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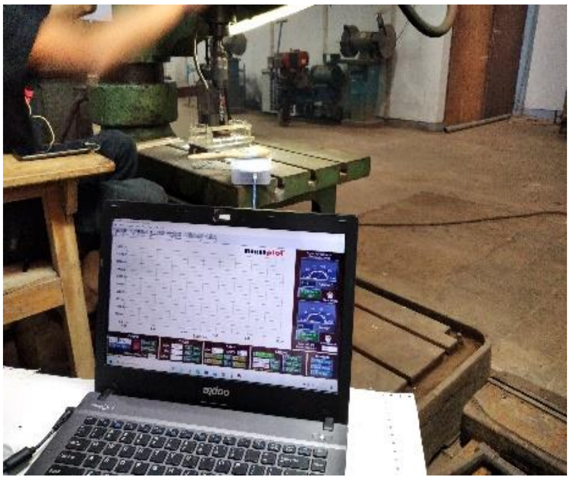
LAMPIRAN I

PROSES PEMBUATAN DAN PENGUJIAN SPESIMEN

Proses pemotongan tenunan dengan ukuran 20 x 20 cm

Proses pencetakan spesimen sesuai dengan variasi lapis

Proses pemotongan spesimen

Proses pengeboran dan pengambilan data

LAMPIRAN II

Tabel Hasil Pengambilan Data Komposit 3 Lapis

DRILL DIA.	6 MM
SPINDEL SPEED	88 RPM
FEEDRATE	0,05 MM/REV
LAYER	3

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
3P1-1	99,7832829	00.01.47
3P1-2	97,9121073	00.01.43
3P1-3	96,4665555	00.01.42
3P1-4	98,3485188	00.01.41
3P1-5	92,1200931	00.01.41
AVERAGE	**96,92611152**	**00.01.43**
STD DEV.	**2,935466881**	

DRILL DIA.	6 MM
SPINDEL SPEED	88 RPM
FEEDRATE	0,09 MM/REV
LAYER	3

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
3P1-6	117,968403	00.00.59
3P2-1	119,3953215	00.00.58
3P2-2	108,965577	00.00.58
3P2-3	104,0159841	00.00.57
3P2-4	105,3879834	00.00.57
AVERAGE	**111,1466538**	**00.00.58**
STD DEV.	**7,129912554**	

DRILL DIA.	6 MM
SPINDEL SPEED	88 RPM
FEEDRATE	0,15 MM/REV
LAYER	3

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
3P2-5	136,9910409	00.00.35
3P2-6	137,1822774	00.00.36
3P12-4	144,3904224	00.00.36
3P16-1	150,9326721	00.00.38
3P16-2	154,2699942	00.00.37
AVERAGE	**144,7532814**	**00.00.37**
STD DEV.	**7,849471921**	

DRILL DIA.	6 MM
SPINDEL SPEED	455 RPM
FEEDRATE	0,05 MM/REV
LAYER	3

SPECS. CODE	THRUST FORCE MAX.	DRILLING TIME (SEC)
3P16-3	76,5965928	00.00.21
3P16-4	69,3296058	00.00.21
3P16-5	67,0543818	00.00.21
3P16-6	78,5766261	00.00.21
3P17-1	68,2645656	00.00.21
AVERAGE	**71,96435442**	**00.00.21**
STD DEV.	**5,242087798**	

DRILL DIA.	6 MM
SPINDEL SPEED	455 RPM
FEEDRATE	0,09 MM/REV
LAYER	3

SPECS. CODE	HRUST FORCE MAX. (N	DRILLING TIME (SEC)
3P17-2	101,9918193	00.00.12
3P17-3	100,1029911	00.00.12
3P17-4	94,706199	00.00.13
3P17-5	96,5587413	00.00.13
3P17-6	98,8790775	00.00.13
AVERAGE	**98,44776564**	**00.00.12**
STD DEV.	**2,874623952**	

DRILL DIA.	6 MM
SPINDEL SPEED	455 RPM
FEEDRATE	0,15 MM/REV
LAYER	3

SPECS. CODE	HRUST FORCE MAX. (N	DRILLING TIME (SEC)
3P23-1	135,8347956	00.00.08
3P23-2	120,714363	00.00.07
3P23-3	115,3656252	00.00.07
3P23-4	129,6809031	00.00.07
3P23-4	125,490372	00.00.08
AVERAGE	**125,4172118**	**00.00.07**
STD DEV.	**7,903506313**	

DRILL DIA.	6 MM	
SPINDEL SPEI	1500 RPM	
FEEDRATE	0,05 MM/REV	
LAYER	3	

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
3P23-6	53,9806701	00.00.06
3P24-5	58,6399758	00.00.07
3P25-1	49,682262	00.00.06
3P25-5	52,016328	00.00.06
3P28-6	65,8216419	00.00.06
AVERAGE	**56,02817556**	**00.00.06**
STD DEV.	**6,389274251**	

