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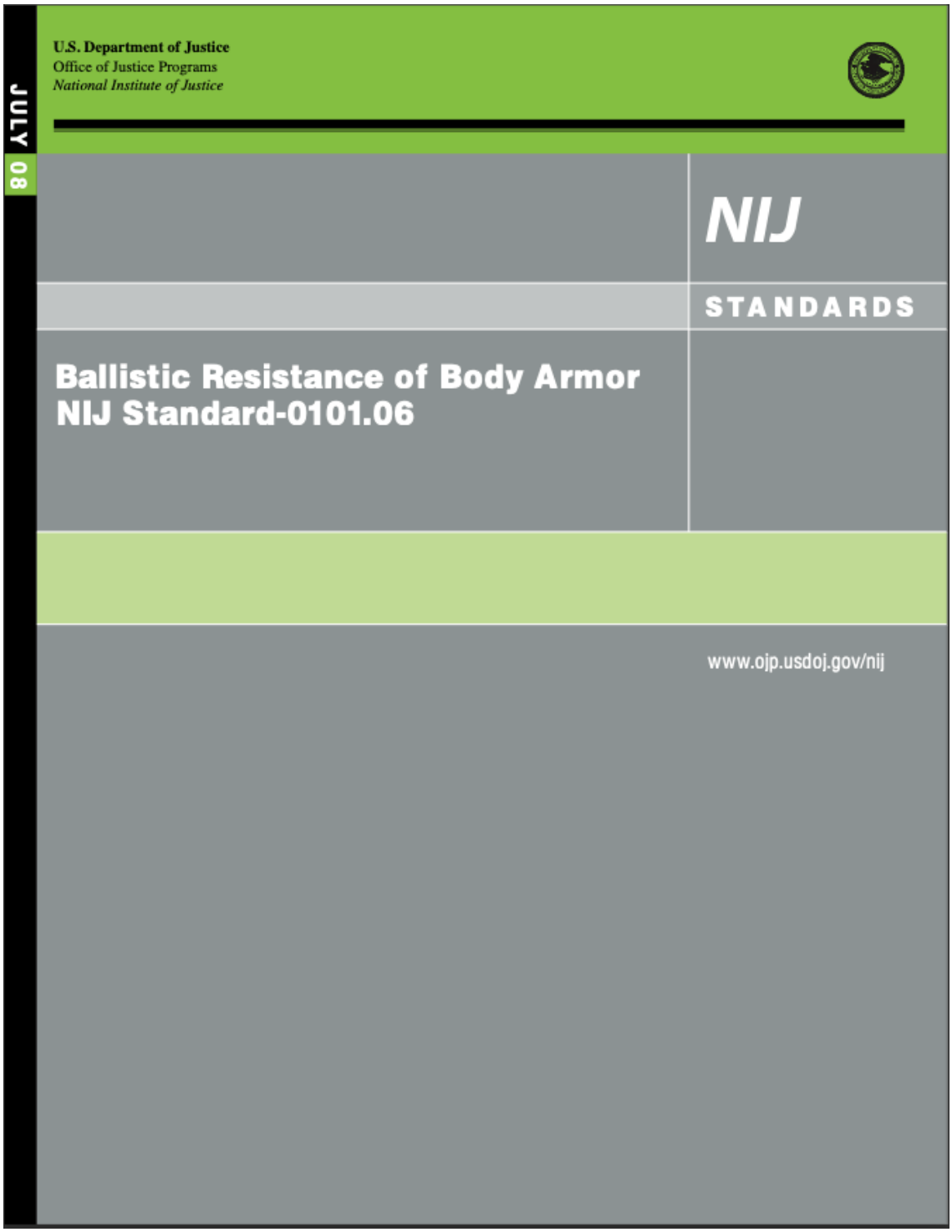
LAMPIRAN 1

National Institute of Justice



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ABOUT THE LAW ENFORCEMENT AND CORRECTIONS STANDARDS AND TESTING PROGRAM

The Standards and Testing Program is sponsored by the Office of Science and Technology of the National Institute of Justice (NIJ), Office of Justice Programs, U.S. Department of Justice. The program responds to the mandate of the Homeland Security Act of 2002, which directed the Office of Science and Technology to establish and maintain performance standards in accordance with the National Technology Transfer and Advancement Act of 1995 (Public Law 104–113) to test and evaluate law enforcement technologies that may be used by Federal, State, and local law enforcement agencies. The Homeland Security Act of 2002 also directed the Office of Science and Technology to establish and maintain a program to certify, validate, and mark or otherwise recognize law enforcement technology products that conform to the standards mentioned above.

The Standards and Testing Program is a basic and applied research effort that determines the technological needs of justice system agencies, sets minimum performance standards for specific devices, tests commercially available equipment against those standards, and disseminates the standards and the test results to criminal justice agencies nationally and internationally.

The *Office of Law Enforcement Standards* (OLES) at the National Institute of Standards and Technology develops voluntary national performance standards for compliance testing to ensure that individual items of equipment are suitable for use by criminal justice agencies. The standards are based upon laboratory testing and evaluation of representative samples of each item of equipment to determine the key attributes, develop test methods, and establish minimum performance requirements for each essential attribute. In addition to the technical standards, OLES also produces technical reports and user guidelines that explain in nontechnical terms the capabilities of available equipment.

The *National Law Enforcement and Corrections Technology Center* (NLECTC), operated by a grantee, coordinates a national compliance testing program conducted by independent laboratories. The standards developed by OLES serve as performance benchmarks against which commercial equipment is measured.

Publications are available at no charge through NLECTC. Some documents are also available online at https://www.justnet.org/justnet.html. To request a document or additional information, call 800–248–2742 or 301–519–5060, or write:

National Law Enforcement and Corrections Technology Center
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The National Institute of Justice is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance, the Bureau of Justice Statistics, the Community Capacity Development Office, the Office for Victims of Crime; the Office of Juvenile Justice and Delinquency Prevention, and the Office of Sex Offender Sentencing, Monitoring, Apprehending, Registering, and Tracking (SMART).

NIJ STANDARD–0101.06
FOR
BALLISTIC RESISTANCE OF BODY ARMOR

1. Purpose And Scope

The purpose of this standard is to establish minimum performance requirements and test methods for the ballistic resistance of personal body armor intended to protect against gunfire.

This standard is a revision of NIJ Standard–0101.04, dated September 2000. It supersedes the NIJ 2005 Interim Requirements, dated September 2005, NIJ Standard–0101.04, and all other revisions and addenda to NIJ Standard–0101.04.

The scope of the standard is limited to ballistic resistance only; this standard does not address threats from knives and sharply pointed instruments, which are different types of threats and are addressed in the current version of NIJ Standard–0115 *Stab Resistance of Personal Body Armor*.

Body armor manufacturers and purchasers may use this standard to help to determine whether specific armor models meet the minimum performance standards and test methods identified in this document. However, NIJ strongly encourages body armor manufacturers to participate in the NIJ Voluntary Compliance Testing Program (CTP) and encourages purchasers to insist that the armor model(s) they purchase be tested by the NIJ CTP and be listed on the NIJ Compliant Products List. This will help to assure that the armor models will meet the minimum performance standards for use by the criminal justice community.

The ballistic tests described in this standard have inherent hazards. Adequate safeguards for personnel and property must be employed when conducting these tests.

2. NIJ Body Armor Classification

Personal body armor covered by this standard is classified into five types (IIA, II, IIIA, III, IV) by level of ballistic performance. In addition, a special test class is defined to allow armor to be validated against threats that may not be covered by the five standard classes.

The classification of an armor panel that provides two or more levels of NIJ ballistic protection at different locations on the ballistic panel shall be that of the minimum ballistic protection provided at any location on the panel.

2.1 Type IIA (9 mm; .40 S&W)

Type IIA armor that is new and unworn shall be tested with 9 mm Full Metal Jacketed Round Nose (FMJ RN) bullets with a specified mass of 8.0 g (124 gr) and a velocity of 373 m/s ± 9.1 m/s (1225 ft/s ± 30 ft/s) and with .40 S&W Full Metal Jacketed (FMJ) bullets with a specified mass of 11.7 g (180 gr) and a velocity of 352 m/s ± 9.1 m/s (1155 ft/s ± 30 ft/s).

Type IIA armor that has been conditioned shall be tested with 9 mm FMJ RN bullets with a specified mass of 8.0 g (124 gr) and a velocity of 355 m/s ± 9.1 m/s (1165 ft/s ± 30 ft/s) and with .40 S&W FMJ bullets with a specified mass of 11.7 g (180 gr) and a velocity of 325 m/s ± 9.1 m/s (1065 ft/s ± 30 ft/s).

2.2 Type II (9 mm; .357 Magnum)

Type II armor that is new and unworn shall be tested with 9 mm FMJ RN bullets with a specified mass of 8.0 g (124 gr) and a velocity of 398 m/s ± 9.1 m/s (1305 ft/s ± 30 ft/s) and with .357 Magnum Jacketed Soft Point (JSP) bullets with a specified mass of 10.2 g (158 gr) and a velocity of 436 m/s ± 9.1 m/s (1430 ft/s ± 30 ft/s).

Type II armor that has been conditioned shall be tested with 9 mm FMJ RN bullets with a specified mass of 8.0 g (124 gr) and a velocity of 379 m/s ±9.1 m/s (1245 ft/s ± 30 ft/s) and with .357 Magnum JSP bullets with a specified mass of 10.2 g (158 gr) and a velocity of 408 m/s ±9.1 m/s (1340 ft/s ± 30 ft/s).

2.3 Type IIIA (.357 SIG; .44 Magnum)

Type IIIA armor that is new and unworn shall be tested with .357 SIG FMJ Flat Nose (FN) bullets with a specified mass of 8.1 g (125 gr) and a velocity of 448 m/s ± 9.1 m/s (1470 ft/s ± 30 ft/s) and with .44 Magnum Semi Jacketed Hollow Point (SJHP) bullets with a specified mass of 15.6 g (240 gr) and a velocity of 436 m/s ± 9.1 m/s (1430 ft/s ± 30 ft/s).

Type IIIA armor that has been conditioned shall be tested with .357 SIG FMJ FN bullets with a specified mass of 8.1 g (125 gr) and a velocity of 430 m/s ± 9.1 m/s (1410 ft/s ± 30 ft/s) and with .44 Magnum SJHP bullets with a specified mass of 15.6 g (240 gr) and a velocity of 408 m/s ± 9.1 m/s (1340 ft/s ± 30 ft/s).

2.4 Type III (Rifles)

Type III hard armor or plate inserts shall be tested in a conditioned state with 7.62 mm FMJ, steel jacketed bullets (U.S. Military designation M80) with a specified mass of 9.6 g (147 gr) and a velocity of 847 m/s ± 9.1 m/s (2780 ft/s ± 30 ft/s).

Type III flexible armor shall be tested in both the "as new" state and the conditioned state with 7.62 mm FMJ, steel jacketed bullets (U.S. Military designation M80) with a specified mass of 9.6 g (147 gr) and a velocity of 847 m/s ± 9.1 m/s (2780 ft/s ± 30 ft/s).

For a Type III hard armor or plate insert that will be tested as an *in conjunction* design, the flexible armor shall be tested in accordance with this standard and found compliant as a stand-alone armor at its specified threat level. The combination of the flexible armor and hard armor/plate shall then be tested as a system and found to provide protection at the system's specified threat level. NIJ-approved hard armors and plate inserts must be clearly labeled as providing ballistic protection only when worn in conjunction with the NIJ-approved flexible armor system with which they were tested.

