



LABORATORIUM POLSRI PALEMBANG

Jl. Srijaya Negara Bukit Besar Palembang 30319
Telp. 0711-353414, Fax. 0711-355918, Email : labpolsri@polsri.ac.id

F-POLSRI-5.2.3.01

SURAT TANDA UJI

Nomor : 158/LM/HT/06/2018

Nama Pelanggan : Lediansyah Saputra Tanggal : 28 Juni 2018
Alamat : Palembang Tanggal Uji : 28 Juni 2018
Proyek : Penelitian/ Skripsi Mhs POLSRI Diuji oleh : Karmin, S.T., M.T
Peralatan : Qualitest TR 200
Standar Pengujian : ISO
Panjang Uji : 0,8 x 5 mm
Range : Otomatis/ Auto
Material : Baja Karbon Sedang

No	Tebal Pemakanan (mm)	V _c	Rpm	Kekasaran, R _a (μm)			Rata-rata
				1	2	3	
1	0,4	18	260	5,216	4,717	4,500	4,602
				4,067	3,869	3,964	
				4,450	5,049	5,590	
2	0,8	18	260	6,570	5,165	5,934	5,397
				5,746	4,990	5,799	
				4,272	5,580	4,520	
3	1,2	18	260	4,572	4,146	4,139	4,931
				5,502	5,607	6,150	
				4,351	5,888	4,031	

No	Tebal Pemakanan (mm)	V _c	Rpm	Kekasaran, R _a (μm)			Rata-rata
				1	2	3	
1	0,4	30	440	4,874	4,627	5,396	4,394
				4,760	4,704	3,903	
				3,707	4,437	4,016	
2	0,8	30	440	4,022	4,276	5,102	4,774
				5,371	4,266	6,575	
				4,404	4,175	4,777	
3	1,2	30	440	5,831	3,780	4,709	4,278
				4,416	3,855	3,747	
				3,118	3,808	5,242	



Manajer Teknis,

K. Romli, M.T

NIP. 196710181993031003



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Nama Pelanggan : Lediansyah Saputra Tanggal : 28 Juni 2018
Alamat : Palembang Tanggal Uji : 28 Juni 2018
Proyek : Penelitian/ Skripsi Mhs POLSRI Diuji oleh : Mulyadi, S.T.,M.T
Peralatan : Hung Ta Type HT 9502
Material : Baja Karbon Sedang

