BAB VII

KESIMPULAN

7.1. Kesimpulan

Berdasarkan penelitian pada CTC dengan pengujian UCS dan *flowability* di laboratorium, diperoleh kesimpulan bahwa CTC menghasilkan kekuatan yang berbeda-beda, tergantung pada kadar air dan semen yang diberikan. Dalam kondisi kadar air yang sama, dapat disimpulkan bahwa pada rentang kadar semen tertentu, semakin tinggi semen yang diberikan maka semakin tinggi tegangan yang dihasilkan. Peningkatan kekuatan pada CTC dapat dibagi menjadi 2 area berdasarkan *curing,* yaitu sebelum 24 jam dimana kekuatan meningkat secara signifikan, dan setelah 24 jam dimana kekuatan tidak meningkat secara signifikan. Pada pengujian *flowability*, kadar air berperan penting dalam menentukan kemampuan aliran CTC. Kadar air 120% memberikan *flow* yang cukup baik hingga *curing* maksimal 1,5 jam karena CTC masih bersifat lunak, bahkan cair pada *curing* yang lebih awal, sedangkan pada kadar air 60% tidak dapat dihasilkan *flowability* yang baik.

7.2. Saran

Saran yang diberikan penulis berdasarkan penelitian ini adalah perlu dilakukan penelitian lebih lanjut mengenai *flowability* pada CTC, yaitu bagaimana kondisi CTC hingga mencapai lokasi proyek agar mampu memperoleh kekuatan yang diinginkan.

DAFTAR PUSTAKA

Bergado, D.T., Anderson, L.R., Miura, N., and Balasubramaniam, A.S. 1996. Soft Ground Improvement in Lowland and Other Environments, New York: ASCE.

Boardman, D.I., Glendinning, S., and Rogers, C.D.F. 2001. Development of stabilisation and solidification in lime-clay mixes. Geotechnique, 51(6): 533-543.

Chang, I., Im, J., and Cho, G.-C. 2016. Geotechnical engineering behaviors of gellan gum biopolymer treated sand. Canadian Geotechnical Journal.

Chian, S.C., et al. (2011). "Extended Strength Development Model of Cement-Treated Clay", Journal of Geotechnology and Geoenviromental Engineering.

Eujine, G., Sankar, N. & Chandrakaran S. 2016. The engineering behaviour of enzymatic lime stabilised soils, Ground Improvement. http://dx.doi.org/10.1680/jgrim.16.00014

Horpibulsuk, S., Miura, N., and Nagaraj, T.S. 2003. Assessment of strength development in cement-admixed high water content clays with Abrams' law as a basis. Geotechnique, **53**(4): 439-444.

Jaturapitakkul, C. and Roongreung, B. 2003. Cementing material from calcium carbide residue-rice 599 600 husk ash. Journal of Materials in Civil Engineering, 15(5): 470–475. doi: 10.1061/(ASCE)0899-1561(2003)15:5(470)

Juniawan, A., Rumhayati, B., dan Ismuyanto, B. 2013. Characteristic Of Lapindo Mud And The Fluctuation Of Lead And Copper In Porong And Aloo Rivers, Sains dan Terapan Kimia, Vol.7, No.1, 50-59.

Kang, G., Tsuchida, T., Athapaththu, A.M.R.G., 2015, Strength Mobilization of Cement-treated Dredged Clay During The Early Stages of Curing, *Soils and Foundations,* Vol. 55, No.2, 375-392.

Kitazume, M., and Terashi, M. 2013. The Deep Mixing Method, Leiden: CRC Press/Balkema.

Miura, N., Horpibulsuk, S., and Nagaraj, T.S. 2001. Engineering behavior of cement treated clay at high water content, *Soils and Foundations*, 41 (5): 33-45.

Saeed, K.A., Kasssim, K.A. & Nur, H, 2014, Physicochemical characterization of cement treated kaolin clay, Gradevinar. doi: 10.14256/JCE.976.2013

Sargent, P., Hughes, P.N. & Rouainia, M. 2016. A new low carbon cementitious binder for stabilising weak ground conditions through deep soil mixing, *Soils and Foundations*, 56 (6):1021-1034. https://doi.org/10.1016/j.sandf.2016.11.007

Sasanian, S., T.A. Newson, 2014, Basic Parameters Governing the Behaviour of Cement-Treated Clays, *Soils and Foundations*, Vol. 54, No. 2, 209-224.

Seng, Sochan dan Tanaka, Hiroyuki, 2011, Properties of Cement-Treated Soils During Initial Curing Stage, *Soils and Foundations*, Vol. 51, No. 5, 775-784.

Suazo, G., Fourie, A. & Doherty, J. (2016). "Experimental Investigation of Propagation and Transmission of Compressional Stress Waves in Cemented Paste Backfill.". doi: 10.1061/(ASCE)GT.1943-5606.0001600

The European Guidelines for Self-Compacting Concrete. 2005. <www.efnarc.org/pdf/SCCGuidelinesMay2005.pdf>

Uchida, K., Shioi, Y. & Kawase, Y. 1994. Cement-treated Soil in the trans-tokyo bay highway project. XIII CIMSTF.

Zhang, R.J., et al., 2013, Strength of High Water-Content Marine Clay Stabilized by Low Amount of Cement, *Journal Of Geotechnical And Geoenvironmental Engineering,* 139:2170-2181. doi: 10.1061/(ASCE)GT.1943-5606.0000951

"Jokowi Bakal Bangun 10 Dermaga Kapal Pesiar dalam 2 Tahun." Liputan6.com. 17Agustus2017.Web.10Mei2018.<https://www.liputan6.com/bisnis/read/3116620/jokowi-bakal-bangun-10-dermaga-kapal-pesiar-dalam-2tahun>

"Lumpur Sidoarjo Frequent Ask Question (FAQ)" Badan Penanggulangan Lumpur Sidoarjo.19September2013.Web.8Mei2018.<http://www.bpls.go.id/faq/448-lumpur-sidoarjo-frequent-ask-question-faq>

LAMPIRAN

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	4/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	2%
A0 :	19.634954 cm^2	t =	24 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	0.1	0.02446	0.001	0.122
40	0.04	0.00400	0.99600	19.71381	0.2	0.04892	0.002	0.243
60	0.06	0.00600	0.99400	19.75347	0.3	0.07338	0.004	0.364
80	0.08	0.00800	0.99200	19.79330	0.4	0.09784	0.005	0.485
100	0.1	0.01000	0.99000	19.83329	0.5	0.1223	0.006	0.605
120	0.12	0.01200	0.98800	19.87344	0.7	0.17122	0.009	0.845
140	0.14	0.01400	0.98600	19.91375	0.8	0.19568	0.010	0.964
160	0.16	0.01600	0.98400	19.95422	0.8	0.19568	0.010	0.962
180	0.18	0.01800	0.98200	19.99486	0.9	0.22014	0.011	1.080
200	0.2	0.02000	0.98000	20.03567	0.9	0.22014	0.011	1.078
220	0.22	0.02200	0.97800	20.07664	0.9	0.22014	0.011	1.076
240	0.24	0.02400	0.97600	20.11778	1	0.2446	0.012	1.193
260	0.26	0.02600	0.97400	20.15909	1	0.2446	0.012	1.190
280	0.28	0.02800	0.97200	20.20057	1	0.2446	0.012	1.188
300	0.3	0.03000	0.97000	20.24222	1	0.2446	0.012	1.185
320	0.32	0.03200	0.96800	20.28404	1.1	0.26906	0.013	1.301
340	0.34	0.03400	0.96600	20.32604	1.2	0.29352	0.014	1.417
360	0.36	0.03600	0.96400	20.36821	1.2	0.29352	0.014	1.414
380	0.38	0.03800	0.96200	20.41056	1.2	0.29352	0.014	1.411
400	0.4	0.04000	0.96000	20.45308	1.2	0.29352	0.014	1.408
420	0.42	0.04200	0.95800	20.49578	1.2	0.29352	0.014	1.405
440	0.44	0.04400	0.95600	20.53865	1.3	0.31798	0.015	1.519
460	0.46	0.04600	0.95400	20.58171	1.4	0.34244	0.017	1.632
480	0.48	0.04800	0.95200	20.62495	1.5	0.3669	0.018	1.745
500	0.5	0.05000	0.95000	20.66837	1.5	0.3669	0.018	1.741
520	0.52	0.05200	0.94800	20.71198	1.6	0.39136	0.019	1.854
540	0.54	0.05400	0.94600	20.75577	1.6	0.39136	0.019	1.850
560	0.56	0.05600	0.94400	20.79974	1.7	0.41582	0.020	1.961
580	0.58	0.05800	0.94200	20.84390	1.8	0.44028	0.021	2.072
600	0.6	0.06000	0.94000	20.88825	1.8	0.44028	0.021	2.068
620	0.62	0.06200	0.93800	20.93279	1.8	0.44028	0.021	2.063
640	0.64	0.06400	0.93600	20.97752	1.8	0.44028	0.021	2.059
660	0.66	0.06600	0.93400	21.02243	1.8	0.44028	0.021	2.055
680	0.68	0.06800	0.93200	21.06755	1.9	0.46474	0.022	2.164
700	0.7	0.07000	0.93000	21.11285	1.9	0.46474	0.022	2.159

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	4/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	2%
A0 :	19.634954 cm^2	t =	24 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
720	0.72	0.07200	0.92800	21.15836	2	0.4892	0.023	2.268
740	0.74	0.07400	0.92600	21.20405	2	0.4892	0.023	2.263
760	0.76	0.07600	0.92400	21.24995	2	0.4892	0.023	2.258
780	0.78	0.07800	0.92200	21.29605	2	0.4892	0.023	2.253
800	0.8	0.08000	0.92000	21.34234	2	0.4892	0.023	2.249
820	0.82	0.08200	0.91800	21.38884	2	0.4892	0.023	2.244
840	0.84	0.08400	0.91600	21.43554	2.1	0.51366	0.024	2.351
860	0.86	0.08600	0.91400	21.48244	2.1	0.51366	0.024	2.346
880	0.88	0.08800	0.91200	21.52955	2.1	0.51366	0.024	2.341
900	0.9	0.09000	0.91000	21.57687	2.1	0.51366	0.024	2.335
920	0.92	0.09200	0.90800	21.62440	2.2	0.53812	0.025	2.441
940	0.94	0.09400	0.90600	21.67213	2.2	0.53812	0.025	2.436
960	0.96	0.09600	0.90400	21.72008	2.3	0.56258	0.026	2.541
980	0.98	0.09800	0.90200	21.76824	2.3	0.56258	0.026	2.535
1000	1	0.10000	0.90000	21.81662	2.4	0.58704	0.027	2.640
1020	1.02	0.10200	0.89800	21.86520	2.4	0.58704	0.027	2.634
1040	1.04	0.10400	0.89600	21.91401	2.5	0.6115	0.028	2.737
1060	1.06	0.10600	0.89400	21.96304	2.5	0.6115	0.028	2.731
1080	1.08	0.10800	0.89200	22.01228	2.5	0.6115	0.028	2.725
1100	1.1	0.11000	0.89000	22.06175	2.6	0.63596	0.029	2.828
1120	1.12	0.11200	0.88800	22.11143	2.6	0.63596	0.029	2.822
1140	1.14	0.11400	0.88600	22.16135	2.6	0.63596	0.029	2.815
1160	1.16	0.11600	0.88400	22.21149	2.7	0.66042	0.030	2.917
1180	1.18	0.11800	0.88200	22.26185	2.7	0.66042	0.030	2.910
1200	1.2	0.12000	0.88000	22.31245	2.8	0.68488	0.031	3.011
1220	1.22	0.12200	0.87800	22.36327	2.8	0.68488	0.031	3.004
1240	1.24	0.12400	0.87600	22.41433	2.8	0.68488	0.031	2.997
1260	1.26	0.12600	0.87400	22.46562	2.8	0.68488	0.030	2.991
1280	1.28	0.12800	0.87200	22.51715	2.8	0.68488	0.030	2.984
1300	1.3	0.13000	0.87000	22.56891	2.9	0.70934	0.031	3.083
1320	1.32	0.13200	0.86800	22.62091	2.9	0.70934	0.031	3.076
1340	1.34	0.13400	0.86600	22.67316	2.7	0.66042	0.029	2.857
1360	1.36	0.13600	0.86400	22.72564	2.8	0.68488	0.030	2.956
1380	1.38	0.13800	0.86200	22.77837	2.8	0.68488	0.030	2.950
1400	1.4	0.14000	0.86000	22.83134	2.9	0.70934	0.031	3.048
1420	1.42	0.14200	0.85800	22.88456	2.8	0.68488	0.030	2.936

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	4/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	2%
A0 :	19.634954 cm^2	t =	24 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
1440	1.44	0.14400	0.85600	22.93803	2.8	0.68488	0.030	2.929
1460	1.46	0.14600	0.85400	22.99175	2.9	0.70934	0.031	3.027
1480	1.48	0.14800	0.85200	23.04572	2.9	0.70934	0.031	3.019
1500	1.5	0.15000	0.85000	23.09995	2.9	0.70934	0.031	3.012

