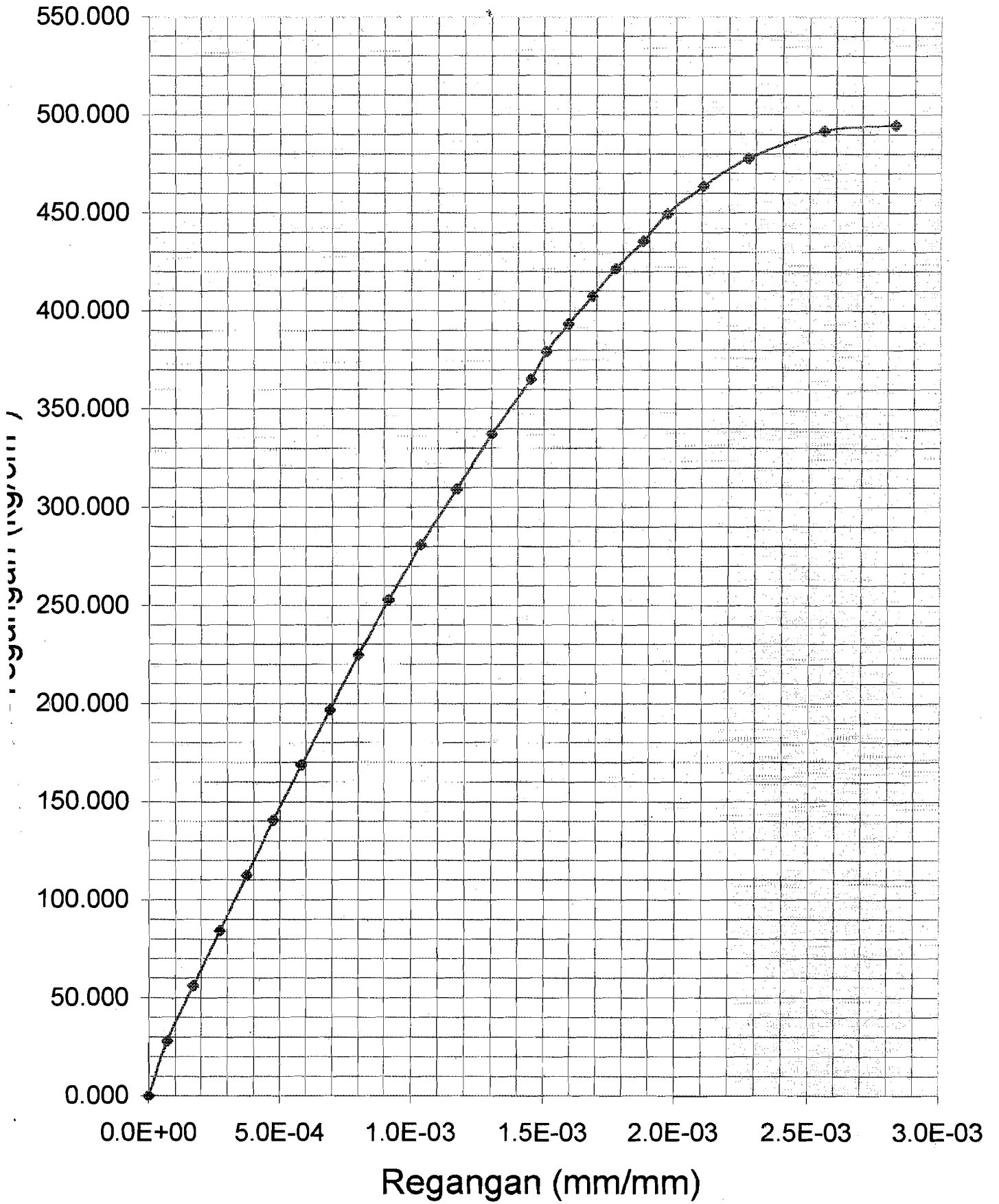


# Grafik Tegangan Regangan C15-31/3



P  
(ton)

# C15-31/A

Time	Measurement	Value	Time	Measurement	Value
'00.03.27.11:12:15	[M] 000 + 0.000 mm [M] 001 + 0.000 mm	0,000	'00.03.27.11:15:23	50 [M] 000 - 0.104 mm [M] 001 - 0.201 mm	0,1525
	II.B-25-02				
'00.03.27.11:13:23	5 [M] 000 - 0.011 mm [M] 001 - 0.012 mm	0,0115	'00.03.27.11:15:37	55 [M] 000 - 0.116 mm [M] 001 - 0.229 mm	0,1725
'00.03.27.11:13:38	10 [M] 000 - 0.020 mm [M] 001 - 0.030 mm	0,0250	'00.03.27.11:15:51	60 [M] 000 - 0.127 mm [M] 001 - 0.258 mm	0,1925
'00.03.27.11:13:52	15 [M] 000 - 0.028 mm [M] 001 - 0.051 mm	0,0395	'00.03.27.11:16:07	65 [M] 000 - 0.141 mm [M] 001 - 0.293 mm	0,2170
'00.03.27.11:14:05	20 [M] 000 - 0.036 mm [M] 001 - 0.071 mm	0,0535	'00.03.27.11:16:14	67,5 [M] 000 - 0.147 mm [M] 001 - 0.309 mm	0,2280
'00.03.27.11:14:18	25 [M] 000 - 0.047 mm [M] 001 - 0.091 mm	0,0690	'00.03.27.11:16:22	70 [M] 000 - 0.154 mm [M] 001 - 0.330 mm	0,2420
'00.03.27.11:14:31	30 [M] 000 - 0.058 mm [M] 001 - 0.112 mm	0,0850	'00.03.27.11:16:31	72,5 [M] 000 - 0.162 mm [M] 001 - 0.352 mm	0,2570
'00.03.27.11:14:43	35 [M] 000 - 0.069 mm [M] 001 - 0.132 mm	0,1005	'00.03.27.11:16:41	75 [M] 000 - 0.172 mm [M] 001 - 0.379 mm	0,2755
'00.03.27.11:14:56	40 [M] 000 - 0.081 mm [M] 001 - 0.153 mm	0,1170	'00.03.27.11:16:55	77,5 [M] 000 - 0.179 mm [M] 001 - 0.428 mm	0,3035
'00.03.27.11:15:09	45 [M] 000 - 0.092 mm [M] 001 - 0.176 mm	0,1340	'00.03.27.11:17:09	80 [M] 000 + 0.774 mm [M] 001 - 2.355 mm	0,7905

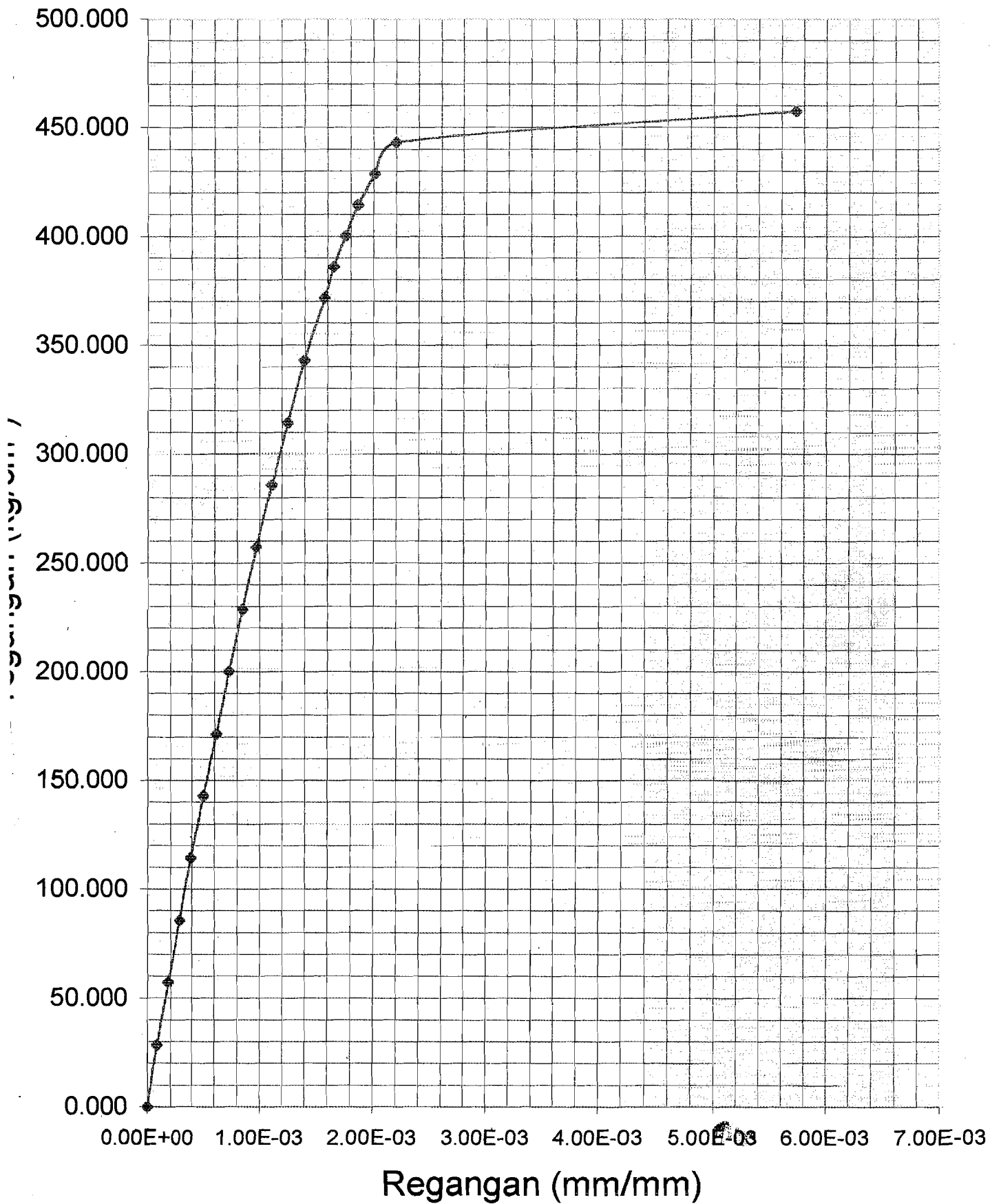
$P_{max} = 80000 \text{ kg}$

Specimen no. : C15-31/4  
Dibuat tanggal : 25 Februari 2000  
Diuji tanggal : 27 Maret 2000  
Umur : 31 hari  
Lo : 138 mm