DRILL DIA.	6 MM	
SPINDEL SPEI	1500 RPM	
FEEDRATE	0,09 MM/REV	
LAYER	3	

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
3P28-2	64,5016197	00.00.04
3P28-3	69,060894	00.00.03
3P28-4	66,314934	00.00.04
3P28-5	71,9314029	00.00.04
3P28-6	64,8595752	00.00.04
AVERAGE	**67,33368516**	**00.00.04**
STD DEV.	**3,134562473**	

DRILL DIA.	6 MM	
SPINDEL SPEI	1500 RPM	
FEEDRATE	0,15 MM/REV	
LAYER	3	

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
3P35-1	80,9999358	00.00.02
3P35-2	78,7021557	00.00.02
3P35-3	73,2749619	00.00.02
3P35-4	77,661633	00.00.02
3P35-5	77,1006726	00.00.02
AVERAGE	**77,5478718**	**00.00.02**
STD DEV.	**2,816016909**	

Tabel Hasil Pengambilan Data Komposit 4 Lapis

DRILL DIA.	6 MM
SPINDEL SPEED	88 RPM
FEEDRATE	0,05 MM/REV
LAYER	4

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
4P2-4	105,533127	00.01.41
4P16-1	101,0385789	00.01.41
4P16-2	97,5982833	00.01.40
4P16-3	102,3988098	00.01.44
4P17-5	99,7244409	00.01.36
AVERAGE	**101,258648**	**00.01.40**
STD DEV.	**2,97370271**	

DRILL DIA.	6 MM
SPINDEL SPEED	88 RPM
FEEDRATE	0,09 MM/REV
LAYER	4

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
4P8-4	112,5274794	00.00.58
4P9-4	113,0276364	00.00.58
4P10-4	118,9500837	00.00.58
4P11-2	106,5118656	00.00.59
4P11-4	121,6372017	00.00.59
AVERAGE	**114.5308534**	**00.00.59**

DRILL DIA.	6 MM
SPINDEL SPEED	88 RPM
FEEDRATE	0,15 MM/REV
LAYER	4

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
4P12-4	141,7052658	00.00.35
4P13-4	149,3233434	00.00.38
4P14-4	145,5878571	00.00.37
4P15-4	144,1854561	00.00.36
4P16-4	149,2507716	00.00.38
AVERAGE	**146,0105388**	**00.00.37**
STD DEV.	**3,298436948**	

DRILL DIA. 6 MM
SPINDEL SPEED 455 RPM
FEEDRATE 0,05 MM/REV
LAYER 4

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
4P17-1	82,0218252	00.00.20
4P17-3	78,4108878	00.00.21
4P17-4	82,0581111	00.00.21
4P18-1	80,1173058	00.00.20
4P18-2	60,4709427	00.00.17
AVERAGE	**76,61581452**	**00.00.20**
STD DEV.	**9,151272574**	

DRILL DIA. 6 MM
SPINDEL SPEED 455 RPM
FEEDRATE 0,09 MM/REV
LAYER 4

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
4P27-3	96,9314073	00.00.12
4P27-4	96,1958823	00.00.11
4P27-5	98,197491	00.00.12
4P29-1	102,8312985	00.00.12
4P29-2	105,3889641	00.00.12
AVERAGE	**99,90900864**	**00.00.12**
STD DEV.	**4,004759651**	

DRILL DIA. 6 MM
SPINDEL SPEED 455 RPM
FEEDRATE 0,15 MM/REV
LAYER 4

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
4P19-4	127,5949542	00.00.07
4P20-1	132,8211045	00.00.07
4P20-2	129,5043771	00.00.08
4P20-3	124,8882222	00.00.08
4P20-4	125,7581031	00.00.07
AVERAGE	**128,1133522**	**00.00.07**
STD DEV.	**3,174715748**	

DRILL DIA. 6 MM
SPINDEL SPEED 1500 RPM
FEEDRATE 0,05 MM/REV
LAYER 4

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
4P21-1	73,1621814	00.00.06
4P21-2	72,6267192	00.00.06
4P21-3	66,5875686	00.00.06
4P21-4	67,7830419	00.00.06
4P22-1	73,0984359	00.00.06
AVERAGE	**70,6515894**	**00.00.06**
STD DEV.	**3,199066174**	

DRILL DIA. 6 MM
SPINDEL SPEED 1500 RPM
FEEDRATE 0,09 MM/REV
LAYER 4

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
4P22-2	90,2567631	00.00.04
4P22-3	86,5526592	00.00.04
4P22-4	93,6421395	00.00.04
4P26-1	91,3629927	00.00.04
4P26-2	82,6837977	00.00.04
AVERAGE	**88,89967044**	**00.00.04**
STD DEV.	**4,317007225**	