Hasil Pengujian Tarik

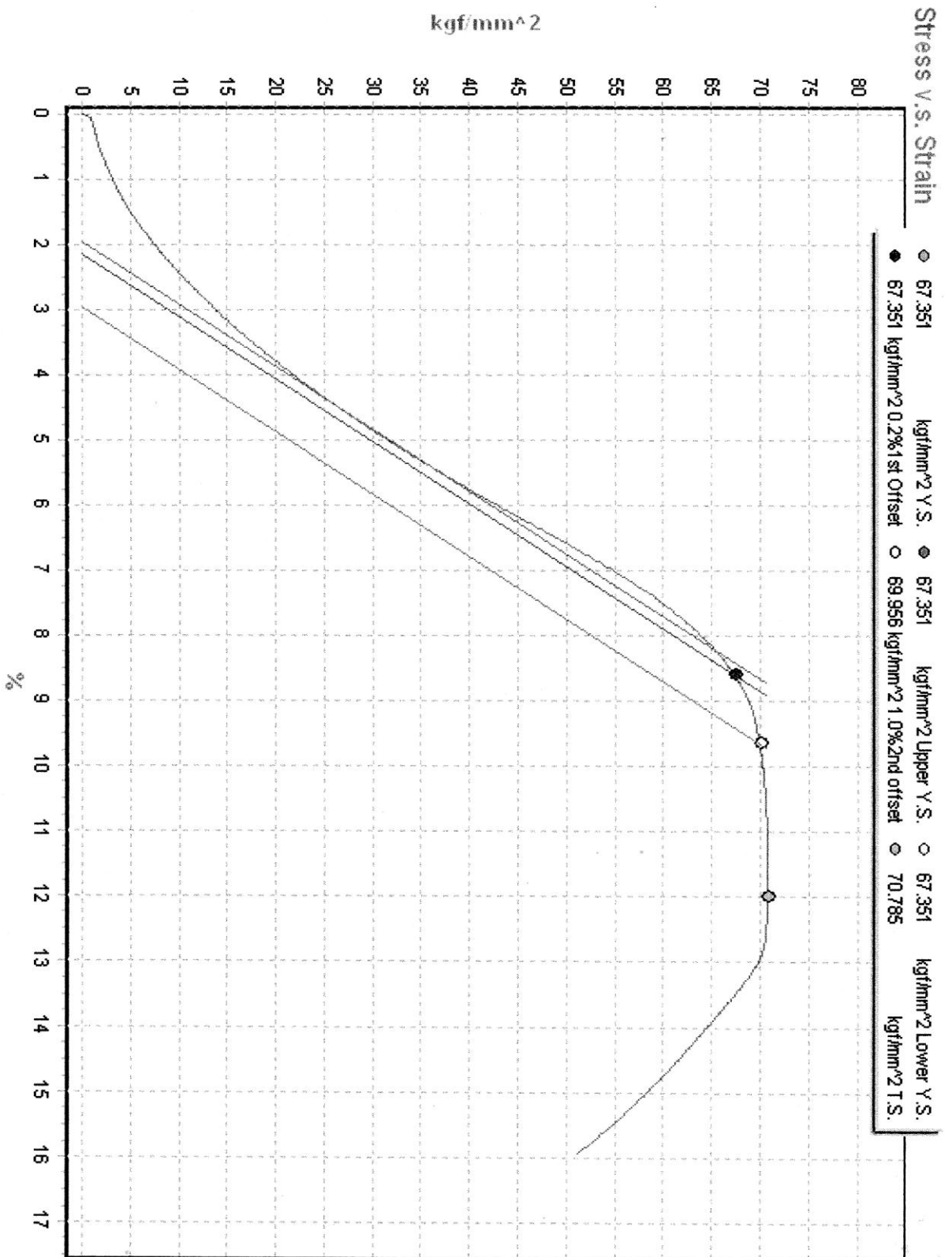
No	Spesimen	Luas (mm ²)	Beban Max (Kg)	Tegangan Yield, YS (Kg/mm ²)	Tegangan Tarik, TS (Kg/mm ²)	Regangan, ε (%)
1	I	380,133	26016	64,45	68,44	15
2	II	380,133	26933	67,57	70,85	15
3	III	380,133	26908	67,35	70,79	16