Diameter : 14.923 cm  
Tinggi : 30.245 cm  
Berat : 12.586 kg  
Luas alas : 174.905 cm<sup>2</sup>

No. urut	P (Kg)	fc'i (kg/cm <sup>2</sup> )	ΔLi (mm)	εi (mm/mm)	Ei (MPa)
0	0	0.000	0	0.000E+00	0.000
1	5000	28.587	0.0115	8.333E-05	34304.342
2	10000	57.174	0.025	1.812E-04	31559.994
3	15000	85.761	0.0395	2.862E-04	29962.020
4	20000	114.348	0.0535	3.877E-04	29495.322
5	25000	142.935	0.069	5.000E-04	28586.952
6	30000	171.522	0.085	6.159E-04	27847.054
7	35000	200.109	0.1005	7.283E-04	27477.607
8	40000	228.696	0.117	8.478E-04	26974.354
9	45000	257.283	0.134	9.710E-04	26496.264
10	50000	285.870	0.1525	1.105E-03	25868.848
11	55000	314.456	0.1725	1.250E-03	25156.517
12	60000	343.043	0.1925	1.395E-03	24592.203
13	65000	371.630	0.217	1.572E-03	23633.636
14	67500	385.924	0.228	1.652E-03	23358.549
15	70000	400.217	0.242	1.754E-03	22822.310
16	72500	414.511	0.257	1.862E-03	22257.778
17	75000	428.804	0.2775	2.011E-03	21324.321
18	77500	443.098	0.3035	2.199E-03	20147.443
19	80000	457.391	0.7905	5.728E-03	7984.818

# Grafik Tegangan Regangan C15-31/4



P  
(ton)

C15-29/1

'00.03.27.11:59:00

0 [M] 000 + 0.000 mm 0,0000  
[M] 001 + 0.000 mm

IA-27-02

'00.03.27.11:59:31

5 [M] 000 - 0.007 mm 0,0125  
[M] 001 - 0.018 mm

'00.03.27.11:59:45

10 [M] 000 - 0.013 mm 0,0265  
[M] 001 - 0.040 mm

'00.03.27.11:59:57

15 [M] 000 - 0.024 mm 0,0420  
[M] 001 - 0.060 mm

'00.03.27.12:00:08

20 [M] 000 - 0.036 mm 0,0580  
[M] 001 - 0.080 mm

'00.03.27.12:00:20

25 [M] 000 - 0.052 mm 0,0770  
[M] 001 - 0.102 mm

'00.03.27.12:00:31

30 [M] 000 - 0.068 mm 0,0955  
[M] 001 - 0.123 mm

'00.03.27.12:00:43

35 [M] 000 - 0.087 mm 0,1180  
[M] 001 - 0.149 mm

'00.03.27.12:00:55

40 [M] 000 - 0.110 mm 0,1450  
[M] 001 - 0.180 mm

'00.03.27.12:01:09

45 [M] 000 - 0.141 mm 0,1795  
[M] 001 - 0.218 mm

'00.03.27.12:01:25

50 [M] 000 - 0.184 mm 0,2550  
[M] 001 - 0.266 mm

'00.03.27.12:01:43

55 [M] 000 - 0.241 mm 0,2845  
[M] 001 - 0.328 mm

'00.03.27.12:02:12

58,9 [M] 000 - 0.405 mm 0,4670  
[M] 001 - 0.529 mm

$P_{max} = 58900 \text{ kg}$

Specimen no. : C15-29/1

Dibuat tanggal : 27 Februari 2000

Diuji tanggal : 27 Maret 2000

Umur : 29 hari

Lo : 138 mm

Diameter : 14.923 cm

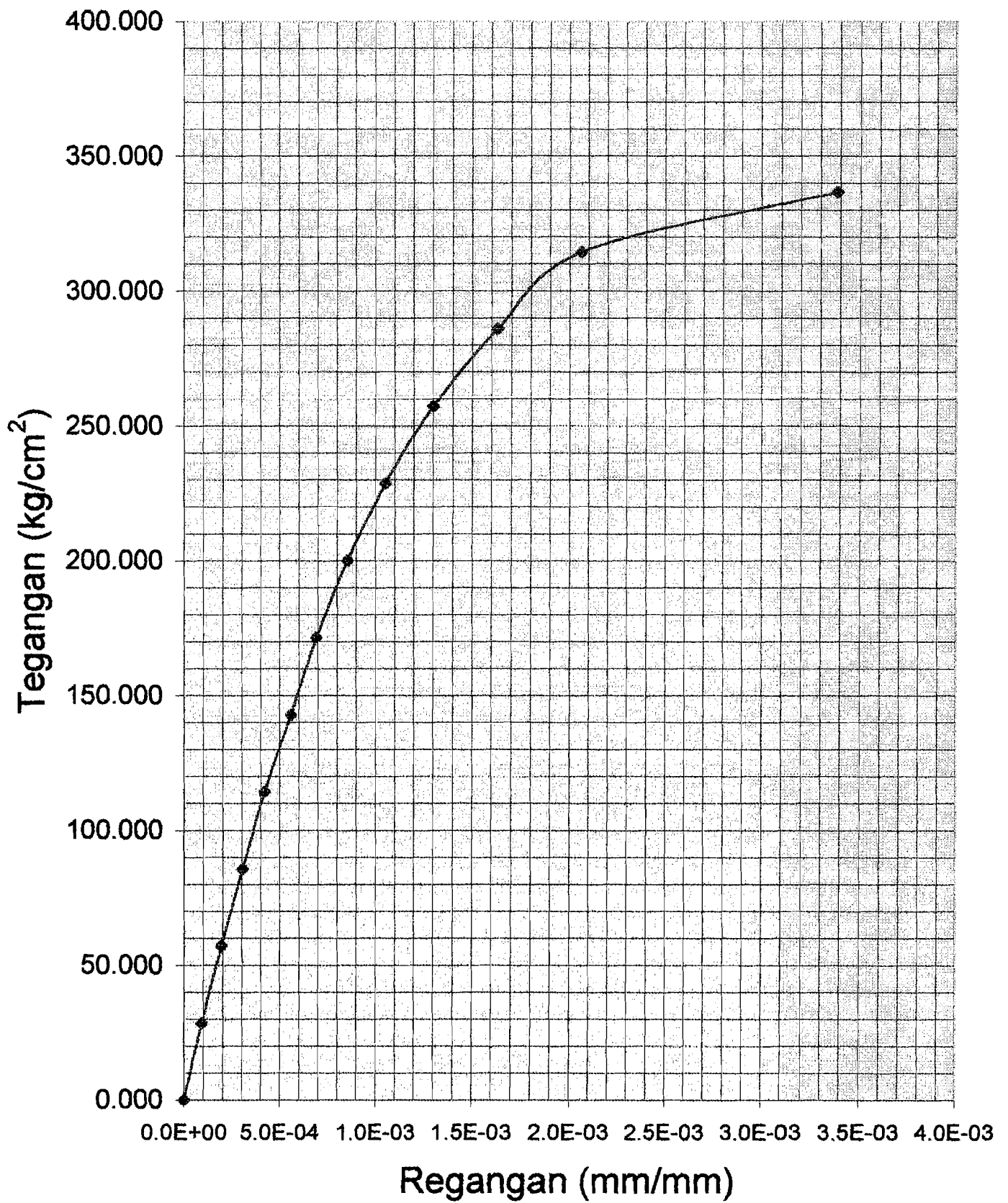
Tinggi : 29.985 cm

Berat : 12.612 kg

Luas alas : 174.905 cm<sup>2</sup>

No. urut	P (Kg)	fc'i (kg/cm <sup>2</sup> )	ΔLi (mm)	εi (mm/mm)	Ei (MPa)
0	0	0.000	0	0.000E+00	0.000
1	5000	28.587	0.0125	9.058E-05	31559.994
2	10000	57.174	0.0265	1.920E-04	29773.580
3	15000	85.761	0.042	3.043E-04	28178.566
4	20000	114.348	0.058	4.203E-04	27206.892
5	25000	142.935	0.077	5.580E-04	25616.879
6	30000	171.522	0.0955	6.920E-04	24785.336
7	35000	200.109	0.118	8.551E-04	23402.538
8	40000	228.696	0.145	1.051E-03	21765.513
9	45000	257.283	0.1795	1.301E-03	19779.941
10	50000	285.870	0.225	1.630E-03	17533.330
11	55000	314.456	0.2845	2.062E-03	15253.073
12	58900	336.754	0.467	3.384E-03	9951.197

# Grafik Tegangan Regangan C15-29/1



P  
ton)

