

LAMPIRAN

Lampiran 1: Biodata Penulis

BIODATA PENULIS

Nama : Bryan Faiza Nurrahman
NIM : 180103009
Jurusan : Teknik Mesin
Tempat/Tanggal Lahir: Banyumas, 8 Oktober 1999
Alamat : Pangebatan RT 4/ RW 7, Kecamatan Karanglewas,
Kabupaten Banyumas
Telephone : 085802026261
Email : bryanfaiza@gmail.com
Motto : “Cobalah Dahulu, Berusahalah Dahulu, Kalau Gagal Jadi
Pengalaman, Kalau Berhasil Jadi Kebanggaan”

Riwayat Pendidikan:

Jenjang	Nama Institusi	Jurusan	Lama/Tahun
SD	SD N Pangebatan	-	2005 – 2012
SMP	SMP N 1 Karanglewas	-	2012 – 2015
SMA/SM K	SMK N 2 Purwokerto	Teknik Pemesinan	2015 – 2018
Perguruan Tinggi	Politeknik Negeri Cilacap	D3 Teknik Mesin	2018 – 2021

Penulis telah mengikuti seminar Tugas Akhir pada tanggal 22 September 2021, sebagai salah satu persyaratan untuk memperoleh gelar Ahli Madya (A.Md).

Lampiran 2 : Tabel Produksi dan perhitungan

Tabel 2.1 Harga *Sf1* dan *Sf2* (Sularso, 2008)

Jenis Bahan	<i>Sf1</i>	<i>Sf2</i>
Bahan SF dengan kekuatan yang dijamin	5,6	1,3-3,0
Bahan S-C dan baja paduan	6,0	1,3-3,0

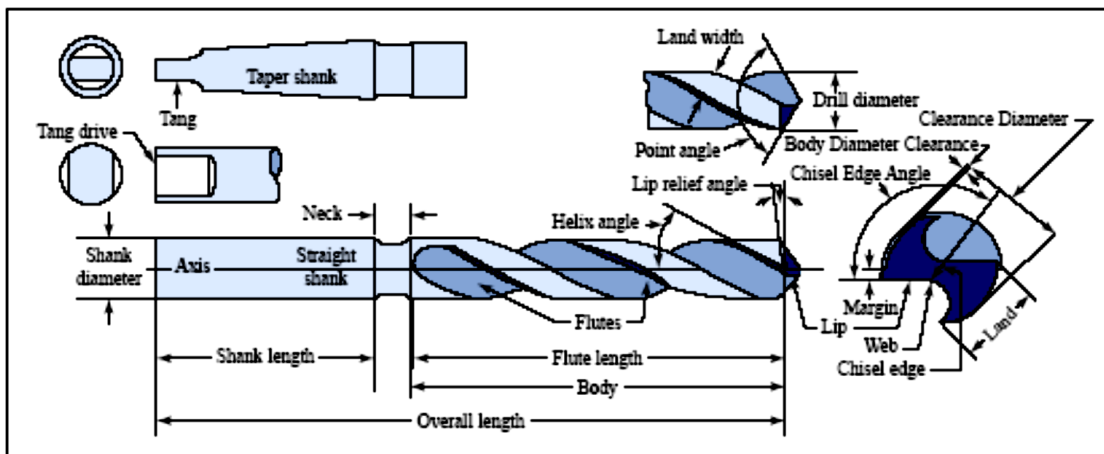
Tabel 2.2 Faktor Koreksi Momen Lentur (Sularso, 2008)

Pembebanan momen lentur	<i>Km</i>
Momen lentur tetap	1,5
Momen lentur tumbukan ringan	1,5 – 2,0
Momen lentur tumbukan berat	2,3 – 3,0

Rumus Empiris Gerak Makan per Mata Potong Gurdi (Widarto, 2008)

- Untuk baja
 $f = 0,084\sqrt[3]{d}; mm / put \dots\dots\dots(8.2)$
- Untuk besi tuang
 $f = 0,13\sqrt[3]{d}; mm / put \dots\dots\dots(8.3)$

Mata Potong Gurdi (Widarto, 2008)



Tabel 2.4 Data material, kecepatan potong, sudut mata bor HSS, dan cairan pendingin proses gurdi. (Widarto, 2008)