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	6/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	2%
A0 :	19.634954 cm^2	t =	72 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	0.1	0.02446	0.001	0.122
40	0.04	0.00400	0.99600	19.71381	0.1	0.02446	0.001	0.122
60	0.06	0.00600	0.99400	19.75347	0.2	0.04892	0.002	0.243
80	0.08	0.00800	0.99200	19.79330	0.2	0.04892	0.002	0.242
100	0.1	0.01000	0.99000	19.83329	0.3	0.07338	0.004	0.363
120	0.12	0.01200	0.98800	19.87344	0.5	0.1223	0.006	0.604
140	0.14	0.01400	0.98600	19.91375	0.7	0.17122	0.009	0.843
160	0.16	0.01600	0.98400	19.95422	0.8	0.19568	0.010	0.962
180	0.18	0.01800	0.98200	19.99486	0.8	0.19568	0.010	0.960
200	0.2	0.02000	0.98000	20.03567	0.9	0.22014	0.011	1.078
220	0.22	0.02200	0.97800	20.07664	0.9	0.22014	0.011	1.076
240	0.24	0.02400	0.97600	20.11778	1	0.2446	0.012	1.193
260	0.26	0.02600	0.97400	20.15909	1	0.2446	0.012	1.190
280	0.28	0.02800	0.97200	20.20057	1.1	0.26906	0.013	1.307
300	0.3	0.03000	0.97000	20.24222	1.1	0.26906	0.013	1.304
320	0.32	0.03200	0.96800	20.28404	1.1	0.26906	0.013	1.301
340	0.34	0.03400	0.96600	20.32604	1.2	0.29352	0.014	1.417
360	0.36	0.03600	0.96400	20.36821	1.2	0.29352	0.014	1.414
380	0.38	0.03800	0.96200	20.41056	1.3	0.31798	0.016	1.528
400	0.4	0.04000	0.96000	20.45308	1.4	0.34244	0.017	1.642
420	0.42	0.04200	0.95800	20.49578	1.5	0.3669	0.018	1.756
440	0.44	0.04400	0.95600	20.53865	1.6	0.39136	0.019	1.869
460	0.46	0.04600	0.95400	20.58171	1.7	0.41582	0.020	1.982
480	0.48	0.04800	0.95200	20.62495	1.7	0.41582	0.020	1.978
500	0.5	0.05000	0.95000	20.66837	1.7	0.41582	0.020	1.974
520	0.52	0.05200	0.94800	20.71198	1.8	0.44028	0.021	2.085
540	0.54	0.05400	0.94600	20.75577	1.8	0.44028	0.021	2.081
560	0.56	0.05600	0.94400	20.79974	1.8	0.44028	0.021	2.077
580	0.58	0.05800	0.94200	20.84390	1.9	0.46474	0.022	2.187
600	0.6	0.06000	0.94000	20.88825	1.9	0.46474	0.022	2.183
620	0.62	0.06200	0.93800	20.93279	2	0.4892	0.023	2.293
640	0.64	0.06400	0.93600	20.97752	2	0.4892	0.023	2.288
660	0.66	0.06600	0.93400	21.02243	2	0.4892	0.023	2.283
680	0.68	0.06800	0.93200	21.06755	2	0.4892	0.023	2.278
700	0.7	0.07000	0.93000	21.11285	2	0.4892	0.023	2.273

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	6/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	2%
A0 :	19.634954 cm^2	t =	72 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
720	0.72	0.07200	0.92800	21.15836	2.1	0.51366	0.024	2.382
740	0.74	0.07400	0.92600	21.20405	2.1	0.51366	0.024	2.376
760	0.76	0.07600	0.92400	21.24995	2.2	0.53812	0.025	2.484
780	0.78	0.07800	0.92200	21.29605	2.2	0.53812	0.025	2.479
800	0.8	0.08000	0.92000	21.34234	2.3	0.56258	0.026	2.586
820	0.82	0.08200	0.91800	21.38884	2.3	0.56258	0.026	2.580
840	0.84	0.08400	0.91600	21.43554	2.4	0.58704	0.027	2.687
860	0.86	0.08600	0.91400	21.48244	2.5	0.6115	0.028	2.792
880	0.88	0.08800	0.91200	21.52955	2.6	0.63596	0.030	2.898
900	0.9	0.09000	0.91000	21.57687	2.6	0.63596	0.029	2.891
920	0.92	0.09200	0.90800	21.62440	2.7	0.66042	0.031	2.996
940	0.94	0.09400	0.90600	21.67213	2.8	0.68488	0.032	3.100
960	0.96	0.09600	0.90400	21.72008	2.8	0.68488	0.032	3.093
980	0.98	0.09800	0.90200	21.76824	2.8	0.68488	0.031	3.086
1000	1	0.10000	0.90000	21.81662	2.8	0.68488	0.031	3.080
1020	1.02	0.10200	0.89800	21.86520	2.8	0.68488	0.031	3.073
1040	1.04	0.10400	0.89600	21.91401	2.8	0.68488	0.031	3.066
1060	1.06	0.10600	0.89400	21.96304	2.8	0.68488	0.031	3.059
1080	1.08	0.10800	0.89200	22.01228	2.9	0.70934	0.032	3.161
1100	1.1	0.11000	0.89000	22.06175	2.9	0.70934	0.032	3.154
1120	1.12	0.11200	0.88800	22.11143	2.9	0.70934	0.032	3.147
1140	1.14	0.11400	0.88600	22.16135	2.9	0.70934	0.032	3.140
1160	1.16	0.11600	0.88400	22.21149	2.9	0.70934	0.032	3.133
1180	1.18	0.11800	0.88200	22.26185	3	0.7338	0.033	3.234
1200	1.2	0.12000	0.88000	22.31245	3	0.7338	0.033	3.226
1220	1.22	0.12200	0.87800	22.36327	3	0.7338	0.033	3.219
1240	1.24	0.12400	0.87600	22.41433	3	0.7338	0.033	3.212
1260	1.26	0.12600	0.87400	22.46562	3	0.7338	0.033	3.204
1280	1.28	0.12800	0.87200	22.51715	3	0.7338	0.033	3.197
1300	1.3	0.13000	0.87000	22.56891	3	0.7338	0.033	3.190
1320	1.32	0.13200	0.86800	22.62091	3	0.7338	0.032	3.182
1340	1.34	0.13400	0.86600	22.67316	3.1	0.75826	0.033	3.281
1360	1.36	0.13600	0.86400	22.72564	3.1	0.75826	0.033	3.273
1380	1.38	0.13800	0.86200	22.77837	3.1	0.75826	0.033	3.266
1400	1.4	0.14000	0.86000	22.83134	3.1	0.75826	0.033	3.258
1420	1.42	0.14200	0.85800	22.88456	3.1	0.75826	0.033	3.250

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	6/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	2%
A0 :	19.634954 cm^2	t =	72 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
1440	1.44	0.14400	0.85600	22.93803	3.1	0.75826	0.033	3.243
1460	1.46	0.14600	0.85400	22.99175	3.1	0.75826	0.033	3.235
1480	1.48	0.14800	0.85200	23.04572	3.1	0.75826	0.033	3.228
1500	1.5	0.15000	0.85000	23.09995	3.2	0.78272	0.034	3.324
1520	1.52	0.15200	0.84800	23.15443	3.2	0.78272	0.034	3.316

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	3/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	1 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,2446	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	0.5	0.1223	0.006	0.610
40	0.04	0.00400	0.99600	19.71381	0.8	0.19568	0.010	0.974
60	0.06	0.00600	0.99400	19.75347	0.8	0.19568	0.010	0.972
80	0.08	0.00800	0.99200	19.79330	1	0.2446	0.012	1.212
100	0.1	0.01000	0.99000	19.83329	1.1	0.26906	0.014	1.331
120	0.12	0.01200	0.98800	19.87344	1.2	0.29352	0.015	1.449
140	0.14	0.01400	0.98600	19.91375	1.4	0.34244	0.017	1.687
160	0.16	0.01600	0.98400	19.95422	1.6	0.39136	0.020	1.924
180	0.18	0.01800	0.98200	19.99486	1.8	0.44028	0.022	2.160
200	0.2	0.02000	0.98000	20.03567	1.9	0.46474	0.023	2.275
220	0.22	0.02200	0.97800	20.07664	2	0.4892	0.024	2.390
240	0.24	0.02400	0.97600	20.11778	2	0.4892	0.024	2.385
260	0.26	0.02600	0.97400	20.15909	2	0.4892	0.024	2.381
280	0.28	0.02800	0.97200	20.20057	2.1	0.51366	0.025	2.494
300	0.3	0.03000	0.97000	20.24222	2.2	0.53812	0.027	2.608
320	0.32	0.03200	0.96800	20.28404	2.4	0.58704	0.029	2.839
340	0.34	0.03400	0.96600	20.32604	2.6	0.63596	0.031	3.069
360	0.36	0.03600	0.96400	20.36821	2.7	0.66042	0.032	3.181
380	0.38	0.03800	0.96200	20.41056	2.8	0.68488	0.034	3.292
400	0.4	0.04000	0.96000	20.45308	2.9	0.70934	0.035	3.402
420	0.42	0.04200	0.95800	20.49578	3	0.7338	0.036	3.512
440	0.44	0.04400	0.95600	20.53865	3	0.7338	0.036	3.505
460	0.46	0.04600	0.95400	20.58171	3.1	0.75826	0.037	3.614
480	0.48	0.04800	0.95200	20.62495	3.1	0.75826	0.037	3.607
500	0.5	0.05000	0.95000	20.66837	3.2	0.78272	0.038	3.715
520	0.52	0.05200	0.94800	20.71198	3.2	0.78272	0.038	3.707
540	0.54	0.05400	0.94600	20.75577	3.3	0.80718	0.039	3.815
560	0.56	0.05600	0.94400	20.79974	3.4	0.83164	0.040	3.922
580	0.58	0.05800	0.94200	20.84390	3.5	0.8561	0.041	4.029
600	0.6	0.06000	0.94000	20.88825	3.7	0.90502	0.043	4.250
620	0.62	0.06200	0.93800	20.93279	3.8	0.92948	0.044	4.356
640	0.64	0.06400	0.93600	20.97752	3.8	0.92948	0.044	4.347
660	0.66	0.06600	0.93400	21.02243	3.9	0.95394	0.045	4.452
680	0.68	0.06800	0.93200	21.06755	4	0.9784	0.046	4.556

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	3/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	1 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
700	0.7	0.07000	0.93000	21.11285	4.1	1.00286	0.047	4.660
720	0.72	0.07200	0.92800	21.15836	4.1	1.00286	0.047	4.650
740	0.74	0.07400	0.92600	21.20405	4.1	1.00286	0.047	4.640
760	0.76	0.07600	0.92400	21.24995	4.2	1.02732	0.048	4.743
780	0.78	0.07800	0.92200	21.29605	4.3	1.05178	0.049	4.845
800	0.8	0.08000	0.92000	21.34234	4.3	1.05178	0.049	4.835
820	0.82	0.08200	0.91800	21.38884	4.4	1.07624	0.050	4.936
840	0.84	0.08400	0.91600	21.43554	4.5	1.1007	0.051	5.037
860	0.86	0.08600	0.91400	21.48244	4.6	1.12516	0.052	5.138
880	0.88	0.08800	0.91200	21.52955	4.7	1.14962	0.053	5.238
900	0.9	0.09000	0.91000	21.57687	4.8	1.17408	0.054	5.338
920	0.92	0.09200	0.90800	21.62440	4.8	1.17408	0.054	5.326
940	0.94	0.09400	0.90600	21.67213	4.9	1.19854	0.055	5.425
960	0.96	0.09600	0.90400	21.72008	4.9	1.19854	0.055	5.413
980	0.98	0.09800	0.90200	21.76824	4.9	1.19854	0.055	5.401
1000	1	0.10000	0.90000	21.81662	4.9	1.19854	0.055	5.389
1020	1.02	0.10200	0.89800	21.86520	4.9	1.19854	0.055	5.377
1040	1.04	0.10400	0.89600	21.91401	5	1.223	0.056	5.475
1060	1.06	0.10600	0.89400	21.96304	5	1.223	0.056	5.463
1080	1.08	0.10800	0.89200	22.01228	5	1.223	0.056	5.450
1100	1.1	0.11000	0.89000	22.06175	5	1.223	0.055	5.438
1120	1.12	0.11200	0.88800	22.11143	5.1	1.24746	0.056	5.535
1140	1.14	0.11400	0.88600	22.16135	5.1	1.24746	0.056	5.522
1160	1.16	0.11600	0.88400	22.21149	5.1	1.24746	0.056	5.510
1180	1.18	0.11800	0.88200	22.26185	5.2	1.27192	0.057	5.605
1200	1.2	0.12000	0.88000	22.31245	5.2	1.27192	0.057	5.592
1220	1.22	0.12200	0.87800	22.36327	5.2	1.27192	0.057	5.579
1240	1.24	0.12400	0.87600	22.41433	5.3	1.29638	0.058	5.674
1260	1.26	0.12600	0.87400	22.46562	5.4	1.32084	0.059	5.768
1280	1.28	0.12800	0.87200	22.51715	5.4	1.32084	0.059	5.754
1300	1.3	0.13000	0.87000	22.56891	5.5	1.3453	0.060	5.848
1320	1.32	0.13200	0.86800	22.62091	5.5	1.3453	0.059	5.834
1340	1.34	0.13400	0.86600	22.67316	5.6	1.36976	0.060	5.927
1360	1.36	0.13600	0.86400	22.72564	5.7	1.39422	0.061	6.018
1380	1.38	0.13800	0.86200	22.77837	5.8	1.41868	0.062	6.110
1400	1.4	0.14000	0.86000	22.83134	5.8	1.41868	0.062	6.096
1420	1.42	0.14200	0.85800	22.88456	5.8	1.41868	0.062	6.082