# C15-29/2

Weight (ton)	Measurement 1	Measurement 2	Weight (ton)	Measurement 1	Measurement 2
0	[M] 000 + 0.00 mm	[M] 001 - 0.00 mm	55	[M] 000 - 1.75 mm	[M] 001 - 1.66 mm
	<i>Koreksi +0,1 mm</i>				
	<i>5t IB-27-02</i>				
5	[M] 000 - 0.11 mm	[M] 001 - 0.10 mm	60	[M] 000 - 1.95 mm	[M] 001 - 1.86 mm
10	[M] 000 - 0.25 mm	[M] 001 - 0.24 mm	65	[M] 000 - 2.17 mm	[M] 001 - 2.12 mm
15	[M] 000 - 0.40 mm	[M] 001 - 0.36 mm	67,5	[M] 000 - 2.28 mm	[M] 001 - 2.24 mm
20	[M] 000 - 0.57 mm	[M] 001 - 0.49 mm	70	[M] 000 - 2.40 mm	[M] 001 - 2.38 mm
25	[M] 000 - 0.73 mm	[M] 001 - 0.63 mm	72,5	[M] 000 - 2.54 mm	[M] 001 - 2.54 mm
30	[M] 000 - 0.89 mm	[M] 001 - 0.78 mm	75	[M] 000 - 2.69 mm	[M] 001 - 2.72 mm
35	[M] 000 - 1.06 mm	[M] 001 - 0.94 mm	77,5	[M] 000 - 2.85 mm	[M] 001 - 2.93 mm
40	[M] 000 - 1.22 mm	[M] 001 - 1.11 mm	80	[M] 000 - 3.01 mm	[M] 001 - 3.15 mm
45	[M] 000 - 1.39 mm	[M] 001 - 1.28 mm	82,5	[M] 000 - 3.25 mm	[M] 001 - 3.60 mm
50	[M] 000 - 1.57 mm	[M] 001 - 1.47 mm	83	[M] 000 - 3.40 mm	[M] 001 - 4.12 mm

*Pmax 83000 kg*

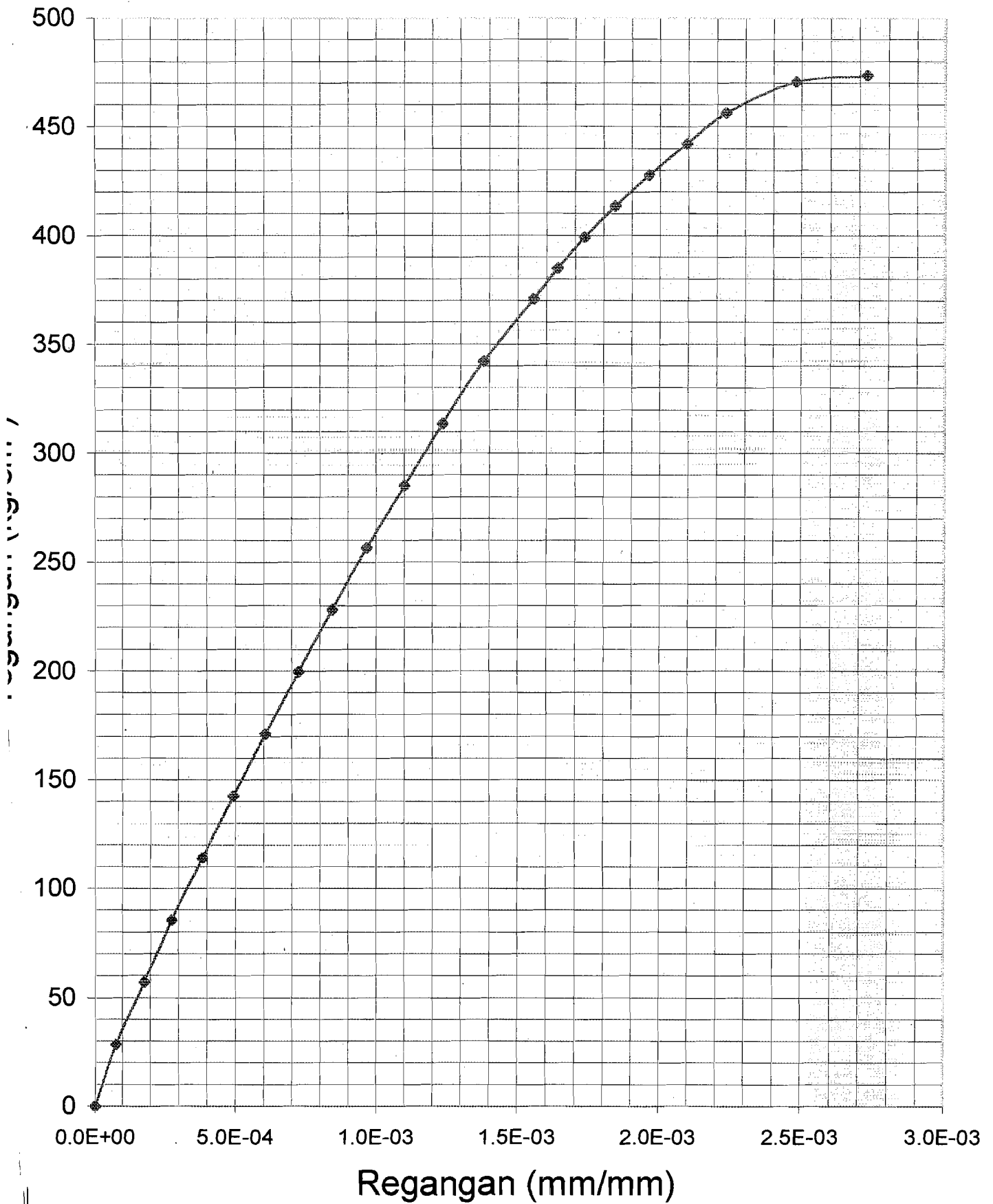


Specimen no. : C15-29/2  
 Dibuat tanggal : 27 Februari 2000  
 Diuji tanggal : 27 Maret 2000  
 Umur : 29 hari  
 Lo : 138 mm

Diameter : 14.940 cm  
 Tinggi : 30.085 cm  
 Berat : 12.594 kg  
 Luas alas : 175.304 cm<sup>2</sup>

No. urut	P (Kg)	fc'i (kg/cm <sup>2</sup> )	ΔLi (mm)	εi (mm/mm)	Ei (MPa)
0	0	0.000	0	0.000E+00	0.000
1	5000	28.522	0.0105	7.609E-05	37485.967
2	10000	57.044	0.0245	1.775E-04	32130.829
3	15000	85.566	0.038	2.754E-04	31073.893
4	20000	114.088	0.053	3.841E-04	29705.860
5	25000	142.610	0.068	4.928E-04	28941.371
6	30000	171.132	0.0835	6.051E-04	28282.825
7	35000	199.654	0.1	7.246E-04	27552.186
8	40000	228.175	0.1165	8.442E-04	27028.508
9	45000	256.697	0.1335	9.674E-04	26535.010
10	50000	285.219	0.152	1.101E-03	25894.911
11	55000	313.741	0.1705	1.236E-03	25393.719
12	60000	342.263	0.1905	1.380E-03	24793.868
13	65000	370.785	0.2145	1.554E-03	23854.706
14	67500	385.046	0.226	1.638E-03	23511.663
15	70000	399.307	0.239	1.732E-03	23056.222
16	72500	413.568	0.254	1.841E-03	22469.443
17	75000	427.829	0.2705	1.960E-03	21826.395
18	77500	442.090	0.289	2.094E-03	21110.177
19	80000	456.351	0.308	2.232E-03	20446.891
20	82500	470.612	0.3425	2.482E-03	18961.880
21	83000	473.464	0.376	2.725E-03	17377.138

# Grafik Tegangan Regangan C15-29/2



r  
(ton)

