

**Lampiran 1**  
**Tabel Elemen Mesin**

**Tabel 1.** Faktor Koreksi Daya (Sularso dan Suga, 2008)

<b>Daya yang ditransmisikan</b>	<b><math>f_c</math></b>
Daya rata-rata yang diperlukan	1,2-2,0
Daya maksimum yang diperlukan	0,8-1,2
Daya normal	1,0-1,5

**Tabel 2.** Harga  $Sf_1$  dan  $Sf_2$  (Sularso dan Suga, 2008)

<b>Jenis Bahan</b>	<b><math>Sf_1</math></b>	<b><math>Sf_2</math></b>
Bahan SF dengan kekuatan yang dijamin	5,6	1,3-3,0
Bahan S-C dan baja paduan	6,0	1,3-3,0

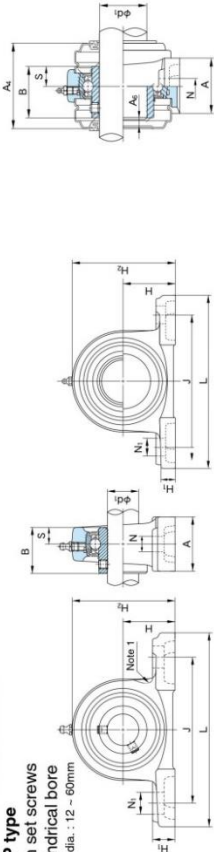
**Tabel 3.** Faktor Koreksi Momen Puntir (Sularso dan Suga, 2008)

<b>Beban yang dikenakan</b>	<b><math>K_t</math></b>
Halus	1,0
Sedikit kejutan atau tumbukan	1,0-1,5
Kejutan atau tumbukan besar	1,5-3,0

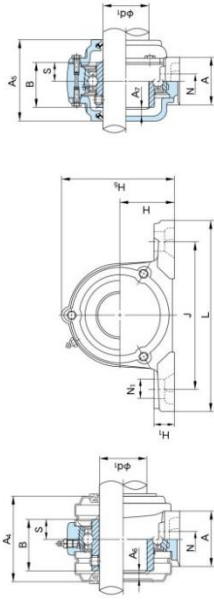
**Tabel 4.** Faktor Koreksi Momen Lentur (Sularso dan Suga, 2008)

<b>Pembebanan momen lentur</b>	<b><math>K_m</math></b>
Momen lentur tetap	1,5
Momen lentur tumbukan ringan	1,5-2,0
Momen lentur tumbukan berat	2,3-3,0

**NACHI**  
**Pillow Block Units**  
**UCP type**  
 With set screws  
 Cylindrical bore  
 Shaft dia. : 12 ~ 60mm



**NACHI**



Note 1. The line shows figure of UCPX0series

Note 2. The line shows figure of UCPX0series

Shaft dia. d1 (mm)	Unit No.	Boundary dimensions (mm)																Bolt size		Housing		Unit No. with steel covers		Unit No. with cast covers		Mass of Unit (kg)						
		H	L	A	J	N	Nr	H1	H2	H3	B	S	A4	A5	A6	A7	No.	Cor	Cr	Cor	Cr	Cor	Cr	Cor	standard	with steel cover	standard	with steel cover				
12	UCP201	30.2	127	38	95	13	19	15	62	66	31	12.7	56	62	8	6	M10	P203	UCP201(CE)	UCP201(CE)	UCP201(CE)	UCP201(CE)	UCP201(CE)	UCP201(CE)	UCP201(CE)	UCP201(CE)	UCP201(CE)	UCP201(CE)	0.65	0.71	1.1	1.1
15	UCP202	30.2	127	38	95	13	19	15	62	66	31	12.7	56	62	8	6	M10	P203	UCP202(CE)	UCP202(CE)	UCP202(CE)	UCP202(CE)	UCP202(CE)	UCP202(CE)	UCP202(CE)	UCP202(CE)	UCP202(CE)	UCP202(CE)	0.63	0.69	1.1	1.1
17	UCP203	30.2	127	38	95	13	19	15	62	66	31	12.7	56	62	8	6	M10	P203	UCP203(CE)	UCP203(CE)	UCP203(CE)	UCP203(CE)	UCP203(CE)	UCP203(CE)	UCP203(CE)	UCP203(CE)	UCP203(CE)	UCP203(CE)	0.62	0.68	1.1	1.1
20	UCP204	33.3	127	38	95	13	19	15	65	69	31	12.7	56	62	8	6	M10	P204	UCP204(CE)	UCP204(CE)	UCP204(CE)	UCP204(CE)	UCP204(CE)	UCP204(CE)	UCP204(CE)	UCP204(CE)	UCP204(CE)	UCP204(CE)	0.65	0.71	1.1	1.1
25	UCP205	36.5	140	38	105	13	16	16	70	76	34	14.3	63	70	11	9	M10	P205	UCP205(CE)	UCP205(CE)	UCP205(CE)	UCP205(CE)	UCP205(CE)	UCP205(CE)	UCP205(CE)	UCP205(CE)	UCP205(CE)	UCP205(CE)	0.79	0.86	1.4	1.4
	UCP305	45	175	45	132	17	20	16	84	89	38	15	78	85	10	10	M14	P305	UCP305(CE)	UCP305(CE)	UCP305(CE)	UCP305(CE)	UCP305(CE)	UCP305(CE)	UCP305(CE)	UCP305(CE)	UCP305(CE)	UCP305(CE)	1.5	1.5	2.1	2.1
30	UCP206	42.9	165	48	121	17	21	18	83	87	38.1	15.9	65	74	9	8	M14	P206	UCP206(CE)	UCP206(CE)	UCP206(CE)	UCP206(CE)	UCP206(CE)	UCP206(CE)	UCP206(CE)	UCP206(CE)	UCP206(CE)	UCP206(CE)	1.3	1.4	2.0	2.0
	UCP306	50	180	50	140	17	20	19	94	99	43	17	84	91	10	10	M14	P306	UCP306(CE)	UCP306(CE)	UCP306(CE)	UCP306(CE)	UCP306(CE)	UCP306(CE)	UCP306(CE)	UCP306(CE)	UCP306(CE)	UCP306(CE)	1.9	1.9	2.6	2.6
35	UCP207	47.6	167	48	127	17	21	19	94	97	42.9	17.5	70	80	8	8	M14	P207	UCP207(CE)	UCP207(CE)	UCP207(CE)	UCP207(CE)	UCP207(CE)	UCP207(CE)	UCP207(CE)	UCP207(CE)	UCP207(CE)	UCP207(CE)	1.6	1.7	2.5	2.5
	UCP307	56	210	56	160	17	25	21	105	110	48	19	90	100	10	10	M14	P307	UCP307(CE)	UCP307(CE)	UCP307(CE)	UCP307(CE)	UCP307(CE)	UCP307(CE)	UCP307(CE)	UCP307(CE)	UCP307(CE)	UCP307(CE)	2.7	2.7	3.4	3.4
40	UCP208	49.2	184	54	137	17	25	19	100	104	49.2	19	82	90	10	8	M14	P208	UCP208(CE)	UCP208(CE)	UCP208(CE)	UCP208(CE)	UCP208(CE)	UCP208(CE)	UCP208(CE)	UCP208(CE)	UCP208(CE)	UCP208(CE)	2.0	2.2	3.0	3.0
	UCP308	60	220	60	170	17	27	23	116	122	52	19	100	110	11	11	M16	P308	UCP308(CE)	UCP308(CE)	UCP308(CE)	UCP308(CE)	UCP308(CE)	UCP308(CE)	UCP308(CE)	UCP308(CE)	UCP308(CE)	UCP308(CE)	3.5	3.5	4.4	4.4
45	UCP209	54	190	54	146	17	22	20	108	114	49.2	19	82	90	10	8	M16	P209	UCP209(CE)	UCP209(CE)	UCP209(CE)	UCP209(CE)	UCP209(CE)	UCP209(CE)	UCP209(CE)	UCP209(CE)	UCP209(CE)	UCP209(CE)	2.3	2.5	3.4	3.4
	UCP309	67	245	67	190	20	30	25	128	136	57	22	106	120	12	12	M16	P309	UCP309(CE)	UCP309(CE)	UCP309(CE)	UCP309(CE)	UCP309(CE)	UCP309(CE)	UCP309(CE)	UCP309(CE)	UCP309(CE)	UCP309(CE)	4.5	4.5	5.8	5.8
50	UCP210	57.2	206	60	159	20	25	22	114	120	51.6	19	87	98	9	10	M16	P210	UCP210(CE)	UCP210(CE)	UCP210(CE)	UCP210(CE)	UCP210(CE)	UCP210(CE)	UCP210(CE)	UCP210(CE)	UCP210(CE)	UCP210(CE)	2.7	3.0	4.1	4.1
	UCP310	75	275	75	212	20	35	28	143	149	61	22	114	130	12	12	M16	P310	UCP310(CE)	UCP310(CE)	UCP310(CE)	UCP310(CE)	UCP310(CE)	UCP310(CE)	UCP310(CE)	UCP310(CE)	UCP310(CE)	UCP310(CE)	4.2	4.5	7.6	7.6
55	UCP211	63.5	219	60	171	20	25	22	126	133	55.6	22.2	88	100	9	10	M16	P211	UCP211(CE)	UCP211(CE)	UCP211(CE)	UCP211(CE)	UCP211(CE)	UCP211(CE)	UCP211(CE)	UCP211(CE)	UCP211(CE)	UCP211(CE)	3.3	3.7	5.0	5.0
	UCP311	80	290	80	236	20	38	31	154	159	66	25	120	140	13	13	M20	P311	UCP311(CE)	UCP311(CE)	UCP311(CE)	UCP311(CE)	UCP311(CE)	UCP311(CE)	UCP311(CE)	UCP311(CE)	UCP311(CE)	UCP311(CE)	5.9	6.2	9.6	9.6
60	UCP212	69.8	241	70	184	20	25	25	138	145	65.1	25.4	102	114	10	11	M16	P212	UCP212(CE)	UCP212(CE)	UCP212(CE)	UCP212(CE)	UCP212(CE)	UCP212(CE)	UCP212(CE)	UCP212(CE)	UCP212(CE)	UCP212(CE)	4.7	5.1	6.7	6.7
	UCP312	85	330	85	250	25	38	33	165	169	71	26	130	150	14	14	M20	P312	UCP312(CE)	UCP312(CE)	UCP312(CE)	UCP312(CE)	UCP312(CE)	UCP312(CE)	UCP312(CE)	UCP312(CE)	UCP312(CE)	UCP312(CE)	7.2	7.4	11.0	11.0

