja mesin.....	35

## **DAFTAR TABLE**

Table 4.1	Pipa yang digunakan .....	22
Table 4.2	Keterangan komponen mesin bending.....	31
Table 4.3	Hasil percobaan mesin bending .....	36