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	3/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	1 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
1440	1.44	0.14400	0.85600	22.93803	5.9	1.44314	0.063	6.172
1460	1.46	0.14600	0.85400	22.99175	5.9	1.44314	0.063	6.158
1480	1.48	0.14800	0.85200	23.04572	5.9	1.44314	0.063	6.143
1500	1.5	0.15000	0.85000	23.09995	5.9	1.44314	0.062	6.129
1520	1.52	0.15200	0.84800	23.15443	6	1.4676	0.063	6.218

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	3/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	3 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,2446	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	1	0.2446	0.012	1.220
40	0.04	0.00400	0.99600	19.71381	1.2	0.29352	0.015	1.461
60	0.06	0.00600	0.99400	19.75347	1.3	0.31798	0.016	1.579
80	0.08	0.00800	0.99200	19.79330	1.5	0.3669	0.019	1.818
100	0.1	0.01000	0.99000	19.83329	1.6	0.39136	0.020	1.936
120	0.12	0.01200	0.98800	19.87344	1.8	0.44028	0.022	2.173
140	0.14	0.01400	0.98600	19.91375	1.9	0.46474	0.023	2.289
160	0.16	0.01600	0.98400	19.95422	2	0.4892	0.025	2.405
180	0.18	0.01800	0.98200	19.99486	2.1	0.51366	0.026	2.520
200	0.2	0.02000	0.98000	20.03567	2.2	0.53812	0.027	2.635
220	0.22	0.02200	0.97800	20.07664	2.3	0.56258	0.028	2.749
240	0.24	0.02400	0.97600	20.11778	2.5	0.6115	0.030	2.982
260	0.26	0.02600	0.97400	20.15909	2.7	0.66042	0.033	3.214
280	0.28	0.02800	0.97200	20.20057	2.8	0.68488	0.034	3.326
300	0.3	0.03000	0.97000	20.24222	2.9	0.70934	0.035	3.438
320	0.32	0.03200	0.96800	20.28404	3	0.7338	0.036	3.549
340	0.34	0.03400	0.96600	20.32604	3.1	0.75826	0.037	3.660
360	0.36	0.03600	0.96400	20.36821	3.2	0.78272	0.038	3.770
380	0.38	0.03800	0.96200	20.41056	3.3	0.80718	0.040	3.880
400	0.4	0.04000	0.96000	20.45308	3.4	0.83164	0.041	3.989
420	0.42	0.04200	0.95800	20.49578	3.5	0.8561	0.042	4.098
440	0.44	0.04400	0.95600	20.53865	3.6	0.88056	0.043	4.206
460	0.46	0.04600	0.95400	20.58171	3.7	0.90502	0.044	4.314
480	0.48	0.04800	0.95200	20.62495	3.8	0.92948	0.045	4.421
500	0.5	0.05000	0.95000	20.66837	3.9	0.95394	0.046	4.528
520	0.52	0.05200	0.94800	20.71198	4	0.9784	0.047	4.634
540	0.54	0.05400	0.94600	20.75577	4.1	1.00286	0.048	4.740
560	0.56	0.05600	0.94400	20.79974	4.2	1.02732	0.049	4.845
580	0.58	0.05800	0.94200	20.84390	4.3	1.05178	0.050	4.950
600	0.6	0.06000	0.94000	20.88825	4.4	1.07624	0.052	5.054
620	0.62	0.06200	0.93800	20.93279	4.5	1.1007	0.053	5.158
640	0.64	0.06400	0.93600	20.97752	4.7	1.14962	0.055	5.376
660	0.66	0.06600	0.93400	21.02243	4.8	1.17408	0.056	5.479
680	0.68	0.06800	0.93200	21.06755	4.9	1.19854	0.057	5.581
700	0.7	0.07000	0.93000	21.11285	4.9	1.19854	0.057	5.569
720	0.72	0.07200	0.92800	21.15836	5	1.223	0.058	5.670

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	3/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	3 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
740	0.74	0.07400	0.92600	21.20405	5	1.223	0.058	5.658
760	0.76	0.07600	0.92400	21.24995	5.1	1.24746	0.059	5.759
780	0.78	0.07800	0.92200	21.29605	5.1	1.24746	0.059	5.746
800	0.8	0.08000	0.92000	21.34234	5.2	1.27192	0.060	5.846
820	0.82	0.08200	0.91800	21.38884	5.2	1.27192	0.059	5.834
840	0.84	0.08400	0.91600	21.43554	5.3	1.29638	0.060	5.933
860	0.86	0.08600	0.91400	21.48244	5.4	1.32084	0.061	6.032
880	0.88	0.08800	0.91200	21.52955	5.5	1.3453	0.062	6.130
900	0.9	0.09000	0.91000	21.57687	5.6	1.36976	0.063	6.228
920	0.92	0.09200	0.90800	21.62440	5.7	1.39422	0.064	6.325
940	0.94	0.09400	0.90600	21.67213	5.7	1.39422	0.064	6.311
960	0.96	0.09600	0.90400	21.72008	5.8	1.41868	0.065	6.408
980	0.98	0.09800	0.90200	21.76824	5.8	1.41868	0.065	6.393
1000	1	0.10000	0.90000	21.81662	5.8	1.41868	0.065	6.379
1020	1.02	0.10200	0.89800	21.86520	5.9	1.44314	0.066	6.475
1040	1.04	0.10400	0.89600	21.91401	5.9	1.44314	0.066	6.460
1060	1.06	0.10600	0.89400	21.96304	5.9	1.44314	0.066	6.446
1080	1.08	0.10800	0.89200	22.01228	5.9	1.44314	0.066	6.432
1100	1.1	0.11000	0.89000	22.06175	5.9	1.44314	0.065	6.417
1120	1.12	0.11200	0.88800	22.11143	6	1.4676	0.066	6.511
1140	1.14	0.11400	0.88600	22.16135	6	1.4676	0.066	6.497
1160	1.16	0.11600	0.88400	22.21149	6	1.4676	0.066	6.482
1180	1.18	0.11800	0.88200	22.26185	6.1	1.49206	0.067	6.575
1200	1.2	0.12000	0.88000	22.31245	6.1	1.49206	0.067	6.560
1220	1.22	0.12200	0.87800	22.36327	6.1	1.49206	0.067	6.545
1240	1.24	0.12400	0.87600	22.41433	6.1	1.49206	0.067	6.530
1260	1.26	0.12600	0.87400	22.46562	6.2	1.51652	0.068	6.622
1280	1.28	0.12800	0.87200	22.51715	6.3	1.54098	0.068	6.714
1300	1.3	0.13000	0.87000	22.56891	6.3	1.54098	0.068	6.698
1320	1.32	0.13200	0.86800	22.62091	6.3	1.54098	0.068	6.683
1340	1.34	0.13400	0.86600	22.67316	6.4	1.56544	0.069	6.773
1360	1.36	0.13600	0.86400	22.72564	6.4	1.56544	0.069	6.758
1380	1.38	0.13800	0.86200	22.77837	6.5	1.5899	0.070	6.847
1400	1.4	0.14000	0.86000	22.83134	6.6	1.61436	0.071	6.936
1420	1.42	0.14200	0.85800	22.88456	6.7	1.63882	0.072	7.025
1440	1.44	0.14400	0.85600	22.93803	6.7	1.63882	0.071	7.009
1460	1.46	0.14600	0.85400	22.99175	6.7	1.63882	0.071	6.992

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	3/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	3 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
1480	1.48	0.14800	0.85200	23.04572	6.8	1.66328	0.072	7.080
1500	1.5	0.15000	0.85000	23.09995	6.8	1.66328	0.072	7.064
1520	1.52	0.15200	0.84800	23.15443	6.9	1.68774	0.073	7.151
1540	1.54	0.15400	0.84600	23.20917	7	1.7122	0.074	7.237

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	3/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	6 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,2446	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	1.6	0.39136	0.020	1.951
40	0.04	0.00400	0.99600	19.71381	3.5	0.8561	0.043	4.260
60	0.06	0.00600	0.99400	19.75347	4.7	1.14962	0.058	5.709
80	0.08	0.00800	0.99200	19.79330	5.5	1.3453	0.068	6.668
100	0.1	0.01000	0.99000	19.83329	6.1	1.49206	0.075	7.380
120	0.12	0.01200	0.98800	19.87344	7	1.7122	0.086	8.452
140	0.14	0.01400	0.98600	19.91375	7.8	1.90788	0.096	9.399
160	0.16	0.01600	0.98400	19.95422	8.5	2.0791	0.104	10.221
180	0.18	0.01800	0.98200	19.99486	9.1	2.22586	0.111	10.921
200	0.2	0.02000	0.98000	20.03567	9.8	2.39708	0.120	11.737
220	0.22	0.02200	0.97800	20.07664	10.4	2.54384	0.127	12.430
240	0.24	0.02400	0.97600	20.11778	11.1	2.71506	0.135	13.239
260	0.26	0.02600	0.97400	20.15909	11.9	2.91074	0.144	14.165
280	0.28	0.02800	0.97200	20.20057	12.5	3.0575	0.151	14.848
300	0.3	0.03000	0.97000	20.24222	13.7	3.35102	0.166	16.240
320	0.32	0.03200	0.96800	20.28404	14.1	3.44886	0.170	16.680
340	0.34	0.03400	0.96600	20.32604	14.8	3.62008	0.178	17.472
360	0.36	0.03600	0.96400	20.36821	15.7	3.84022	0.189	18.496
380	0.38	0.03800	0.96200	20.41056	16.1	3.93806	0.193	18.928
400	0.4	0.04000	0.96000	20.45308	16.5	4.0359	0.197	19.358
420	0.42	0.04200	0.95800	20.49578	17.5	4.2805	0.209	20.488
440	0.44	0.04400	0.95600	20.53865	17.8	4.35388	0.212	20.796
460	0.46	0.04600	0.95400	20.58171	18	4.4028	0.214	20.985
480	0.48	0.04800	0.95200	20.62495	18.5	4.5251	0.219	21.523
500	0.5	0.05000	0.95000	20.66837	18.9	4.62294	0.224	21.942
520	0.52	0.05200	0.94800	20.71198	19.1	4.67186	0.226	22.128
540	0.54	0.05400	0.94600	20.75577	19.5	4.7697	0.230	22.543
560	0.56	0.05600	0.94400	20.79974	19.9	4.86754	0.234	22.957
580	0.58	0.05800	0.94200	20.84390	20.3	4.96538	0.238	23.369
600	0.6	0.06000	0.94000	20.88825	20.6	5.03876	0.241	23.664
620	0.62	0.06200	0.93800	20.93279	20.8	5.08768	0.243	23.843
640	0.64	0.06400	0.93600	20.97752	21	5.1366	0.245	24.021
660	0.66	0.06600	0.93400	21.02243	21.2	5.18552	0.247	24.198
680	0.68	0.06800	0.93200	21.06755	21.3	5.20998	0.247	24.260
700	0.7	0.07000	0.93000	21.11285	21.5	5.2589	0.249	24.435
720	0.72	0.07200	0.92800	21.15836	21.7	5.30782	0.251	24.610

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	3/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	6 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
740	0.74	0.07400	0.92600	21.20405	21.8	5.33228	0.251	24.670
760	0.76	0.07600	0.92400	21.24995	21.8	5.33228	0.251	24.616
780	0.78	0.07800	0.92200	21.29605	21.9	5.35674	0.252	24.676
800	0.8	0.08000	0.92000	21.34234	21.9	5.35674	0.251	24.622
820	0.82	0.08200	0.91800	21.38884	22	5.3812	0.252	24.681
840	0.84	0.08400	0.91600	21.43554	22	5.3812	0.251	24.627
860	0.86	0.08600	0.91400	21.48244	22	5.3812	0.250	24.573
880	0.88	0.08800	0.91200	21.52955	22.1	5.40566	0.251	24.631
900	0.9	0.09000	0.91000	21.57687	22.1	5.40566	0.251	24.577
920	0.92	0.09200	0.90800	21.62440	21.9	5.35674	0.248	24.301
940	0.94	0.09400	0.90600	21.67213	21.8	5.33228	0.246	24.137
960	0.96	0.09600	0.90400	21.72008	21.1	5.16106	0.238	23.310
980	0.98	0.09800	0.90200	21.76824	20.5	5.0143	0.230	22.597
1000	1	0.10000	0.90000	21.81662	20.2	4.94092	0.226	22.217
1020	1.02	0.10200	0.89800	21.86520	19.9	4.86754	0.223	21.839
1040	1.04	0.10400	0.89600	21.91401	19.3	4.72078	0.215	21.133
1060	1.06	0.10600	0.89400	21.96304	19	4.6474	0.212	20.758
1080	1.08	0.10800	0.89200	22.01228	18.8	4.59848	0.209	20.494
1100	1.1	0.11000	0.89000	22.06175	18.7	4.57402	0.207	20.339
1120	1.12	0.11200	0.88800	22.11143	18.2	4.45172	0.201	19.751
1140	1.14	0.11400	0.88600	22.16135	18.1	4.42726	0.200	19.598
1160	1.16	0.11600	0.88400	22.21149	18	4.4028	0.198	19.446
1180	1.18	0.11800	0.88200	22.26185	17.9	4.37834	0.197	19.294
1200	1.2	0.12000	0.88000	22.31245	17.8	4.35388	0.195	19.142
1220	1.22	0.12200	0.87800	22.36327	17.7	4.32942	0.194	18.992
1240	1.24	0.12400	0.87600	22.41433	17.5	4.2805	0.191	18.734
1260	1.26	0.12600	0.87400	22.46562	17.2	4.20712	0.187	18.371
1280	1.28	0.12800	0.87200	22.51715	17	4.1582	0.185	18.116
1300	1.3	0.13000	0.87000	22.56891	17	4.1582	0.184	18.074
1320	1.32	0.13200	0.86800	22.62091	16.9	4.13374	0.183	17.927
1340	1.34	0.13400	0.86600	22.67316	16.8	4.10928	0.181	17.780
1360	1.36	0.13600	0.86400	22.72564	16.8	4.10928	0.181	17.739
1380	1.38	0.13800	0.86200	22.77837	16.7	4.08482	0.179	17.592