Remarks (1): Grease nipple :14-28UNF

Remarks (2): Examples of number of units with covers:

- With steel cover : UCX10, UCX11, UCX12, UCX13, UCX14, UCX15, UCX16, UCX17, UCX18, UCX19, UCX20, UCX21, UCX22, UCX23, UCX24, UCX25, UCX26, UCX27, UCX28, UCX29, UCX30, UCX31, UCX32, UCX33, UCX34, UCX35, UCX36, UCX37, UCX38, UCX39, UCX40, UCX41, UCX42, UCX43, UCX44, UCX45, UCX46, UCX47, UCX48, UCX49, UCX50, UCX51, UCX52, UCX53, UCX54, UCX55, UCX56, UCX57, UCX58, UCX59, UCX60, UCX61, UCX62, UCX63, UCX64, UCX65, UCX66, UCX67, UCX68, UCX69, UCX70, UCX71, UCX72, UCX73, UCX74, UCX75, UCX76, UCX77, UCX78, UCX79, UCX80, UCX81, UCX82, UCX83, UCX84, UCX85, UCX86, UCX87, UCX88, UCX89, UCX90, UCX91, UCX92, UCX93, UCX94, UCX95, UCX96, UCX97, UCX98, UCX99, UCX100, UCX101, UCX102, UCX103, UCX104, UCX105, UCX106, UCX107, UCX108, UCX109, UCX110, UCX111, UCX112, UCX113, UCX114, UCX115, UCX116, UCX117, UCX118, UCX119, UCX120, UCX121, UCX122, UCX123, UCX124, UCX125, UCX126, UCX127, UCX128, UCX129, UCX130, UCX131, UCX132, UCX133, UCX134, UCX135, UCX136, UCX137, UCX138, UCX139, UCX140, UCX141, UCX142, UCX143, UCX144, UCX145, UCX146, UCX147, UCX148, UCX149, UCX150, UCX151, UCX152, UCX153, UCX154, UCX155, UCX156, UCX157, UCX158, UCX159, UCX160, UCX161, UCX162, UCX163, UCX164, UCX165, UCX166, UCX167, UCX168, UCX169, UCX170, UCX171, UCX172, UCX173, UCX174, UCX175, UCX176, UCX177, UCX178, UCX179, UCX180, UCX181, UCX182, UCX183, UCX184, UCX185, UCX186, UCX187, UCX188, UCX189, UCX190, UCX191, UCX192, UCX193, UCX194, UCX195, UCX196, UCX197, UCX198, UCX199, UCX200, UCX201, UCX202, UCX203, UCX204, UCX205, UCX206, UCX207, UCX208, UCX209, UCX210, UCX211, UCX212, UCX213, UCX214, UCX215, UCX216, UCX217, UCX218, UCX219, UCX220, UCX221, UCX222, UCX223, UCX224, UCX225, UCX226, UCX227, UCX228, UCX229, UCX230, UCX231, UCX232, UCX233, UCX234, UCX235, UCX236, UCX237, UCX238, UCX239, UCX240, UCX241, UCX242, UCX243, UCX244, UCX245, UCX246, UCX247, UCX248, UCX249, UCX250, UCX251, UCX252, UCX253, UCX254, UCX255, UCX256, UCX257, UCX258, UCX259, UCX260, UCX261, UCX262, UCX263, UCX264, UCX265, UCX266, UCX267, UCX268, UCX269, UCX270, UCX271, UCX272, UCX273, UCX274, UCX275, UCX276, UCX277, UCX278, UCX279, UCX280, UCX281, UCX282, UCX283, UCX284, UCX285, UCX286, UCX287, UCX288, UCX289, UCX290, UCX291, UCX292, UCX293, UCX294, UCX295, UCX296, UCX297, UCX298, UCX299, UCX300, UCX301, UCX302, UCX303, UCX304, UCX305, UCX306, UCX307, UCX308, UCX309, UCX310, UCX311, UCX312, UCX313, UCX314, UCX315, UCX316, UCX317, UCX318, UCX319, UCX320, UCX321, UCX322, UCX323, UCX324, UCX325, UCX326, UCX327, UCX328, UCX329, UCX330, UCX331, UCX332, UCX333, UCX334, UCX335, UCX336, UCX337, UCX338, UCX339, UCX340, UCX341, UCX342, UCX343, UCX344, UCX345, UCX346, UCX347, UCX348, UCX349, UCX350, UCX351, UCX352, UCX353, UCX354, UCX355, UCX356, UCX357, UCX358, UCX359, UCX360, UCX361, UCX362, UCX363, UCX364, UCX365, UCX366, UCX367, UCX368, UCX369, UCX370, UCX371, UCX372, UCX373, UCX374, UCX375, UCX376, UCX377, UCX378, UCX379, UCX380, UCX381, UCX382, UCX383, UCX384, UCX385, UCX386, UCX387, UCX388, UCX389, UCX390, UCX391, UCX392, UCX393, UCX394, UCX395, UCX396, UCX397, UCX398, UCX399, UCX400, UCX401, UCX402, UCX403, UCX404, UCX405, UCX406, UCX407, UCX408, UCX409, UCX410, UCX411, UCX412, UCX413, UCX414, UCX415, UCX416, UCX417, UCX418, UCX419, UCX420, UCX421, UCX422, UCX423, UCX424, UCX425, UCX426, UCX427, UCX428, UCX429, UCX430, UCX431, UCX432, UCX433, UCX434, UCX435, UCX436, UCX437, UCX438, UCX439, UCX440, UCX441, UCX442, UCX443, UCX444, UCX445, UCX446, UCX447, UCX448, UCX449, UCX450, UCX451, UCX452, UCX453, UCX454, UCX455, UCX456, UCX457, UCX458, UCX459, UCX460, UCX461, UCX462, UCX463, UCX464, UCX465, UCX466, UCX467, UCX468, UCX469, UCX470, UCX471, UCX472, UCX473, UCX474, UCX475, UCX476, UCX477, UCX478, UCX479, UCX480, UCX481, UCX482, UCX483, UCX484, UCX485, UCX486, UCX487, UCX488, UCX489, UCX490, UCX491, UCX492, UCX493, UCX494, UCX495, UCX496, UCX497, UCX498, UCX499, UCX500, UCX501, UCX502, UCX503, UCX504, UCX505, UCX506, UCX507, UCX508, UCX509, UCX510, UCX511, UCX512, UCX513, UCX514, UCX515, UCX516, UCX517, UCX518, UCX519, UCX520, UCX521, UCX522, UCX523, UCX524, UCX525, UCX526, UCX527, UCX528, UCX529, UCX530, UCX531, UCX532, UCX533, UCX534, UCX535, UCX536, UCX537, UCX538, UCX539, UCX540, UCX541, UCX542, UCX543, UCX544, UCX545, UCX546, UCX547, UCX548, UCX549, UCX550, UCX551, UCX552, UCX553, UCX554, UCX555, UCX556, UCX557, UCX558, UCX559, UCX560, UCX561, UCX562, UCX563, UCX564, UCX565, UCX566, UCX567, UCX568, UCX569, UCX570, UCX571, UCX572, UCX573, UCX574, UCX575, UCX576, UCX577, UCX578, UCX579, UCX580, UCX581, UCX582, UCX583, UCX584, UCX585, UCX586, UCX587, UCX588, UCX589, UCX590, UCX591, UCX592, UCX593, UCX594, UCX595, UCX596, UCX597, UCX598, UCX599, UCX600, UCX601, UCX602, UCX603, UCX604, UCX605, UCX606, UCX607, UCX608, UCX609, UCX610, UCX611, UCX612, UCX613, UCX614, UCX615, UCX616, UCX617, UCX618, UCX619, UCX620, UCX621, UCX622, UCX623, UCX624, UCX625, UCX626, UCX627, UCX628, UCX629, UCX630, UCX631, UCX632, UCX633, UCX634, UCX635, UCX636, UCX637, UCX638, UCX639, UCX640, UCX641, UCX642, UCX643, UCX644, UCX645, UCX646, UCX647, UCX648, UCX649, UCX650, UCX651, UCX652, UCX653, UCX654, UCX655, UCX656, UCX657, UCX658, UCX659, UCX660, UCX661, UCX662, UCX663, UCX664, UCX665, UCX666, UCX667, UCX668, UCX669, UCX670, UCX671, UCX672, UCX673, UCX674, UCX675, UCX676, UCX677, UCX678, UCX679, UCX680, UCX681, UCX682, UCX683, UCX684, UCX685, UCX686, UCX687, UCX688, UCX689, UCX690, UCX691, UCX692, UCX693, UCX694, UCX695, UCX696, UCX697, UCX698, UCX699, UCX700, UCX701, UCX702, UCX703, UCX704, UCX705, UCX706, UCX707, UCX708, UCX709, UCX710, UCX711, UCX712, UCX713, UCX714, UCX715, UCX716, UCX717, UCX718, UCX719, UCX720, UCX721, UCX722, UCX723, UCX724, UCX725, UCX726, UCX727, UCX728, UCX729, UCX730, UCX731, UCX732, UCX733, UCX734, UCX735, UCX736, UCX737, UCX738, UCX739, UCX740, UCX741, UCX742, UCX743, UCX744, UCX745, UCX746, UCX747, UCX748, UCX749, UCX750, UCX751, UCX752, UCX753, UCX754, UCX755, UCX756, UCX757, UCX758, UCX759, UCX760, UCX761, UCX762, UCX763, UCX764, UCX765, UCX766, UCX767, UCX768, UCX769, UCX770, UCX771, UCX772, UCX773, UCX774, UCX775, UCX776, UCX777, UCX778, UCX779, UCX780, UCX781, UCX782, UCX783, UCX784, UCX785, UCX786, UCX787, UCX788, UCX789, UCX790, UCX791, UCX792, UCX793, UCX794, UCX795, UCX796, UCX797, UCX798, UCX799, UCX800, UCX801, UCX802, UCX803, UCX804, UCX805, UCX806, UCX807, UCX808, UCX809, UCX810, UCX811, UCX812, UCX813, UCX814, UCX815, UCX816, UCX817, UCX818, UCX819, UCX820, UCX821, UCX822, UCX823, UCX824, UCX825, UCX826, UCX827, UCX828, UCX829, UCX830, UCX831, UCX832, UCX833, UCX834, UCX835, UCX836, UCX837, UCX838, UCX839, UCX840, UCX841, UCX842, UCX843, UCX844, UCX845, UCX846, UCX847, UCX848, UCX849, UCX850, UCX851, UCX852, UCX853, UCX854, UCX855, UCX856, UCX857, UCX858, UCX859, UCX860, UCX861, UCX862, UCX863, UCX864, UCX865, UCX866, UCX867, UCX868, UCX869, UCX870, UCX871, UCX872, UCX873, UCX874, UCX8

**Tabel 6.** Faktor-faktor  $V, X, Y$  dan  $X_0, Y_0$  (Sularso dan Suga, 2008)

Jenis bantalan	Beban putar pd cincin dalam	Beban putar pada cincin luar	Baris tunggal		Baris ganda				$e$	Baris tunggal		Baris ganda		
			$F_a/VF_r > e$		$F_a/VF_r \leq e$					$X_0$	$Y_0$	$X_0$	$Y_0$	
			$X$	$Y$	$X$	$Y$	$X$	$Y$						
Bantalan bola alur dalam	$F_a/C_0 = 0,014$	1	1,2	2,30				2,30	0,19					
	$= 0,028$			1,99				1,90	0,22					
	$= 0,056$			1,71				1,71	0,26					
	$= 0,084$			1,55				1,55	0,28					
	$= 0,11$			1,45	1	0	0,56	1,45	0,30	0,6	0,5	0,6	0,5	
	$= 0,17$			1,31				1,31	0,34					
	$= 0,28$			1,15				1,15	0,38					
	$= 0,42$			1,04				1,04	0,42					
	$= 0,56$			1,00				1,00	0,44					
Bantalan bola sudut	$\alpha = 20^\circ$	1	1,2	0,43	1,00	1,09	0,70	1,63	0,57		0,42		0,84	
	$= 25^\circ$			0,41	0,87	0,92	0,67	1,41	0,68		0,38		0,76	
	$= 30^\circ$			0,39	0,76	1	0,78	0,63	1,24	0,80	0,5	0,33	1	0,66
	$= 35^\circ$			0,37	0,66		0,66	0,60	1,07	0,95		0,29		0,58
	$= 40^\circ$			0,35	0,57		0,55	0,57	0,93	1,14		0,26		0,52