MATERIAL	CUTTING SPEEDS v_c		POINT ANGLE	LIP CLEARANCE	COOLANTS
	(METERS/MINUTE) MPM	(FEET/MINUTE) FPM			
Aluminium And Alloys	61.00 - 91.50	200 - 300	90 - 130 deg	12 - 15 deg	Kerosene/Kerosene & Lard Oil/ Soluble Oil
Armor Plate	12.20 - 18.25	40 - 50	135 - 140 deg	6 - 9 deg	Light Machine Oil
Brass	61.00 - 91.50	200 - 300	118 - 118 deg	12 - 15 deg	Dry/ Soluble Oil/Kerosene/Lard Oil
Bronze	61.00 - 91.50	200 - 300	110 - 118 deg	12 - 15 deg	Dry/ Soluble Oil/Mineral Oil/Lard Oil
Bronze, High Tensile	21.35 - 45.75	70 - 150	100 - 110 deg	12 - 15 deg	Dry/ Soluble Oil/Mineral Oil/Lard Oil
Cast Iron, Soft	30.50 - 45.75	100 - 150	90 - 100 deg	12 - 15 deg	Air Jet Dry/ Soluble Oil
Cast Iron, Medium	21.35 - 30.50	70 - 100	100 - 110 deg	12 - 15 deg	Air Jet Dry/ Soluble Oil
Cast Iron, Hard	21.35 - 30.50	70 - 100	100 - 118 deg	8 - 12 deg	Air Jet Dry/ Soluble Oil
Cast Iron, Chilled	9.15 - 12.20	30 - 40	118 - 135 deg	5 - 9 deg	Air Jet Dry/ Soluble Oil
Copper	61.00 - 91.50	200 - 300	100 - 118 deg	12 - 15 deg	Air Jet Dry/ Soluble Oil
Copper Graphite Alloy (Carbon Drills)	18.30 - 21.35	60 - 70	**_**	**_**	Soluble Oil/Dry/Mineral Oil/Kerosene
Glass (Carbon Drills)	6.10 - 9.15	20 - 30	**_**	**_**	Soluble Oil/Dry/Mineral Oil/Kerosene
Iron, Malleable	15.25 - 27.45	50 - 90	90 - 100 deg	12 - 15 deg	Light Machine Oil
Magnesium And Alloys	76.25 - 122.0	250 - 400	70 - 118 deg	12 - 15 deg	Soluble Oil
Monel Nickel	4.15 - 15.28	30 - 50	118 - 125 deg	10 - 12 deg	Compressed Air/Mineral Oil
Nickel Alloys	12.20 - 18.30	40 - 60	135 - 140 deg	5 - 7 deg	Lard Oil/Soluble Oil
Plastic, Hot Set	30.50 - 91.50	100 - 300	60 - 90 deg	10 - 12 deg	Lard Oil/Soluble Oil
Plastic, Cold Set	30.50 - 91.50	100 - 300	118 - 135 deg	12 - 20 deg	Soap Solution
Steel, Low Carbon, 0.2-0.3ct	24.40 - 33.55	80 - 110	110 - 118 deg	7 - 9 deg	Soap Solution
Steel, Medium Carbon 0.4-0.5c	21.35 - 24.40	70 - 80	118 - 125 deg	7 - 9 deg	Soluble Oil/Mineral Oil/Sulfur Oil/Lard Oil
Steel (High Carbon 1.2c)	15.25 - 18.30	50 - 60	118 - 145 deg	7 - 9 deg	Soluble Oil/Mineral Oil/Sulfur Oil/Lard Oil
Steel, Forged	15.25 - 18.30	50 - 60	118 - 145 deg	7 - 12 deg	Soluble Oil/Mineral Oil/Sulfur Oil/Lard Oil
Steel, Alloy	15.25 - 21.35	50 - 70	118 - 125 deg	10 - 12 deg	Mineral Lard Oil
Steel, Alloy 300 To 400 Brinell	6.10 - 9.15	20 - 30	130 - 140 deg	7 - 10 deg	Soluble Oil
Steel, Stainless, Free Machining	9.15 - 24.40	30 - 80	110 - 118 deg	8 - 12 deg	Soluble Oil
Steel, Stainless, Hard	4.57 - 15.25	15 - 50	118 - 135 deg	6 - 8 deg	Soluble Oil
Steel, Manganese	3.66 - 4.57	12 - 15	140 - 150 deg	7 - 10 deg	Soluble Oil
Stone (Carbide Drills)	7.63 - 9.15	25 - 30	**_**	**_**	Water Solution
Wood	91.50 - 122.2	300 - 400	60 - 70 deg	10 - 15 deg	Dry

Tabel 2.5 Putaran Mesin Gurdi (Dokumentasi : Politeknik Negeri Cilacap, 2020)



Lampiran 3 : Data Material

A 36 ASTM A36 (USA) Standards

ASTM A36

Carbon Structural Steel

Other designations

USA

SA 36 - ASME
SA36

Chemical composition

C < 0.26	Si 0.15 - 0.40	Mn 0.80 - 1.35	P < 0.04
S < 0.05	Fe Rest		

Cu > 0.20, when copper steel is specified
 $Mn < 1.2 + 6*(0.26 - C)$

Properties

By ASTM A36

Yield Strength: 220-250 MPa

Tensile Strength: 400 - 550

MPa Elongation: > 20 %

Weldability

ASME Section IX

Welding

P-Number: 1

Group: 1

Brazing

P-Number: 101

By ISO 15608

Group: 11.1

Calculated properties

Density: 7.84 g/cm³

Tabel 3.1 Karakteristik mekanis low carbon steels, high strength, low alloy steels dan aplikasinya (CALLISTER & RETHWISCH, 2011)

<i>AISI/SAE or ASTM Number</i>	<i>Tensile Strength [MPa (ksi)]</i>	<i>Yield Strength [MPa (ksi)]</i>	<i>Ductility [%EL in 50 mm (2 in.)]</i>	<i>Typical Applications</i>
<i>Plain Low-Carbon Steels</i>				
1010	325 (47)	180 (26)	28	Automobile panels, nails, and wire
1020	380 (55)	210 (30)	25	Pipe; structural and sheet steel
A36	400 (58)	220 (32)	23	Structural (bridges and buildings)
A516 Grade 70	485 (70)	260 (38)	21	Low-temperature pressure vessels
<i>High-Strength, Low-Alloy Steels</i>				
A440	435 (63)	290 (42)	21	Structures that are bolted or riveted
A633 Grade E	520 (75)	380 (55)	23	Structures used at low ambient temperatures
A656 Grade 1	655 (95)	552 (80)	15	Truck frames and railway cars