2.5 Type IV (Armor Piercing Rifle)

Type IV hard armor or plate inserts shall be tested in a conditioned state with .30 caliber armor piercing (AP) bullets (U.S. Military designation M2 AP) with a specified mass of 10.8 g (166 gr) and a velocity of 878 m/s ± 9.1 m/s (2880 ft/s ± 30 ft/s).

Type IV flexible armor shall be tested in both the "as new" state and the conditioned state with .30 caliber AP bullets (U.S. Military designation M2 AP) with a specified mass of 10.8 g (166 gr) and a velocity of 878 m/s ± 9.1 m/s (2880 ft/s ± 30 ft/s).

For a Type IV hard armor or plate insert that will be tested as an *in conjunction* design, the flexible armor shall be tested in accordance with this standard and found compliant as a stand-alone armor at its specified threat level. The combination of the flexible armor and hard armor/plate shall then be tested as a system and found to provide protection at the system's specified threat level. NIJ-approved hard armors and plate inserts must be clearly labeled as providing ballistic protection only when worn in conjunction with the NIJ-approved flexible armor system with which they were tested.

2.6 Special Type

A purchaser having a special requirement for a level of protection other than one of the above standard types and threat levels should specify the exact test round(s) and reference measurement velocities to be used and indicate that this standard shall govern all other aspects. Guidance on common special type threats and the appropriate threat velocities is provided in appendix B, along with a methodology for determining the correct reference velocity for other threats.

LAMPIRAN 2

Tabel sifat-sifat mekanis serat karon berpenguat plastic untuk UMAT Abaqus Explicit dan Parameter model material Johnson-Cook untuk aluminium 1100

Table A.4
Material properties of user material model used in Abaqus simulations for composite (carbon fiber/epoxy).

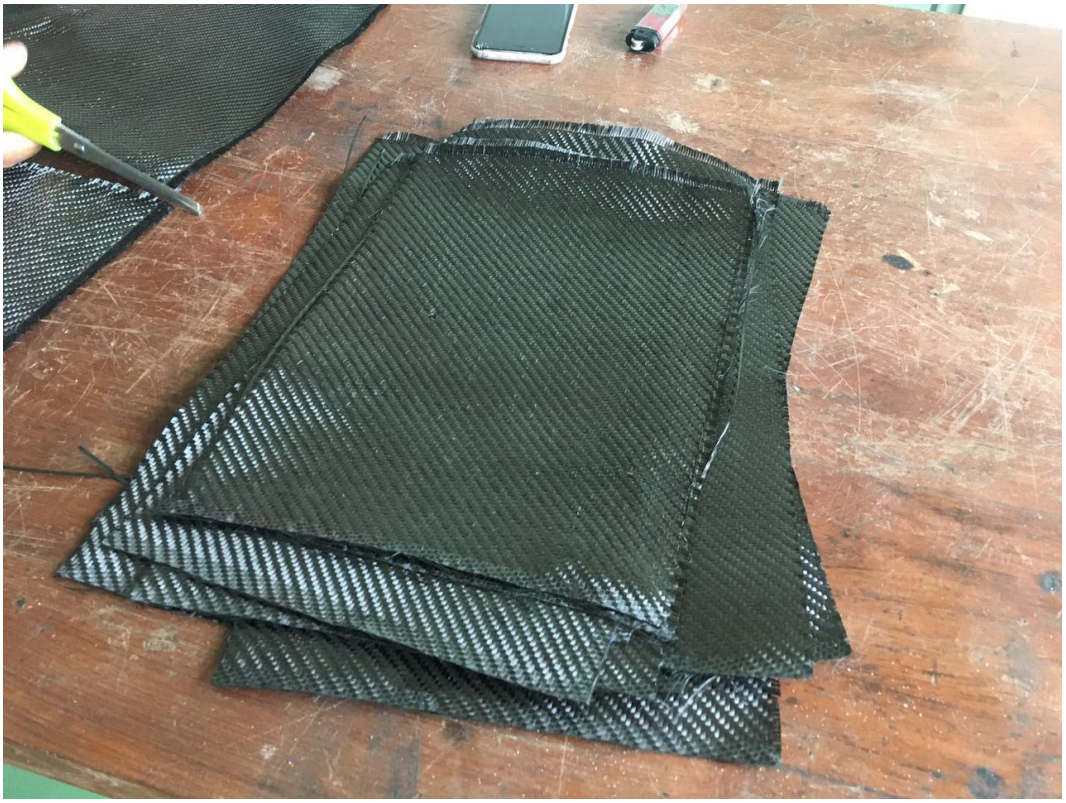
Notation	Properties	Magnitude
E_{11}	Young's modulus (GPa)	235
E_{22}	Young's modulus (GPa)	17
E_{33}	Young's modulus (GPa)	17
μ_{12}	Poisson's ratio	0.32
μ_{13}	Poisson's ratio	0.32
μ_{23}	Poisson's ratio	0.45
G_{12}	Shear modulus (GPa)	4.5
G_{13}	Shear modulus (GPa)	4.5
G_{23}	Shear modulus (GPa)	2.5
X_{1t}	Tensile failure stress (MPa)	3900
X_{1c}	Compressive failure stress (MPa)	2400
X_{2t}	Tensile failure stress (MPa)	111
X_{2c}	Compressive failure stress (MPa)	290
X_{3t}	Tensile failure stress (MPa)	50
X_{3c}	Compressive failure stress (MPa)	290
S_{12}	Failure shear stress (MPa)	120
S_{13}	Failure shear stress (MPa)	137
S_{23}	Failure shear stress (MPa)	90
ρ	Density (kg/m^3)	2190
β	Damping parameter	10^{-9}

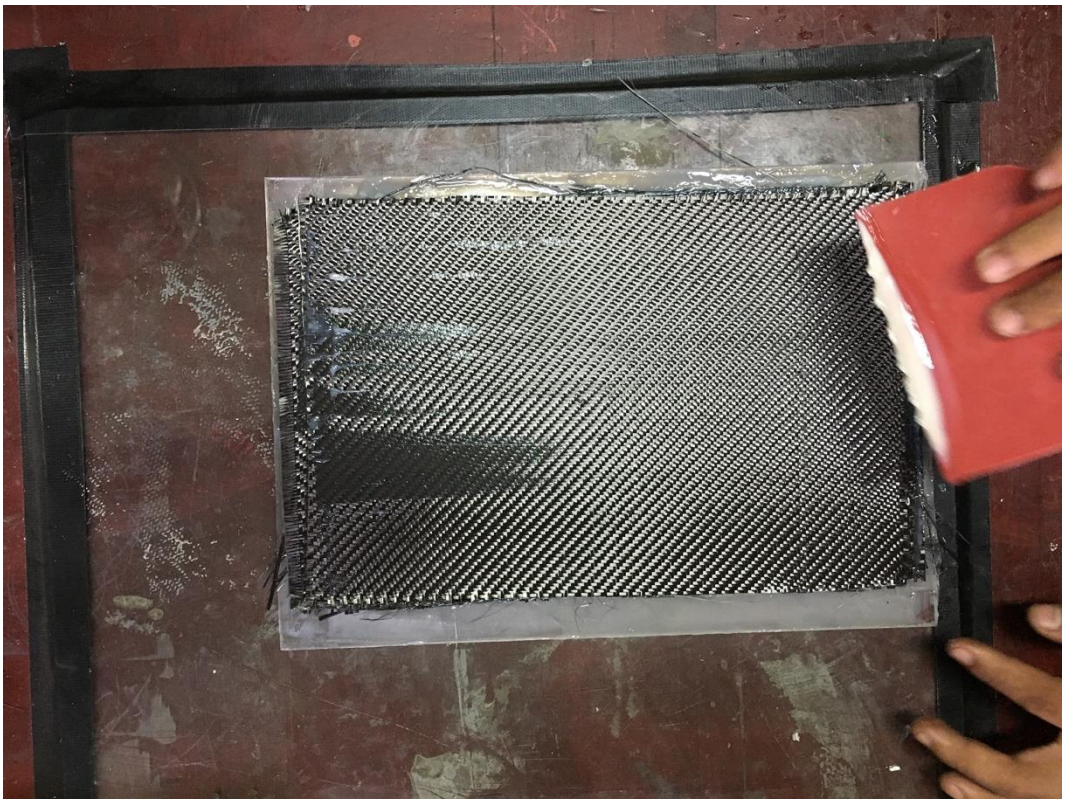
Table 2. Johnson-Cook material model parameters for AA1100 alloy at strain rates.

$\dot{\varepsilon}$ (/s)	A (MPa)	B (MPa)	n
0.0001	127.11	299.55	0.24
0.001	128.16	301.73	0.23
0.01	132.78	277.71	0.20
0.1	135.43	319.13	0.24

LAMPIRAN 3

Proses produksi rompi komposit serat karbon berpenguat plastic





EK5055 Max.5kg
494
CAMRY
UNIT
ZIT
ON/OFF

LAMPIRAN 4
Proses pengujian balistik

Step	Increment	Total Time	CPU Time	Step Time	Stable Time Inc	Kinetic Energy	Total Energy	Internal Energy	Residual Velocity	V1-V2	Presentase RV	Presentase EA
1	28	5,02E-06	1,7	5,02E-06	1,97E-07	563,472	563,472	0	373,000	0,000	0,00%	0,00%
1	54	1,01E-05	2,6	1,01E-05	1,95E-07	563,472	563,472	0	373,000	0,000	0,00%	0,00%
1	87	1,50E-05	3,9	1,50E-05	6,61E-08	557,695	563,375	5,68	371,115	1,885	0,51%	1,01%
1	190	2,00E-05	7,7	2,00E-05	5,06E-08	537,214	563,223	26,009	364,290	8,710	2,34%	4,62%
1	323	2,50E-05	12,6	2,50E-05	4,18E-08	502,849	562,977	60,128	352,537	20,463	5,49%	10,68%
1	460	3,00E-05	17,6	3,00E-05	4,11E-08	477,842	562,896	85,054	343,698	29,302	7,86%	15,11%
1	589	3,50E-05	22,4	3,50E-05	3,69E-08	448,173	562,815	114,642	332,900	40,100	10,75%	20,37%
1	729	4,00E-05	27,5	4,00E-05	3,91E-08	423,033	562,705	139,672	323,484	49,516	13,27%	24,82%
1	859	4,50E-05	32,3	4,50E-05	3,67E-08	406,294	562,638	156,344	317,058	55,942	15,00%	27,79%
1	987	5,00E-05	36,9	5,00E-05	3,00E-08	398,703	562,625	163,922	314,093	58,907	15,79%	29,14%
1	1125	5,50E-05	42	5,50E-05	4,21E-08	392,48	562,615	170,135	311,641	61,359	16,45%	30,24%
1	1247	6,00E-05	46,5	6,00E-05	3,71E-08	388,179	562,608	174,429	309,936	63,064	16,91%	31,00%
1	1374	6,50E-05	51,2	6,50E-05	4,59E-08	385,537	562,604	177,067	308,883	64,117	17,19%	31,47%
1	1487	7,00E-05	55,3	7,00E-05	4,71E-08	384,151	562,604	178,453	308,329	64,671	17,34%	31,72%
1	1632	7,50E-05	60,2	7,50E-05	3,43E-08	383,452	562,606	179,154	308,048	64,952	17,41%	31,84%
1	1772	8,00E-05	64,6	8,00E-05	3,53E-08	383,453	562,606	179,153	308,048	64,952	17,41%	31,84%
1	1903	8,50E-05	68,8	8,50E-05	4,47E-08	383,678	562,605	178,927	308,139	64,861	17,39%	31,80%
1	2028	9,00E-05	72,8	9,00E-05	4,28E-08	383,693	562,606	178,913	308,144	64,856	17,39%	31,80%
1	2156	9,50E-05	76,8	9,50E-05	3,83E-08	383,271	562,606	179,335	307,975	65,025	17,43%	31,88%
1	2299	0,00010004	81,3	0,00010004	4,04E-08	382,663	562,607	179,944	307,731	65,269	17,50%	31,98%
1	2428	0,000105022	85,5	0,000105022	4,11E-08	382,375	562,606	180,231	307,616	65,384	17,53%	32,04%
1	2549	0,000110023	89,3	0,000110023	4,46E-08	382,314	562,606	180,292	307,591	65,409	17,54%	32,05%
1	2669	0,00011501	93	0,00011501	4,40E-08	381,875	562,606	180,731	307,415	65,585	17,58%	32,12%
1	2794	0,000120017	97	0,000120017	4,30E-08	381,776	562,606	180,83	307,375	65,625	17,59%	32,14%
1	2913	0,000125029	100,7	0,000125029	4,37E-08	381,531	562,606	181,075	307,277	65,723	17,62%	32,19%
1	3028	0,000130005	104,3	0,000130005	4,56E-08	381,498	562,606	181,108	307,264	65,736	17,62%	32,19%
1	3145	0,000135013	107,9	0,000135013	4,09E-08	381,33	562,606	181,276	307,196	65,804	17,64%	32,22%
1	3270	0,000140018	112	0,000140018	3,57E-08	381,219	562,606	181,387	307,152	65,848	17,65%	32,24%
1	3399	0,000145013	116,1	0,000145013	3,99E-08	380,909	562,606	181,697	307,027	65,973	17,69%	32,30%
1	3518	0,000150022	119,8	0,000150022	4,63E-08	380,973	562,606	181,633	307,053	65,947	17,68%	32,28%