Untuk bantalan baris tunggal, bila  $F_a/VF_r \leq e, X = 1, Y = 0$

**Tabel 7.** Tabel jarak bagi rantai rol (Sularso dan Suga, 2008)

No. Rantai	Jarak bagi p	Diameter Rol R	Lebar Rol W	Plat mata rantai			Dia. Pena D
				Tebal	Lebar	Lebar	
				T	H	h	
40	12,70	7,94	7,95	1,5	12,0	10,4	3,97
50	15,88	10,16	9,53	2,0	15,0	13,0	5,09
60	19,05	11,91	12,70	2,4	18,1	15,6	5,96

**Tabel 8.** Umur rancangan yang dianjurkan untuk bantalan (Mott, 2009)

Aplikasi	Umur Rancangan, $L_{10}$ , jam
Peralatan rumah tangga	1000–2000
Mesin pesawat terbang	1000–4000
Otomotif	1500–5000
Alat-alat pertanian	3000–6000
Elevator, kipas angin industri, gigi persneling untuk multitujuan	8000–15 000
Motor listrik, blower industri, mesin industri umum	20 000–30 000
Pompa dan kompresor	40 000–60 000
Peralatan kritis yang beroperasi selama 24 jam terus-menerus	100 000–200 000

**Tabel 9.** Kekuatan Tarik Poros (Sularso dan Suga, 2008)

Standar dan macam	Lambang	Perlakuan panas	Kekuatan tarik (kg/mm <sup>2</sup> )	Keterangan
Baja karbon konstruksi mesin (JIS G 4501)	S30C	Penormalan	48	
	S35C	"	52	
	S40C	"	55	
	S45C	"	58	
	S50C	"	62	
	S55C	"	66	
Batang baja yang difinis dingin	S35C-D	–	53	ditarik dingin, digerinda, dibubut, atau gabungan antara hal-hal tersebut
	S45C-D	–	60	
	S55C-D	–	72	

**Lampiran 2**  
**Tabel Proses Produksi**

**Tabel 1.** Putaran Mesin Bubut (Dokumentasi : Politeknik Negeri Cilacap, 2020)

	1	2	3
A	60	220	860
B	92	360	1400
C	140	530	2000

**Tabel 2.** Gerak Makan Pada Mesin Bubut (Dokumentasi : Politeknik Negeri Cilacap, 2020)

		LONGITUDINAL FEED						
		[mm/Ø]						
		M						
G	○	D	E	F	G	○	D	
15	1	0.044	0.088	0.176	0.352	1	0.02	
14	2	0.050	0.099	0.198	0.396	2	0.02	
13 1/2	3	0.052	0.105	0.210	0.420	3	0.02	
13	4	0.055	0.110	0.220	0.440	4	0.02	
12	5	0.060	0.121	0.242	0.484	5	0.02	
11 1/2	6	0.063	0.127	0.254	0.508	6	0.02	
11	7	0.066	0.132	0.264	0.528	7	0.02	
10	8	0.072	0.144	0.287	0.574	8	0.03	
9 1/2	9	0.075	0.149	0.298	0.596	9	0.03	
9	10	0.077	0.154	0.308	0.616	10	0.03	
8	11	0.083	0.166	0.331	0.662	11	0.03	



**Tabel 3.** Data Material, Kecepatan Potong, Sudut Mata Bor HSS, dan Cairan Pendingin Proses Gurdi (Widato,2008)

MATERIAL	CUTTING SPEEDS $v_c$		POINT ANGLE	LIP CLEARANCE	COOLANTS
	(METERS/MINUTE)	(FEET/MINUTE)			
	MPM	FPM			
Aluminum 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, Hnt 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 4.** Rumus Empiris Gerakan per Mata Potong Gurdi (Widarto, 2008)

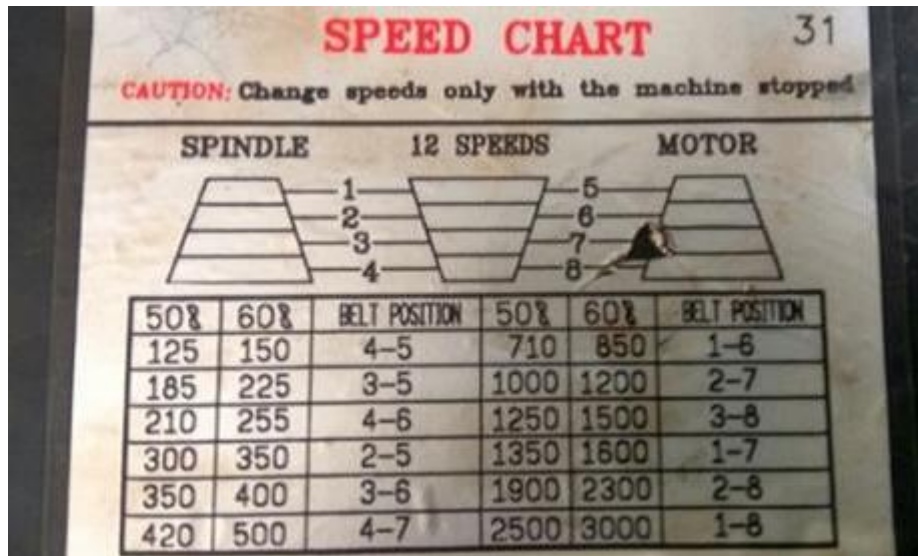
- Untuk baja

$$f = 0,084\sqrt[3]{d}; mm / put \dots \dots \dots (8.2)$$

- Untuk besi tuang

$$f = 0,1\sqrt[3]{d}; mm / put \dots \dots \dots (8.3)$$

**Tabel 5.** Putaran Mesin Bor (Dokumentasi : Politeknik Negeri Cilacap, 2020)



**Lampiran 3**  
**Gambar Mesin Dan Proses Produksi**





### **Gambar bahan Proses Uji Hasil**

Kayu profile persegi sebelum diserut



Kayu profile silinder setelah diserut



Penunjukan kecepatan putar roller menggunakan Tachometer



## Survei UMKM pengerajin kayu di Desa Tritih Wetan





## Dokumentasi Proses Produksi



**LAMPIRAN 4**  
**BIODATA PENULIS**



Nama : Andhika Arif Budhi Susanto

Tempat/tanggal lahir : Cilacap, 19 Oktober 1999

Alamat :Jalan Raya TritihWetan, RT04/RW06 Kel. Tritih Wetan,  
Kec. Jeruklegi, Kab. Cilacap

Email : [andhikaarif1919@gmail.com](mailto:andhikaarif1919@gmail.com)

Telepon : 089630130866

Motto : HIDUP ITU AKSI BUKAN INTASTORY.