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	3/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	12 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,2446	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	1.2	0.29352	0.015	1.464
40	0.04	0.00400	0.99600	19.71381	1.8	0.44028	0.022	2.191
60	0.06	0.00600	0.99400	19.75347	2.1	0.51366	0.026	2.551
80	0.08	0.00800	0.99200	19.79330	2.8	0.68488	0.035	3.394
100	0.1	0.01000	0.99000	19.83329	3.3	0.80718	0.041	3.992
120	0.12	0.01200	0.98800	19.87344	4	0.9784	0.049	4.830
140	0.14	0.01400	0.98600	19.91375	5	1.223	0.061	6.025
160	0.16	0.01600	0.98400	19.95422	5.9	1.44314	0.072	7.095
180	0.18	0.01800	0.98200	19.99486	6.8	1.66328	0.083	8.160
200	0.2	0.02000	0.98000	20.03567	7.5	1.8345	0.092	8.982
220	0.22	0.02200	0.97800	20.07664	8.1	1.98126	0.099	9.681
240	0.24	0.02400	0.97600	20.11778	8.9	2.17694	0.108	10.615
260	0.26	0.02600	0.97400	20.15909	9.7	2.37262	0.118	11.546
280	0.28	0.02800	0.97200	20.20057	10.2	2.49492	0.124	12.116
300	0.3	0.03000	0.97000	20.24222	10.9	2.66614	0.132	12.921
320	0.32	0.03200	0.96800	20.28404	11.8	2.88628	0.142	13.959
340	0.34	0.03400	0.96600	20.32604	12.5	3.0575	0.150	14.756
360	0.36	0.03600	0.96400	20.36821	13.1	3.20426	0.157	15.433
380	0.38	0.03800	0.96200	20.41056	13.8	3.37548	0.165	16.224
400	0.4	0.04000	0.96000	20.45308	14.5	3.5467	0.173	17.011
420	0.42	0.04200	0.95800	20.49578	15.2	3.71792	0.181	17.795
440	0.44	0.04400	0.95600	20.53865	15.8	3.86468	0.188	18.459
460	0.46	0.04600	0.95400	20.58171	16.2	3.96252	0.193	18.887
480	0.48	0.04800	0.95200	20.62495	16.8	4.10928	0.199	19.545
500	0.5	0.05000	0.95000	20.66837	17.1	4.18266	0.202	19.853
520	0.52	0.05200	0.94800	20.71198	17.4	4.25604	0.205	20.158
540	0.54	0.05400	0.94600	20.75577	18.1	4.42726	0.213	20.925
560	0.56	0.05600	0.94400	20.79974	18.7	4.57402	0.220	21.573
580	0.58	0.05800	0.94200	20.84390	19.2	4.69632	0.225	22.103
600	0.6	0.06000	0.94000	20.88825	19.8	4.84308	0.232	22.745
620	0.62	0.06200	0.93800	20.93279	20.2	4.94092	0.236	23.155
640	0.64	0.06400	0.93600	20.97752	21	5.1366	0.245	24.021
660	0.66	0.06600	0.93400	21.02243	21.4	5.23444	0.249	24.426
680	0.68	0.06800	0.93200	21.06755	22	5.3812	0.255	25.057
700	0.7	0.07000	0.93000	21.11285	22.4	5.47904	0.260	25.458
720	0.72	0.07200	0.92800	21.15836	22.9	5.60134	0.265	25.970

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	3/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	12 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,2446	h	kN/m^2
740	0.74	0.07400	0.92600	21.20405	23.2	5.67472	0.268	26.254
760	0.76	0.07600	0.92400	21.24995	23.8	5.82148	0.274	26.875
780	0.78	0.07800	0.92200	21.29605	24.1	5.89486	0.277	27.155
800	0.8	0.08000	0.92000	21.34234	24.4	5.96824	0.280	27.433
820	0.82	0.08200	0.91800	21.38884	24.8	6.06608	0.284	27.822
840	0.84	0.08400	0.91600	21.43554	25	6.115	0.285	27.985
860	0.86	0.08600	0.91400	21.48244	25.2	6.16392	0.287	28.148
880	0.88	0.08800	0.91200	21.52955	25.5	6.2373	0.290	28.420
900	0.9	0.09000	0.91000	21.57687	25.8	6.31068	0.292	28.692
920	0.92	0.09200	0.90800	21.62440	26	6.3596	0.294	28.851
940	0.94	0.09400	0.90600	21.67213	26.2	6.40852	0.296	29.008
960	0.96	0.09600	0.90400	21.72008	26.5	6.4819	0.298	29.276
980	0.98	0.09800	0.90200	21.76824	26.8	6.55528	0.301	29.542
1000	1	0.10000	0.90000	21.81662	27	6.6042	0.303	29.696
1020	1.02	0.10200	0.89800	21.86520	27.2	6.65312	0.304	29.850
1040	1.04	0.10400	0.89600	21.91401	27.5	6.7265	0.307	30.112
1060	1.06	0.10600	0.89400	21.96304	27.4	6.70204	0.305	29.935
1080	1.08	0.10800	0.89200	22.01228	27.6	6.75096	0.307	30.086
1100	1.1	0.11000	0.89000	22.06175	27.8	6.79988	0.308	30.236
1120	1.12	0.11200	0.88800	22.11143	27.8	6.79988	0.308	30.168
1140	1.14	0.11400	0.88600	22.16135	27.8	6.79988	0.307	30.101
1160	1.16	0.11600	0.88400	22.21149	27.9	6.82434	0.307	30.141
1180	1.18	0.11800	0.88200	22.26185	27.9	6.82434	0.307	30.072
1200	1.2	0.12000	0.88000	22.31245	27	6.6042	0.296	29.036
1220	1.22	0.12200	0.87800	22.36327	26.7	6.53082	0.292	28.648
1240	1.24	0.12400	0.87600	22.41433	26.2	6.40852	0.286	28.048
1260	1.26	0.12600	0.87400	22.46562	25.3	6.18838	0.275	27.023
1280	1.28	0.12800	0.87200	22.51715	24.5	5.9927	0.266	26.108
1300	1.3	0.13000	0.87000	22.56891	24	5.8704	0.260	25.517
1320	1.32	0.13200	0.86800	22.62091	23.8	5.82148	0.257	25.246
1340	1.34	0.13400	0.86600	22.67316	23.4	5.72364	0.252	24.764
1360	1.36	0.13600	0.86400	22.72564	23	5.6258	0.248	24.285
1380	1.38	0.13800	0.86200	22.77837	22.3	5.45458	0.239	23.491
1400	1.4	0.14000	0.86000	22.83134	21.3	5.20998	0.228	22.386
1420	1.42	0.14200	0.85800	22.88456	20	4.892	0.214	20.971
1440	1.44	0.14400	0.85600	22.93803	19	4.6474	0.203	19.876
1460	1.46	0.14600	0.85400	22.99175	17.8	4.35388	0.189	18.577

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	3/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	12 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,2446	h	kN/m^2
1480	1.48	0.14800	0.85200	23.04572	16.8	4.10928	0.178	17.492
1500	1.5	0.15000	0.85000	23.09995	16	3.9136	0.169	16.620
1520	1.52	0.15200	0.84800	23.15443	15.7	3.84022	0.166	16.270
1540	1.54	0.15400	0.84600	23.20917	15.3	3.74238	0.161	15.818

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	4/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	18 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,2446	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	2	0.4892	0.025	2.439
40	0.04	0.00400	0.99600	19.71381	3.5	0.8561	0.043	4.260
60	0.06	0.00600	0.99400	19.75347	5.5	1.3453	0.068	6.681
80	0.08	0.00800	0.99200	19.79330	6.8	1.66328	0.084	8.244
100	0.1	0.01000	0.99000	19.83329	7.8	1.90788	0.096	9.437
120	0.12	0.01200	0.98800	19.87344	9.8	2.39708	0.121	11.833
140	0.14	0.01400	0.98600	19.91375	9.9	2.42154	0.122	11.929
160	0.16	0.01600	0.98400	19.95422	10	2.446	0.123	12.025
180	0.18	0.01800	0.98200	19.99486	12	2.9352	0.147	14.401
200	0.2	0.02000	0.98000	20.03567	13.2	3.22872	0.161	15.809
220	0.22	0.02200	0.97800	20.07664	14.1	3.44886	0.172	16.852
240	0.24	0.02400	0.97600	20.11778	15	3.669	0.182	17.891
260	0.26	0.02600	0.97400	20.15909	15.7	3.84022	0.190	18.688
280	0.28	0.02800	0.97200	20.20057	16.5	4.0359	0.200	19.600
300	0.3	0.03000	0.97000	20.24222	17	4.1582	0.205	20.152
320	0.32	0.03200	0.96800	20.28404	17.7	4.32942	0.213	20.938
340	0.34	0.03400	0.96600	20.32604	18.2	4.45172	0.219	21.485
360	0.36	0.03600	0.96400	20.36821	18.9	4.62294	0.227	22.266
380	0.38	0.03800	0.96200	20.41056	19.5	4.7697	0.234	22.925
400	0.4	0.04000	0.96000	20.45308	20.1	4.91646	0.240	23.581
420	0.42	0.04200	0.95800	20.49578	21	5.1366	0.251	24.586
440	0.44	0.04400	0.95600	20.53865	21.6	5.28336	0.257	25.235
460	0.46	0.04600	0.95400	20.58171	22.2	5.43012	0.264	25.882
480	0.48	0.04800	0.95200	20.62495	23	5.6258	0.273	26.758
500	0.5	0.05000	0.95000	20.66837	23.4	5.72364	0.277	27.167
520	0.52	0.05200	0.94800	20.71198	24	5.8704	0.283	27.805
540	0.54	0.05400	0.94600	20.75577	24.3	5.94378	0.286	28.093
560	0.56	0.05600	0.94400	20.79974	24.9	6.09054	0.293	28.725
580	0.58	0.05800	0.94200	20.84390	25.2	6.16392	0.296	29.010
600	0.6	0.06000	0.94000	20.88825	25.7	6.28622	0.301	29.523
620	0.62	0.06200	0.93800	20.93279	26.1	6.38406	0.305	29.918
640	0.64	0.06400	0.93600	20.97752	26.5	6.4819	0.309	30.312
660	0.66	0.06600	0.93400	21.02243	26.8	6.55528	0.312	30.590
680	0.68	0.06800	0.93200	21.06755	27.1	6.62866	0.315	30.866
700	0.7	0.07000	0.93000	21.11285	27.3	6.67758	0.316	31.027
720	0.72	0.07200	0.92800	21.15836	27.7	6.77542	0.320	31.414

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	4/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	18 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
740	0.74	0.07400	0.92600	21.20405	27.9	6.82434	0.322	31.573
760	0.76	0.07600	0.92400	21.24995	28	6.8488	0.322	31.617
780	0.78	0.07800	0.92200	21.29605	28.1	6.87326	0.323	31.662
800	0.8	0.08000	0.92000	21.34234	28.2	6.89772	0.323	31.705
820	0.82	0.08200	0.91800	21.38884	28.2	6.89772	0.322	31.636
840	0.84	0.08400	0.91600	21.43554	28.2	6.89772	0.322	31.567
860	0.86	0.08600	0.91400	21.48244	27.9	6.82434	0.318	31.163
880	0.88	0.08800	0.91200	21.52955	27	6.6042	0.307	30.092
900	0.9	0.09000	0.91000	21.57687	26.3	6.43298	0.298	29.248
920	0.92	0.09200	0.90800	21.62440	25.8	6.31068	0.292	28.629
940	0.94	0.09400	0.90600	21.67213	25.3	6.18838	0.286	28.012
960	0.96	0.09600	0.90400	21.72008	24.7	6.04162	0.278	27.287
980	0.98	0.09800	0.90200	21.76824	23.8	5.82148	0.267	26.235
1000	1	0.10000	0.90000	21.81662	21.9	5.35674	0.246	24.087
1020	1.02	0.10200	0.89800	21.86520	20	4.892	0.224	21.948
1040	1.04	0.10400	0.89600	21.91401	18.5	4.5251	0.206	20.257
1060	1.06	0.10600	0.89400	21.96304	17.3	4.23158	0.193	18.901
1080	1.08	0.10800	0.89200	22.01228	16.2	3.96252	0.180	17.659