DRILL DIA. 6 MM
SPINDEL SPEED 1500 RPM
FEEDRATE 0,15 MM/REV
LAYER 4

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
4P27-1	101,2817925	00.00.02
4P28-1	108,1849398	00.00.03
4P28-2	104,4582798	00.00.02
4P28-3	102,8695458	00.00.03
4P28-4	108,524262	00.00.03
AVERAGE	**105,063764**	**00.00.03**
STD DEV.	**3,209411856**	

Tabel Hasil Pengambilan Data Komposit 5 Lapis

DRILL DIA.	6 MM
SPINDEL SPEED	88 RPM
FEEDRATE	0,05 MM/REV
LAYER	5

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
5P18-5	111,3604464	00.01.47
5P20-5	118,0439169	00.01.41
5P21-5	123,8663328	00.01.44
5P22-5	116,9455329	00.01.44
5P24-1	111,8164719	00.01.42
AVERAGE	**116,4065402**	**00.01.44**
STD DEV.	**5,127177851**	

DRILL DIA.	6 MM
SPINDEL SPEED	88 RPM
FEEDRATE	0,09 MM/REV
LAYER	5

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
5P24-2	128,8414239	00.00.57
5P24-3	129,6661926	00.00.58
5P24-4	128,6080173	00.00.58
5P24-5	134,0185392	00.00.58
5P24-6	130,9558131	00.00.58
AVERAGE	**130,4179972**	**00.00.58**
STD DEV.	**2,21246296**	

DRILL DIA.	6 MM
SPINDEL SPEED	88 RPM
FEEDRATE	0,15 MM/REV
LAYER	5

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
5P25-1	154,7887845	00.00.35
5P25-2	147,5796588	00.00.35
5P25-3	159,8080071	00.00.36
5P25-4	153,9757842	00.00.35
5P25-5	151,5201114	00.00.35
AVERAGE	**153,5344692**	**00.00.35**
STD DEV.	**4,490065362**	

DRILL DIA. 6 MM
SPINDEL SPEED 455 RPM
FEEDRATE 0,05 MM/REV
LAYER 5

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
5P25-6	84,7834764	00.00.20
5P26-3	82,4141052	00.00.20
5P26-4	86,3614227	00.00.20
5P26-5	82,9427025	00.00.20
5P27-2	77,6429997	00.00.20
AVERAGE	**82,8289413**	**00.00.20**
STD DEV.	**3,29308568**	

DRILL DIA. 6 MM
SPINDEL SPEED 455 RPM
FEEDRATE 0,09 MM/REV
LAYER 5

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
5P18-3	106,3775097	00.00.12
5P18-4	102,7038075	00.00.12
5P19-1	112,58436	00.00.12
5P19-2	103,2275013	00.00.12
5P19-3	96,5126484	00.00.11
AVERAGE	**104,2811654**	**00.00.12**
STD DEV.	**5,858451637**	

DRILL DIA. 6 MM
SPINDEL SPEED 455 RPM
FEEDRATE 0,15 MM/REV
LAYER 5

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
5P29-3	135,738687	00.00.07
5P29-4	140,887362	00.00.07
5P29-5	143,2989033	00.00.07
5P29-6	140,7941955	00.00.07
5P30-1	129,9662868	00.00.07
AVERAGE	**138,1370869**	**00.00.07**
STD DEV.	**5,333453012**	

DRILL DIA.	6 MM
SPINDEL SPEED	1500 RPM
FEEDRATE	0,05 MM/REV
LAYER	5

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
5P30-2	78,8571063	00.00.06
5P30-3	77,995071	00.00.06
5P30-4	76,5024456	00.00.06
5P30-5	78,5805489	00.00.06
5P30-6	77,2948512	00.00.06
AVERAGE	**77,8460046**	**00.00.06**
STD DEV.	**0,960862064**	

DRILL DIA.	6 MM
SPINDEL SPEED	1500 RPM
FEEDRATE	0,09 MM/REV
LAYER	5

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
5P31-1	91,2404052	00.00.04
5P31-2	94,1040492	00.00.04
5P31-3	93,3900996	00.00.04
5P31-4	98,5152378	00.00.04
5P31-5	95,3769978	00.00.04
AVERAGE	**94,52535792**	**00.00.04**
STD DEV.	**2,688013151**	

DRILL DIA.	6 MM
SPINDEL SPEED	1500 RPM
FEEDRATE	0,15 MM/REV
LAYER	5

SPECS. CODE	THRUST FORCE MAX. (N)	DRILLING TIME (SEC)
5P31-6	117,8713137	00.00.02
5P32-1	113,0805942	00.00.02
5P32-2	116,5012758	00.00.02
5P32-3	118,5264213	00.00.02
5P32-4	119,782698	00.00.02
AVERAGE	**117,1524606**	**00.00.02**
STD DEV.	**2,565482615**	