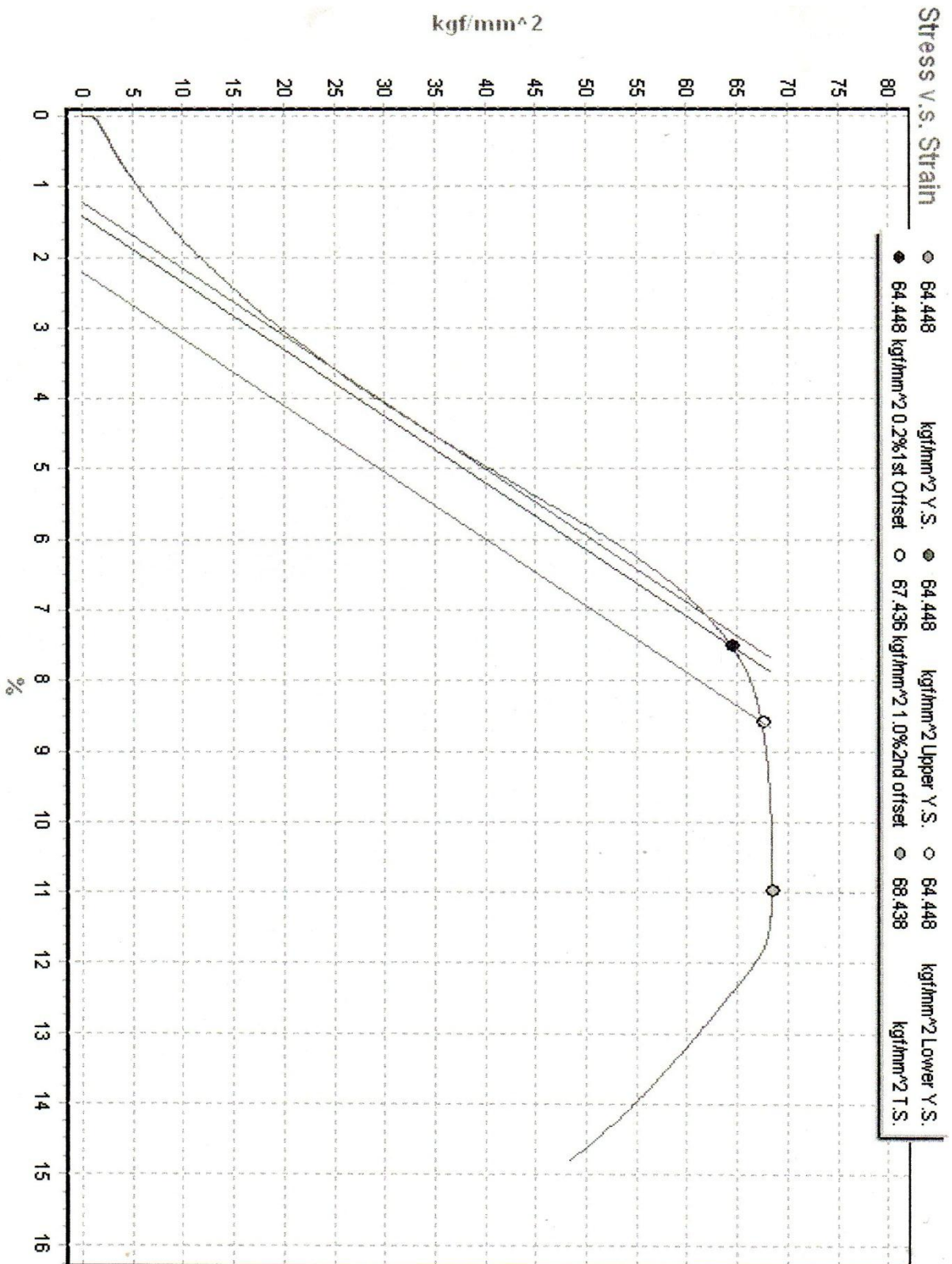


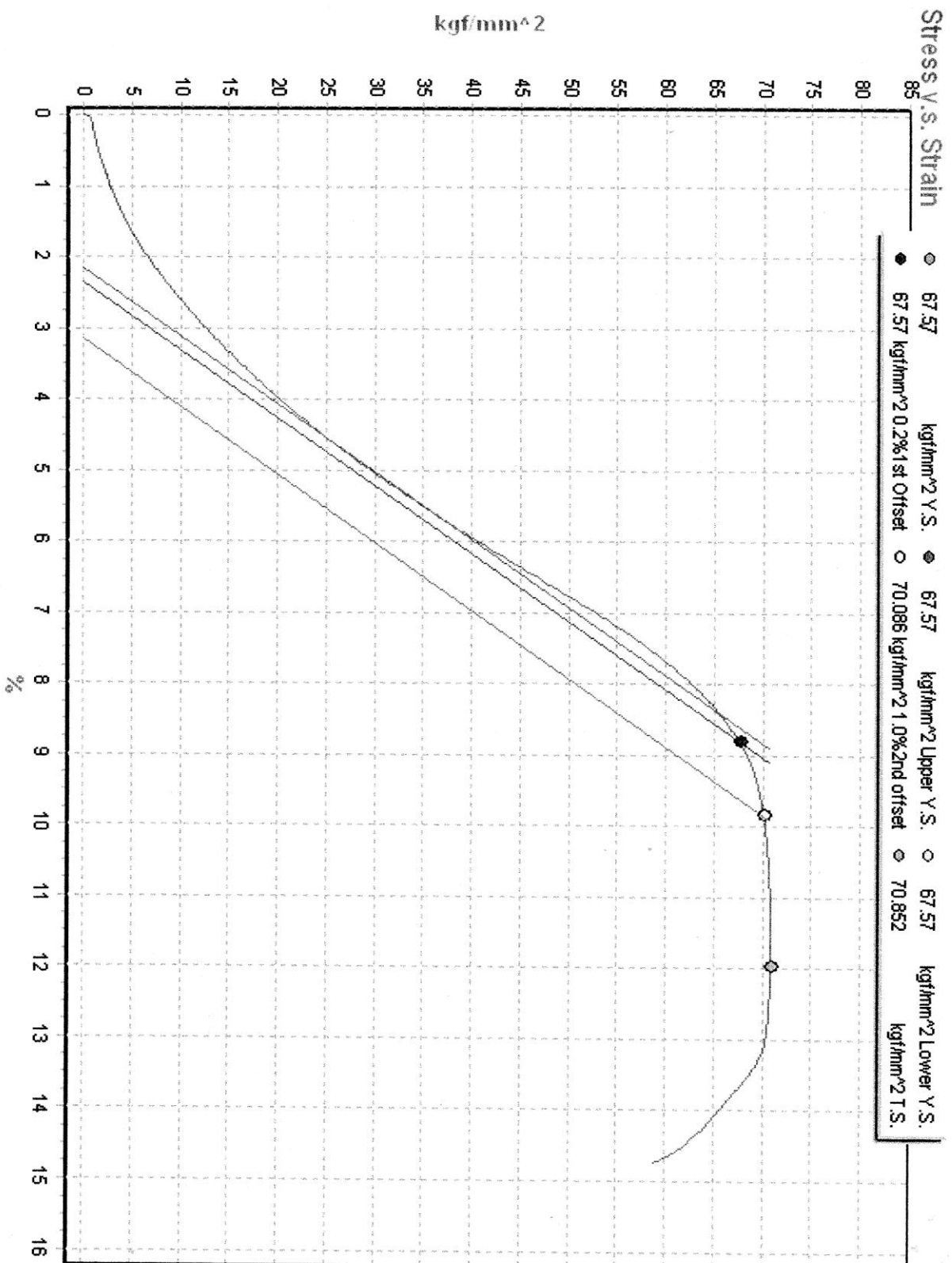
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Standard values for cutting speeds—angles—specific cutting force



Values given apply to dry cutting, using high-speed steel tools at a cutting speed V_{c0} (tool life 60 min); tungsten carbide tools at a cutting speed V_{c0} (tool life 40 min). Setting angle $\lambda=45^\circ$, nose angle $\epsilon=90^\circ$, front clearance $\lambda=5 \dots 8^\circ$. Front clearance $\lambda=10 \dots 25^\circ$ for soft materials.

Values of specific cutting force (pressure), tangential to the work surface are applicable for depth of cut four to eight times of the feed.

Material	Strength in kgf/mm ²	Cutting tool	Side clearance α	Side rake γ	Feed s in mm per revolution											
					Cutting speed V m/min								Specific cutting force K_c , kgf/mm ² chip section			
					0.1	0.2	0.4	0.8	1.6	3.2	0.1	0.2	0.4	0.8		
Plain carbon structural steel St 34, St 37, St 42	up to 45	HSS TCT	8 5	14 10	280	236	45	34	25	19	19	360	260	190	136	
St 50, St 53	50... 70	HSS TCT	8 5	14 10	240	205	32	24	18	14	14	410	225	215	154	
St 78	70... 85	HSS TCT	8 5	14 10	200	170	32	24	18	13	10	440	315	230	164	
Cast steel	50... 75	HSS TCT	8 5	10 6	118	100	34	25	19	14	11	360	260	190	136	
Alloy steels	85... 100	HSS TCT	8 5	10 6	150	118	24	17	12	8.5	(6) 20	500	360	260	185	