# C15-29/3

'00.03.27.13:35:41

0 [M] 000 + 0.000 mm  
[M] 001 + 0.000 mm

0,0000

IIA-27-02

'00.03.27.13:36:05

5 [M] 000 - 0.022 mm  
[M] 001 + 0.000 mm

0,0110

'00.03.27.13:36:14

10 [M] 000 - 0.039 mm  
[M] 001 + 0.000 mm

0,0195

'00.03.27.13:36:27

15 [M] 000 - 0.057 mm  
[M] 001 - 0.009 mm

0,0330

'00.03.27.13:36:38

20 [M] 000 - 0.075 mm  
[M] 001 - 0.019 mm

0,0470

'00.03.27.13:36:50

25 [M] 000 - 0.094 mm  
[M] 001 - 0.031 mm

0,0625

'00.03.27.13:37:04

30 [M] 000 - 0.112 mm  
[M] 001 - 0.046 mm

0,0790

'00.03.27.13:37:18

35 [M] 000 - 0.129 mm  
[M] 001 - 0.057 mm

0,0930

'00.03.27.13:37:31

40 [M] 000 - 0.146 mm  
[M] 001 - 0.073 mm

0,1095

'00.03.27.13:37:45

45 [M] 000 - 0.164 mm  
[M] 001 - 0.088 mm

0,1260

'00.03.27.13:38:00

50 [M] 000 - 0.182 mm  
[M] 001 - 0.104 mm

0,1430

'00.03.27.13:38:14

55 [M] 000 - 0.202 mm  
[M] 001 - 0.122 mm

0,1620

'00.03.27.13:38:30

60 [M] 000 - 0.222 mm  
[M] 001 - 0.144 mm

0,1830

'00.03.27.13:38:46

65 [M] 000 - 0.244 mm  
[M] 001 - 0.167 mm

0,2055

'00.03.27.13:38:54

67,5 [M] 000 - 0.256 mm  
[M] 001 - 0.179 mm

0,2175

'00.03.27.13:39:02

70 [M] 000 - 0.268 mm  
[M] 001 - 0.193 mm

0,2305

'00.03.27.13:39:11

72,5 [M] 000 - 0.282 mm  
[M] 001 - 0.209 mm

0,2455

'00.03.27.13:39:22

75 [M] 000 - 0.298 mm  
[M] 001 - 0.228 mm

0,2630

'00.03.27.13:39:32

77,5 [M] 000 - 0.316 mm  
[M] 001 - 0.247 mm

0,2815

'00.03.27.13:39:43

80 [M] 000 - 0.340 mm  
[M] 001 - 0.270 mm

0,3050

'00.03.27.13:39:51

80,7 [M] 000 - 0.356 mm  
[M] 001 - 0.292 mm

0,3240

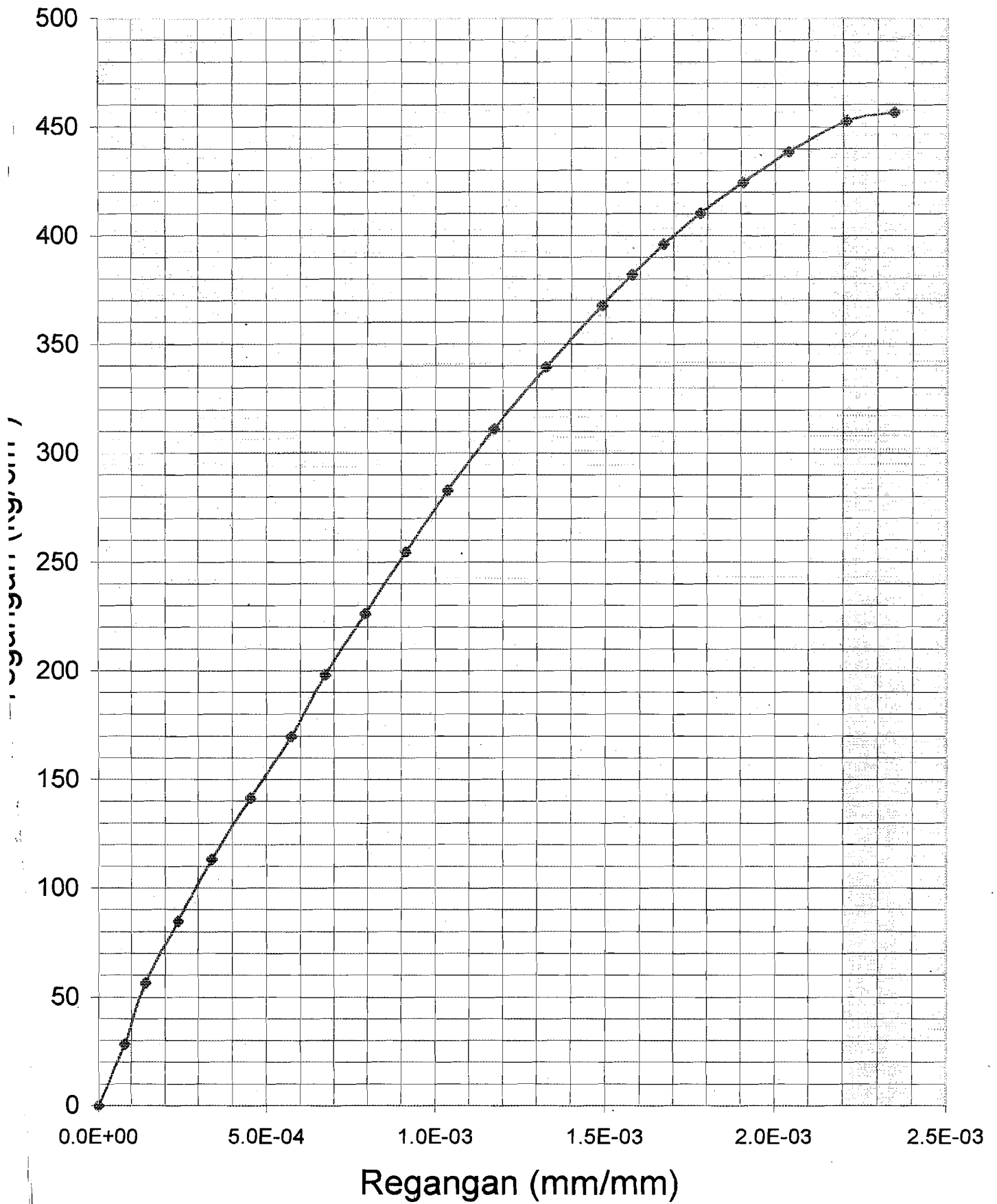
*p<sub>max</sub> 80700 kg*

Specimen no. : C15-29/3  
Dibuat tanggal : 27 Februari 2000  
Diuji tanggal : 27 Maret 2000  
Umur : 29 hari  
Lo : 138 mm

Diameter : 15.000 cm  
Tinggi : 29.915 cm  
Berat : 12.608 kg  
Luas alas : 176.715 cm<sup>2</sup>

No. urut	P (Kg)	fc'i (kg/cm <sup>2</sup> )	ΔLi (mm)	εi (mm/mm)	Ei (MPa)
0	0	0.000	0	0.000E+00	0.000
1	5000	28.294	0.011	7.971E-05	35496.375
2	10000	56.588	0.0195	1.413E-04	40047.193
3	15000	84.883	0.033	2.391E-04	35496.375
4	20000	113.177	0.047	3.406E-04	33230.649
5	25000	141.471	0.0625	4.529E-04	31236.810
6	30000	169.765	0.079	5.725E-04	29655.200
7	35000	198.059	0.093	6.739E-04	29389.472
8	40000	226.354	0.1095	7.935E-04	28526.767
9	45000	254.648	0.126	9.130E-04	27890.009
10	50000	282.942	0.143	1.036E-03	27304.904
11	55000	311.236	0.162	1.174E-03	26512.725
12	60000	339.531	0.183	1.326E-03	25603.943
13	65000	367.825	0.2055	1.489E-03	24700.641
14	67500	381.972	0.2175	1.576E-03	24235.456
15	70000	396.119	0.2305	1.670E-03	23715.583
16	72500	410.266	0.2455	1.779E-03	23061.800
17	75000	424.413	0.263	1.906E-03	22269.589
18	77500	438.560	0.2815	2.040E-03	21499.581
19	80000	452.707	0.305	2.210E-03	20483.154
20	80700	456.669	0.324	2.348E-03	19450.699

# Grafik Tegangan Regangan C15-29/3



P  
(on)