1	3632	0,00015502	123,4	0,00015502	4,88E-08	380,878	562,606	181,728	307,014	65,986	17,69%	32,30%
1	3743	0,000160015	126,9	0,000160015	4,65E-08	380,83	562,606	181,776	306,995	66,005	17,70%	32,31%
1	3859	0,000165027	130,5	0,000165027	4,40E-08	380,872	562,606	181,734	307,012	65,988	17,69%	32,30%
1	3971	0,000170023	134,1	0,000170023	4,32E-08	380,724	562,606	181,882	306,953	66,047	17,71%	32,33%
1	4083	0,000175016	137,7	0,000175016	4,70E-08	380,584	562,606	182,022	306,896	66,104	17,72%	32,35%
1	4199	0,000180013	141,3	0,000180013	4,21E-08	380,384	562,606	182,222	306,816	66,184	17,74%	32,39%
1	4316	0,000185027	145,1	0,000185027	4,75E-08	380,232	562,605	182,373	306,755	66,245	17,76%	32,42%
1	4428	0,000190007	148,6	0,000190007	4,49E-08	380,084	562,605	182,521	306,695	66,305	17,78%	32,44%
1	4547	0,000195022	152,4	0,000195022	4,85E-08	380,037	562,605	182,568	306,677	66,323	17,78%	32,45%
1	4658	0,000200021	155,9	0,000200021	4,09E-08	380,023	562,605	182,582	306,671	66,329	17,78%	32,45%
1	4773	0,000205012	159,5	0,000205012	4,50E-08	380,107	562,605	182,498	306,705	66,295	17,77%	32,44%
1	4890	0,000210038	163,1	0,000210038	4,54E-08	379,986	562,605	182,619	306,656	66,344	17,79%	32,46%
1	5001	0,000215031	166,7	0,000215031	4,42E-08	379,854	562,605	182,751	306,603	66,397	17,80%	32,48%
1	5110	0,000220006	170,1	0,000220006	4,55E-08	379,719	562,605	182,886	306,548	66,452	17,82%	32,51%
1	5218	0,000225023	173,5	0,000225023	4,73E-08	379,693	562,605	182,912	306,538	66,462	17,82%	32,51%
1	5328	0,000230045	176,9	0,000230045	4,71E-08	379,601	562,605	183,004	306,501	66,499	17,83%	32,53%
1	5435	0,000235028	180,2	0,000235028	4,83E-08	379,472	562,605	183,133	306,449	66,551	17,84%	32,55%
1	5541	0,000240012	183,5	0,000240012	4,66E-08	379,518	562,605	183,087	306,468	66,532	17,84%	32,54%
1	5652	0,000245027	187,1	0,000245027	4,41E-08	379,548	562,605	183,057	306,480	66,520	17,83%	32,54%
1	5762	0,000250042	190,6	0,000250042	4,28E-08	379,568	562,605	183,037	306,488	66,512	17,83%	32,53%
1	5871	0,000255021	194	0,000255021	4,77E-08	379,607	562,605	182,998	306,503	66,497	17,83%	32,53%
1	5977	0,00026005	197,3	0,00026005	4,98E-08	379,658	562,605	182,947	306,524	66,476	17,82%	32,52%
1	6086	0,000265037	200,7	0,000265037	4,48E-08	379,582	562,605	183,023	306,493	66,507	17,83%	32,53%
1	6194	0,000270012	204,2	0,000270012	4,86E-08	379,513	562,605	183,092	306,465	66,535	17,84%	32,54%
1	6302	0,000275003	207,6	0,000275003	4,09E-08	379,429	562,605	183,176	306,432	66,568	17,85%	32,56%
1	6412	0,000280023	211,1	0,000280023	4,50E-08	379,389	562,605	183,216	306,416	66,584	17,85%	32,57%
1	6518	0,000285041	214,5	0,000285041	4,55E-08	379,378	562,605	183,227	306,411	66,589	17,85%	32,57%
1	6625	0,000290013	217,9	0,000290013	4,86E-08	379,421	562,605	183,184	306,428	66,572	17,85%	32,56%
1	6735	0,000295034	221,3	0,000295034	4,33E-08	379,412	562,605	183,193	306,425	66,575	17,85%	32,56%
1	6845	0,000300033	225	0,000300033	4,82E-08	379,392	562,605	183,213	306,417	66,583	17,85%	32,57%
1	6951	0,000305021	228,4	0,000305021	4,76E-08	379,363	562,605	183,242	306,405	66,595	17,85%	32,57%
1	7057	0,000310032	231,7	0,000310032	4,69E-08	379,448	562,605	183,157	306,439	66,561	17,84%	32,56%
1	7163	0,000315018	235	0,000315018	4,15E-08	379,554	562,605	183,051	306,482	66,518	17,83%	32,54%

1	7274	0,000320036	238,7	0,000320036	4,39E-08	379,545	562,605	183,06	306,478	66,522	17,83%	32,54%
1	7380	0,000325004	242	0,000325004	4,83E-08	379,507	562,605	183,098	306,463	66,537	17,84%	32,54%
1	7487	0,000330001	245,4	0,000330001	4,34E-08	379,456	562,605	183,149	306,443	66,557	17,84%	32,55%
1	7594	0,000335002	248,8	0,000335002	4,56E-08	379,347	562,605	183,258	306,399	66,601	17,86%	32,57%
1	7701	0,000340043	252,2	0,000340043	4,41E-08	379,281	562,605	183,324	306,372	66,628	17,86%	32,58%
1	7808	0,000345011	255,6	0,000345011	4,90E-08	379,249	562,605	183,356	306,359	66,641	17,87%	32,59%
1	7913	0,000350003	258,9	0,000350003	4,69E-08	379,25	562,605	183,355	306,360	66,640	17,87%	32,59%
1	8017	0,000355016	262,2	0,000355016	4,88E-08	379,206	562,605	183,399	306,342	66,658	17,87%	32,60%
1	8122	0,00036002	265,6	0,00036002	4,64E-08	379,187	562,605	183,418	306,334	66,666	17,87%	32,60%
1	8224	0,000365033	268,9	0,000365033	5,11E-08	379,181	562,605	183,424	306,332	66,668	17,87%	32,60%
1	8329	0,000370006	272,2	0,000370006	4,85E-08	379,212	562,605	183,393	306,344	66,656	17,87%	32,60%
1	8434	0,000375023	275,5	0,000375023	4,66E-08	379,245	562,605	183,36	306,358	66,642	17,87%	32,59%
1	8537	0,000380018	278,8	0,000380018	5,11E-08	379,282	562,605	183,323	306,372	66,628	17,86%	32,58%
1	8645	0,000385013	282,2	0,000385013	4,42E-08	379,281	562,605	183,324	306,372	66,628	17,86%	32,58%
1	8750	0,000390031	285,5	0,000390031	4,76E-08	379,268	562,605	183,337	306,367	66,633	17,86%	32,59%
1	8852	0,000395028	288,7	0,000395028	5,11E-08	379,23	562,605	183,375	306,351	66,649	17,87%	32,59%
1	8958	0,000400016	292	0,000400016	4,34E-08	379,191	562,605	183,414	306,336	66,664	17,87%	32,60%
1	9064	0,000405016	295,4	0,000405016	4,68E-08	379,129	562,605	183,476	306,311	66,689	17,88%	32,61%
1	9168	0,000410014	298,6	0,000410014	4,89E-08	379,06	562,605	183,545	306,283	66,717	17,89%	32,62%
1	9273	0,000415038	301,9	0,000415038	4,85E-08	378,934	562,605	183,671	306,232	66,768	17,90%	32,65%
1	9376	0,000420044	305,2	0,000420044	5,18E-08	378,831	562,605	183,774	306,191	66,809	17,91%	32,66%
1	9478	0,000425015	308,4	0,000425015	4,18E-08	378,771	562,605	183,834	306,166	66,834	17,92%	32,68%
1	9580	0,000430031	311,6	0,000430031	5,33E-08	378,756	562,605	183,849	306,160	66,840	17,92%	32,68%
1	9681	0,00043501	314,8	0,00043501	5,35E-08	378,838	562,605	183,767	306,193	66,807	17,91%	32,66%
1	9782	0,000440011	318,1	0,000440011	4,80E-08	378,994	562,605	183,611	306,256	66,744	17,89%	32,64%
1	9885	0,000445028	321,5	0,000445028	4,62E-08	379,128	562,605	183,477	306,310	66,690	17,88%	32,61%
1	9987	0,000450026	324,8	0,000450026	5,15E-08	379,204	562,605	183,401	306,341	66,659	17,87%	32,60%
1	10087	0,000455006	327,9	0,000455006	5,10E-08	379,271	562,605	183,334	306,368	66,632	17,86%	32,59%
1	10187	0,000460049	331,1	0,000460049	4,93E-08	379,318	562,605	183,287	306,387	66,613	17,86%	32,58%
1	10290	0,00046505	334,4	0,00046505	5,09E-08	379,309	562,605	183,296	306,383	66,617	17,86%	32,58%
1	10386	0,000470024	337,5	0,000470024	5,30E-08	379,238	562,605	183,367	306,355	66,645	17,87%	32,59%
1	10487	0,00047502	340,9	0,00047502	5,24E-08	379,162	562,605	183,443	306,324	66,676	17,88%	32,61%
1	10585	0,000480009	344	0,000480009	5,17E-08	379,075	562,605	183,53	306,289	66,711	17,88%	32,62%

1	10686	0,000485	347,2	0,000485	4,79E-08	378,918	562,605	183,687	306,226	66,774	17,90%	32,65%
1	10787	0,000490005	350,5	0,000490005	5,21E-08	378,788	562,605	183,817	306,173	66,827	17,92%	32,67%
1	10886	0,000495029	353,8	0,000495029	5,01E-08	378,694	562,605	183,911	306,135	66,865	17,93%	32,69%
1	10989	0,0005	357,3	0,0005	5,42E-08	378,618	562,605	183,987	306,105	66,895	17,93%	32,70%