Mn-steel, Cr-Ni-steel, Cr-Mn steel	100... 140	HSS TCT	8 5	6 6	95	75	16	11	8	(5-6) 16	13	530	380	275	200	
Other steel alloys	140... 180	HSS TCT	8 5	6 6	60	48	9.5	6	32	10	8	570	410	300	215	
Tool steel	150... 180	HSS TCT	8 5	6 6	50	40	32	27	8.5	6.7	8	570	410	300	215	
Austenitic steel Manganese steel		HSS TCT	5	6	40	32	25	20	6.7	5.3	5.3	660	480	350	252	
Cast iron Grade 15	BHN ... 200	HSS TCT	8 5	0	140	118	48	27	18	14	9.5	190	136	100	72	
Cast iron Grade 25	BHN 200... 250	HSS TCT	8 5	0	106	90	32	18	13	9.5	6.3	290	208	150	108	
Malleable Cast iron		HSS TCT	8 5	10 10	106	90	43	28	20	13	9	240	175	125	92	
Copper alloys Brass	BHN 80... 120	HSS TCT	8 5	0	600	530	125	85	56	36	35	160	115	85	60	
Tin bronze		HSS TCT	8 5	0	500	450	85	63	48	34	24	140	100	70	52	
Cast bronze		HSS TCT	8 5	0	355	280	63	53	43	36	28	340	245	180	125	
Light alloys Pure aluminium		HSS TCT	12 12	30 30	400	300	300	200	118	75		105	76	55	40	
Al-alloys (11... 13% Si)		HSS TCT	12 12	18 18	100	67	45	30	140	118		140	100	70	52	
Paton alloys		HSS TCT	12 12	14 14	25	22	20	18	17			125	90	65	48	
Magnesium-alloys		HSS TCT	8 5	6 6	1000	900	800	750	710			58	42	30	22	
Synthetic and moulded materials Ebonite (Hard rubber)		HSS TCT	12 12	10 10	300	280	250	224	200			48	35	25	18	
Moulded plastic Bakelite		HSS TCT	12 12	14 14	280	212	170	132	100			48	35	25	18	