C15-29/4

'00.03.27.13:44:37

0 [M] 000 + 0.000 mm  
[M] 001 + 0.000 mm

0,0000

IB-27-02

'00.03.27.13:44:53

5 [M] 000 - 0.011 mm  
[M] 001 + 0.000 mm

0,0055

'00.03.27.13:45:00

10 [M] 000 - 0.025 mm  
[M] 001 - 0.007 mm

0,0160

'00.03.27.13:45:06

15 [M] 000 - 0.037 mm  
[M] 001 - 0.025 mm

0,0310

'00.03.27.13:45:11

20 [M] 000 - 0.052 mm  
[M] 001 - 0.044 mm

0,0480

'00.03.27.13:45:17

25 [M] 000 - 0.069 mm  
[M] 001 - 0.063 mm

0,0660

'00.03.27.13:45:23

30 [M] 000 - 0.085 mm  
[M] 001 - 0.080 mm

0,0825

'00.03.27.13:45:29

35 [M] 000 - 0.103 mm  
[M] 001 - 0.098 mm

0,1005

'00.03.27.13:45:36

40 [M] 000 - 0.120 mm  
[M] 001 - 0.119 mm

0,1195

'00.03.27.13:45:44

45 [M] 000 - 0.139 mm  
[M] 001 - 0.143 mm

0,1410

'00.03.27.13:45:52

50 [M] 000 - 0.161 mm  
[M] 001 - 0.169 mm

0,1650

'00.03.27.13:46:00

55 [M] 000 - 0.188 mm  
[M] 001 - 0.197 mm

0,1925

'00.03.27.13:46:09

60 [M] 000 - 0.222 mm  
[M] 001 - 0.230 mm

0,2260

'00.03.27.13:46:20

65 [M] 000 - 0.283 mm  
[M] 001 - 0.265 mm

0,2740

'00.03.27.13:46:39

66,7 [M] 000 - 0.667 mm  
[M] 001 - 0.071 mm

0,3690

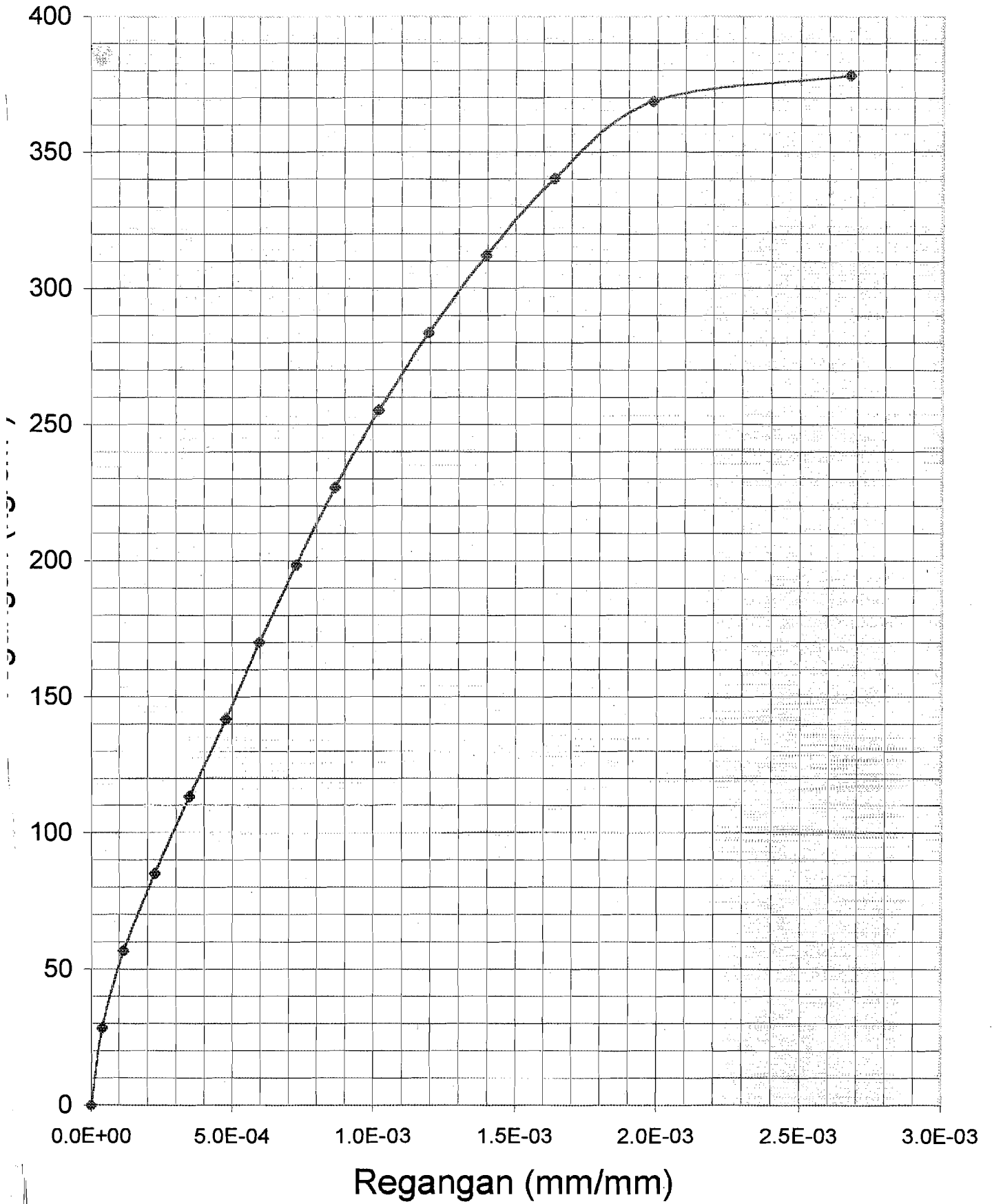
Panax 66700 kg

Specimen no. : C15-29/4  
Dibuat tanggal : 27 Februari 2000  
Diuji tanggal : 27 Maret 2000  
Umur : 29 hari  
Lo : 138 mm

Diameter : 14.983 cm  
Tinggi : 29.965 cm  
Berat : 12.526 kg  
Luas alas : 176.314 cm<sup>2</sup>

No. urut	P (Kg)	fc'i (kg/cm <sup>2</sup> )	ΔLi (mm)	εi (mm/mm)	Ei (MPa)
0	0	0.000	0	0.000E+00	0.000
1	5000	28.358	0.0055	3.986E-05	71153.941
2	10000	56.717	0.016	1.159E-04	48918.335
3	15000	85.075	0.031	2.246E-04	37872.259
4	20000	113.434	0.048	3.478E-04	32612.223
5	25000	141.792	0.066	4.783E-04	29647.476
6	30000	170.151	0.0825	5.978E-04	28461.576
7	35000	198.509	0.1005	7.283E-04	27257.977
8	40000	226.868	0.1195	8.659E-04	26198.941
9	45000	255.226	0.141	1.022E-03	24979.575
10	50000	283.585	0.165	1.196E-03	23717.980
11	55000	311.943	0.1925	1.395E-03	22362.667
12	60000	340.301	0.226	1.638E-03	20779.470
13	65000	368.660	0.274	1.986E-03	18567.543
14	66700	378.302	0.369	2.674E-03	14147.872

# Grafik Tegangan Regangan C15-29/4





C15-28/1

00.03.27.11:40:32

0 [M] 000 + 0.000 mm  
[M] 001 + 0.000 mm

0,0000

IA-28-02

00.03.27.11:40:56

5 [M] 000 - 0.017 mm  
[M] 001 + 0.000 mm

0,0085

00.03.27.11:41:08

10 [M] 000 - 0.034 mm  
[M] 001 + 0.000 mm

0,0170

00.03.27.11:41:19

15 [M] 000 - 0.051 mm  
[M] 001 - 0.007 mm

0,0290

00.03.27.11:41:30

20 [M] 000 - 0.066 mm  
[M] 001 - 0.019 mm

0,0425

00.03.27.11:41:41

25 [M] 000 - 0.083 mm  
[M] 001 - 0.031 mm

0,0570

00.03.27.11:41:52

30 [M] 000 - 0.100 mm  
[M] 001 - 0.045 mm

0,0725

00.03.27.11:42:03

35 [M] 000 - 0.118 mm  
[M] 001 - 0.058 mm

0,0880

00.03.27.11:42:14

40 [M] 000 - 0.135 mm  
[M] 001 - 0.073 mm

0,1040

00.03.27.11:42:25

45 [M] 000 - 0.153 mm  
[M] 001 - 0.085 mm

0,1190

00.03.27.11:42:37

50 [M] 000 - 0.172 mm  
[M] 001 - 0.102 mm

0,1370

00.03.27.11:42:48

55 [M] 000 - 0.191 mm  
[M] 001 - 0.119 mm

0,157

00.03.27.11:43:00

60 [M] 000 - 0.212 mm  
[M] 001 - 0.135 mm

0,177

00.03.27.11:43:13

65 [M] 000 - 0.237 mm  
[M] 001 - 0.154 mm

0,197

00.03.27.11:43:20

67,5 [M] 000 - 0.251 mm  
[M] 001 - 0.163 mm

0,207

00.03.27.11:43:26

70 [M] 000 - 0.265 mm  
[M] 001 - 0.175 mm

0,217

00.03.27.11:43:32

72,5 [M] 000 - 0.278 mm  
[M] 001 - 0.184 mm

0,227

00.03.27.11:43:40

75 [M] 000 - 0.295 mm  
[M] 001 - 0.194 mm

0,237

00.03.27.11:43:48

77,5 [M] 000 - 0.317 mm  
[M] 001 - 0.208 mm

0,247

00.03.27.11:43:55

80 [M] 000 - 0.337 mm  
[M] 001 - 0.219 mm

0,257

00.03.27.11:44:05

82,5 [M] 000 - 0.372 mm  
[M] 001 - 0.231 mm

0,267

00.03.27.11:44:18

84,1 [M] 000 - 0.504 mm  
[M] 001 - 0.236 mm

0,277

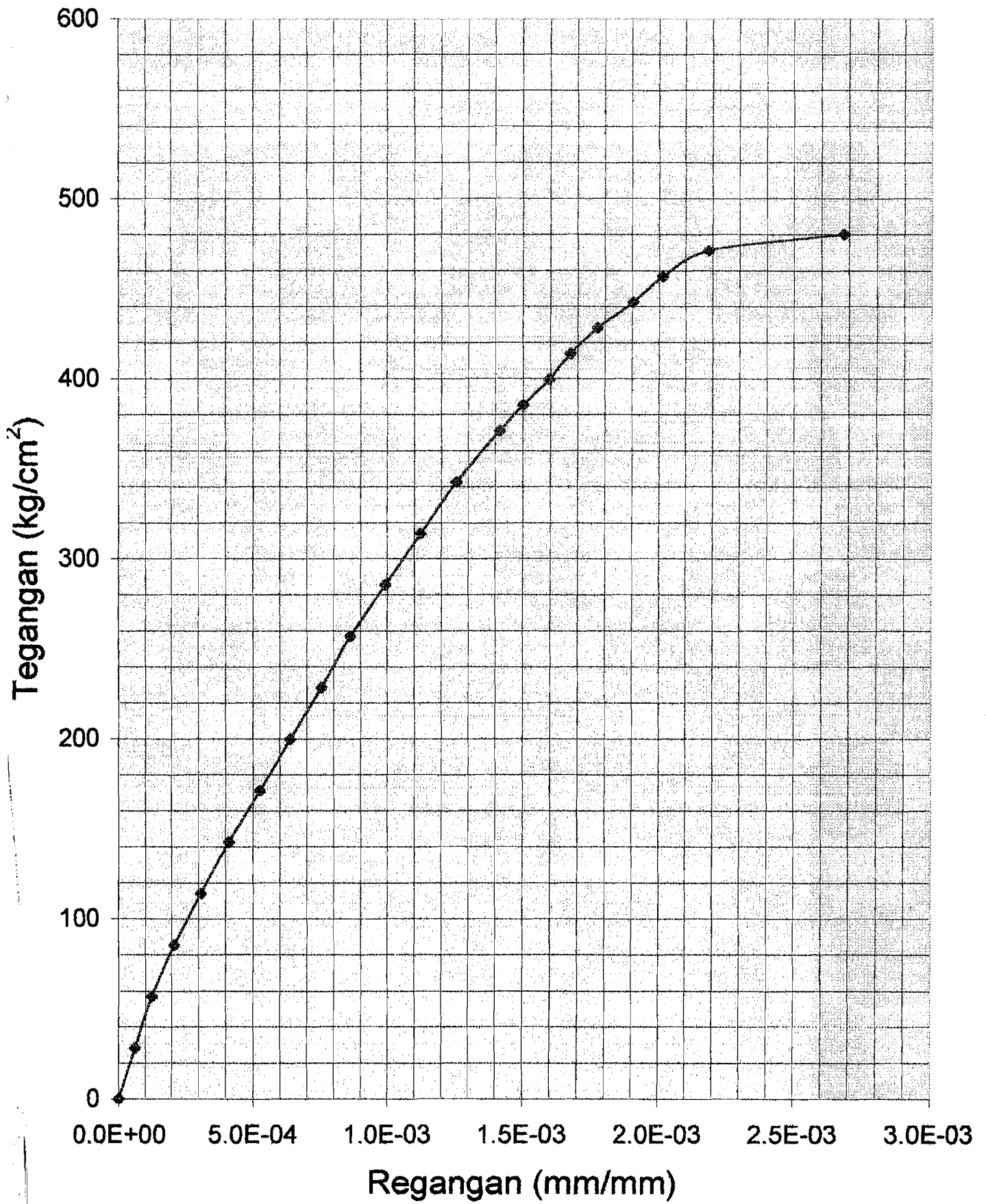
Pmax 84,00 kg

Specimen no. : C15-28/1  
Dibuat tanggal : 28 Februari 2000  
Diuji tanggal : 27 Maret 2000  
Umur : 28 hari  
Lo : 138 mm