Tabel Perhitungan Rompi Serat Karbon 15 Lapis

Step	Increment	Total Time	CPU Time	Step Time	Stable Time Inc	Kinetic Energy	Total Energy	Internal Energy	Residual Velocity	V1-V2	Presentase RV	Presentase EA
1	28	5,02E-06	2,9	5,02E-06	1,96E-07	563,472	563,472	0	373,000	0,000	0,00%	0,00%
1	54	1,01E-05	4,3	1,01E-05	1,95E-07	563,472	563,472	0	373,000	0,000	0,00%	0,00%
1	88	1,50E-05	6,2	1,50E-05	5,66E-08	558,652	563,398	4,746	371,426	1,574	0,42%	0,84%
1	200	2,00E-05	12,2	2,00E-05	4,73E-08	537,823	563,33	25,507	364,460	8,540	2,29%	4,53%
1	345	2,50E-05	19,5	2,50E-05	3,10E-08	505,008	563,194	58,186	353,217	19,783	5,30%	10,33%
1	513	3,00E-05	27,5	3,00E-05	2,66E-08	464,814	563,023	98,209	338,939	34,061	9,13%	17,44%
1	672	3,50E-05	34,9	3,50E-05	3,51E-08	432,588	562,944	130,356	327,020	45,980	12,33%	23,16%
1	841	4,00E-05	42,9	4,00E-05	2,98E-08	403,057	562,87	159,813	315,704	57,296	15,36%	28,39%
1	1099	4,50E-05	54,5	4,50E-05	1,86E-08	378,903	562,822	183,919	306,132	66,868	17,93%	32,68%
1	1364	5,00E-05	66,7	5,00E-05	1,89E-08	356,185	562,796	206,611	296,840	76,160	20,42%	36,71%
1	1618	5,50E-05	78,5	5,50E-05	2,08E-08	338,114	562,777	224,663	289,235	83,765	22,46%	39,92%
1	1858	6,00E-05	89,6	6,00E-05	2,09E-08	324,375	562,757	238,382	283,318	89,682	24,04%	42,36%
1	2110	6,50E-05	101,3	6,50E-05	1,87E-08	314,973	562,741	247,768	279,198	93,802	25,15%	44,03%
1	2386	7,00E-05	114,3	7,00E-05	1,86E-08	306,759	562,73	255,971	275,547	97,453	26,13%	45,49%
1	2646	7,50E-05	126,5	7,50E-05	1,96E-08	299,443	562,727	263,284	272,251	100,749	27,01%	46,79%
1	2950	8,00E-05	140,4	8,00E-05	1,97E-08	295,313	562,724	267,411	270,373	102,627	27,51%	47,52%
1	3204	8,50E-05	152,2	8,50E-05	1,97E-08	292,742	562,72	269,978	269,198	103,802	27,83%	47,98%
1	3460	9,00E-05	163,9	9,00E-05	1,95E-08	290,616	562,722	272,106	268,221	104,779	28,09%	48,36%
1	3711	9,50E-05	175,3	9,50E-05	2,04E-08	289,048	562,721	273,673	267,498	105,502	28,28%	48,63%
1	3959	0,000100003	186,6	0,000100003	2,03E-08	287,665	562,721	275,056	266,859	106,141	28,46%	48,88%
1	4210	0,000105016	198,2	0,000105016	1,98E-08	287,512	562,721	275,209	266,789	106,211	28,47%	48,91%
1	4467	0,000110017	209,9	0,000110017	1,91E-08	286,781	562,72	275,939	266,451	106,549	28,57%	49,04%
1	4729	0,000115001	221,6	0,000115001	1,90E-08	286,639	562,72	276,081	266,385	106,615	28,58%	49,06%
1	4986	0,000120004	233,4	0,000120004	2,00E-08	286,151	562,72	276,569	266,159	106,841	28,64%	49,15%
1	5234	0,000125007	244,6	0,000125007	2,02E-08	285,886	562,72	276,834	266,036	106,964	28,68%	49,20%
1	5484	0,000130015	255,9	0,000130015	1,98E-08	286,012	562,72	276,708	266,094	106,906	28,66%	49,17%
1	5739	0,000135006	267,3	0,000135006	1,93E-08	285,744	562,72	276,976	265,970	107,030	28,69%	49,22%
1	5998	0,000140016	279,3	0,000140016	1,94E-08	285,57	562,72	277,15	265,889	107,111	28,72%	49,25%
1	6253	0,000145011	290,9	0,000145011	1,99E-08	285,236	562,72	277,484	265,734	107,266	28,76%	49,31%
1	6504	0,000150017	302,1	0,000150017	1,99E-08	284,939	562,72	277,781	265,596	107,404	28,79%	49,36%

1	6756	0,000155008	313,7	0,000155008	1,98E-08	284,806	562,72	277,914	265,534	107,466	28,81%	49,39%
1	7011	0,000160008	325,4	0,000160008	1,95E-08	284,483	562,72	278,237	265,384	107,616	28,85%	49,45%
1	7268	0,000165013	337,2	0,000165013	1,96E-08	284,153	562,72	278,567	265,230	107,770	28,89%	49,50%
1	7521	0,000170015	348,8	0,000170015	2,00E-08	284,006	562,719	278,713	265,162	107,838	28,91%	49,53%
1	7771	0,000175002	360,1	0,000175002	1,99E-08	283,795	562,719	278,924	265,064	107,936	28,94%	49,57%
1	8024	0,000180012	371,6	0,000180012	1,97E-08	283,523	562,719	279,196	264,937	108,063	28,97%	49,62%
1	8278	0,000185004	383,3	0,000185004	1,96E-08	283,421	562,719	279,298	264,890	108,110	28,98%	49,63%
1	8535	0,000190005	394,9	0,000190005	1,93E-08	283,375	562,719	279,344	264,868	108,132	28,99%	49,64%
1	8794	0,000195016	406,7	0,000195016	1,94E-08	283,256	562,719	279,463	264,813	108,187	29,00%	49,66%
1	9051	0,000200011	418,2	0,000200011	1,94E-08	283,035	562,719	279,684	264,710	108,290	29,03%	49,70%
1	9309	0,000205017	429,9	0,000205017	1,95E-08	282,936	562,719	279,783	264,664	108,336	29,04%	49,72%
1	9563	0,000210002	441,3	0,000210002	1,97E-08	282,893	562,719	279,826	264,643	108,357	29,05%	49,73%
1	9819	0,000215006	453	0,000215006	1,94E-08	282,961	562,719	279,758	264,675	108,325	29,04%	49,72%
1	10078	0,000220003	464,6	0,000220003	1,92E-08	282,991	562,719	279,728	264,689	108,311	29,04%	49,71%
1	10340	0,000225008	476,6	0,000225008	1,91E-08	282,968	562,719	279,751	264,678	108,322	29,04%	49,71%
1	10602	0,00023001	488,3	0,00023001	1,92E-08	282,996	562,719	279,723	264,692	108,308	29,04%	49,71%
1	10861	0,000235018	500	0,000235018	1,94E-08	283,092	562,719	279,627	264,736	108,264	29,03%	49,69%
1	11117	0,000240005	511,6	0,000240005	1,95E-08	283,16	562,719	279,559	264,768	108,232	29,02%	49,68%
1	11373	0,00024501	522,9	0,00024501	1,95E-08	283,234	562,719	279,485	264,802	108,198	29,01%	49,67%
1	11631	0,000250009	534,5	0,000250009	1,93E-08	283,272	562,719	279,447	264,820	108,180	29,00%	49,66%
1	11890	0,000255015	546,3	0,000255015	1,93E-08	283,195	562,719	279,524	264,784	108,216	29,01%	49,67%
1	12149	0,000260013	557,8	0,000260013	1,93E-08	283,126	562,719	279,593	264,752	108,248	29,02%	49,69%
1	12407	0,000265001	569,5	0,000265001	1,94E-08	283,132	562,719	279,587	264,755	108,245	29,02%	49,69%
1	12665	0,000270009	581,4	0,000270009	1,94E-08	283,151	562,719	279,568	264,764	108,236	29,02%	49,68%
1	12922	0,000275002	593,2	0,000275002	1,95E-08	283,018	562,719	279,701	264,702	108,298	29,03%	49,71%
1	13178	0,000280016	604,8	0,000280016	1,97E-08	282,933	562,719	279,786	264,662	108,338	29,05%	49,72%
1	13432	0,000285002	616,3	0,000285002	1,96E-08	282,816	562,719	279,903	264,608	108,392	29,06%	49,74%
1	13689	0,000290002	627,9	0,000290002	1,93E-08	282,719	562,719	280	264,562	108,438	29,07%	49,76%
1	13950	0,000295005	639,7	0,000295005	1,92E-08	282,602	562,719	280,117	264,508	108,492	29,09%	49,78%
1	14209	0,00030001	651,6	0,00030001	1,95E-08	282,548	562,719	280,171	264,482	108,518	29,09%	49,79%
1	14465	0,000305004	663,2	0,000305004	1,95E-08	282,557	562,719	280,162	264,487	108,513	29,09%	49,79%
1	14722	0,000310019	674,8	0,000310019	1,95E-08	282,523	562,719	280,196	264,471	108,529	29,10%	49,79%
1	14978	0,000315002	686,4	0,000315002	1,94E-08	282,549	562,719	280,17	264,483	108,517	29,09%	49,79%

1	15237	0,000320009	698,2	0,000320009	1,93E-08	282,647	562,719	280,072	264,529	108,471	29,08%	49,77%
1	15496	0,000325009	709,9	0,000325009	1,93E-08	282,706	562,719	280,013	264,556	108,444	29,07%	49,76%
1	15756	0,000330006	721,7	0,000330006	1,92E-08	282,716	562,719	280,003	264,561	108,439	29,07%	49,76%
1	16015	0,000335003	733,5	0,000335003	1,93E-08	282,809	562,719	279,91	264,604	108,396	29,06%	49,74%
1	16274	0,000340005	745,3	0,000340005	1,93E-08	282,912	562,719	279,807	264,652	108,348	29,05%	49,72%
1	16534	0,000345014	757,1	0,000345014	1,92E-08	282,971	562,719	279,748	264,680	108,320	29,04%	49,71%
1	16794	0,000350012	769	0,000350012	1,93E-08	282,921	562,719	279,798	264,657	108,343	29,05%	49,72%
1	17053	0,000355011	780,8	0,000355011	1,92E-08	282,797	562,719	279,922	264,599	108,401	29,06%	49,74%
1	17315	0,00036001	792,8	0,00036001	1,90E-08	282,618	562,719	280,101	264,515	108,485	29,08%	49,78%
1	17579	0,000365005	804,8	0,000365005	1,90E-08	282,396	562,719	280,323	264,412	108,588	29,11%	49,82%
1	17839	0,000370004	816,4	0,000370004	1,94E-08	282,182	562,719	280,537	264,312	108,688	29,14%	49,85%
1	18097	0,000375003	828,3	0,000375003	1,93E-08	282,028	562,719	280,691	264,240	108,760	29,16%	49,88%
1	18357	0,000380001	840,2	0,000380001	1,91E-08	282,01	562,719	280,709	264,231	108,769	29,16%	49,88%
1	18619	0,000385004	852,1	0,000385004	1,91E-08	282,045	562,719	280,674	264,248	108,752	29,16%	49,88%
1	18880	0,000390018	863,8	0,000390018	1,93E-08	282,112	562,719	280,607	264,279	108,721	29,15%	49,87%
1	19137	0,000395009	875,5	0,000395009	1,95E-08	282,161	562,719	280,558	264,302	108,698	29,14%	49,86%
1	19393	0,000400004	887	0,000400004	1,95E-08	282,153	562,719	280,566	264,298	108,702	29,14%	49,86%
1	19651	0,000405017	898,7	0,000405017	1,94E-08	282,126	562,719	280,593	264,285	108,715	29,15%	49,86%
1	19909	0,000410012	910,4	0,000410012	1,94E-08	281,943	562,719	280,776	264,200	108,800	29,17%	49,90%
1	20166	0,000415014	922	0,000415014	1,96E-08	281,753	562,719	280,966	264,111	108,889	29,19%	49,93%
1	20420	0,000420002	933,5	0,000420002	1,97E-08	281,601	562,719	281,118	264,040	108,960	29,21%	49,96%
1	20676	0,000425007	945,1	0,000425007	1,94E-08	281,443	562,719	281,276	263,966	109,034	29,23%	49,99%
1	20934	0,000430006	956,8	0,000430006	1,94E-08	281,294	562,719	281,425	263,896	109,104	29,25%	50,01%
1	21193	0,000435016	968,7	0,000435016	1,93E-08	281,264	562,719	281,455	263,882	109,118	29,25%	50,02%
1	21451	0,000440019	980,3	0,000440019	1,94E-08	281,335	562,719	281,384	263,916	109,084	29,25%	50,00%
1	21707	0,000445003	992	0,000445003	1,95E-08	281,382	562,719	281,337	263,938	109,062	29,24%	50,00%
1	21964	0,00045001	1003,5	0,00045001	1,95E-08	281,41	562,719	281,309	263,951	109,049	29,24%	49,99%
1	22220	0,000455019	1014,9	0,000455019	1,95E-08	281,42	562,719	281,299	263,955	109,045	29,23%	49,99%
1	22476	0,000460003	1026,6	0,000460003	1,94E-08	281,401	562,719	281,318	263,947	109,053	29,24%	49,99%
1	22735	0,000465017	1038,5	0,000465017	1,94E-08	281,377	562,719	281,342	263,935	109,065	29,24%	50,00%
1	22992	0,000470009	1050,1	0,000470009	1,94E-08	281,31	562,719	281,409	263,904	109,096	29,25%	50,01%
1	23249	0,000475019	1061,8	0,000475019	1,95E-08	281,217	562,719	281,502	263,860	109,140	29,26%	50,03%
1	23506	0,000480006	1073,3	0,000480006	1,93E-08	281,178	562,719	281,541	263,842	109,158	29,26%	50,03%