TCT: Tungsten carbide tipped tools
Cutting speeds given angle to the base TCT = V_{c0}

d.f	t _{0.10}	t _{0.05}	t _{0.025}	t _{0.01}	t _{0.005}
1	3.078	6.314	12.71	31.82	63.66
2	1.886	2.920	4.303	6.965	9.925
3	1.638	2.353	3.182	4.541	5.841
4	1.533	2.132	2.776	3.747	4.604
5	1.476	2.015	2.571	3.365	4.032
6	1.440	1.943	2.447	3.143	3.707
7	1.415	1.895	2.365	2.998	3.499
8	1.397	1.860	2.306	2.896	3.355
9	1.383	1.833	2.262	2.821	3.250
10	1.372	1.812	2.228	2.764	3.169
11	1.363	1.796	2.201	2.718	3.106
12	1.356	1.782	2.179	2.681	3.055
13	1.350	1.771	2.160	2.650	3.012
14	1.345	1.761	2.145	2.624	2.977
15	1.341	1.753	2.131	2.602	2.947
16	1.337	1.746	2.120	2.583	2.921
17	1.333	1.740	2.110	2.567	2.898
18	1.330	1.734	2.101	2.552	2.878
19	1.328	1.729	2.093	2.539	2.861
20	1.325	1.725	2.086	2.528	2.845
21	1.323	1.721	2.080	2.518	2.831
22	1.321	1.717	2.074	2.508	2.819
23	1.319	1.714	2.069	2.500	2.807
24	1.318	1.711	2.064	2.492	2.797
25	1.316	1.708	2.060	2.485	2.787
26	1.315	1.706	2.056	2.479	2.779
27	1.314	1.703	2.052	2.473	2.771
28	1.313	1.701	2.048	2.467	2.763
29	1.311	1.699	2.045	2.462	2.756
30	1.310	1.697	2.042	2.457	2.750
31	1.309	1.696	2.040	2.453	2.744
32	1.309	1.694	2.037	2.449	2.738
33	1.308	1.692	2.035	2.445	2.733
34	1.307	1.691	2.032	2.441	2.728
35	1.306	1.690	2.030	2.438	2.724
36	1.306	1.688	2.028	2.434	2.719
37	1.305	1.687	2.026	2.431	2.715
38	1.304	1.686	2.024	2.429	2.712
39	1.304	1.685	2.023	2.426	2.708
40	1.303	1.684	2.021	2.423	2.704
41	1.303	1.683	2.020	2.421	2.701
42	1.302	1.682	2.018	2.418	2.698
43	1.302	1.681	2.017	2.416	2.695
44	1.301	1.680	2.015	2.414	2.692
45	1.301	1.679	2.014	2.412	2.690
46	1.300	1.679	2.013	2.410	2.687
47	1.300	1.678	2.012	2.408	2.685
48	1.299	1.677	2.011	2.407	2.682
49	1.299	1.677	2.010	2.405	2.680
50	1.299	1.676	2.009	2.403	2.678
51	1.298	1.675	2.008	2.402	2.676
52	1.298	1.675	2.007	2.400	2.674
53	1.298	1.674	2.006	2.399	2.672
54	1.297	1.674	2.005	2.397	2.670
55	1.297	1.673	2.004	2.396	2.668
56	1.297	1.673	2.003	2.395	2.667
57	1.297	1.672	2.002	2.394	2.665
58	1.296	1.672	2.002	2.392	2.663
59	1.296	1.671	2.001	2.391	2.662
60	1.296	1.671	2.000	2.390	2.660