Diameter : 14.933 cm  
Tinggi : 30.065 cm  
Berat : 12.535 kg  
Luas alas : 175.139 cm<sup>2</sup>

No. urut	P (Kg)	fc'i (kg/cm <sup>2</sup> )	ΔLi (mm)	εi (mm/mm)	Ei (MPa)
0	0	0.000	0	0.000E+00	0.000
1	5000	28.549	0.0085	6.159E-05	46349.617
2	10000	57.097	0.017	1.232E-04	46349.617
3	15000	85.646	0.029	2.101E-04	40755.698
4	20000	114.195	0.0425	3.080E-04	37079.694
5	25000	142.743	0.057	4.130E-04	34558.925
6	30000	171.292	0.0725	5.254E-04	32604.558
7	35000	199.841	0.088	6.377E-04	31338.662
8	40000	228.389	0.104	7.536E-04	30305.519
9	45000	256.938	0.119	8.623E-04	29796.183
10	50000	285.487	0.137	9.928E-04	28757.062
11	55000	314.035	0.155	1.123E-03	27959.285
12	60000	342.584	0.1735	1.257E-03	27248.766
13	65000	371.133	0.1955	1.417E-03	26197.610
14	67500	385.407	0.207	1.500E-03	25693.810
15	70000	399.681	0.22	1.594E-03	25070.929
16	72500	413.956	0.231	1.674E-03	24729.828
17	75000	428.230	0.2445	1.772E-03	24170.046
18	77500	442.504	0.2625	1.902E-03	23263.094
19	80000	456.779	0.278	2.014E-03	22674.633
20	82500	471.053	0.3015	2.185E-03	21560.643
21	84100	480.189	0.37	2.681E-03	17909.743

# Grafik Tegangan Regangan C15-28/1



on)

# C15-28/2

①

Time	Measurement	Value	Time	Measurement	Value
'00.03.27.11:51:34	[M] 000 + 0.000 mm [M] 001 - 0.000 mm	0,0000	'00.03.27.11:53:35	50 [M] 000 - 0.178 mm [M] 001 - 0.109 mm	0,1425
	<b>IB-28-02</b>		'00.03.27.11:53:46		
'00.03.27.11:51:58	[M] 000 - 0.022 mm [M] 001 - 0.000 mm	0,0110	55 [M] 000 - 0.197 mm [M] 001 - 0.127 mm	0,1620	
'00.03.27.11:52:09	[M] 000 - 0.039 mm [M] 001 - 0.013 mm	0,0260	60 [M] 000 - 0.216 mm [M] 001 - 0.144 mm	0,1800	
'00.03.27.11:52:19	[M] 000 - 0.056 mm [M] 001 - 0.023 mm	0,0395	65 [M] 000 - 0.237 mm [M] 001 - 0.164 mm	0,2005	
'00.03.27.11:52:30	[M] 000 - 0.074 mm [M] 001 - 0.033 mm	0,0535	67,5 [M] 000 - 0.247 mm [M] 001 - 0.173 mm	0,2100	
'00.03.27.11:52:41	[M] 000 - 0.091 mm [M] 001 - 0.043 mm	0,0670	70 [M] 000 - 0.258 mm [M] 001 - 0.184 mm	0,2210	
'00.03.27.11:52:52	[M] 000 - 0.108 mm [M] 001 - 0.054 mm	0,0810	72,5 [M] 000 - 0.269 mm [M] 001 - 0.195 mm	0,2320	
'00.03.27.11:53:02	[M] 000 - 0.124 mm [M] 001 - 0.067 mm	0,0955	75 [M] 000 - 0.281 mm [M] 001 - 0.207 mm	0,2440	
'00.03.27.11:53:13	[M] 000 - 0.141 mm [M] 001 - 0.080 mm	0,1105	77,5 [M] 000 - 0.295 mm [M] 001 - 0.221 mm	0,2580	
'00.03.27.11:53:24	[M] 000 - 0.159 mm [M] 001 - 0.094 mm	0,1265	80 [M] 000 - 0.308 mm [M] 001 - 0.235 mm	0,2715	

'00.03.27.11:54:58

82,5 [M] 000 - 0.326 mm  
[M] 001 - 0.254 mm 0,2900

'00.03.27.11:55:06

85 [M] 000 - 0.345 mm  
[M] 001 - 0.276 mm 0,3105

'00.03.27.11:55:16

87,5 [M] 000 - 0.370 mm  
[M] 001 - 0.301 mm 0,3355

'00.03.27.11:55:23

88,5 [M] 000 - 0.405 mm  
[M] 001 - 0.328 mm 0,3665

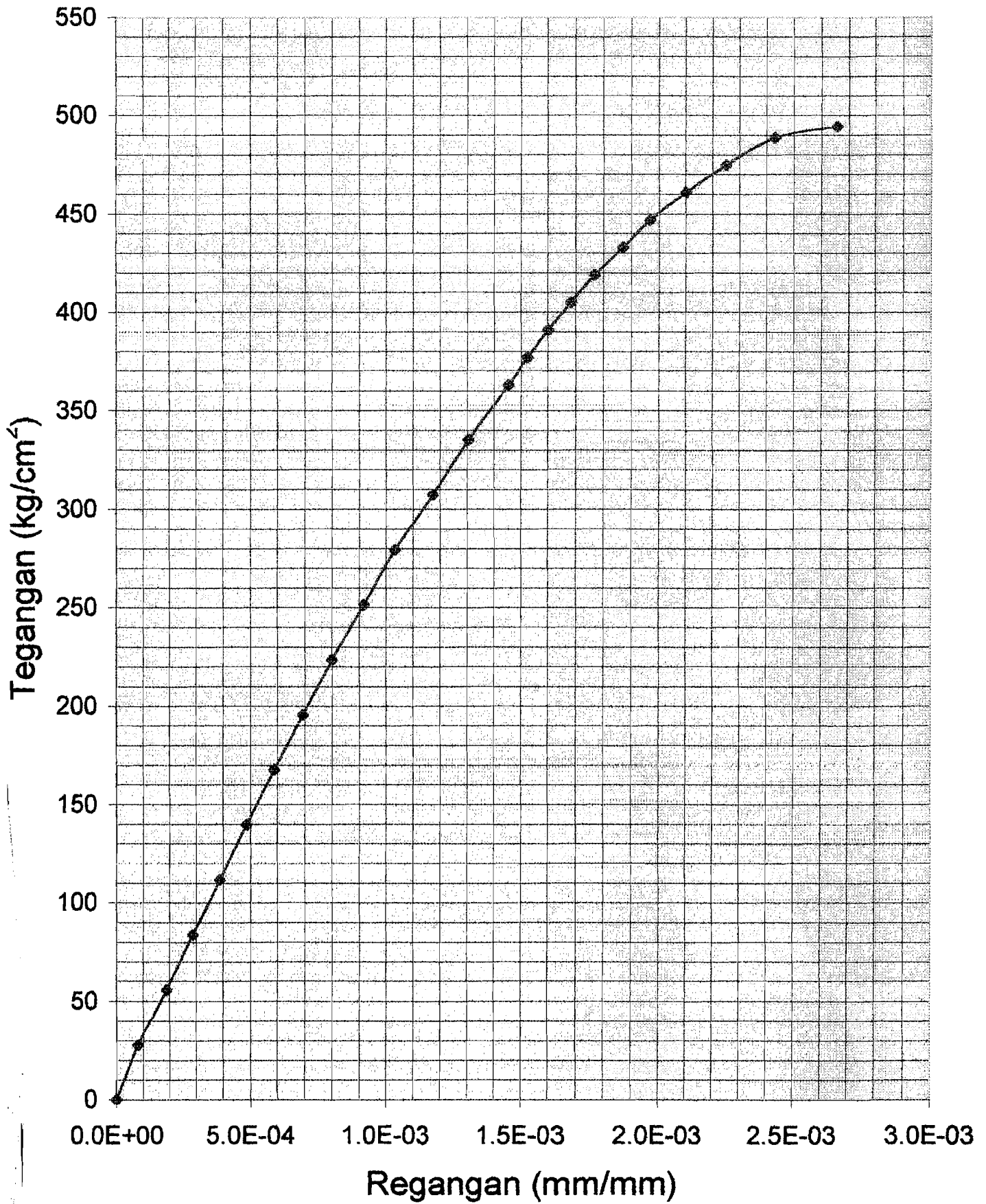
$P_{max} = 88500 \text{ kg}$   
IB-28-02

Specimen no. : C15-28/2  
Dibuat tanggal : 28 Februari 2000  
Diuji tanggal : 27 Maret 2000  
Umur : 28 hari  
Lo : 138 mm

Diameter : 15.095 cm  
Tinggi : 29.965 cm  
Berat : 12.587 kg  
Luas alas : 178.960 cm<sup>2</sup>