1	23764	0,000485002	1085,1	0,000485002	1,95E-08	281,202	562,719	281,517	263,853	109,147	29,26%	50,03%
1	24020	0,000490008	1096,8	0,000490008	1,96E-08	281,244	562,719	281,475	263,873	109,127	29,26%	50,02%
1	24275	0,000495018	1108,3	0,000495018	1,96E-08	281,306	562,719	281,413	263,902	109,098	29,25%	50,01%
1	24531	0,0005	1120,1	0,0005	1,94E-08	281,361	562,719	281,358	263,928	109,072	29,24%	50,00%

Tabel Perhitungan Rompi Serat Karbon 20 Lapis

Step	Increment	Total Time	CPU Time	Step Time	Stable Time Inc	Kinetic Energy	Total Energy	Internal Energy	Residual Velocity	V1-V2	Presentase RV	Presentase EA
1	28	5,02E-06	3,3	5,02E-06	1,97E-07	563,472	563,472	0	373,000	0,000	0,00%	0,00%
1	54	1,01E-05	4,9	1,01E-05	1,95E-07	563,472	563,472	0	373,000	0,000	0,00%	0,00%
1	87	1,50E-05	7,1	1,50E-05	4,02E-08	558,729	563,383	4,654	371,456	1,544	0,41%	0,83%
1	193	2,00E-05	14,2	2,00E-05	5,23E-08	535,977	563,261	27,284	363,857	9,143	2,45%	4,84%
1	322	2,50E-05	22,9	2,50E-05	3,38E-08	500,23	563,063	62,833	351,589	21,411	5,74%	11,16%
1	597	3,00E-05	41,1	3,00E-05	1,57E-08	458,732	562,931	104,199	336,750	36,250	9,72%	18,51%
1	926	3,50E-05	63,1	3,50E-05	1,51E-08	423,919	562,887	138,968	323,753	49,247	13,20%	24,69%
1	1261	4,00E-05	85,2	4,00E-05	1,40E-08	396,104	562,833	166,729	312,988	60,012	16,09%	29,62%
1	1640	4,50E-05	110,5	4,50E-05	1,29E-08	372,397	562,802	190,405	303,505	69,495	18,63%	33,83%
1	2036	5,00E-05	136,6	5,00E-05	1,23E-08	344,142	562,771	218,629	291,799	81,201	21,77%	38,85%
1	2438	5,50E-05	163,3	5,50E-05	1,29E-08	318,825	562,728	243,903	280,902	92,098	24,69%	43,34%
1	2809	6,00E-05	188,2	6,00E-05	1,38E-08	305,457	562,717	257,26	274,969	98,031	26,28%	45,72%
1	3162	6,50E-05	211,5	6,50E-05	1,45E-08	294,397	562,711	268,314	269,960	103,040	27,62%	47,68%
1	3499	7,00E-05	233,7	7,00E-05	1,52E-08	280,359	562,698	282,339	263,469	109,531	29,37%	50,18%
1	3823	7,50E-05	254,9	7,50E-05	1,56E-08	269,218	562,693	293,475	258,198	114,802	30,78%	52,16%
1	4144	8,00E-05	276,6	8,00E-05	1,55E-08	260,17	562,688	302,518	253,837	119,163	31,95%	53,76%
1	4465	8,50E-05	298,1	8,50E-05	1,56E-08	251,785	562,683	310,898	249,728	123,272	33,05%	55,25%
1	4785	9,00E-05	319,4	9,00E-05	1,56E-08	245,865	562,681	316,816	246,785	126,215	33,84%	56,30%
1	5106	9,50E-05	340,7	9,50E-05	1,56E-08	239,071	562,675	323,604	243,366	129,634	34,75%	57,51%
1	5425	0,00010001	361,8	0,00010001	1,58E-08	232,75	562,672	329,922	240,139	132,861	35,62%	58,63%
1	5744	0,000105	383	0,000105	1,57E-08	226,751	562,672	335,921	237,035	135,965	36,45%	59,70%
1	6069	0,00011001	404,6	0,00011001	1,51E-08	222,179	562,671	340,492	234,642	138,358	37,09%	60,51%
1	6408	0,000115	427,3	0,000115	1,43E-08	218,78	562,669	343,889	232,848	140,152	37,57%	61,12%
1	6762	0,00012	450,8	0,00012	1,42E-08	215,413	562,668	347,255	231,056	141,944	38,05%	61,72%
1	7111	0,00012501	474,1	0,00012501	1,44E-08	213,174	562,667	349,493	229,857	143,143	38,38%	62,11%
1	7459	0,00013001	497,3	0,00013001	1,44E-08	211,757	562,667	350,91	229,095	143,905	38,58%	62,37%
1	7804	0,00013501	520,3	0,00013501	1,46E-08	210,576	562,666	352,09	228,458	144,542	38,75%	62,58%
1	8144	0,00014001	542,8	0,00014001	1,47E-08	209,125	562,665	353,54	227,673	145,327	38,96%	62,83%
1	8486	0,00014501	565,7	0,00014501	1,48E-08	208,864	562,665	353,801	227,532	145,468	39,00%	62,88%

1	8825	0,00015001	588,6	0,00015001	1,48E-08	207,7	562,665	354,965	226,899	146,101	39,17%	63,09%
1	9162	0,000155	611,1	0,000155	1,48E-08	206,246	562,665	356,419	226,107	146,893	39,38%	63,34%
1	9496	0,00016001	633	0,00016001	1,52E-08	205,232	562,665	357,433	225,553	147,447	39,53%	63,53%
1	9820	0,00016502	654,5	0,00016502	1,58E-08	204,574	562,664	358,09	225,193	147,807	39,63%	63,64%
1	10134	0,00017001	675,2	0,00017001	1,60E-08	203,879	562,664	358,785	224,811	148,189	39,73%	63,77%
1	10448	0,000175	695,8	0,000175	1,58E-08	203,586	562,664	359,078	224,650	148,350	39,77%	63,82%
1	10768	0,00018002	716,9	0,00018002	1,56E-08	203,051	562,664	359,613	224,356	148,644	39,85%	63,91%
1	11090	0,00018501	738	0,00018501	1,54E-08	202,802	562,664	359,862	224,219	148,781	39,89%	63,96%
1	11416	0,00019002	759,6	0,00019002	1,54E-08	202,771	562,664	359,893	224,202	148,798	39,89%	63,96%
1	11742	0,00019501	781,1	0,00019501	1,52E-08	202,552	562,664	360,112	224,081	148,919	39,92%	64,00%
1	12073	0,00020001	803,1	0,00020001	1,50E-08	202,611	562,664	360,053	224,114	148,886	39,92%	63,99%
1	12405	0,000205	824,8	0,000205	1,50E-08	202,288	562,664	360,376	223,936	149,064	39,96%	64,05%
1	12736	0,00021	846,6	0,00021	1,52E-08	201,54	562,664	361,124	223,523	149,477	40,07%	64,18%
1	13062	0,00021501	868,1	0,00021501	1,54E-08	201,061	562,664	361,603	223,258	149,742	40,15%	64,27%
1	13387	0,00022	889,6	0,00022	1,53E-08	200,835	562,664	361,829	223,133	149,867	40,18%	64,31%
1	13717	0,00022501	911,1	0,00022501	1,51E-08	200,924	562,664	361,74	223,183	149,817	40,17%	64,29%
1	14045	0,00023001	932,8	0,00023001	1,54E-08	201,143	562,664	361,521	223,304	149,696	40,13%	64,25%
1	14366	0,00023501	954,2	0,00023501	1,58E-08	201,134	562,664	361,53	223,299	149,701	40,13%	64,25%
1	14681	0,00024	974,9	0,00024	1,59E-08	201,029	562,664	361,635	223,241	149,759	40,15%	64,27%
1	14995	0,00024501	996	0,00024501	1,60E-08	200,966	562,664	361,698	223,206	149,794	40,16%	64,28%
1	15309	0,00025001	1016,7	0,00025001	1,58E-08	200,816	562,664	361,848	223,123	149,877	40,18%	64,31%
1	15626	0,00025501	1037,7	0,00025501	1,58E-08	200,82	562,664	361,844	223,125	149,875	40,18%	64,31%
1	15940	0,00026	1058,4	0,00026	1,60E-08	201,041	562,664	361,623	223,247	149,753	40,15%	64,27%
1	16254	0,00026501	1079,2	0,00026501	1,59E-08	200,881	562,664	361,783	223,159	149,841	40,17%	64,30%
1	16570	0,00027001	1100,1	0,00027001	1,58E-08	200,797	562,664	361,867	223,112	149,888	40,18%	64,31%
1	16888	0,00027501	1121,4	0,00027501	1,57E-08	200,727	562,664	361,937	223,074	149,926	40,19%	64,33%
1	17207	0,00028	1142,5	0,00028	1,55E-08	200,758	562,664	361,906	223,091	149,909	40,19%	64,32%
1	17530	0,000285	1163,9	0,000285	1,54E-08	200,75	562,664	361,914	223,086	149,914	40,19%	64,32%
1	17855	0,00029001	1185,8	0,00029001	1,54E-08	200,694	562,664	361,97	223,055	149,945	40,20%	64,33%
1	18180	0,00029501	1207,3	0,00029501	1,54E-08	200,638	562,664	362,026	223,024	149,976	40,21%	64,34%
1	18502	0,00030001	1228,7	0,00030001	1,55E-08	200,354	562,664	362,31	222,867	150,133	40,25%	64,39%
1	18821	0,000305	1250	0,000305	1,58E-08	200,229	562,664	362,435	222,798	150,202	40,27%	64,41%
1	19138	0,00031001	1271,1	0,00031001	1,59E-08	200,066	562,664	362,598	222,707	150,293	40,29%	64,44%