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	4/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	24 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,2446	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	3.5	0.8561	0.044	4.269
40	0.04	0.00400	0.99600	19.71381	6	1.4676	0.074	7.303
60	0.06	0.00600	0.99400	19.75347	8	1.9568	0.099	9.718
80	0.08	0.00800	0.99200	19.79330	10	2.446	0.124	12.123
100	0.1	0.01000	0.99000	19.83329	12	2.9352	0.148	14.518
120	0.12	0.01200	0.98800	19.87344	14	3.4244	0.172	16.904
140	0.14	0.01400	0.98600	19.91375	15.4	3.76684	0.189	18.556
160	0.16	0.01600	0.98400	19.95422	17	4.1582	0.208	20.443
180	0.18	0.01800	0.98200	19.99486	18	4.4028	0.220	21.601
200	0.2	0.02000	0.98000	20.03567	19	4.6474	0.232	22.755
220	0.22	0.02200	0.97800	20.07664	20.3	4.96538	0.247	24.262
240	0.24	0.02400	0.97600	20.11778	21.7	5.30782	0.264	25.882
260	0.26	0.02600	0.97400	20.15909	22.7	5.55242	0.275	27.020
280	0.28	0.02800	0.97200	20.20057	23.8	5.82148	0.288	28.271
300	0.3	0.03000	0.97000	20.24222	24.8	6.06608	0.300	29.398
320	0.32	0.03200	0.96800	20.28404	25.8	6.31068	0.311	30.520
340	0.34	0.03400	0.96600	20.32604	26.4	6.45744	0.318	31.166
360	0.36	0.03600	0.96400	20.36821	27	6.6042	0.324	31.808
380	0.38	0.03800	0.96200	20.41056	27.5	6.7265	0.330	32.330
400	0.4	0.04000	0.96000	20.45308	28	6.8488	0.335	32.849
420	0.42	0.04200	0.95800	20.49578	28.2	6.89772	0.337	33.015
440	0.44	0.04400	0.95600	20.53865	28.6	6.99556	0.341	33.413
460	0.46	0.04600	0.95400	20.58171	28.8	7.04448	0.342	33.577
480	0.48	0.04800	0.95200	20.62495	28	6.8488	0.332	32.575
500	0.5	0.05000	0.95000	20.66837	27	6.6042	0.320	31.346
520	0.52	0.05200	0.94800	20.71198	26	6.3596	0.307	30.122
540	0.54	0.05400	0.94600	20.75577	25	6.115	0.295	28.902
560	0.56	0.05600	0.94400	20.79974	24	5.8704	0.282	27.687
580	0.58	0.05800	0.94200	20.84390	23.3	5.69918	0.273	26.823
600	0.6	0.06000	0.94000	20.88825	22.2	5.43012	0.260	25.502
620	0.62	0.06200	0.93800	20.93279	21.2	5.18552	0.248	24.302
640	0.64	0.06400	0.93600	20.97752	20.7	5.06322	0.241	23.678
660	0.66	0.06600	0.93400	21.02243	20.3	4.96538	0.236	23.171
680	0.68	0.06800	0.93200	21.06755	19.7	4.81862	0.229	22.438
700	0.7	0.07000	0.93000	21.11285	19	4.6474	0.220	21.594
720	0.72	0.07200	0.92800	21.15836	18.4	4.50064	0.213	20.867

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	4/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	24 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
740	0.74	0.07400	0.92600	21.20405	18	4.4028	0.208	20.369
760	0.76	0.07600	0.92400	21.24995	17.7	4.32942	0.204	19.987
780	0.78	0.07800	0.92200	21.29605	17.3	4.23158	0.199	19.493
800	0.8	0.08000	0.92000	21.34234	17	4.1582	0.195	19.113
820	0.82	0.08200	0.91800	21.38884	16.8	4.10928	0.192	18.847
840	0.84	0.08400	0.91600	21.43554	16.7	4.08482	0.191	18.694
860	0.86	0.08600	0.91400	21.48244	16.7	4.08482	0.190	18.653
880	0.88	0.08800	0.91200	21.52955	16.7	4.08482	0.190	18.613
900	0.9	0.09000	0.91000	21.57687	16.7	4.08482	0.189	18.572
920	0.92	0.09200	0.90800	21.62440	16.6	4.06036	0.188	18.420
940	0.94	0.09400	0.90600	21.67213	16.5	4.0359	0.186	18.269
960	0.96	0.09600	0.90400	21.72008	16.4	4.01144	0.185	18.118
980	0.98	0.09800	0.90200	21.76824	16.2	3.96252	0.182	17.857

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	6/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	72 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,2446	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	3.5	0.8561	0.044	4.269
40	0.04	0.00400	0.99600	19.71381	7.8	1.90788	0.097	9.494
60	0.06	0.00600	0.99400	19.75347	12	2.9352	0.149	14.577
80	0.08	0.00800	0.99200	19.79330	15.8	3.86468	0.195	19.154
100	0.1	0.01000	0.99000	19.83329	18.7	4.57402	0.231	22.624
120	0.12	0.01200	0.98800	19.87344	21	5.1366	0.258	25.355
140	0.14	0.01400	0.98600	19.91375	23	5.6258	0.283	27.714
160	0.16	0.01600	0.98400	19.95422	24.5	5.9927	0.300	29.462
180	0.18	0.01800	0.98200	19.99486	26	6.3596	0.318	31.202
200	0.2	0.02000	0.98000	20.03567	27.7	6.77542	0.338	33.174
220	0.22	0.02200	0.97800	20.07664	28.8	7.04448	0.351	34.421
240	0.24	0.02400	0.97600	20.11778	30.5	7.4603	0.371	36.379
260	0.26	0.02600	0.97400	20.15909	31.5	7.7049	0.382	37.494
280	0.28	0.02800	0.97200	20.20057	32.8	8.02288	0.397	38.962
300	0.3	0.03000	0.97000	20.24222	34	8.3164	0.411	40.304
320	0.32	0.03200	0.96800	20.28404	35	8.561	0.422	41.404
340	0.34	0.03400	0.96600	20.32604	36	8.8056	0.433	42.499
360	0.36	0.03600	0.96400	20.36821	37	9.0502	0.444	43.589
380	0.38	0.03800	0.96200	20.41056	38	9.2948	0.455	44.674
400	0.4	0.04000	0.96000	20.45308	39.1	9.56386	0.468	45.872
420	0.42	0.04200	0.95800	20.49578	40.2	9.83292	0.480	47.064
440	0.44	0.04400	0.95600	20.53865	41.2	10.07752	0.491	48.134
460	0.46	0.04600	0.95400	20.58171	42	10.2732	0.499	48.966
480	0.48	0.04800	0.95200	20.62495	43	10.5178	0.510	50.027
500	0.5	0.05000	0.95000	20.66837	44	10.7624	0.521	51.082
520	0.52	0.05200	0.94800	20.71198	45	11.007	0.531	52.133
540	0.54	0.05400	0.94600	20.75577	45.3	11.08038	0.534	52.370
560	0.56	0.05600	0.94400	20.79974	45.6	11.15376	0.536	52.606
580	0.58	0.05800	0.94200	20.84390	45.7	11.17822	0.536	52.609
600	0.6	0.06000	0.94000	20.88825	45.7	11.17822	0.535	52.498
620	0.62	0.06200	0.93800	20.93279	45.8	11.20268	0.535	52.501
640	0.64	0.06400	0.93600	20.97752	45.8	11.20268	0.534	52.389
660	0.66	0.06600	0.93400	21.02243	45.3	11.08038	0.527	51.706
680	0.68	0.06800	0.93200	21.06755	44.7	10.93362	0.519	50.912
700	0.7	0.07000	0.93000	21.11285	44	10.7624	0.510	50.007
720	0.72	0.07200	0.92800	21.15836	43	10.5178	0.497	48.765

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	3/4/2018	Tanggal Pengujian :	6/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	4%
A0 :	19.63495 cm^2	t =	72 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,2446	h	kN/m^2
740	0.74	0.07400	0.92600	21.20405	41	10.0286	0.473	46.397
760	0.76	0.07600	0.92400	21.24995	39	9.5394	0.449	44.038
780	0.78	0.07800	0.92200	21.29605	37	9.0502	0.425	41.690
800	0.8	0.08000	0.92000	21.34234	35	8.561	0.401	39.351
820	0.82	0.08200	0.91800	21.38884	33	8.0718	0.377	37.021
840	0.84	0.08400	0.91600	21.43554	30.7	7.50922	0.350	34.366
860	0.86	0.08600	0.91400	21.48244	29	7.0934	0.330	32.392
880	0.88	0.08800	0.91200	21.52955	28	6.8488	0.318	31.207
900	0.9	0.09000	0.91000	21.57687	27.1	6.62866	0.307	30.137
920	0.92	0.09200	0.90800	21.62440	26.8	6.55528	0.303	29.738

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	9/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	6%
A0 :	19.634954 cm^2	t =	1 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,244 c	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	0.2	0.0489	0.002	0.244
40	0.04	0.00400	0.99600	19.71381	1	0.2446	0.012	1.217
60	0.06	0.00600	0.99400	19.75347	1.2	0.2935	0.015	1.458
80	0.08	0.00800	0.99200	19.79330	1.8	0.4403	0.022	2.182
100	0.1	0.01000	0.99000	19.83329	2	0.4892	0.025	2.420
120	0.12	0.01200	0.98800	19.87344	2.1	0.5137	0.026	2.536
140	0.14	0.01400	0.98600	19.91375	2.8	0.6849	0.034	3.374
160	0.16	0.01600	0.98400	19.95422	3	0.7338	0.037	3.608
180	0.18	0.01800	0.98200	19.99486	3.2	0.7827	0.039	3.840
200	0.2	0.02000	0.98000	20.03567	3.8	0.9295	0.046	4.551
220	0.22	0.02200	0.97800	20.07664	4	0.9784	0.049	4.781
240	0.24	0.02400	0.97600	20.11778	4.8	1.1741	0.058	5.725
260	0.26	0.02600	0.97400	20.15909	5	1.223	0.061	5.951
280	0.28	0.02800	0.97200	20.20057	5.2	1.2719	0.063	6.177
300	0.3	0.03000	0.97000	20.24222	5.5	1.3453	0.066	6.520
320	0.32	0.03200	0.96800	20.28404	6	1.4676	0.072	7.098
340	0.34	0.03400	0.96600	20.32604	6.2	1.5165	0.075	7.319
360	0.36	0.03600	0.96400	20.36821	6.8	1.6633	0.082	8.011
380	0.38	0.03800	0.96200	20.41056	7	1.7122	0.084	8.229
400	0.4	0.04000	0.96000	20.45308	7.1	1.7367	0.085	8.330
420	0.42	0.04200	0.95800	20.49578	7.5	1.8345	0.090	8.781
440	0.44	0.04400	0.95600	20.53865	7.8	1.9079	0.093	9.113
460	0.46	0.04600	0.95400	20.58171	8	1.9568	0.095	9.327
480	0.48	0.04800	0.95200	20.62495	8.1	1.9813	0.096	9.424
500	0.5	0.05000	0.95000	20.66837	8.5	2.0791	0.101	9.868
520	0.52	0.05200	0.94800	20.71198	8.8	2.1525	0.104	10.195
540	0.54	0.05400	0.94600	20.75577	9	2.2014	0.106	10.405
560	0.56	0.05600	0.94400	20.79974	9.2	2.2503	0.108	10.613
580	0.58	0.05800	0.94200	20.84390	9.5	2.3237	0.111	10.936
600	0.6	0.06000	0.94000	20.88825	9.8	2.3971	0.115	11.258
620	0.62	0.06200	0.93800	20.93279	10	2.446	0.117	11.463
640	0.64	0.06400	0.93600	20.97752	10.2	2.4949	0.119	11.667
660	0.66	0.06600	0.93400	21.02243	10.5	2.5683	0.122	11.985
680	0.68	0.06800	0.93200	21.06755	10.8	2.6417	0.125	12.301

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	9/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	6%
A0 :	19.634954 cm^2	t =	1 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	ΔL / L_0	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,244 c	h	kN/m^2
700	0.7	0.07000	0.93000	21.11285	11	2.6906	0.127	12.502
720	0.72	0.07200	0.92800	21.15836	11.1	2.7151	0.128	12.588
740	0.74	0.07400	0.92600	21.20405	11.5	2.8129	0.133	13.014
760	0.76	0.07600	0.92400	21.24995	11.8	2.8863	0.136	13.324
780	0.78	0.07800	0.92200	21.29605	12	2.9352	0.138	13.521
800	0.8	0.08000	0.92000	21.34234	12.2	2.9841	0.140	13.716
820	0.82	0.08200	0.91800	21.38884	12.8	3.1309	0.146	14.360
840	0.84	0.08400	0.91600	21.43554	12.9	3.1553	0.147	14.440
860	0.86	0.08600	0.91400	21.48244	13	3.1798	0.148	14.521
880	0.88	0.08800	0.91200	21.52955	13.1	3.2043	0.149	14.600
900	0.9	0.09000	0.91000	21.57687	13.2	3.2287	0.150	14.679
920	0.92	0.09200	0.90800	21.62440	13.7	3.351	0.155	15.202
940	0.94	0.09400	0.90600	21.67213	13.9	3.3999	0.157	15.390
960	0.96	0.09600	0.90400	21.72008	14	3.4244	0.158	15.466
980	0.98	0.09800	0.90200	21.76824	14	3.4244	0.157	15.432
1000	1	0.10000	0.90000	21.81662	14.1	3.4489	0.158	15.508
1020	1.02	0.10200	0.89800	21.86520	14.2	3.4733	0.159	15.583
1040	1.04	0.10400	0.89600	21.91401	14.4	3.5222	0.161	15.768
1060	1.06	0.10600	0.89400	21.96304	14.6	3.5712	0.163	15.951
1080	1.08	0.10800	0.89200	22.01228	14.9	3.6445	0.166	16.242
1100	1.1	0.11000	0.89000	22.06175	14.9	3.6445	0.165	16.206
1120	1.12	0.11200	0.88800	22.11143	14.9	3.6445	0.165	16.169
1140	1.14	0.11400	0.88600	22.16135	15	3.669	0.166	16.241
1160	1.16	0.11600	0.88400	22.21149	15	3.669	0.165	16.205
1180	1.18	0.11800	0.88200	22.26185	15.1	3.6935	0.166	16.276
1200	1.2	0.12000	0.88000	22.31245	15.1	3.6935	0.166	16.239
1220	1.22	0.12200	0.87800	22.36327	15.2	3.7179	0.166	16.309
1240	1.24	0.12400	0.87600	22.41433	15.5	3.7913	0.169	16.593
1260	1.26	0.12600	0.87400	22.46562	15.5	3.7913	0.169	16.555
1280	1.28	0.12800	0.87200	22.51715	15.8	3.8647	0.172	16.837
1300	1.3	0.13000	0.87000	22.56891	15.9	3.8891	0.172	16.905
1320	1.32	0.13200	0.86800	22.62091	15.9	3.8891	0.172	16.866
1340	1.34	0.13400	0.86600	22.67316	16	3.9136	0.173	16.933
1360	1.36	0.13600	0.86400	22.72564	16	3.9136	0.172	16.894
1380	1.38	0.13800	0.86200	22.77837	16	3.9136	0.172	16.855