No. urut	P (Kg)	fc'i (kg/cm <sup>2</sup> )	ΔLi (mm)	εi (mm/mm)	Ei (MPa)
0	0	0.000	0	0.000E+00	0.000
1	5000	27.939	0.011	7.971E-05	35050.990
2	10000	55.878	0.026	1.884E-04	29658.530
3	15000	83.818	0.0395	2.862E-04	29283.106
4	20000	111.757	0.0535	3.877E-04	28826.982
5	25000	139.696	0.067	4.855E-04	28773.201
6	30000	167.635	0.081	5.870E-04	28560.066
7	35000	195.574	0.0955	6.920E-04	28261.008
8	40000	223.514	0.1105	8.007E-04	27913.911
9	45000	251.453	0.1265	9.167E-04	27431.210
10	50000	279.392	0.1425	1.033E-03	27056.905
11	55000	307.331	0.162	1.174E-03	26180.060
12	60000	335.270	0.18	1.304E-03	25704.059
13	65000	363.210	0.2005	1.453E-03	24998.960
14	67500	377.179	0.21	1.522E-03	24786.057
15	70000	391.149	0.221	1.601E-03	24424.672
16	72500	405.118	0.232	1.681E-03	24097.556
17	75000	419.088	0.244	1.768E-03	23702.514
18	77500	433.058	0.258	1.870E-03	23163.542
19	80000	447.027	0.2715	1.967E-03	22721.820
20	82500	460.997	0.29	2.101E-03	21937.085
21	85000	474.966	0.3105	2.250E-03	21109.614
22	87500	488.936	0.3355	2.431E-03	20111.224
23	88500	494.524	0.3665	2.656E-03	18620.540

# Grafik Tegangan Regangan C15-28/2



0n)

# C15-28/3

'00.03.27.11:32:38

0 [M] 000 + 0.000 mm  
[M] 001 + 0.000 mm 0,000

IIA-28-02

'00.03.27.11:33:30

5 [M] 000 - 0.010 mm  
[M] 001 + 0.000 mm 0,0050

'00.03.27.11:33:43

10 [M] 000 - 0.025 mm  
[M] 001 - 0.005 mm 0,0150

'00.03.27.11:33:55

15 [M] 000 - 0.039 mm  
[M] 001 - 0.023 mm 0,0310

'00.03.27.11:34:07

20 [M] 000 - 0.055 mm  
[M] 001 - 0.043 mm 0,0490

'00.03.27.11:34:18

25 [M] 000 - 0.071 mm  
[M] 001 - 0.059 mm 0,0650

'00.03.27.11:34:30

30 [M] 000 - 0.088 mm  
[M] 001 - 0.075 mm 0,0815

'00.03.27.11:34:42

35 [M] 000 - 0.107 mm  
[M] 001 - 0.094 mm 0,1005

'00.03.27.11:34:53

40 [M] 000 - 0.126 mm  
[M] 001 - 0.112 mm 0,1190

'00.03.27.11:35:06

45 [M] 000 - 0.146 mm  
[M] 001 - 0.134 mm 0,1400

'00.03.27.11:35:19

50 [M] 000 - 0.170 mm  
[M] 001 - 0.157 mm 0,1635

'00.03.27.11:35:33

55 [M] 000 - 0.196 mm  
[M] 001 - 0.185 mm 0,1905

'00.03.27.11:35:47

60 [M] 000 - 0.227 mm  
[M] 001 - 0.213 mm 0,2200

'00.03.27.11:36:00

65 [M] 000 - 0.264 mm  
[M] 001 - 0.251 mm 0,2575

'00.03.27.11:36:07

67,5 [M] 000 - 0.286 mm  
[M] 001 - 0.273 mm 0,2795

'00.03.27.11:36:15

70 [M] 000 - 0.321 mm  
[M] 001 - 0.304 mm 0,3125

'00.03.27.11:36:26

70,9 [M] 000 - 0.379 mm  
[M] 001 - 0.361 mm 0,3700

*Pmax 70900 kg*

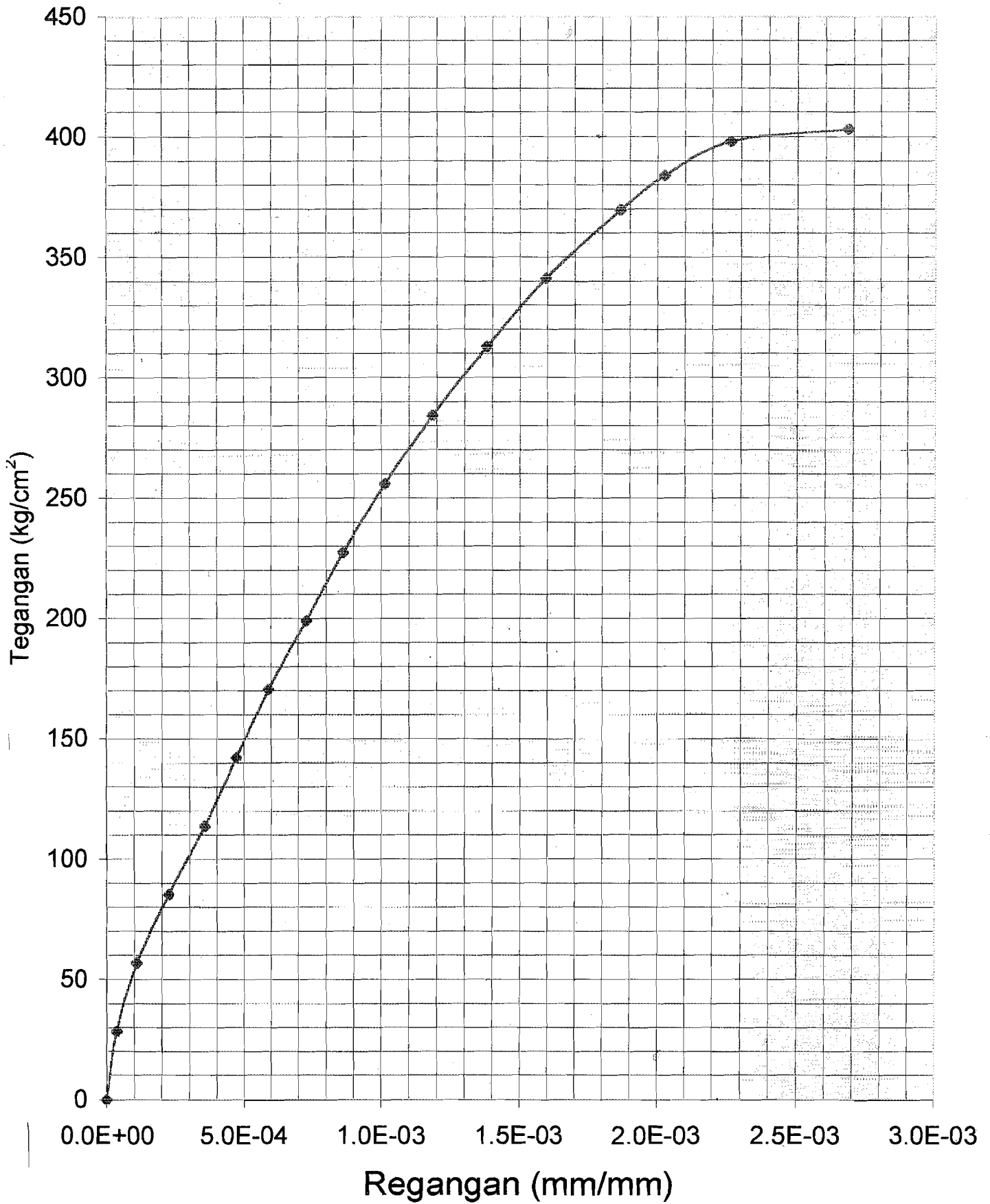


Specimen no. : C15-28/3  
Dibuat tanggal : 28 Februari 2000  
Diuji tanggal : 27 Maret 2000  
Umur : 28 hari  
Lo : 138 mm

Diameter : 14.963 cm  
Tinggi : 30.000 cm  
Berat : 12.498kg  
Luas alas : 175.844cm<sup>2</sup>

No. urut	P (Kg)	fc'i (kg/cm <sup>2</sup> )	ΔLi (mm)	εi (mm/mm)	Ei (MPa)
0	0	0.000	0	0.000E+00	0.000
1	5000	28.434	0.005	3.623E-05	78478.710
2	10000	56.869	0.015	1.087E-04	52319.140
3	15000	85.303	0.031	2.246E-04	37973.569
4	20000	113.737	0.049	3.551E-04	32032.126
5	25000	142.172	0.065	4.710E-04	30184.119
6	30000	170.606	0.0815	5.906E-04	28887.869
7	35000	199.040	0.1005	7.283E-04	27330.894
8	40000	227.475	0.119	8.623E-04	26379.398
9	45000	255.909	0.14	1.014E-03	25225.299
10	50000	284.343	0.1635	1.185E-03	23999.605
11	55000	312.777	0.1905	1.380E-03	22657.895
12	60000	341.212	0.22	1.594E-03	21403.284
13	65000	369.646	0.2575	1.866E-03	19810.160
14	67500	383.863	0.2795	2.025E-03	18952.819
15	70000	398.080	0.3125	2.264E-03	17579.231
16	70900	403.199	0.37	2.681E-03	15038.218

# Grafik Tegangan Regangan C15-28/3



p  
bn)