Riwayat Pendidikan :

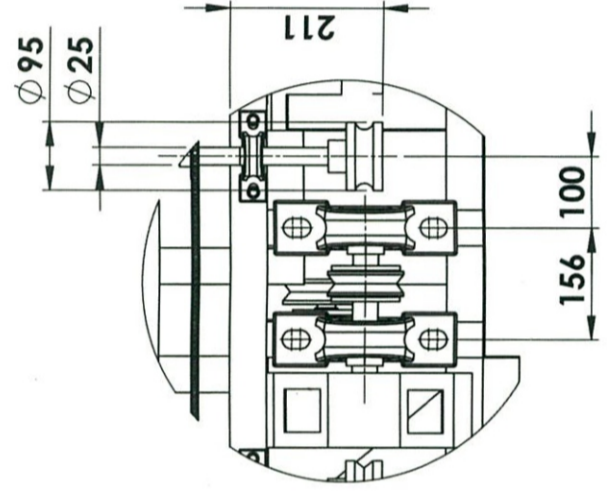
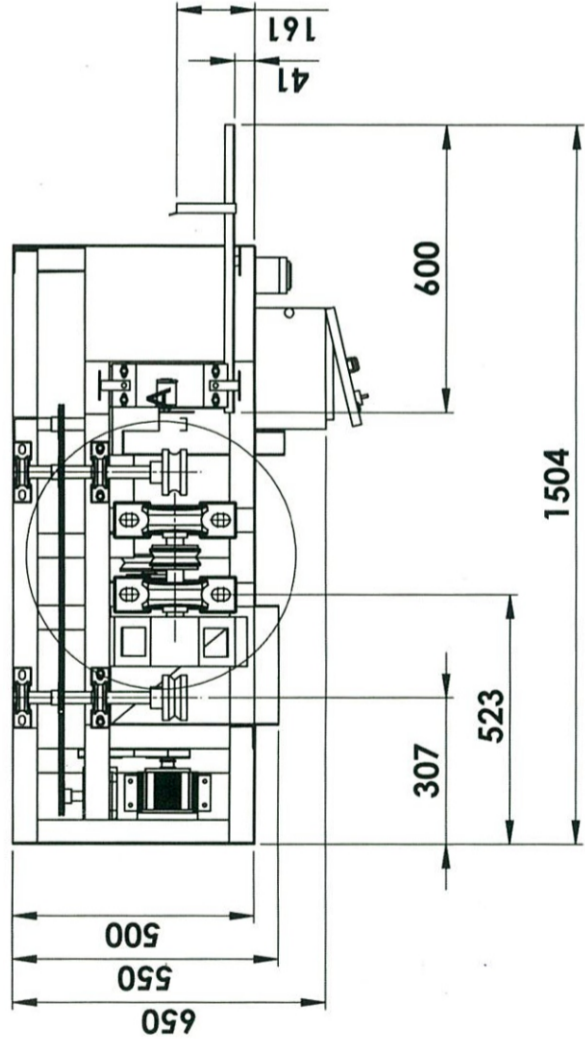
Sekolah	Jurusan	Periode
SDN 01 Tritih Wetan	-	2005-2012
SMP PGRI Cilacap	-	2012-2015
SMK Boedi Oetomo Cilacap	Pemesinan	2015-2018
Politeknik Negeri Cilacap	Teknik Mesin	2018-2023



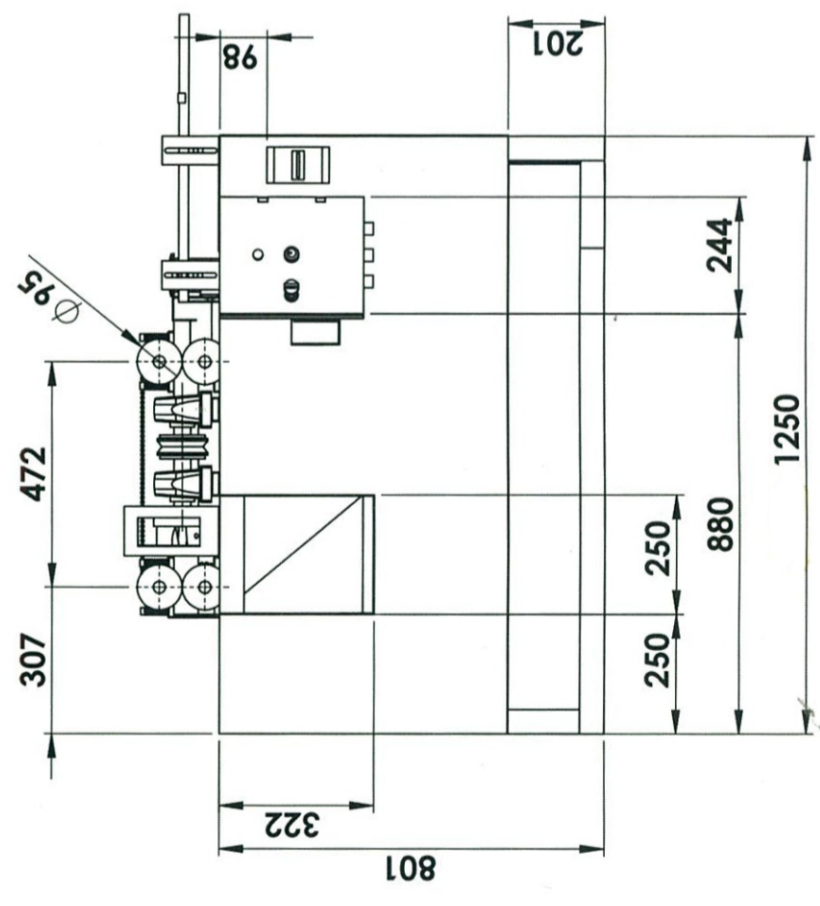
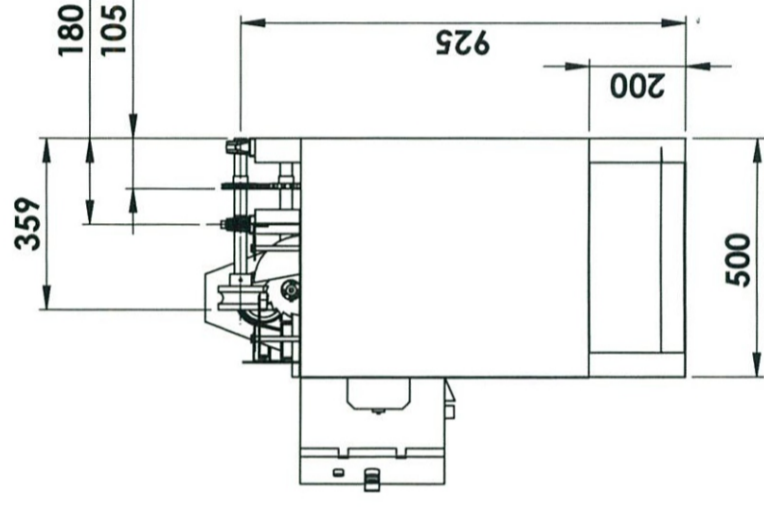
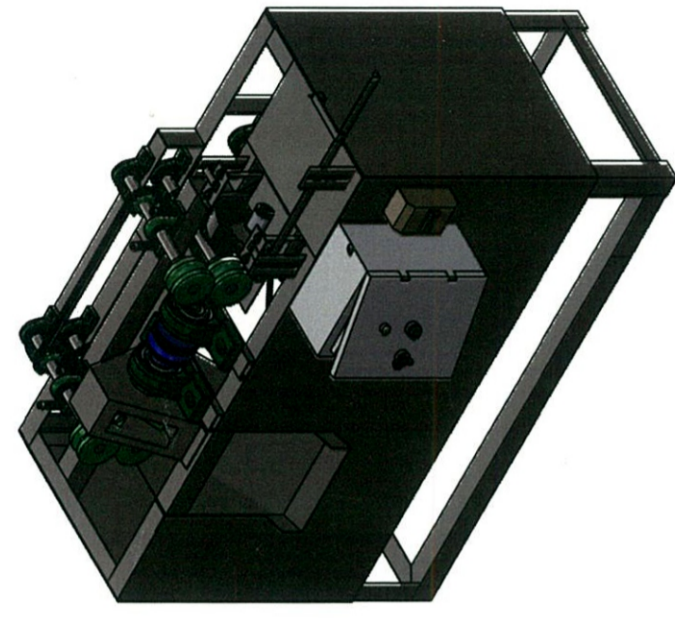