1	19452	0,00031502	1291,9	0,00031502	1,59E-08	200,115	562,664	362,549	222,735	150,265	40,29%	64,43%
1	19765	0,00032	1312,5	0,00032	1,59E-08	200,076	562,664	362,588	222,713	150,287	40,29%	64,44%
1	20078	0,00032501	1333,2	0,00032501	1,60E-08	199,971	562,664	362,693	222,655	150,345	40,31%	64,46%
1	20389	0,00033001	1354	0,00033001	1,61E-08	199,878	562,664	362,786	222,603	150,397	40,32%	64,48%
1	20700	0,00033501	1374,7	0,00033501	1,60E-08	199,706	562,664	362,958	222,508	150,492	40,35%	64,51%
1	21012	0,00034	1395,1	0,00034	1,60E-08	199,562	562,664	363,102	222,428	150,572	40,37%	64,53%
1	21325	0,00034501	1415,9	0,00034501	1,59E-08	199,372	562,663	363,291	222,323	150,677	40,40%	64,57%
1	21638	0,00035	1436,8	0,00035	1,60E-08	199,173	562,663	363,49	222,212	150,788	40,43%	64,60%
1	21950	0,00035501	1457,6	0,00035501	1,62E-08	199,031	562,663	363,632	222,134	150,866	40,45%	64,63%
1	22259	0,00036001	1478,2	0,00036001	1,60E-08	198,99	562,663	363,673	222,111	150,889	40,45%	64,63%
1	22575	0,000365	1499	0,000365	1,56E-08	199,006	562,664	363,658	222,119	150,881	40,45%	64,63%
1	22895	0,00037001	1520,3	0,00037001	1,57E-08	198,981	562,663	363,682	222,106	150,894	40,45%	64,64%
1	23213	0,00037501	1541,1	0,00037501	1,57E-08	198,914	562,663	363,749	222,069	150,931	40,46%	64,65%
1	23532	0,00038001	1562,4	0,00038001	1,57E-08	198,824	562,663	363,839	222,018	150,982	40,48%	64,66%
1	23851	0,00038501	1583,4	0,00038501	1,57E-08	198,735	562,663	363,928	221,969	151,031	40,49%	64,68%
1	24168	0,00039001	1604,4	0,00039001	1,58E-08	198,566	562,663	364,097	221,875	151,125	40,52%	64,71%
1	24484	0,00039501	1625,4	0,00039501	1,59E-08	198,283	562,663	364,38	221,717	151,283	40,56%	64,76%
1	24799	0,00040001	1646,1	0,00040001	1,59E-08	198,016	562,664	364,648	221,568	151,432	40,60%	64,81%
1	25113	0,00040501	1666,8	0,00040501	1,59E-08	197,787	562,664	364,877	221,441	151,559	40,63%	64,85%
1	25428	0,00041001	1687,4	0,00041001	1,58E-08	197,524	562,664	365,14	221,294	151,706	40,67%	64,89%
1	25744	0,000415	1708,4	0,000415	1,58E-08	197,372	562,664	365,292	221,209	151,791	40,69%	64,92%
1	26061	0,00042	1729,1	0,00042	1,58E-08	197,31	562,663	365,353	221,175	151,825	40,70%	64,93%
1	26377	0,00042501	1749,8	0,00042501	1,59E-08	197,386	562,663	365,277	221,217	151,783	40,69%	64,92%
1	26691	0,00043001	1770,5	0,00043001	1,59E-08	197,463	562,663	365,2	221,260	151,740	40,68%	64,91%
1	27004	0,000435	1791	0,000435	1,59E-08	197,649	562,664	365,015	221,364	151,636	40,65%	64,87%
1	27318	0,00044	1812	0,00044	1,59E-08	197,738	562,664	364,926	221,413	151,587	40,64%	64,86%
1	27635	0,00044501	1832,8	0,00044501	1,57E-08	197,813	562,664	364,851	221,455	151,545	40,63%	64,84%
1	27954	0,00045002	1854,1	0,00045002	1,56E-08	197,92	562,664	364,744	221,515	151,485	40,61%	64,82%
1	28273	0,00045501	1874,9	0,00045501	1,56E-08	198,003	562,664	364,661	221,561	151,439	40,60%	64,81%
1	28593	0,00046	1896,1	0,00046	1,56E-08	198,16	562,664	364,504	221,648	151,352	40,58%	64,78%
1	28915	0,00046502	1917,5	0,00046502	1,56E-08	198,271	562,663	364,392	221,711	151,289	40,56%	64,76%
1	29235	0,00047001	1938,4	0,00047001	1,57E-08	198,304	562,664	364,36	221,729	151,271	40,56%	64,76%
1	29554	0,00047502	1959,3	0,00047502	1,57E-08	198,373	562,664	364,291	221,767	151,233	40,55%	64,74%

1	29869	0,00048001	1980,6	0,00048001	1,60E-08	198,306	562,664	364,358	221,730	151,270	40,56%	64,76%
1	30181	0,000485	2001,3	0,000485	1,60E-08	198,212	562,663	364,451	221,678	151,322	40,57%	64,77%
1	30494	0,00049001	2022	0,00049001	1,60E-08	198,179	562,663	364,484	221,660	151,340	40,57%	64,78%
1	30808	0,00049502	2042,7	0,00049502	1,59E-08	198,169	562,663	364,494	221,654	151,346	40,58%	64,78%
1	31122	0,0005	2063,5	0,0005	1,59E-08	198,185	562,663	364,478	221,663	151,337	40,57%	64,78%

Tabel Perhitungan Rompi Serat Karbon 25 Lapis

Step	Increment	Total Time	CPU Time	Step Time	Stable Time Inc	Kinetic Energy	Total Energy	Internal Energy	Residual Velocity	V1-V2	Presentase RV	Presentase EA
1	28	5,01E-06	4	5,01E-06	1,97E-07	563,472	563,472	0	373,000	0,000	0,00%	0,00%
1	54	1,01E-05	6,1	1,01E-05	1,95E-07	563,472	563,472	0	373,000	0,000	0,00%	0,00%
1	88	1,50E-05	8,8	1,50E-05	6,29E-08	558,588	563,437	4,849	371,392	1,608	0,43%	0,86%
1	198	2,00E-05	17,7	2,00E-05	4,29E-08	535,765	563,27	27,505	363,782	9,218	2,47%	4,88%
1	359	2,50E-05	30,1	2,50E-05	3,31E-08	494,64	563,043	68,403	349,627	23,373	6,27%	12,15%
1	513	3,00E-05	40,8	3,00E-05	2,50E-08	453,95	562,839	108,889	335,027	37,973	10,18%	19,35%
1	726	3,50E-05	55,5	3,50E-05	2,70E-08	418,841	562,727	143,886	321,872	51,128	13,71%	25,57%
1	895	4,00E-05	67,5	4,00E-05	3,38E-08	393,877	562,609	168,732	312,197	60,803	16,30%	29,99%
1	1052	4,50E-05	78,6	4,50E-05	2,54E-08	360,606	562,479	201,873	298,804	74,196	19,89%	35,89%
1	1218	5,00E-05	90,3	5,00E-05	3,07E-08	336,256	562,359	226,103	288,619	84,381	22,62%	40,21%
1	1406	5,50E-05	103,7	5,50E-05	3,22E-08	318,499	562,312	243,813	280,942	92,058	24,68%	43,36%
1	1563	6,00E-05	114,9	6,00E-05	3,07E-08	298,175	562,23	264,055	271,901	101,099	27,10%	46,97%
1	1764	6,50E-05	129,2	6,50E-05	3,64E-08	282,095	562,214	280,119	264,507	108,493	29,09%	49,82%
1	2004	7,00E-05	146	7,00E-05	3,07E-08	266,685	562,19	295,505	257,225	115,775	31,04%	52,56%
1	2154	7,50E-05	156,9	7,50E-05	3,13E-08	252,053	562,177	310,124	250,110	122,890	32,95%	55,16%
1	2312	8,00E-05	168,2	8,00E-05	3,28E-08	245,721	562,167	316,446	246,970	126,030	33,79%	56,29%
1	2454	8,50E-05	178,5	8,50E-05	3,79E-08	239,08	562,148	323,068	243,637	129,363	34,68%	57,47%
1	2594	9,00E-05	188,5	9,00E-05	3,77E-08	231,551	562,139	330,588	239,796	133,204	35,71%	58,81%
1	2744	9,50E-05	199	9,50E-05	3,63E-08	223,214	562,135	338,921	235,467	137,533	36,87%	60,29%
1	2878	0,00010001	208,6	0,00010001	3,35E-08	216,532	562,126	345,594	231,942	141,058	37,82%	61,48%
1	3027	0,000105022	219,1	0,000105022	3,31E-08	210,288	562,123	351,835	228,596	144,404	38,71%	62,59%
1	3167	0,000110013	228,9	0,000110013	3,52E-08	203,167	562,116	358,949	224,721	148,279	39,75%	63,86%
1	3333	0,000115029	240,7	0,000115029	2,92E-08	198,301	562,108	363,807	222,036	150,964	40,47%	64,72%
1	3483	0,000120005	251,2	0,000120005	1,30E-08	193,198	562,104	368,906	219,183	153,817	41,24%	65,63%
1	3632	0,000125005	261,7	0,000125005	3,83E-08	188,723	562,092	373,369	216,654	156,346	41,92%	66,42%
1	3763	0,000130002	271	0,000130002	3,74E-08	184,914	562,089	377,175	214,475	158,525	42,50%	67,10%
1	3897	0,000135016	280,4	0,000135016	3,79E-08	181,416	562,09	380,674	212,451	160,549	43,04%	67,72%
1	4039	0,000140009	290,4	0,000140009	3,48E-08	179,567	562,091	382,524	211,373	161,627	43,33%	68,05%
1	4176	0,000145015	300	0,000145015	3,95E-08	177,406	562,089	384,683	210,108	162,892	43,67%	68,44%