# C15-27/1

'00.03.27.13:51:11

0 [M] 000 + 0.000 mm 0,0000  
[M] 001 + 0.000 mm

IA-29-02

'00.03.27.13:51:22

5 [M] 000 + 0.000 mm 0,0075  
[M] 001 - 0.015 mm

'00.03.27.13:51:26

10 [M] 000 - 0.001 mm 0,0175  
[M] 001 - 0.034 mm

'00.03.27.13:51:30

15 [M] 000 - 0.007 mm 0,0295  
[M] 001 - 0.052 mm

'00.03.27.13:51:34

20 [M] 000 - 0.022 mm 0,0460  
[M] 001 - 0.070 mm

'00.03.27.13:51:38

25 [M] 000 - 0.037 mm 0,0615  
[M] 001 - 0.086 mm

'00.03.27.13:51:41

30 [M] 000 - 0.053 mm 0,0785  
[M] 001 - 0.104 mm

'00.03.27.13:51:45

35 [M] 000 - 0.069 mm 0,0865  
[M] 001 - 0.121 mm

'00.03.27.13:51:49

40 [M] 000 - 0.088 mm 0,1135  
[M] 001 - 0.139 mm

'00.03.27.13:51:54

45 [M] 000 - 0.105 mm 0,1310  
[M] 001 - 0.157 mm

'00.03.27.13:52:00

50 [M] 000 - 0.126 mm 0,1520  
[M] 001 - 0.178 mm

'00.03.27.13:52:05

55 [M] 000 - 0.148 mm 0,1740  
[M] 001 - 0.200 mm

'00.03.27.13:52:11

60 [M] 000 - 0.173 mm 0,1990  
[M] 001 - 0.225 mm

'00.03.27.13:52:17

65 [M] 000 - 0.203 mm 0,2295  
[M] 001 - 0.256 mm

'00.03.27.13:52:23

67,5 [M] 000 - 0.222 mm 0,2495  
[M] 001 - 0.277 mm

'00.03.27.13:52:30

70 [M] 000 - 0.241 mm 0,2655  
[M] 001 - 0.298 mm

'00.03.27.13:52:38

72,5 [M] 000 - 0.265 mm 0,2960  
[M] 001 - 0.327 mm

'00.03.27.13:52:45

73,9 [M] 000 - 0.302 mm 0,3655  
[M] 001 - 0.420 mm

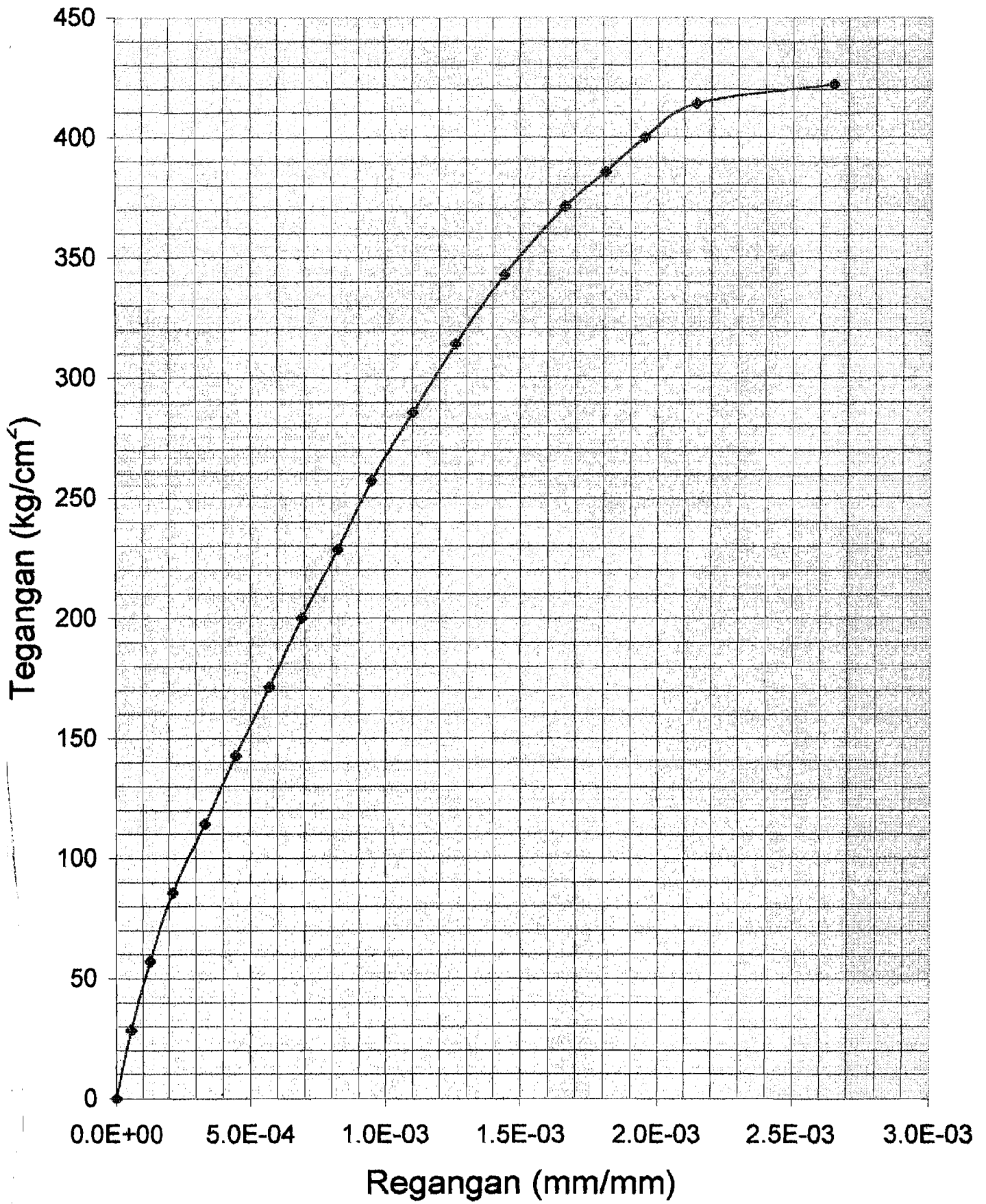
Pan ax = 73900 kg

Specimen no. : C15-27/1  
Dibuat tanggal : 29 Februari 2000  
Diuji tanggal : 27 Maret 2000  
Umur : 27 hari  
Lo : 138 mm

Diameter : 14.928 cm  
Tinggi : 29.985 cm  
Berat : 12.469 kg  
Luas alas : 175.022 cm<sup>2</sup>

No. urut	P (Kg)	fc'i (kg/cm <sup>2</sup> )	ΔLi (mm)	εi (mm/mm)	Ei (MPa)
0	0	0.000	0	0.000E+00	0.000
1	5000	28.568	0.0075	5.435E-05	52564.761
2	10000	57.136	0.0175	1.268E-04	45055.509
3	15000	85.703	0.0295	2.138E-04	40091.767
4	20000	114.271	0.046	3.333E-04	34281.366
5	25000	142.839	0.0615	4.457E-04	32051.683
6	30000	171.407	0.0785	5.688E-04	30132.665
7	35000	199.975	0.095	6.884E-04	29048.947
8	40000	228.542	0.1135	8.225E-04	27787.539
9	45000	257.110	0.131	9.493E-04	27084.896
10	50000	285.678	0.152	1.101E-03	25936.560
11	55000	314.246	0.174	1.261E-03	24922.947
12	60000	342.814	0.199	1.442E-03	23773.007
13	65000	371.381	0.2295	1.663E-03	22331.434
14	67500	385.665	0.2495	1.808E-03	21331.391
15	70000	399.949	0.2695	1.953E-03	20479.777
16	72500	414.233	0.296	2.145E-03	19312.222
17	73900	422.232	0.3655	2.649E-03	15942.008

# Grafik Tegangan Regangan C15-27/1



# C15-27/2

00.03.27.13:55:34

0 [M] 000 + 0.000 mm  
[M] 001 + 0.000 mm

0,0000

IB-29-02

00.03.27.13:55:45

5 [M] 000 - 0.014 mm  
[M] 001 - 0.007 mm

0,0105

00.03.27.13:55:48

10 [M] 000 - 0.029 mm  
[M] 001 - 0.019 mm

0,0240

00.03.27.13:55:52

15 [M] 000 - 0.045 mm  
[M] 001 - 0.033 mm

0,0390

00.03.27.13:55:55

20 [M] 000 - 0.062 mm  
[M] 001 - 0.049 mm

0,0555

00.03.27.13:55:58

25 [M] 000 - 0.079 mm  
[M] 001 - 0.063 mm

0,0710

00.03.27.13:56:01

30 [M] 000 - 0.097 mm  
[M] 001 - 0.077 mm

0,0870

00.03.27.13:56:05

35 [M] 000 - 0.114 mm  
[M] 001 - 0.090 mm

0,1020

00.03.27.13:56:09

40 [M] 000 - 0.133 mm  
[M] 001 - 0.106 mm

0,1195

00.03.27.13:56:14

45 [M] 000 - 0.154 mm  
[M] 001 - 0.122 mm

0,1380

00.03.27.13:56:18

50 [M] 000 - 0.174 mm  
[M] 001 - 0.138 mm

0,1560

00.03.27.13:56:23

55 [M] 000 - 0.196 mm  
[M] 001 - 0.156 mm

0,1760

00.03.27.13:56:28

60 [M] 000 - 0.218 mm  
[M] 001 - 0.174 mm

0,1960

00.03.27.13:56:33

65 [M] 000 - 0.244 mm  
[M] 001 - 0.196 mm

0,2200

00.03.27.13:56:35

67,5 [M] 000 - 0.251 mm  
[M] 001 - 0.202 mm

0,2265

00.03.27.13:56:46

70 [M] 000 - 0.272 mm  
[M] 001 - 0.224 mm

0,2480

00.03.27.13:56:54

72,5 [M] 000 - 0.288 mm  
[M] 001 - 0.241 mm

0,2645

00.03.27.13:57:00

75 [M] 000 - 0.302 mm  
[M] 001 - 0.256 mm

0,2790

00.03.27.13:57:05

77,5 [M] 000 - 0.317 mm  
[M] 001 - 0.278 mm

0,2975

00.03.27.13:57:12

80 [M] 000 - 0.340 mm  
[M] 001 - 0.305 mm

0,3225

00.03.27.13:57:19

81,2 [M] 000 - 0.409 mm  
[M] 001 - 0.327 mm

0,3680

$P_{max} = 81200 \text{ kg}$