d.f	t _{0.10}	t _{0.05}	t _{0.025}	t _{0.01}	t _{0.005}
61	1.296	1.671	2.000	2.390	2.659
62	1.296	1.671	1.999	2.389	2.659
63	1.296	1.670	1.999	2.389	2.658
64	1.296	1.670	1.999	2.388	2.657
65	1.296	1.670	1.998	2.388	2.657
66	1.295	1.670	1.998	2.387	2.656
67	1.295	1.670	1.998	2.387	2.655
68	1.295	1.670	1.997	2.386	2.655
69	1.295	1.669	1.997	2.386	2.654
70	1.295	1.669	1.997	2.385	2.653
71	1.295	1.669	1.996	2.385	2.653
72	1.295	1.669	1.996	2.384	2.652
73	1.295	1.669	1.996	2.384	2.651
74	1.295	1.668	1.995	2.383	2.651
75	1.295	1.668	1.995	2.383	2.650
76	1.294	1.668	1.995	2.382	2.649
77	1.294	1.668	1.994	2.382	2.649
78	1.294	1.668	1.994	2.381	2.648
79	1.294	1.668	1.994	2.381	2.647
80	1.294	1.667	1.993	2.380	2.647
81	1.294	1.667	1.993	2.380	2.646
82	1.294	1.667	1.993	2.379	2.645
83	1.294	1.667	1.992	2.379	2.645
84	1.294	1.667	1.992	2.378	2.644
85	1.294	1.666	1.992	2.378	2.643
86	1.293	1.666	1.991	2.377	2.643
87	1.293	1.666	1.991	2.377	2.642
88	1.293	1.666	1.991	2.376	2.641
89	1.293	1.666	1.990	2.376	2.641
90	1.293	1.666	1.990	2.375	2.640
91	1.293	1.665	1.990	2.374	2.639
92	1.293	1.665	1.989	2.374	2.639
93	1.293	1.665	1.989	2.373	2.638
94	1.293	1.665	1.989	2.373	2.637
95	1.293	1.665	1.988	2.372	2.637
96	1.292	1.664	1.988	2.372	2.636
97	1.292	1.664	1.988	2.371	2.635
98	1.292	1.664	1.987	2.371	2.635
99	1.292	1.664	1.987	2.370	2.634
100	1.292	1.664	1.987	2.370	2.633
101	1.292	1.663	1.986	2.369	2.633
102	1.292	1.663	1.986	2.369	2.632
103	1.292	1.663	1.986	2.368	2.631
104	1.292	1.663	1.985	2.368	2.631
105	1.292	1.663	1.985	2.367	2.630
106	1.291	1.663	1.985	2.367	2.629
107	1.291	1.662	1.984	2.366	2.629
108	1.291	1.662	1.984	2.366	2.628
109	1.291	1.662	1.984	2.365	2.627
110	1.291	1.662	1.983	2.365	2.627
111	1.291	1.662	1.983	2.364	2.626
112	1.291	1.661	1.983	2.364	2.625
113	1.291	1.661	1.982	2.363	2.625
114	1.291	1.661	1.982	2.363	2.624
115	1.291	1.661	1.982	2.362	2.623
116	1.290	1.661	1.981	2.362	2.623
117	1.290	1.661	1.981	2.361	2.622
118	1.290	1.660	1.981	2.361	2.621
119	1.290	1.660	1.980	2.360	2.621
120	1.290	1.660	1.980	2.360	2.620