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	9/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	6%
A0 :	19.634954 cm^2	t =	1 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,244	h	kN/m^2
1400	1.4	0.14000	0.86000	22.83134	16.1	3.9381	0.172	16.921
1420	1.42	0.14200	0.85800	22.88456	16.1	3.9381	0.172	16.881
1440	1.44	0.14400	0.85600	22.93803	16.2	3.9625	0.173	16.947
1460	1.46	0.14600	0.85400	22.99175	16.2	3.9625	0.172	16.907
1480	1.48	0.14800	0.85200	23.04572	16.5	4.0359	0.175	17.180
1500	1.5	0.15000	0.85000	23.09995	16.7	4.0848	0.177	17.347
1520	1.52	0.15200	0.84800	23.15443	16.7	4.0848	0.176	17.306

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	9/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	6%
A0 :	19.634954 cm^2	t =	3 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,244 6	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	3	0.7338	0.037	3.659
40	0.04	0.00400	0.99600	19.71381	4.1	1.0029	0.051	4.990
60	0.06	0.00600	0.99400	19.75347	5.7	1.3942	0.071	6.924
80	0.08	0.00800	0.99200	19.79330	7	1.7122	0.087	8.486
100	0.1	0.01000	0.99000	19.83329	8	1.9568	0.099	9.679
120	0.12	0.01200	0.98800	19.87344	8.7	2.128	0.107	10.504
140	0.14	0.01400	0.98600	19.91375	9.5	2.3237	0.117	11.447
160	0.16	0.01600	0.98400	19.95422	10	2.446	0.123	12.025
180	0.18	0.01800	0.98200	19.99486	10.9	2.6661	0.133	13.081
200	0.2	0.02000	0.98000	20.03567	11.1	2.7151	0.136	13.294
220	0.22	0.02200	0.97800	20.07664	11.9	2.9107	0.145	14.223
240	0.24	0.02400	0.97600	20.11778	12.5	3.0575	0.152	14.909
260	0.26	0.02600	0.97400	20.15909	13	3.1798	0.158	15.474
280	0.28	0.02800	0.97200	20.20057	13.8	3.3755	0.167	16.392
300	0.3	0.03000	0.97000	20.24222	14.2	3.4733	0.172	16.833
320	0.32	0.03200	0.96800	20.28404	14.8	3.6201	0.178	17.508
340	0.34	0.03400	0.96600	20.32604	15.1	3.6935	0.182	17.826
360	0.36	0.03600	0.96400	20.36821	15.8	3.8647	0.190	18.614
380	0.38	0.03800	0.96200	20.41056	16	3.9136	0.192	18.810
400	0.4	0.04000	0.96000	20.45308	16.5	4.0359	0.197	19.358
420	0.42	0.04200	0.95800	20.49578	17	4.1582	0.203	19.903
440	0.44	0.04400	0.95600	20.53865	17.2	4.2071	0.205	20.095
460	0.46	0.04600	0.95400	20.58171	17.7	4.3294	0.210	20.636
480	0.48	0.04800	0.95200	20.62495	18	4.4028	0.213	20.941
500	0.5	0.05000	0.95000	20.66837	18.3	4.4762	0.217	21.246
520	0.52	0.05200	0.94800	20.71198	18.8	4.5985	0.222	21.780
540	0.54	0.05400	0.94600	20.75577	19	4.6474	0.224	21.965
560	0.56	0.05600	0.94400	20.79974	19.5	4.7697	0.229	22.496
580	0.58	0.05800	0.94200	20.84390	19.8	4.8431	0.232	22.794
600	0.6	0.06000	0.94000	20.88825	20	4.892	0.234	22.975
620	0.62	0.06200	0.93800	20.93279	20.2	4.9409	0.236	23.155
640	0.64	0.06400	0.93600	20.97752	20.5	5.0143	0.239	23.449
660	0.66	0.06600	0.93400	21.02243	20.6	5.0388	0.240	23.513
680	0.68	0.06800	0.93200	21.06755	20.9	5.1121	0.243	23.804

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	9/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	6%
A0 :	19.634954 cm^2	t =	3 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	ΔL / L_0	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,244 c	h	kN/m^2
700	0.7	0.07000	0.93000	21.11285	21.1	5.1611	0.244	23.981
720	0.72	0.07200	0.92800	21.15836	21.2	5.1855	0.245	24.042
740	0.74	0.07400	0.92600	21.20405	21.2	5.1855	0.245	23.991
760	0.76	0.07600	0.92400	21.24995	21.4	5.2344	0.246	24.165
780	0.78	0.07800	0.92200	21.29605	21.5	5.2589	0.247	24.225
800	0.8	0.08000	0.92000	21.34234	21.6	5.2834	0.248	24.285
820	0.82	0.08200	0.91800	21.38884	21.7	5.3078	0.248	24.344
840	0.84	0.08400	0.91600	21.43554	21.7	5.3078	0.248	24.291
860	0.86	0.08600	0.91400	21.48244	21.5	5.2589	0.245	24.015
880	0.88	0.08800	0.91200	21.52955	21.1	5.1611	0.240	23.517
900	0.9	0.09000	0.91000	21.57687	20	4.892	0.227	22.242
920	0.92	0.09200	0.90800	21.62440	18	4.4028	0.204	19.973
940	0.94	0.09400	0.90600	21.67213	16.5	4.0359	0.186	18.269

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	9/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	6%
A0 :	19.634954 cm^2	t =	6 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,244 6	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	2.8	0.6849	0.035	3.415
40	0.04	0.00400	0.99600	19.71381	6.5	1.5899	0.081	7.912
60	0.06	0.00600	0.99400	19.75347	10.3	2.5194	0.128	12.512
80	0.08	0.00800	0.99200	19.79330	14	3.4244	0.173	16.972
100	0.1	0.01000	0.99000	19.83329	17.8	4.3539	0.220	21.535
120	0.12	0.01200	0.98800	19.87344	19	4.6474	0.234	22.941
140	0.14	0.01400	0.98600	19.91375	21.5	5.2589	0.264	25.907
160	0.16	0.01600	0.98400	19.95422	23.5	5.7481	0.288	28.259
180	0.18	0.01800	0.98200	19.99486	24.8	6.0661	0.303	29.762
200	0.2	0.02000	0.98000	20.03567	26.5	6.4819	0.324	31.737
220	0.22	0.02200	0.97800	20.07664	28	6.8488	0.341	33.465
240	0.24	0.02400	0.97600	20.11778	29.7	7.2646	0.361	35.424
260	0.26	0.02600	0.97400	20.15909	31.5	7.7049	0.382	37.494
280	0.28	0.02800	0.97200	20.20057	32.8	8.0229	0.397	38.962
300	0.3	0.03000	0.97000	20.24222	34	8.3164	0.411	40.304
320	0.32	0.03200	0.96800	20.28404	35.3	8.6344	0.426	41.759
340	0.34	0.03400	0.96600	20.32604	36.9	9.0257	0.444	43.561
360	0.36	0.03600	0.96400	20.36821	38	9.2948	0.456	44.767
380	0.38	0.03800	0.96200	20.41056	39.4	9.6372	0.472	46.320
400	0.4	0.04000	0.96000	20.45308	40.5	9.9063	0.484	47.514
420	0.42	0.04200	0.95800	20.49578	41.8	10.224	0.499	48.937
440	0.44	0.04400	0.95600	20.53865	43	10.518	0.512	50.237
460	0.46	0.04600	0.95400	20.58171	44.1	10.787	0.524	51.414
480	0.48	0.04800	0.95200	20.62495	45.2	11.056	0.536	52.586
500	0.5	0.05000	0.95000	20.66837	46.4	11.349	0.549	53.869
520	0.52	0.05200	0.94800	20.71198	47.2	11.545	0.557	54.682
540	0.54	0.05400	0.94600	20.75577	48	11.741	0.566	55.492
560	0.56	0.05600	0.94400	20.79974	48.7	11.912	0.573	56.182
580	0.58	0.05800	0.94200	20.84390	48.9	11.961	0.574	56.293
600	0.6	0.06000	0.94000	20.88825	48.9	11.961	0.573	56.174
620	0.62	0.06200	0.93800	20.93279	48.9	11.961	0.571	56.054
640	0.64	0.06400	0.93600	20.97752	48.5	11.863	0.566	55.477
660	0.66	0.06600	0.93400	21.02243	48	11.741	0.558	54.788
680	0.68	0.06800	0.93200	21.06755	48	11.741	0.557	54.670

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	9/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	6%
A0 :	19.634954 cm^2	t =	6 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,244 c	h	kN/m^2
700	0.7	0.07000	0.93000	21.11285	41.5	10.151	0.481	47.166
720	0.72	0.07200	0.92800	21.15836	38.5	9.4171	0.445	43.662
740	0.74	0.07400	0.92600	21.20405	24	5.8704	0.277	27.159
760	0.76	0.07600	0.92400	21.24995	21	5.1366	0.242	23.713
780	0.78	0.07800	0.92200	21.29605	20.5	5.0143	0.235	23.098
800	0.8	0.08000	0.92000	21.34234	19	4.6474	0.218	21.362
820	0.82	0.08200	0.91800	21.38884	18.1	4.4273	0.207	20.306
840	0.84	0.08400	0.91600	21.43554	17.5	4.2805	0.200	19.590
860	0.86	0.08600	0.91400	21.48244	16.8	4.1093	0.191	18.765
880	0.88	0.08800	0.91200	21.52955	16.5	4.0359	0.187	18.390
900	0.9	0.09000	0.91000	21.57687	17	4.1582	0.193	18.905
920	0.92	0.09200	0.90800	21.62440	17.4	4.256	0.197	19.308
940	0.94	0.09400	0.90600	21.67213	17.9	4.3783	0.202	19.819
960	0.96	0.09600	0.90400	21.72008	18.2	4.4517	0.205	20.106
980	0.98	0.09800	0.90200	21.76824	18.3	4.4762	0.206	20.172

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	9/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	6%
A0 :	19.634954 cm^2	t =	12 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	ΔL / L_0	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,244 6	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	14	3.4244	0.174	17.075
40	0.04	0.00400	0.99600	19.71381	18	4.4028	0.223	21.909
60	0.06	0.00600	0.99400	19.75347	20	4.892	0.248	24.295
80	0.08	0.00800	0.99200	19.79330	23	5.6258	0.284	27.883
100	0.1	0.01000	0.99000	19.83329	25	6.115	0.308	30.246
120	0.12	0.01200	0.98800	19.87344	26.5	6.4819	0.326	31.996
140	0.14	0.01400	0.98600	19.91375	28	6.8488	0.344	33.739
160	0.16	0.01600	0.98400	19.95422	30	7.338	0.368	36.075
180	0.18	0.01800	0.98200	19.99486	31.8	7.7783	0.389	38.162
200	0.2	0.02000	0.98000	20.03567	33	8.0718	0.403	39.522
220	0.22	0.02200	0.97800	20.07664	34.2	8.3653	0.417	40.875
240	0.24	0.02400	0.97600	20.11778	35.8	8.7567	0.435	42.700
260	0.26	0.02600	0.97400	20.15909	37	9.0502	0.449	44.041
280	0.28	0.02800	0.97200	20.20057	39	9.5394	0.472	46.326
300	0.3	0.03000	0.97000	20.24222	40.5	9.9063	0.489	48.009
320	0.32	0.03200	0.96800	20.28404	41.8	10.224	0.504	49.448
340	0.34	0.03400	0.96600	20.32604	43	10.518	0.517	50.762
360	0.36	0.03600	0.96400	20.36821	44	10.762	0.528	51.835
380	0.38	0.03800	0.96200	20.41056	45.7	11.178	0.548	53.726
400	0.4	0.04000	0.96000	20.45308	46.5	11.374	0.556	54.553
420	0.42	0.04200	0.95800	20.49578	46.9	11.472	0.560	54.908
440	0.44	0.04400	0.95600	20.53865	48.9	11.961	0.582	57.130
460	0.46	0.04600	0.95400	20.58171	50	12.23	0.594	58.293
480	0.48	0.04800	0.95200	20.62495	51.2	12.524	0.607	59.567
500	0.5	0.05000	0.95000	20.66837	52	12.719	0.615	60.370
520	0.52	0.05200	0.94800	20.71198	52.9	12.939	0.625	61.286
540	0.54	0.05400	0.94600	20.75577	53.5	13.086	0.630	61.850
560	0.56	0.05600	0.94400	20.79974	53.9	13.184	0.634	62.181
580	0.58	0.05800	0.94200	20.84390	54.3	13.282	0.637	62.510
600	0.6	0.06000	0.94000	20.88825	54.5	13.331	0.638	62.607
620	0.62	0.06200	0.93800	20.93279	54.8	13.404	0.640	62.817
640	0.64	0.06400	0.93600	20.97752	54.9	13.429	0.640	62.798
660	0.66	0.06600	0.93400	21.02243	55	13.453	0.640	62.778
680	0.68	0.06800	0.93200	21.06755	54.7	13.38	0.635	62.302