1	4306	0,000150024	309,1	0,000150024	3,53E-08	175,69	562,088	386,398	209,098	163,902	43,94%	68,74%
1	4433	0,000155019	318,1	0,000155019	3,92E-08	173,619	562,088	388,469	207,872	165,128	44,27%	69,11%
1	4560	0,000160034	327,1	0,000160034	3,99E-08	172,336	562,086	389,75	207,110	165,890	44,47%	69,34%
1	4690	0,000165001	336,3	0,000165001	3,70E-08	171,059	562,086	391,027	206,347	166,653	44,68%	69,57%
1	4852	0,000170003	347,8	0,000170003	3,58E-08	169,654	562,086	392,432	205,505	167,495	44,90%	69,82%
1	4979	0,000175007	356,8	0,000175007	3,85E-08	169,165	562,084	392,919	205,212	167,788	44,98%	69,90%
1	5115	0,000180024	366,3	0,000180024	4,02E-08	168,702	562,083	393,381	204,934	168,066	45,06%	69,99%
1	5247	0,000185007	375,7	0,000185007	4,18E-08	167,857	562,083	394,226	204,424	168,576	45,19%	70,14%
1	5390	0,000190021	385,9	0,000190021	3,79E-08	167,161	562,082	394,921	204,004	168,996	45,31%	70,26%
1	5525	0,000195001	395,5	0,000195001	2,43E-08	166,375	562,082	395,707	203,528	169,472	45,43%	70,40%
1	5672	0,000200045	406	0,000200045	4,34E-08	166,028	562,081	396,053	203,318	169,682	45,49%	70,46%
1	5808	0,000205019	415,5	0,000205019	4,36E-08	165,854	562,081	396,227	203,212	169,788	45,52%	70,49%
1	5971	0,000210023	427	0,000210023	4,30E-08	165,873	562,081	396,208	203,224	169,776	45,52%	70,49%
1	6118	0,000215014	437,3	0,000215014	3,91E-08	165,947	562,081	396,134	203,269	169,731	45,50%	70,48%
1	6239	0,00022004	446,2	0,00022004	4,47E-08	165,851	562,08	396,229	203,211	169,789	45,52%	70,49%
1	6362	0,00022503	454,8	0,00022503	4,00E-08	166,008	562,08	396,072	203,306	169,694	45,49%	70,47%
1	6479	0,000230022	463,1	0,000230022	4,11E-08	166,079	562,079	396	203,350	169,650	45,48%	70,45%
1	6606	0,000235	472	0,000235	3,73E-08	166,212	562,079	395,867	203,431	169,569	45,46%	70,43%
1	6725	0,000240034	480,4	0,000240034	4,44E-08	166,251	562,079	395,828	203,454	169,546	45,45%	70,42%
1	6856	0,000245003	489,5	0,000245003	3,63E-08	166,433	562,078	395,645	203,565	169,435	45,42%	70,39%
1	6981	0,000250023	498,3	0,000250023	4,29E-08	166,7	562,078	395,378	203,727	169,273	45,38%	70,34%
1	7098	0,000255026	506,6	0,000255026	4,79E-08	166,806	562,078	395,272	203,791	169,209	45,36%	70,32%
1	7218	0,000260009	515,1	0,000260009	4,56E-08	166,989	562,078	395,089	203,902	169,098	45,33%	70,29%
1	7341	0,000265019	523,6	0,000265019	4,52E-08	167,14	562,078	394,938	203,994	169,006	45,31%	70,26%
1	7460	0,000270021	531,9	0,000270021	2,26E-08	167,099	562,078	394,979	203,969	169,031	45,32%	70,27%
1	7583	0,000275037	540,7	0,000275037	4,54E-08	167,127	562,078	394,951	203,986	169,014	45,31%	70,27%
1	7698	0,00028001	548,7	0,00028001	4,07E-08	167,193	562,078	394,885	204,026	168,974	45,30%	70,25%
1	7813	0,000285012	556,8	0,000285012	4,65E-08	167,247	562,078	394,831	204,058	168,942	45,29%	70,24%
1	7928	0,000290038	565,2	0,000290038	4,50E-08	167,264	562,077	394,813	204,069	168,931	45,29%	70,24%
1	8056	0,000295021	574,1	0,000295021	4,79E-08	167,359	562,077	394,718	204,127	168,873	45,27%	70,22%
1	8166	0,000300015	581,7	0,000300015	4,65E-08	167,39	562,077	394,687	204,146	168,854	45,27%	70,22%
1	8278	0,000305043	590	0,000305043	4,39E-08	167,415	562,077	394,662	204,161	168,839	45,27%	70,21%
1	8389	0,000310008	597,9	0,000310008	4,44E-08	167,428	562,077	394,649	204,169	168,831	45,26%	70,21%

1	8500	0,000315012	605,4	0,000315012	4,84E-08	167,369	562,077	394,708	204,133	168,867	45,27%	70,22%
1	8614	0,000320033	613,5	0,000320033	4,61E-08	167,312	562,077	394,765	204,098	168,902	45,28%	70,23%
1	8727	0,000325017	621,3	0,000325017	4,17E-08	167,142	562,077	394,935	203,996	169,004	45,31%	70,26%
1	8836	0,000330018	629	0,000330018	4,68E-08	166,984	562,077	395,093	203,900	169,100	45,34%	70,29%
1	8945	0,000335009	636,9	0,000335009	3,99E-08	166,845	562,077	395,232	203,816	169,184	45,36%	70,32%
1	9056	0,000340015	644,6	0,000340015	5,00E-08	166,664	562,077	395,413	203,706	169,294	45,39%	70,35%
1	9172	0,000345002	653	0,000345002	3,99E-08	166,62	562,077	395,457	203,679	169,321	45,39%	70,36%
1	9280	0,000350006	660,3	0,000350006	4,80E-08	166,56	562,077	395,517	203,643	169,357	45,40%	70,37%
1	9391	0,000355029	668,2	0,000355029	4,68E-08	166,47	562,077	395,607	203,588	169,412	45,42%	70,38%
1	9501	0,000360028	675,8	0,000360028	4,79E-08	166,334	562,077	395,743	203,506	169,494	45,44%	70,41%
1	9608	0,000365024	683,4	0,000365024	4,58E-08	166,178	562,077	395,899	203,411	169,589	45,47%	70,44%
1	9715	0,000370016	691	0,000370016	4,60E-08	166,004	562,077	396,073	203,306	169,694	45,49%	70,47%
1	9824	0,000375036	698,7	0,000375036	4,25E-08	165,878	562,077	396,199	203,229	169,771	45,51%	70,49%
1	9930	0,00038004	706,3	0,00038004	5,03E-08	165,613	562,077	396,464	203,068	169,932	45,56%	70,54%
1	10034	0,000385021	713,6	0,000385021	4,97E-08	165,382	562,076	396,694	202,928	170,072	45,60%	70,58%
1	10145	0,000390023	721,4	0,000390023	4,91E-08	165,132	562,076	396,944	202,776	170,224	45,64%	70,62%
1	10264	0,000395008	729,7	0,000395008	3,87E-08	165,06	562,076	397,016	202,732	170,268	45,65%	70,63%
1	10377	0,000400015	737,7	0,000400015	4,26E-08	165,026	562,076	397,05	202,712	170,288	45,65%	70,64%
1	10487	0,000405007	745,5	0,000405007	4,10E-08	164,981	562,076	397,095	202,684	170,316	45,66%	70,65%
1	10601	0,000410016	753,6	0,000410016	4,49E-08	165,007	562,076	397,069	202,700	170,300	45,66%	70,64%
1	10708	0,000415007	761,1	0,000415007	4,91E-08	165,032	562,076	397,044	202,715	170,285	45,65%	70,64%
1	10815	0,00042	768,7	0,00042	4,99E-08	164,918	562,076	397,158	202,646	170,354	45,67%	70,66%
1	10922	0,000425044	776,4	0,000425044	4,53E-08	164,883	562,076	397,193	202,624	170,376	45,68%	70,67%
1	11029	0,000430017	783,9	0,000430017	4,46E-08	164,803	562,076	397,273	202,576	170,424	45,69%	70,68%
1	11133	0,000435009	791,2	0,000435009	3,93E-08	164,796	562,076	397,28	202,571	170,429	45,69%	70,68%
1	11239	0,00044004	798,6	0,00044004	5,10E-08	164,807	562,076	397,269	202,578	170,422	45,69%	70,68%
1	11340	0,000445038	805,9	0,000445038	5,06E-08	164,849	562,076	397,227	202,604	170,396	45,68%	70,67%
1	11443	0,000450029	813,2	0,000450029	4,53E-08	164,964	562,076	397,112	202,674	170,326	45,66%	70,65%
1	11547	0,00045501	820,6	0,00045501	4,50E-08	165,142	562,076	396,934	202,782	170,218	45,63%	70,62%
1	11653	0,000460033	828	0,000460033	5,27E-08	165,155	562,076	396,921	202,790	170,210	45,63%	70,62%
1	11755	0,000465046	835,2	0,000465046	4,99E-08	165,151	562,076	396,925	202,788	170,212	45,63%	70,62%
1	11858	0,000470002	842,3	0,000470002	4,85E-08	165,142	562,076	396,934	202,782	170,218	45,63%	70,62%
1	11962	0,000475012	849,5	0,000475012	4,29E-08	165,145	562,076	396,931	202,784	170,216	45,63%	70,62%

1	12065	0,000480037	856,7	0,000480037	4,88E-08	165,169	562,076	396,907	202,799	170,201	45,63%	70,61%
1	12175	0,000485001	864,4	0,000485001	4,50E-08	165,241	562,076	396,835	202,842	170,158	45,62%	70,60%
1	12277	0,000490023	871,7	0,000490023	5,13E-08	165,345	562,076	396,731	202,906	170,094	45,60%	70,58%
1	12381	0,000495042	878,9	0,000495042	4,42E-08	165,514	562,076	396,562	203,009	169,991	45,57%	70,55%
1	12486	0,0005	886,3	0,0005	4,83E-08	165,576	562,076	396,5	203,046	169,954	45,56%	70,54%

Tabel Perhitungan Rompi Serat Karbon 30 Lapis

Step	Increment	Total Time	CPU Time	Step Time	Stable Time Inc	Kinetic Energy	Total Energy	Internal Energy	Residual Velocity	V1-V2	Presentase RV	Presentase EA
1	28	5,03E-06	4,8	5,03E-06	1,97E-07	563,472	563,472	0	373	0	0,00%	0,00%
1	54	1,01E-05	7,4	1,01E-05	1,96E-07	563,472	563,472	0	373	0	0,00%	0,00%
1	89	1,50E-05	10,7	1,50E-05	5,14E-08	559,374	563,43	4,056	371,655	1,345	0,36%	0,72%
1	207	2,00E-05	22	2,00E-05	4,49E-08	534,731	563,274	28,543	363,430	9,570	2,57%	5,07%
1	331	2,50E-05	34	2,50E-05	3,81E-08	503,013	563,06	60,047	352,566	20,434	5,48%	10,66%
1	478	3,00E-05	48,4	3,00E-05	3,11E-08	455,563	562,902	107,339	335,597	37,403	10,03%	19,07%
1	613	3,50E-05	61,4	3,50E-05	3,42E-08	417,914	562,749	144,835	321,508	51,492	13,80%	25,74%
1	804	4,00E-05	79,6	4,00E-05	2,11E-08	388,519	562,625	174,106	310,064	62,936	16,87%	30,95%
1	1039	4,50E-05	102,2	4,50E-05	2,19E-08	357,888	562,579	204,691	297,637	75,363	20,20%	36,38%
1	1264	5,00E-05	123,5	5,00E-05	2,17E-08	329,554	562,498	232,944	285,678	87,322	23,41%	41,41%
1	1500	5,50E-05	146	5,50E-05	2,11E-08	307,975	562,473	254,498	276,206	96,794	25,95%	45,25%
1	1737	6,00E-05	168,7	6,00E-05	2,15E-08	294,067	562,448	268,381	269,930	103,070	27,63%	47,72%
1	1973	6,50E-05	191,2	6,50E-05	2,08E-08	274,373	562,42	288,047	260,780	112,220	30,09%	51,22%
1	2218	7,00E-05	214,7	7,00E-05	2,02E-08	264,117	562,391	298,274	255,893	117,107	31,40%	53,04%
1	2465	7,50E-05	238,4	7,50E-05	2,05E-08	254,402	562,373	307,971	251,171	121,829	32,66%	54,76%
1	2704	8,00E-05	261,1	8,00E-05	2,13E-08	244,269	562,362	318,093	246,145	126,855	34,01%	56,56%
1	2934	8,50E-05	283,2	8,50E-05	2,20E-08	232,825	562,355	329,53	240,341	132,659	35,57%	58,60%
1	3160	9,00E-05	305,2	9,00E-05	2,22E-08	221,27	562,347	341,077	234,334	138,666	37,18%	60,65%
1	3382	9,50E-05	326,4	9,50E-05	2,28E-08	210,67	562,33	351,66	228,691	144,309	38,69%	62,54%
1	3604	0,00010002	347,7	0,00010002	2,23E-08	201,976	562,326	360,35	223,950	149,050	39,96%	64,08%
1	3827	0,000105003	369,3	0,000105003	2,25E-08	194,557	562,316	367,759	219,828	153,172	41,06%	65,40%
1	4050	0,000110015	390,8	0,000110015	2,26E-08	188,426	562,31	373,884	216,361	156,639	41,99%	66,49%
1	4274	0,000115016	412,3	0,000115016	2,24E-08	182,842	562,308	379,466	213,152	159,848	42,85%	67,48%
1	4499	0,000120005	433,8	0,000120005	2,19E-08	178,12	562,306	384,186	210,400	162,600	43,59%	68,32%
1	4730	0,000125003	455,7	0,000125003	2,14E-08	173,739	562,306	388,567	207,814	165,186	44,29%	69,10%
1	4965	0,000130017	478,2	0,000130017	2,13E-08	170,257	562,303	392,046	205,737	167,263	44,84%	69,72%
1	5198	0,000135013	500,4	0,000135013	2,18E-08	167,076	562,302	395,226	203,819	169,181	45,36%	70,29%
1	5426	0,000140021	522,2	0,000140021	2,20E-08	164,449	562,3	397,851	202,223	170,777	45,78%	70,75%
1	5656	0,000145009	544,1	0,000145009	2,18E-08	163,165	562,297	399,132	201,440	171,560	45,99%	70,98%