8 7 6 5 4 3 2 1

F E D C B A



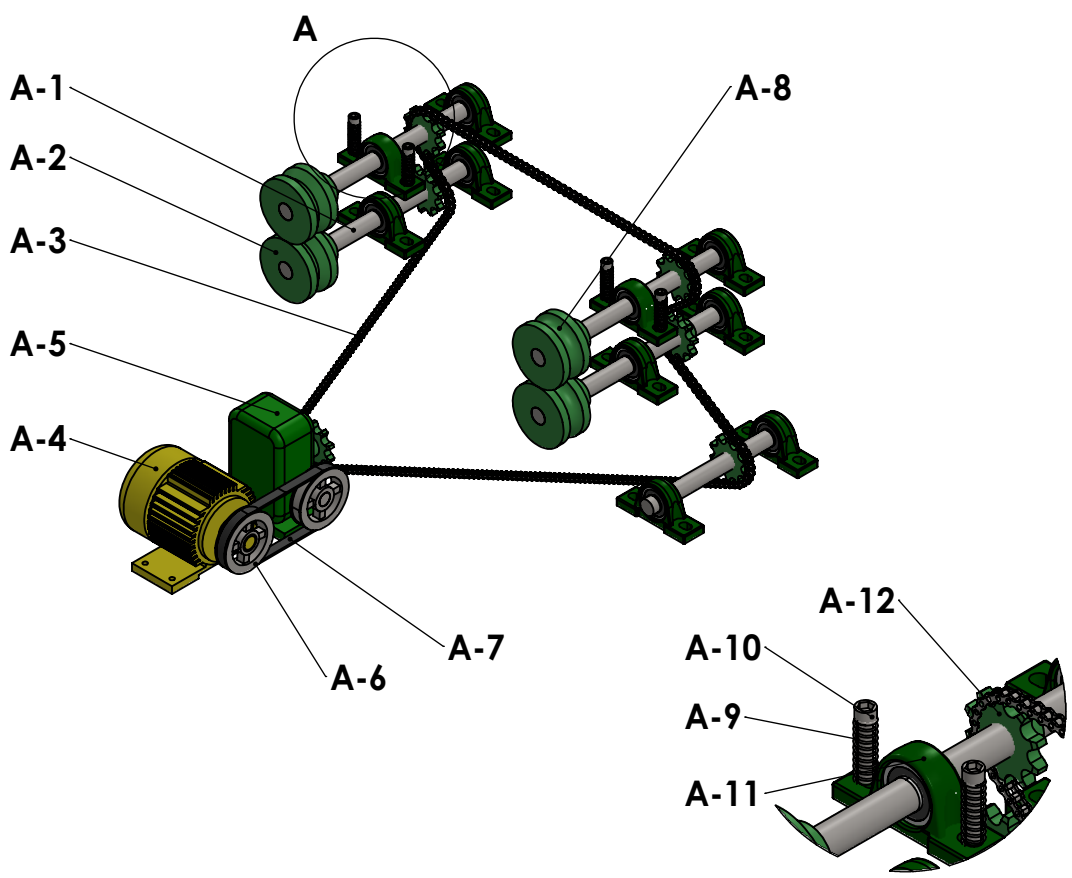
DETAIL A  
SCALE 1 : 10



JML	NAMA BAGIAN	BAHAN	UKURAN JADI	UKURAN KASAR	NO.ID	KETERANGAN	
>	0	6	30	120	400	1000	PENGERJAAN LANJUT
<	6	30	120	400	1000	2000	
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	
NAMA							SKALA
ASSEMBLY MESIN DOWEL							1:20
NO. ASSY : -							DIGAMBAR
							09/12/2021
							ANDHIKA
							DIPERIKSA
							DISAHKAN
							SATUAN
							MM
JTM POLITEKNIK NEGERI CILACAP							FORMAT
							A3
GBR-01/TM3D							

8 7 6 5 4 3 2 1

4	3	2	1
Kode	Part	Qty	material
A-1	Poros roll	5	Mildsteel
A-2	Roll input	2	Mildsteel
A-3	Rantai	1	Standar
A-4	Motor AC	1	Standar
A-5	Reducer	1	Standar
A-6	Puli	1	Standar
A-7	Sabuk puli	1	Standar
A-8	Roll output	2	Mildsteel
A-9	Pegas	4	Standar
A-10	Baut penahan	4	Standar
A-11	Bearing duduk	10	Standar
A-12	Sprocket	6	Standar

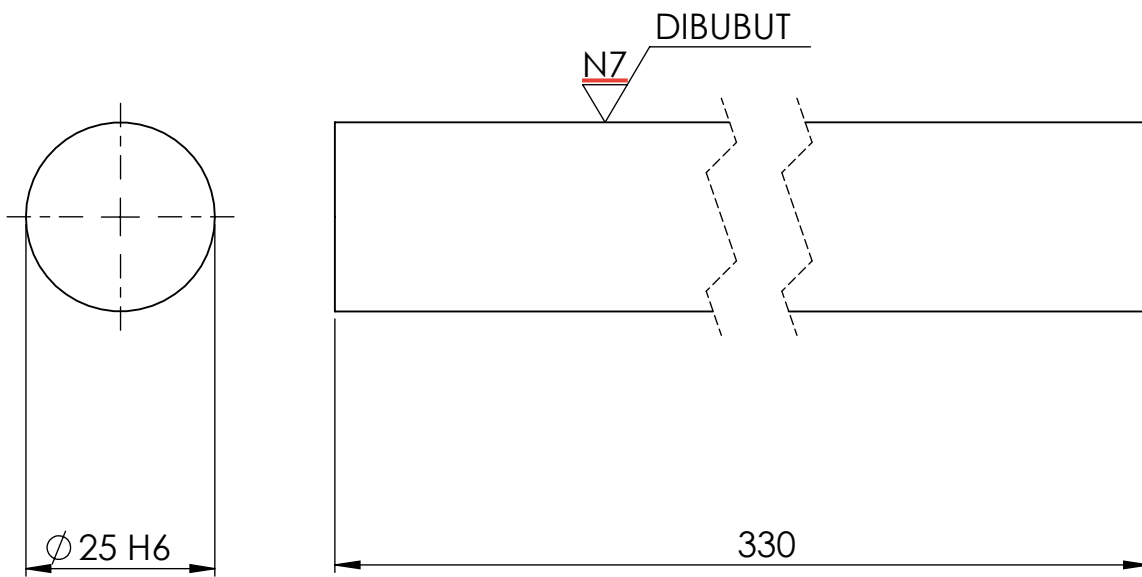


DETAIL A  
SCALE 1 : 5

>	0	6	30	120	400	1000	PENERJAAN LANJUT	NO. ORDER	PROYEKSI				
<	6	30	120	400	1000	2000							
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2							
NAMA								SKALA <b>1:10</b>	DIGAMBAR	22/10/21	ANDHIKA		
<b>DESAIN BAGIAN SISTEM TRANSMISI DAN ROLL PENARIK</b>									DIPERIKSA				
									DISAHKAN				
									SATUAN		MM		
NO. ASSY : -								FORMAT	<b>A4</b>				
								<b>JTM POLITEKNIK NEGERI CILACAP</b>			<b>GBR-02/TM3D</b>		