DISTRIBUTION TABEL NILAI $F_{0,05}$
DEGREES OF FREEDOM FOR NOMINATOR

	1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	∞
1	161	200	216	225	230	234	237	239	241	242	244	246	248	249	250	251	252	253	254
2	18,5	19,0	19,2	19,2	19,3	19,3	19,4	19,4	19,4	19,4	19,4	19,4	19,4	19,5	19,5	19,5	19,5	19,5	19,5
3	10,1	9,55	9,28	9,12	9,01	8,94	8,89	8,85	8,81	8,79	8,74	8,70	8,66	8,64	8,62	8,59	8,57	8,55	8,53
4	7,71	6,94	6,59	6,39	6,26	6,16	6,09	6,04	6,00	5,96	5,91	5,86	5,80	5,77	5,75	5,72	5,69	5,66	5,63
5	6,61	5,79	5,41	5,19	5,05	4,95	4,88	4,82	4,77	4,74	4,68	4,62	4,56	4,53	4,50	4,46	4,43	4,40	4,37
6	5,99	5,14	4,76	4,53	4,39	4,28	4,21	4,15	4,10	4,06	4,00	3,94	3,87	3,84	3,81	3,77	3,74	3,70	3,67
7	5,59	4,74	4,35	4,12	3,97	3,87	3,79	3,73	3,68	3,64	3,57	3,51	3,44	3,41	3,38	3,34	3,30	3,27	3,23
8	5,32	4,46	4,07	3,84	4,69	3,58	3,50	3,44	3,39	3,35	3,28	3,22	3,15	3,12	3,08	3,04	3,01	2,97	2,93
9	5,12	4,26	3,86	3,63	3,48	3,37	3,29	3,23	3,18	3,14	3,07	3,01	2,94	2,90	2,86	2,83	2,79	2,75	2,71
10	4,96	4,10	3,71	3,48	3,33	3,22	3,14	3,07	3,02	2,98	2,91	2,85	2,77	2,74	2,70	2,66	2,62	2,58	2,54
11	4,84	3,98	3,59	3,36	3,20	3,09	3,01	2,95	2,90	2,85	2,79	2,72	2,65	2,61	2,57	2,53	2,49	2,45	2,40
12	4,75	3,89	3,49	3,26	3,11	3,00	2,91	2,85	2,80	2,75	2,69	2,62	2,54	2,51	2,47	2,43	2,38	2,34	2,30
13	4,67	3,81	3,41	3,13	3,03	2,92	2,83	2,77	2,71	2,67	2,60	2,53	2,46	2,42	2,38	2,34	2,30	2,25	2,21
14	4,60	3,74	3,34	3,11	2,96	2,85	2,76	2,70	2,65	2,60	2,53	2,46	2,39	2,35	2,31	2,27	2,22	2,18	2,13
15	4,54	3,68	3,29	3,06	2,90	2,79	2,71	2,64	2,59	2,54	2,48	2,40	2,33	2,29	2,25	2,20	2,16	2,11	2,07
16	4,49	3,63	3,24	3,01	2,85	2,74	2,66	2,59	2,54	2,49	2,42	2,35	2,28	2,24	2,19	2,15	2,11	2,06	2,01
17	4,45	3,59	3,20	2,96	2,81	2,70	2,61	2,55	2,49	2,45	2,38	2,31	2,23	2,19	2,15	2,10	2,06	2,01	1,96
18	4,41	3,55	3,16	2,93	2,77	2,66	2,58	2,51	2,46	2,41	2,34	2,27	2,19	2,15	2,11	2,06	2,02	1,97	1,92
19	4,38	3,52	3,13	2,90	2,74	2,63	2,54	2,48	2,42	2,38	2,31	2,23	2,16	2,11	2,07	2,03	1,98	1,93	1,88
20	4,35	3,49	3,10	2,87	2,71	2,60	2,51	2,45	2,39	2,35	2,28	2,20	2,12	2,08	2,04	1,99	1,95	1,90	1,84
21	4,32	3,47	3,07	2,84	2,68	2,57	2,49	2,42	2,37	2,32	2,25	2,18	2,10	2,05	2,01	1,96	1,92	1,87	1,81
22	4,30	3,44	3,05	2,82	2,66	2,55	2,46	2,40	2,34	2,30	2,23	2,15	2,07	2,03	1,98	1,94	1,89	1,84	1,78
23	4,28	3,42	3,03	2,80	2,64	2,53	2,44	2,37	2,32	2,27	2,20	2,13	2,05	2,01	1,96	1,91	1,86	1,81	1,76
24	4,26	3,40	3,01	2,78	2,62	2,51	2,42	2,36	2,30	2,25	2,18	2,11	2,03	1,98	1,94	1,89	1,84	1,79	1,73
25	4,24	3,39	2,99	2,76	2,60	2,49	2,40	2,34	2,28	2,24	2,16	2,09	2,01	1,96	1,92	1,87	1,82	1,77	1,71
30	4,17	3,32	2,92	2,69	2,53	2,42	2,33	2,27	2,21	2,16	2,09	2,01	1,93	1,89	1,84	1,79	1,74	1,68	1,62
40	4,08	3,23	2,84	2,61	2,45	2,34	2,25	2,18	2,12	2,08	2,00	1,92	1,84	1,79	1,74	1,69	1,64	1,58	1,51
50	4,08	3,18	2,79	2,56	2,40	2,29	2,20	2,13	2,07	2,02	1,95	1,87	1,78	1,74	1,69	1,63	1,56	1,50	1,41
60	4,00	3,15	2,76	2,53	2,37	2,25	2,17	2,10	2,04	1,99	1,92	1,84	1,75	1,70	1,65	1,59	1,53	1,47	1,39
100	3,94	3,09	2,70	2,46	2,30	2,19	2,10	2,03	1,97	1,92	1,85	1,80	1,68	1,63	1,57	1,51	1,46	1,40	1,28
120	3,92	3,07	2,68	2,45	2,29	2,18	2,09	2,02	1,96	1,91	1,83	1,75	1,66	1,61	1,55	1,50	1,43	1,35	1,22
∞	3,84	3,00	2,60	2,37	2,21	2,10	2,01	1,94	1,88	1,83	1,75	1,67	1,57	1,52	1,46	1,39	1,32	1,22	1,00