1	5883	0,000150001	565,7	0,000150001	2,21E-08	161,741	562,296	400,555	200,566	172,434	46,23%	71,24%
1	6109	0,000155002	587,2	0,000155002	2,21E-08	160,95	562,295	401,345	200,079	172,921	46,36%	71,38%
1	6340	0,000160017	609,8	0,000160017	2,14E-08	159,799	562,295	402,496	199,367	173,633	46,55%	71,58%
1	6574	0,000165018	631,9	0,000165018	2,15E-08	159,121	562,295	403,174	198,947	174,053	46,66%	71,70%
1	6803	0,000170009	653,8	0,000170009	2,22E-08	158,401	562,295	403,894	198,500	174,500	46,78%	71,83%
1	7026	0,000175016	675,1	0,000175016	2,27E-08	158,065	562,295	404,23	198,291	174,709	46,84%	71,89%
1	7244	0,000180002	695,8	0,000180002	2,29E-08	157,509	562,295	404,786	197,944	175,056	46,93%	71,99%
1	7463	0,000185015	716,6	0,000185015	2,28E-08	157,371	562,295	404,924	197,858	175,142	46,95%	72,01%
1	7684	0,000190012	737,7	0,000190012	2,24E-08	157,634	562,295	404,661	198,022	174,978	46,91%	71,97%
1	7909	0,00019502	759,1	0,00019502	2,20E-08	157,725	562,295	404,57	198,079	174,921	46,90%	71,95%
1	8138	0,000200012	780,9	0,000200012	2,16E-08	157,621	562,295	404,674	198,014	174,986	46,91%	71,97%
1	8369	0,000205012	802,9	0,000205012	2,17E-08	157,576	562,295	404,719	197,986	175,014	46,92%	71,98%
1	8597	0,000210001	824,7	0,000210001	2,21E-08	157,771	562,295	404,524	198,107	174,893	46,89%	71,94%
1	8824	0,000215011	846,4	0,000215011	2,21E-08	157,712	562,295	404,583	198,071	174,929	46,90%	71,95%
1	9051	0,00022	867,8	0,00022	2,19E-08	157,62	562,295	404,675	198,013	174,987	46,91%	71,97%
1	9281	0,000225016	889,7	0,000225016	2,17E-08	157,505	562,295	404,79	197,942	175,058	46,93%	71,99%
1	9513	0,000230019	911,9	0,000230019	2,14E-08	157,534	562,295	404,761	197,960	175,040	46,93%	71,98%
1	9746	0,000235016	934,1	0,000235016	2,16E-08	157,457	562,295	404,838	197,912	175,088	46,94%	72,00%
1	9975	0,000240014	956,1	0,000240014	2,21E-08	157,54	562,295	404,755	197,963	175,037	46,93%	71,98%
1	10200	0,000245017	977,4	0,000245017	2,23E-08	157,487	562,295	404,808	197,930	175,070	46,94%	71,99%
1	10424	0,000250007	998,7	0,000250007	2,22E-08	157,612	562,295	404,683	198,008	174,992	46,91%	71,97%
1	10651	0,000255007	1020,5	0,000255007	2,18E-08	157,67	562,295	404,625	198,044	174,956	46,90%	71,96%
1	10881	0,000260012	1042,2	0,000260012	2,17E-08	157,682	562,295	404,613	198,052	174,948	46,90%	71,96%
1	11111	0,000265016	1064,2	0,000265016	2,19E-08	157,709	562,295	404,586	198,069	174,931	46,90%	71,95%
1	11337	0,000270004	1085,5	0,000270004	2,22E-08	157,652	562,295	404,643	198,033	174,967	46,91%	71,96%
1	11562	0,000275002	1107	0,000275002	2,21E-08	157,647	562,295	404,648	198,030	174,970	46,91%	71,96%
1	11790	0,000280011	1128,8	0,000280011	2,20E-08	157,547	562,295	404,748	197,968	175,032	46,93%	71,98%
1	12017	0,00028502	1150,4	0,00028502	2,21E-08	157,516	562,295	404,779	197,948	175,052	46,93%	71,99%
1	12243	0,00029001	1172,2	0,00029001	2,20E-08	157,427	562,295	404,868	197,893	175,107	46,95%	72,00%
1	12472	0,000295016	1194,3	0,000295016	2,19E-08	157,347	562,295	404,948	197,843	175,157	46,96%	72,02%
1	12700	0,000300022	1215,8	0,000300022	2,21E-08	157,261	562,295	405,034	197,789	175,211	46,97%	72,03%
1	12926	0,000305007	1237,3	0,000305007	2,20E-08	157,155	562,295	405,14	197,723	175,277	46,99%	72,05%
1	13154	0,000310008	1259,3	0,000310008	2,19E-08	157,029	562,295	405,266	197,644	175,356	47,01%	72,07%

1	13382	0,000315003	1280,9	0,000315003	2,20E-08	156,81	562,295	405,485	197,508	175,492	47,05%	72,11%
1	13609	0,000320003	1302,6	0,000320003	2,20E-08	156,695	562,295	405,6	197,436	175,564	47,07%	72,13%
1	13837	0,000325017	1324,5	0,000325017	2,20E-08	156,478	562,295	405,817	197,300	175,700	47,10%	72,17%
1	14065	0,000330017	1346,2	0,000330017	2,20E-08	156,325	562,295	405,97	197,204	175,796	47,13%	72,20%
1	14291	0,000335004	1367,5	0,000335004	2,21E-08	156,186	562,295	406,109	197,117	175,883	47,15%	72,22%
1	14516	0,000340002	1388,9	0,000340002	2,22E-08	156,015	562,295	406,28	197,010	175,990	47,18%	72,25%
1	14742	0,000345007	1410,4	0,000345007	2,20E-08	155,93	562,295	406,365	196,957	176,043	47,20%	72,27%
1	14970	0,00035002	1432,1	0,00035002	2,19E-08	155,855	562,295	406,44	196,910	176,090	47,21%	72,28%
1	15198	0,000355004	1453,7	0,000355004	2,19E-08	155,669	562,295	406,626	196,793	176,207	47,24%	72,32%
1	15426	0,000360016	1475,4	0,000360016	2,20E-08	155,388	562,295	406,907	196,617	176,383	47,29%	72,37%
1	15652	0,000365002	1497	0,000365002	2,21E-08	155,166	562,295	407,129	196,477	176,523	47,33%	72,40%
1	15878	0,000370015	1518,3	0,000370015	2,22E-08	154,961	562,295	407,334	196,348	176,652	47,36%	72,44%
1	16103	0,000375014	1539,8	0,000375014	2,22E-08	154,796	562,295	407,499	196,245	176,755	47,39%	72,47%
1	16328	0,000380009	1561,3	0,000380009	2,22E-08	154,637	562,295	407,658	196,145	176,855	47,41%	72,50%
1	16554	0,00038501	1583,3	0,00038501	2,21E-08	154,523	562,295	407,772	196,073	176,927	47,43%	72,52%
1	16781	0,000390007	1604,9	0,000390007	2,20E-08	154,531	562,295	407,764	196,078	176,922	47,43%	72,52%
1	17008	0,000395015	1627,1	0,000395015	2,21E-08	154,407	562,295	407,888	196,000	177,000	47,45%	72,54%
1	17233	0,000400001	1648,7	0,000400001	2,22E-08	154,375	562,294	407,919	195,980	177,020	47,46%	72,55%
1	17459	0,000405013	1670,1	0,000405013	2,21E-08	154,383	562,294	407,911	195,985	177,015	47,46%	72,54%
1	17685	0,000410012	1691,7	0,000410012	2,21E-08	154,418	562,294	407,876	196,007	176,993	47,45%	72,54%
1	17911	0,000415007	1713,1	0,000415007	2,21E-08	154,487	562,294	407,807	196,051	176,949	47,44%	72,53%
1	18137	0,000420015	1734,6	0,000420015	2,22E-08	154,555	562,294	407,739	196,094	176,906	47,43%	72,51%
1	18362	0,000425009	1756	0,000425009	2,22E-08	154,538	562,294	407,756	196,083	176,917	47,43%	72,52%
1	18588	0,000430019	1777,6	0,000430019	2,21E-08	154,548	562,294	407,746	196,089	176,911	47,43%	72,51%
1	18813	0,000435004	1799	0,000435004	2,22E-08	154,555	562,294	407,739	196,094	176,906	47,43%	72,51%
1	19039	0,000440009	1820,4	0,000440009	2,21E-08	154,64	562,294	407,654	196,147	176,853	47,41%	72,50%
1	19266	0,000445016	1842	0,000445016	2,21E-08	154,736	562,294	407,558	196,208	176,792	47,40%	72,48%
1	19493	0,00045002	1863,7	0,00045002	2,20E-08	154,789	562,294	407,505	196,241	176,759	47,39%	72,47%
1	19719	0,000455008	1885,3	0,000455008	2,21E-08	154,818	562,294	407,476	196,259	176,741	47,38%	72,47%
1	19944	0,000460007	1906,6	0,000460007	2,23E-08	154,869	562,294	407,425	196,291	176,709	47,38%	72,46%
1	20168	0,000465006	1927,7	0,000465006	2,23E-08	154,861	562,294	407,433	196,286	176,714	47,38%	72,46%
1	20393	0,000470021	1949,1	0,000470021	2,22E-08	154,852	562,294	407,442	196,281	176,719	47,38%	72,46%
1	20618	0,000475016	1970,5	0,000475016	2,23E-08	154,901	562,294	407,393	196,311	176,689	47,37%	72,45%

1	20842	0,000480009	1992	0,000480009	2,23E-08	154,994	562,294	407,3	196,370	176,630	47,35%	72,44%
1	21067	0,000485014	2013,4	0,000485014	2,22E-08	155,025	562,294	407,269	196,389	176,611	47,35%	72,43%
1	21292	0,000490006	2035,4	0,000490006	2,22E-08	155,033	562,294	407,261	196,394	176,606	47,35%	72,43%
1	21517	0,000495005	2057	0,000495005	2,23E-08	154,926	562,294	407,368	196,327	176,673	47,37%	72,45%
1	21742	0,0005	2078,4	0,0005	2,22E-08	154,821	562,294	407,473	196,261	176,739	47,38%	72,47%