DILARANG MEMFOTOKOPI, MEMPERBANYAK, MENYALIN, MEMINDAHTANGKAN GAMBAR INI TANPA IZIN TERTULIS DARI POLITEKNIK NEGERI CILACAP

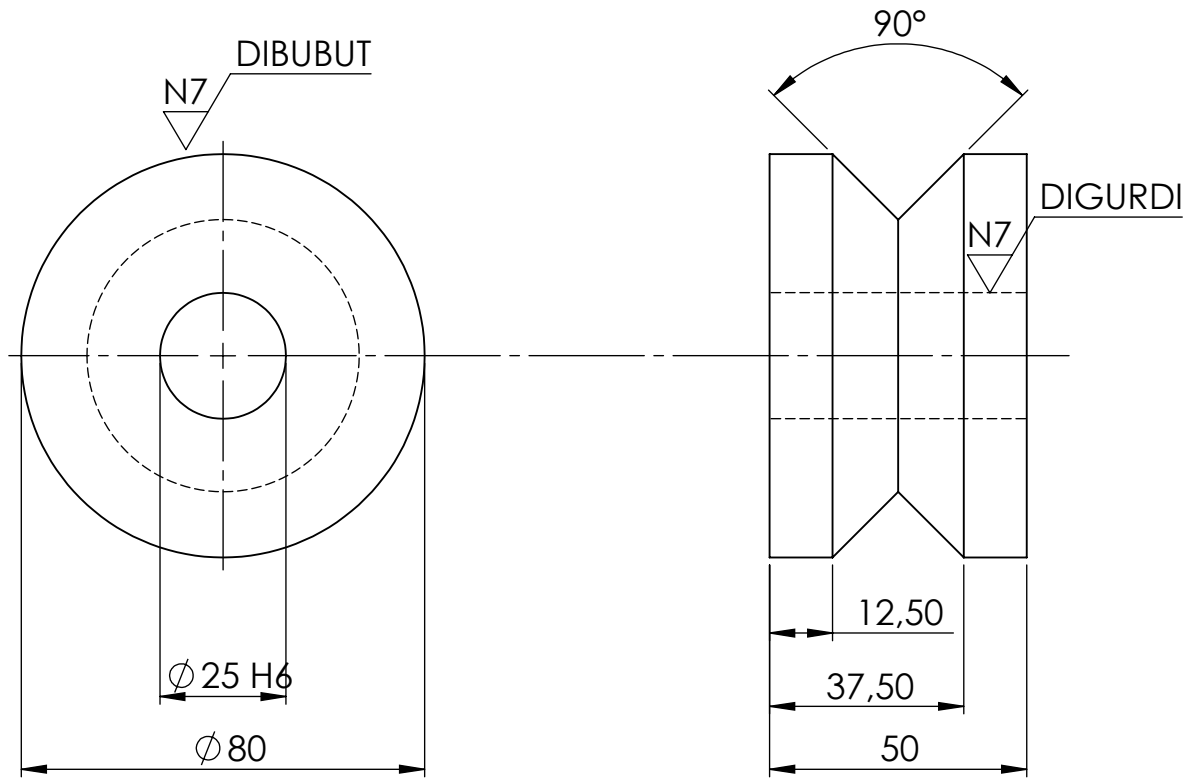




JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN	
	>	0	6	30	120	400						1000
<	6	30	120	400	1000	2000	PEKERJAAN LANJUT		NO. ORDER	PROYEKSI		
TOL	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2						
NAMA									SKALA	DIGAMBAR	20/9/22	ANDHIKA
POROS ROLL									1 : 1	DIPERIKSA		
										DISAHKAN		
NO. ASSY : -									SATUAN		mm	
 <b>POLITEKNIK NEGERI CILACAP</b> TELP. (0282) 533329 EMAIL : polcap@yahoo.co.id JL. Dr. SOETOMO, SIDAKAYA, CILACAP, 53212									FORMAT	A4		

DILARANG MEMFOTOKOPI, MEMPERBANYAK, MENYALIN, MEMINDAHTANGANKAN GAMBAR INI TANPA IZIN TERTULIS DARI POLITEKNIK NEGERI CILACAP





DILARANG MEMFOTOKOPI, MEMPERBANYAK, MENYALIN, MEMINDAHTANGANKAN GAMBAR INI TANPA IZIN TERTULIS DARI POLITEKNIK NEGERI CILACAP

JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
	>	0	6	30	120	400					
<	6	30	120	400	1000	2000					
TOL	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2					

NAMA  <b>PART 1</b>	SKALA	DIGAMBAR	20/9/22	ANDHIKA
	1 : 2	DIPERIKSA		
		DISAHKAN		
		SATUAN		mm

NO. ASSY : -	FORMAT	A4
--------------	--------	----



**POLITEKNIK NEGERI CILACAP**  
 TELP. (0282) 533329 EMAIL : polcap@yahoo.co.id  
 JL. Dr. SOETOMO, SIDAKAYA, CILACAP, 53212





4

3

2

1

F

F

E

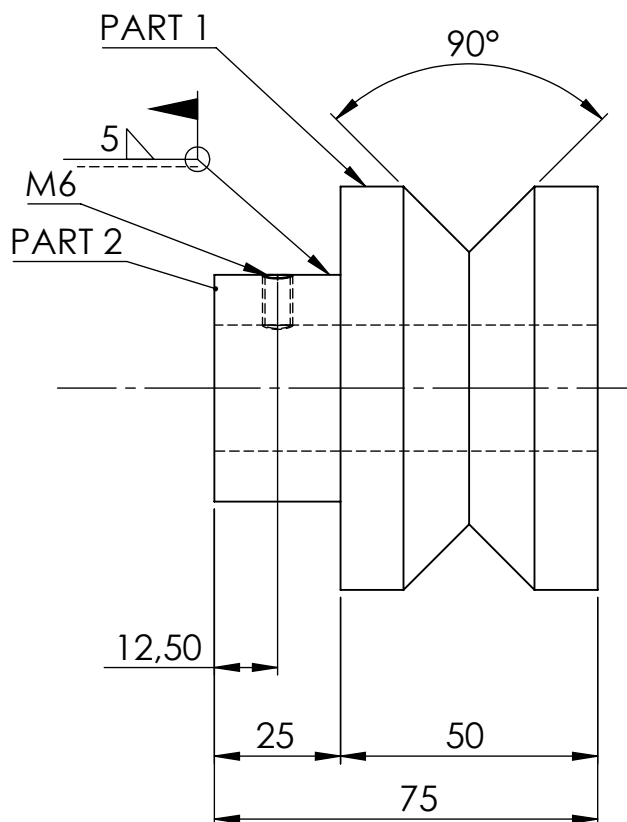
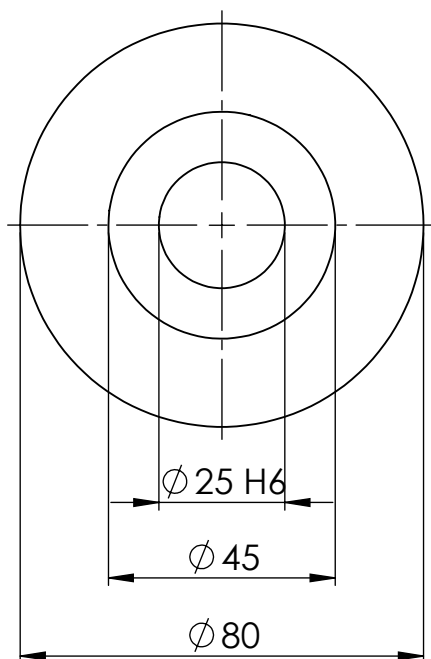
E