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	9/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	6%
A0 :	19.634954 cm^2	t =	12 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,244 c	h	kN/m^2
700	0.7	0.07000	0.93000	21.11285	53.5	13.086	0.620	60.804
720	0.72	0.07200	0.92800	21.15836	52	12.719	0.601	58.972
740	0.74	0.07400	0.92600	21.20405	49.5	12.108	0.571	56.016
760	0.76	0.07600	0.92400	21.24995	45	11.007	0.518	50.814
780	0.78	0.07800	0.92200	21.29605	42	10.273	0.482	47.323
800	0.8	0.08000	0.92000	21.34234	37.5	9.1725	0.430	42.161
820	0.82	0.08200	0.91800	21.38884	34.5	8.4387	0.395	38.704
840	0.84	0.08400	0.91600	21.43554	32.9	8.0473	0.375	36.829
860	0.86	0.08600	0.91400	21.48244	31.9	7.8027	0.363	35.631
880	0.88	0.08800	0.91200	21.52955	31	7.5826	0.352	34.550
900	0.9	0.09000	0.91000	21.57687	30.6	7.4848	0.347	34.030
920	0.92	0.09200	0.90800	21.62440	30.7	7.5092	0.347	34.066
940	0.94	0.09400	0.90600	21.67213	30.7	7.5092	0.346	33.991
960	0.96	0.09600	0.90400	21.72008	30.8	7.5337	0.347	34.026
980	0.98	0.09800	0.90200	21.76824	30.8	7.5337	0.346	33.951
1000	1	0.10000	0.90000	21.81662	30.4	7.4358	0.341	33.436
1020	1.02	0.10200	0.89800	21.86520	30	7.338	0.336	32.923

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	10/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	6%
A0 :	19.634954 cm^2	t =	18 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,244 6	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	0.5	0.1223	0.006	0.610
40	0.04	0.00400	0.99600	19.71381	1.7	0.4158	0.021	2.069
60	0.06	0.00600	0.99400	19.75347	6	1.4676	0.074	7.288
80	0.08	0.00800	0.99200	19.79330	9.5	2.3237	0.117	11.517
100	0.1	0.01000	0.99000	19.83329	22	5.3812	0.271	26.617
120	0.12	0.01200	0.98800	19.87344	28	6.8488	0.345	33.807
140	0.14	0.01400	0.98600	19.91375	34	8.3164	0.418	40.969
160	0.16	0.01600	0.98400	19.95422	40	9.784	0.490	48.101
180	0.18	0.01800	0.98200	19.99486	44	10.762	0.538	52.803
200	0.2	0.02000	0.98000	20.03567	48	11.741	0.586	57.486
220	0.22	0.02200	0.97800	20.07664	51.5	12.597	0.627	61.552
240	0.24	0.02400	0.97600	20.11778	55	13.453	0.669	65.601
260	0.26	0.02600	0.97400	20.15909	57.8	14.138	0.701	68.799
280	0.28	0.02800	0.97200	20.20057	59.8	14.627	0.724	71.033
300	0.3	0.03000	0.97000	20.24222	61.8	15.116	0.747	73.258
320	0.32	0.03200	0.96800	20.28404	64.9	15.875	0.783	76.774
340	0.34	0.03400	0.96600	20.32604	65.8	16.095	0.792	77.678
360	0.36	0.03600	0.96400	20.36821	68	16.633	0.817	80.109
380	0.38	0.03800	0.96200	20.41056	69.5	17	0.833	81.706
400	0.4	0.04000	0.96000	20.45308	71.5	17.489	0.855	83.883
420	0.42	0.04200	0.95800	20.49578	72.5	17.734	0.865	84.879
440	0.44	0.04400	0.95600	20.53865	73.5	17.978	0.875	85.870
460	0.46	0.04600	0.95400	20.58171	72.5	17.734	0.862	84.524
480	0.48	0.04800	0.95200	20.62495	69.5	17	0.824	80.857
500	0.5	0.05000	0.95000	20.66837	65.7	16.07	0.778	76.275
520	0.52	0.05200	0.94800	20.71198	60	14.676	0.709	69.511
540	0.54	0.05400	0.94600	20.75577	50	12.23	0.589	57.804
560	0.56	0.05600	0.94400	20.79974	39.5	9.6617	0.465	45.568
580	0.58	0.05800	0.94200	20.84390	35.5	8.6833	0.417	40.867
600	0.6	0.06000	0.94000	20.88825	33	8.0718	0.386	37.909
620	0.62	0.06200	0.93800	20.93279	29.7	7.2646	0.347	34.045
640	0.64	0.06400	0.93600	20.97752	24.5	5.9927	0.286	28.024
660	0.66	0.06600	0.93400	21.02243	20	4.892	0.233	22.828
680	0.68	0.06800	0.93200	21.06755	17	4.1582	0.197	19.362

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	10/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	6%
A0 :	19.634954 cm^2	t =	18 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,244	h	kN/m^2
700	0.7	0.07000	0.93000	21.11285	14	3.4244	0.162	15.911
720	0.72	0.07200	0.92800	21.15836	10	2.446	0.116	11.341

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	10/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	6%
A0 :	19.634954 cm^2	t =	24 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,244 6	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	5	1.223	0.062	6.098
40	0.04	0.00400	0.99600	19.71381	9	2.2014	0.112	10.955
60	0.06	0.00600	0.99400	19.75347	13	3.1798	0.161	15.792
80	0.08	0.00800	0.99200	19.79330	19.5	4.7697	0.241	23.640
100	0.1	0.01000	0.99000	19.83329	25	6.115	0.308	30.246
120	0.12	0.01200	0.98800	19.87344	30	7.338	0.369	36.222
140	0.14	0.01400	0.98600	19.91375	38	9.2948	0.467	45.788
160	0.16	0.01600	0.98400	19.95422	42.5	10.396	0.521	51.107
180	0.18	0.01800	0.98200	19.99486	46.5	11.374	0.569	55.803
200	0.2	0.02000	0.98000	20.03567	50.4	12.328	0.615	60.360
220	0.22	0.02200	0.97800	20.07664	53.7	13.135	0.654	64.181
240	0.24	0.02400	0.97600	20.11778	56.7	13.869	0.689	67.628
260	0.26	0.02600	0.97400	20.15909	59.3	14.505	0.720	70.584
280	0.28	0.02800	0.97200	20.20057	62	15.165	0.751	73.647
300	0.3	0.03000	0.97000	20.24222	64.7	15.826	0.782	76.696
320	0.32	0.03200	0.96800	20.28404	66.7	16.315	0.804	78.904
340	0.34	0.03400	0.96600	20.32604	68	16.633	0.818	80.275
360	0.36	0.03600	0.96400	20.36821	71	17.367	0.853	83.643
380	0.38	0.03800	0.96200	20.41056	72.8	17.807	0.872	85.586
400	0.4	0.04000	0.96000	20.45308	74	18.1	0.885	86.816
420	0.42	0.04200	0.95800	20.49578	75.8	18.541	0.905	88.742
440	0.44	0.04400	0.95600	20.53865	76.8	18.785	0.915	89.725
460	0.46	0.04600	0.95400	20.58171	77.3	18.908	0.919	90.120
480	0.48	0.04800	0.95200	20.62495	76.5	18.712	0.907	89.001
500	0.5	0.05000	0.95000	20.66837	74.5	18.223	0.882	86.492
520	0.52	0.05200	0.94800	20.71198	71.7	17.538	0.847	83.066
540	0.54	0.05400	0.94600	20.75577	67	16.388	0.790	77.457
560	0.56	0.05600	0.94400	20.79974	56	13.698	0.659	64.603
580	0.58	0.05800	0.94200	20.84390	51	12.475	0.598	58.711
600	0.6	0.06000	0.94000	20.88825	45	11.007	0.527	51.693
620	0.62	0.06200	0.93800	20.93279	41	10.029	0.479	46.998
640	0.64	0.06400	0.93600	20.97752	39	9.5394	0.455	44.610
660	0.66	0.06600	0.93400	21.02243	36.5	8.9279	0.425	41.662
680	0.68	0.06800	0.93200	21.06755	36	8.8056	0.418	41.003

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	12/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	6%
A0 :	19.634954 cm^2	t =	72 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	ΔL / L_0	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,244	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.00	0.00
20	0.02	0.00200	0.99800	19.67430	4	0.9784	0.05	4.88
40	0.04	0.00400	0.99600	19.71381	11	2.6906	0.14	13.39
60	0.06	0.00600	0.99400	19.75347	22	5.3812	0.27	26.72
80	0.08	0.00800	0.99200	19.79330	29	7.0934	0.36	35.16
100	0.1	0.01000	0.99000	19.83329	35	8.561	0.43	42.34
120	0.12	0.01200	0.98800	19.87344	42	10.273	0.52	50.71
140	0.14	0.01400	0.98600	19.91375	47	11.496	0.58	56.63
160	0.16	0.01600	0.98400	19.95422	52.3	12.793	0.64	62.89
180	0.18	0.01800	0.98200	19.99486	56.5	13.82	0.69	67.80
200	0.2	0.02000	0.98000	20.03567	59.5	14.554	0.73	71.26
220	0.22	0.02200	0.97800	20.07664	62.3	15.239	0.76	74.46
240	0.24	0.02400	0.97600	20.11778	65.5	16.021	0.80	78.12
260	0.26	0.02600	0.97400	20.15909	68.5	16.755	0.83	81.54
280	0.28	0.02800	0.97200	20.20057	70.3	17.195	0.85	83.51
300	0.3	0.03000	0.97000	20.24222	72.5	17.734	0.88	85.94
320	0.32	0.03200	0.96800	20.28404	74.7	18.272	0.90	88.37
340	0.34	0.03400	0.96600	20.32604	77	18.834	0.93	90.90
360	0.36	0.03600	0.96400	20.36821	79	19.323	0.95	93.07
380	0.38	0.03800	0.96200	20.41056	81	19.813	0.97	95.23
400	0.4	0.04000	0.96000	20.45308	83	20.302	0.99	97.37
420	0.42	0.04200	0.95800	20.49578	84.3	20.62	1.01	98.69
440	0.44	0.04400	0.95600	20.53865	85.8	20.987	1.02	100.24
460	0.46	0.04600	0.95400	20.58171	87	21.28	1.03	101.43
480	0.48	0.04800	0.95200	20.62495	88	21.525	1.04	102.38
500	0.5	0.05000	0.95000	20.66837	88.2	21.574	1.04	102.40
520	0.52	0.05200	0.94800	20.71198	86.5	21.158	1.02	100.21
540	0.54	0.05400	0.94600	20.75577	82.5	20.18	0.97	95.38
560	0.56	0.05600	0.94400	20.79974	74	18.1	0.87	85.37
580	0.58	0.05800	0.94200	20.84390	67	16.388	0.79	77.13
600	0.6	0.06000	0.94000	20.88825	60.5	14.798	0.71	69.50
620	0.62	0.06200	0.93800	20.93279	46	11.252	0.54	52.73
640	0.64	0.06400	0.93600	20.97752	40	9.784	0.47	45.75
660	0.66	0.06600	0.93400	21.02243	35	8.561	0.41	39.95
680	0.68	0.06800	0.93200	21.06755	34	8.3164	0.39	38.72

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	12/4/2018
Diameter, D :	5 cm	wc =	60%
Tinggi, L0 :	10 cm	cc =	6%
A0 :	19.634954 cm^2	t =	72 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
700	0.7	0.07000	0.93000	21.11285	31.5	7.7049	0.36	35.80
720	0.72	0.07200	0.92800	21.15836	29.4	7.1912	0.34	33.34
740	0.74	0.07400	0.92600	21.20405	28	6.8488	0.32	31.69