Distribusi nilai r_{tabel} Signifikansi 5% dan 1%

N	The Level of Significance		N	The Level of Significance	
	5%	1%		5%	1%
3	0.997	0.999	38	0.320	0.413
4	0.950	0.990	39	0.316	0.408
5	0.878	0.959	40	0.312	0.403
6	0.811	0.917	41	0.308	0.398
7	0.754	0.874	42	0.304	0.393
8	0.707	0.834	43	0.301	0.389
9	0.666	0.798	44	0.297	0.384
10	0.632	0.765	45	0.294	0.380
11	0.602	0.735	46	0.291	0.376
12	0.576	0.708	47	0.288	0.372
13	0.553	0.684	48	0.284	0.368
14	0.532	0.661	49	0.281	0.364
15	0.514	0.641	50	0.279	0.361
16	0.497	0.623	55	0.266	0.345
17	0.482	0.606	60	0.254	0.330
18	0.468	0.590	65	0.244	0.317
19	0.456	0.575	70	0.235	0.306
20	0.444	0.561	75	0.227	0.296
21	0.433	0.549	80	0.220	0.286
22	0.432	0.537	85	0.213	0.278
23	0.413	0.526	90	0.207	0.267
24	0.404	0.515	95	0.202	0.263
25	0.396	0.505	100	0.195	0.256
26	0.388	0.496	125	0.176	0.230
27	0.381	0.487	150	0.159	0.210
28	0.374	0.478	175	0.148	0.194
29	0.367	0.470	200	0.138	0.181
30	0.361	0.463	300	0.113	0.148
31	0.355	0.456	400	0.098	0.128
32	0.349	0.449	500	0.088	0.115
33	0.344	0.442	600	0.080	0.105
34	0.339	0.436	700	0.074	0.097
35	0.334	0.430	800	0.070	0.091
36	0.329	0.424	900	0.065	0.086
37	0.325	0.418	1000	0.062	0.081