D


D

C

C



DILARANG MEMFOTOKOPI, MEMPERBANYAK, MENYALIN, MEMINDAHTANGANKAN GAMBAR INI TANPA IZIN TERTULIS DARI POLITEKNIK NEGERI CILACAP

JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN	
>	0	6	30	120	400	1000	PEKERJAAN LANJUT		NO. ORDER	PROYEKSI		
<	6	30	120	400	1000	2000						
TOL	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2						
NAMA									SKALA	DIGAMBAR	20/9/22	ANDHIKA
ASSEMBLY ROLL INPUT									1 : 2	DIPERIKSA		
										DISAHKAN		
NO. ASSY : -									SATUAN		mm	
 <b>POLITEKNIK NEGERI CILACAP</b> TELP. (0282) 533329 EMAIL : polcap@yahoo.co.id JL. Dr. SOETOMO, SIDAKAYA, CILACAP, 53212									FORMAT	A4		

4

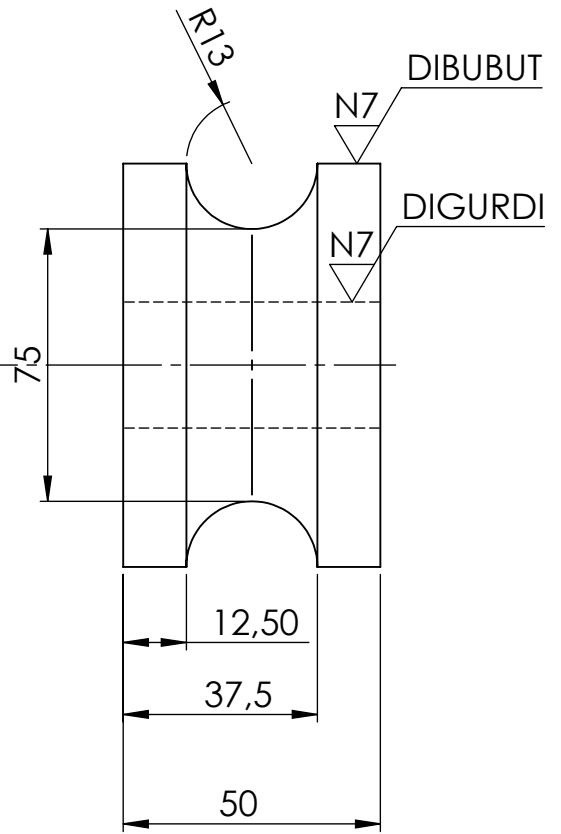
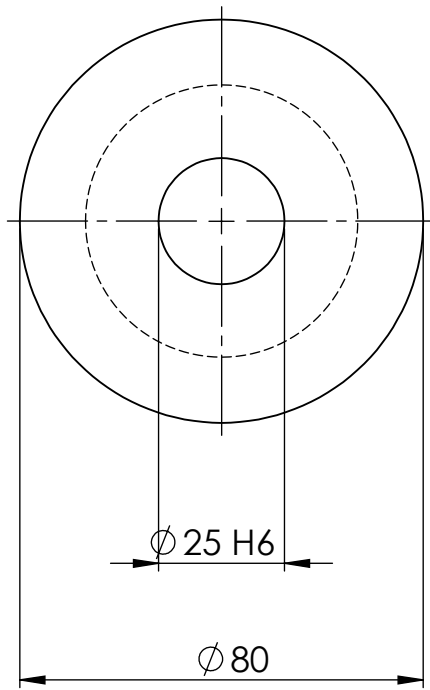
3

2

1

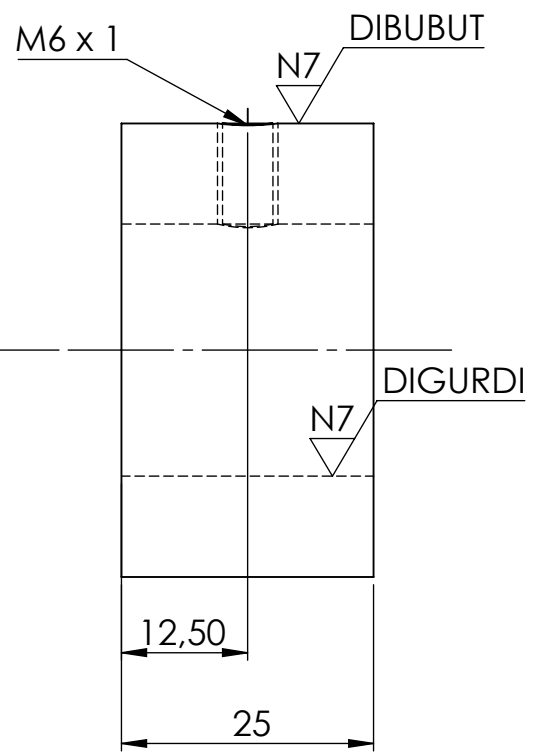
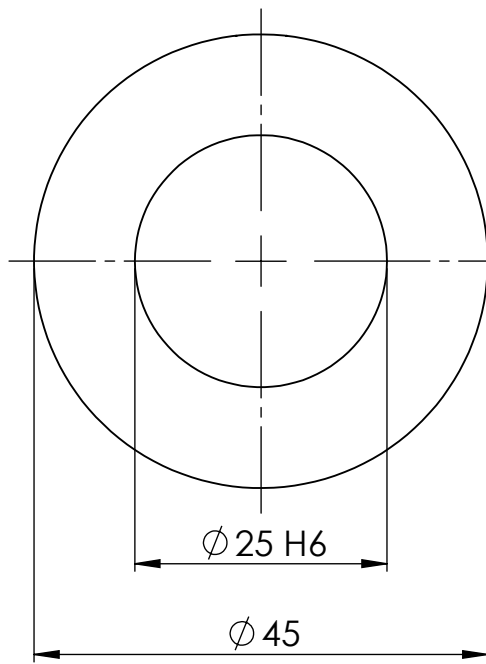
A

A



DILARANG MEMFOTOKOPI, MEMPERBANYAK, MENYALIN, MEMINDAHTANGANKAN GAMBAR INI TANPA IZIN TERTULIS DARI POLITEKNIK NEGERI CILACAP


JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN	
>	0	6	30	120	400	1000	PEKERJAAN LANJUT		NO. ORDER	PROYEKSI		
<	6	30	120	400	1000	2000						
TOL	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2						
NAMA									SKALA	DIGAMBAR	20/9/22	ANDHIKA
PART 1									1 : 2	DIPERIKSA		
										DISAHKAN		
NO. ASSY : -									SATUAN		mm	
 <b>POLITEKNIK NEGERI CILACAP</b> TELP. (0282) 533329 EMAIL : polcap@yahoo.co.id JL. Dr. SOETOMO, SIDAKAYA, CILACAP, 53212									FORMAT	A4		



DILARANG MEMFOTOKOPI, MEMPERBANYAK, MENYALIN, MEMINDAHTANGANKAN GAMBAR INI TANPA IZIN TERTULIS DARI POLITEKNIK NEGERI CILACAP

JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	PEKERJAAN LANJUT		NO. ORDER	PROYEKSI	
<	6	30	120	400	1000	2000					
TOL	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2					

NAMA  <b>PART 2</b>  NO. ASSY : -	SKALA	DIGAMBAR	20/9/22	ANDHIKA
	1 : 2	DIPERIKSA		
		DISAHKAN		
		SATUAN		mm

 <b>POLITEKNIK NEGERI CILACAP</b> TELP. (0282) 533329 EMAIL : polcap@yahoo.co.id JL. Dr. SOETOMO, SIDAKAYA, CILACAP, 53212	FORMAT <b>A4</b>
---	---------------------