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	9/4/2018
Diameter, D :	5 cm	wc =	120%
Tinggi, L0 :	10 cm	cc =	8%
A0 :	19.6349541 cm^2	t =	6 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	1	0.2446	0.012	1.220
40	0.04	0.00400	0.99600	19.71381	1.5	0.3669	0.019	1.826
60	0.06	0.00600	0.99400	19.75347	1.5	0.3669	0.019	1.822
80	0.08	0.00800	0.99200	19.79330	1.8	0.44028	0.022	2.182
100	0.1	0.01000	0.99000	19.83329	2	0.4892	0.025	2.420
120	0.12	0.01200	0.98800	19.87344	2	0.4892	0.025	2.415
140	0.14	0.01400	0.98600	19.91375	2	0.4892	0.025	2.410
160	0.16	0.01600	0.98400	19.95422	2	0.4892	0.025	2.405
180	0.18	0.01800	0.98200	19.99486	2	0.4892	0.024	2.400
200	0.2	0.02000	0.98000	20.03567	2	0.4892	0.024	2.395
220	0.22	0.02200	0.97800	20.07664	2	0.4892	0.024	2.390
240	0.24	0.02400	0.97600	20.11778	2	0.4892	0.024	2.385
260	0.26	0.02600	0.97400	20.15909	2	0.4892	0.024	2.381
280	0.28	0.02800	0.97200	20.20057	2	0.4892	0.024	2.376
300	0.3	0.03000	0.97000	20.24222	2.1	0.51366	0.025	2.489
320	0.32	0.03200	0.96800	20.28404	2.3	0.56258	0.028	2.721
340	0.34	0.03400	0.96600	20.32604	2.5	0.6115	0.030	2.951
360	0.36	0.03600	0.96400	20.36821	2.5	0.6115	0.030	2.945
380	0.38	0.03800	0.96200	20.41056	2.5	0.6115	0.030	2.939
400	0.4	0.04000	0.96000	20.45308	2.5	0.6115	0.030	2.933
420	0.42	0.04200	0.95800	20.49578	2.5	0.6115	0.030	2.927
440	0.44	0.04400	0.95600	20.53865	2.6	0.63596	0.031	3.038
460	0.46	0.04600	0.95400	20.58171	2.6	0.63596	0.031	3.031
480	0.48	0.04800	0.95200	20.62495	2.6	0.63596	0.031	3.025
500	0.5	0.05000	0.95000	20.66837	2.7	0.66042	0.032	3.135
520	0.52	0.05200	0.94800	20.71198	2.8	0.68488	0.033	3.244
540	0.54	0.05400	0.94600	20.75577	2.9	0.70934	0.034	3.353
560	0.56	0.05600	0.94400	20.79974	2.9	0.70934	0.034	3.346
580	0.58	0.05800	0.94200	20.84390	2.9	0.70934	0.034	3.338
600	0.6	0.06000	0.94000	20.88825	2.9	0.70934	0.034	3.331
620	0.62	0.06200	0.93800	20.93279	2.9	0.70934	0.034	3.324
640	0.64	0.06400	0.93600	20.97752	2.9	0.70934	0.034	3.317
660	0.66	0.06600	0.93400	21.02243	2.9	0.70934	0.034	3.310
680	0.68	0.06800	0.93200	21.06755	2.8	0.68488	0.033	3.189

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	9/4/2018
Diameter, D :	5 cm	wc =	120%
Tinggi, L0 :	10 cm	cc =	8%
A0 :	19.6349541 cm^2	t =	6 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
700	0.7	0.07000	0.93000	21.11285	2.6	0.63596	0.030	2.955
720	0.72	0.07200	0.92800	21.15836	2.4	0.58704	0.028	2.722
740	0.74	0.07400	0.92600	21.20405	2.6	0.63596	0.030	2.942
760	0.76	0.07600	0.92400	21.24995	2.8	0.68488	0.032	3.162
780	0.78	0.07800	0.92200	21.29605	2.8	0.68488	0.032	3.155
800	0.8	0.08000	0.92000	21.34234	2.8	0.68488	0.032	3.148
820	0.82	0.08200	0.91800	21.38884	2.8	0.68488	0.032	3.141
840	0.84	0.08400	0.91600	21.43554	2.8	0.68488	0.032	3.134
860	0.86	0.08600	0.91400	21.48244	2.8	0.68488	0.032	3.128
880	0.88	0.08800	0.91200	21.52955	2.8	0.68488	0.032	3.121
900	0.9	0.09000	0.91000	21.57687	2.8	0.68488	0.032	3.114
920	0.92	0.09200	0.90800	21.62440	2.8	0.68488	0.032	3.107
940	0.94	0.09400	0.90600	21.67213	2.8	0.68488	0.032	3.100
960	0.96	0.09600	0.90400	21.72008	2.8	0.68488	0.032	3.093
980	0.98	0.09800	0.90200	21.76824	2.8	0.68488	0.031	3.086
1000	1	0.10000	0.90000	21.81662	2.8	0.68488	0.031	3.080
1020	1.02	0.10200	0.89800	21.86520	2.8	0.68488	0.031	3.073
1040	1.04	0.10400	0.89600	21.91401	2.8	0.68488	0.031	3.066
1060	1.06	0.10600	0.89400	21.96304	2.9	0.70934	0.032	3.168
1080	1.08	0.10800	0.89200	22.01228	2.9	0.70934	0.032	3.161
1100	1.1	0.11000	0.89000	22.06175	2.9	0.70934	0.032	3.154
1120	1.12	0.11200	0.88800	22.11143	2.9	0.70934	0.032	3.147
1140	1.14	0.11400	0.88600	22.16135	2.9	0.70934	0.032	3.140
1160	1.16	0.11600	0.88400	22.21149	2.9	0.70934	0.032	3.133
1180	1.18	0.11800	0.88200	22.26185	2.9	0.70934	0.032	3.126
1200	1.2	0.12000	0.88000	22.31245	2.9	0.70934	0.032	3.119

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	9/4/2018
Diameter, D :	5 cm	wc =	120%
Tinggi, L0 :	10 cm	cc =	8%
A0 :	19.6349541 cm^2	t =	12 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	2.2	0.53812	0.027	2.683
40	0.04	0.00400	0.99600	19.71381	2.7	0.66042	0.034	3.286
60	0.06	0.00600	0.99400	19.75347	3	0.7338	0.037	3.644
80	0.08	0.00800	0.99200	19.79330	3.1	0.75826	0.038	3.758
100	0.1	0.01000	0.99000	19.83329	3.2	0.78272	0.039	3.872
120	0.12	0.01200	0.98800	19.87344	3.3	0.80718	0.041	3.984
140	0.14	0.01400	0.98600	19.91375	3.6	0.88056	0.044	4.338
160	0.16	0.01600	0.98400	19.95422	3.8	0.92948	0.047	4.570
180	0.18	0.01800	0.98200	19.99486	4	0.9784	0.049	4.800
200	0.2	0.02000	0.98000	20.03567	4.1	1.00286	0.050	4.910
220	0.22	0.02200	0.97800	20.07664	4.1	1.00286	0.050	4.900
240	0.24	0.02400	0.97600	20.11778	4.2	1.02732	0.051	5.010
260	0.26	0.02600	0.97400	20.15909	4.3	1.05178	0.052	5.118
280	0.28	0.02800	0.97200	20.20057	4.6	1.12516	0.056	5.464
300	0.3	0.03000	0.97000	20.24222	4.8	1.17408	0.058	5.690
320	0.32	0.03200	0.96800	20.28404	4.9	1.19854	0.059	5.797
340	0.34	0.03400	0.96600	20.32604	5	1.223	0.060	5.903
360	0.36	0.03600	0.96400	20.36821	5	1.223	0.060	5.890
380	0.38	0.03800	0.96200	20.41056	5.1	1.24746	0.061	5.996
400	0.4	0.04000	0.96000	20.45308	5.1	1.24746	0.061	5.983
420	0.42	0.04200	0.95800	20.49578	5.1	1.24746	0.061	5.971
440	0.44	0.04400	0.95600	20.53865	5.2	1.27192	0.062	6.075
460	0.46	0.04600	0.95400	20.58171	5.2	1.27192	0.062	6.062
480	0.48	0.04800	0.95200	20.62495	5.2	1.27192	0.062	6.050
500	0.5	0.05000	0.95000	20.66837	5.2	1.27192	0.062	6.037
520	0.52	0.05200	0.94800	20.71198	5.2	1.27192	0.061	6.024
540	0.54	0.05400	0.94600	20.75577	5.2	1.27192	0.061	6.012
560	0.56	0.05600	0.94400	20.79974	5.3	1.29638	0.062	6.114
580	0.58	0.05800	0.94200	20.84390	5.2	1.27192	0.061	5.986
600	0.6	0.06000	0.94000	20.88825	5.2	1.27192	0.061	5.973
620	0.62	0.06200	0.93800	20.93279	5.1	1.24746	0.060	5.846
640	0.64	0.06400	0.93600	20.97752	5.1	1.24746	0.059	5.834
660	0.66	0.06600	0.93400	21.02243	5	1.223	0.058	5.707
680	0.68	0.06800	0.93200	21.06755	4.9	1.19854	0.057	5.581

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	9/4/2018
Diameter, D :	5 cm	wc =	120%
Tinggi, L0 :	10 cm	cc =	8%
A0 :	19.6349541 cm^2	t =	12 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
700	0.7	0.07000	0.93000	21.11285	4.9	1.19854	0.057	5.569
720	0.72	0.07200	0.92800	21.15836	4.9	1.19854	0.057	5.557
740	0.74	0.07400	0.92600	21.20405	4.9	1.19854	0.057	5.545
760	0.76	0.07600	0.92400	21.24995	4.9	1.19854	0.056	5.533
780	0.78	0.07800	0.92200	21.29605	4.9	1.19854	0.056	5.521
800	0.8	0.08000	0.92000	21.34234	4.9	1.19854	0.056	5.509
820	0.82	0.08200	0.91800	21.38884	4.9	1.19854	0.056	5.497
840	0.84	0.08400	0.91600	21.43554	4.9	1.19854	0.056	5.485

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	10/4/2018
Diameter, D :	5 cm	wc =	120%
Tinggi, L0 :	10 cm	cc =	8%
A0 :	19.6349541 cm^2	t =	18 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.000	0.000
20	0.02	0.00200	0.99800	19.67430	3	0.7338	0.037	3.659
40	0.04	0.00400	0.99600	19.71381	3.5	0.8561	0.043	4.260
60	0.06	0.00600	0.99400	19.75347	4.1	1.00286	0.051	4.980
80	0.08	0.00800	0.99200	19.79330	4.8	1.17408	0.059	5.819
100	0.1	0.01000	0.99000	19.83329	5.1	1.24746	0.063	6.170
120	0.12	0.01200	0.98800	19.87344	5.6	1.36976	0.069	6.761
140	0.14	0.01400	0.98600	19.91375	5.9	1.44314	0.072	7.109
160	0.16	0.01600	0.98400	19.95422	6	1.4676	0.074	7.215
180	0.18	0.01800	0.98200	19.99486	6.1	1.49206	0.075	7.320
200	0.2	0.02000	0.98000	20.03567	6.3	1.54098	0.077	7.545
220	0.22	0.02200	0.97800	20.07664	6.7	1.63882	0.082	8.008
240	0.24	0.02400	0.97600	20.11778	6.9	1.68774	0.084	8.230
260	0.26	0.02600	0.97400	20.15909	7	1.7122	0.085	8.332
280	0.28	0.02800	0.97200	20.20057	7.1	1.73666	0.086	8.434
300	0.3	0.03000	0.97000	20.24222	7.2	1.76112	0.087	8.535
320	0.32	0.03200	0.96800	20.28404	7.3	1.78558	0.088	8.636
340	0.34	0.03400	0.96600	20.32604	7.5	1.8345	0.090	8.854
360	0.36	0.03600	0.96400	20.36821	7.7	1.88342	0.092	9.071
380	0.38	0.03800	0.96200	20.41056	7.8	1.90788	0.093	9.170
400	0.4	0.04000	0.96000	20.45308	7.8	1.90788	0.093	9.151
420	0.42	0.04200	0.95800	20.49578	7.8	1.90788	0.093	9.132
440	0.44	0.04400	0.95600	20.53865	7.8	1.90788	0.093	9.113
460	0.46	0.04600	0.95400	20.58171	7.8	1.90788	0.093	9.094
480	0.48	0.04800	0.95200	20.62495	7.8	1.90788	0.093	9.075
500	0.5	0.05000	0.95000	20.66837	7.8	1.90788	0.092	9.056
520	0.52	0.05200	0.94800	20.71198	7.6	1.85896	0.090	8.805
540	0.54	0.05400	0.94600	20.75577	7.4	1.81004	0.087	8.555
560	0.56	0.05600	0.94400	20.79974	7.1	1.73666	0.083	8.191
580	0.58	0.05800	0.94200	20.84390	7	1.7122	0.082	8.058
600	0.6	0.06000	0.94000	20.88825	7	1.7122	0.082	8.041
620	0.62	0.06200	0.93800	20.93279	7	1.7122	0.082	8.024
640	0.64	0.06400	0.93600	20.97752	6.9	1.68774	0.080	7.893
660	0.66	0.06600	0.93400	21.02243	6.3	1.54098	0.073	7.191
680	0.68	0.06800	0.93200	21.06755	6.2	1.51652	0.072	7.062

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	10/4/2018
Diameter, D :	5 cm	wc =	120%
Tinggi, L0 :	10 cm	cc =	8%
A0 :	19.6349541 cm^2	t =	18 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
700	0.7	0.07000	0.93000	21.11285	6.1	1.49206	0.071	6.933
720	0.72	0.07200	0.92800	21.15836	6.1	1.49206	0.071	6.918
740	0.74	0.07400	0.92600	21.20405	6.1	1.49206	0.070	6.903
760	0.76	0.07600	0.92400	21.24995	6.1	1.49206	0.070	6.888
780	0.78	0.07800	0.92200	21.29605	6.1	1.49206	0.070	6.873
800	0.8	0.08000	0.92000	21.34234	6.1	1.49206	0.070	6.858
820	0.82	0.08200	0.91800	21.38884	6	1.4676	0.069	6.731
840	0.84	0.08400	0.91600	21.43554	6	1.4676	0.068	6.716
860	0.86	0.08600	0.91400	21.48244	6	1.4676	0.068	6.702
880	0.88	0.08800	0.91200	21.52955	6	1.4676	0.068	6.687
900	0.9	0.09000	0.91000	21.57687	6	1.4676	0.068	6.672
920	0.92	0.09200	0.90800	21.62440	6	1.4676	0.068	6.658
940	0.94	0.09400	0.90600	21.67213	6	1.4676	0.068	6.643
960	0.96	0.09600	0.90400	21.72008	6	1.4676	0.068	6.628
980	0.98	0.09800	0.90200	21.76824	6	1.4676	0.067	6.614
1000	1	0.10000	0.90000	21.81662	5.9	1.44314	0.066	6.489
1020	1.02	0.10200	0.89800	21.86520	5.8	1.41868	0.065	6.365
1040	1.04	0.10400	0.89600	21.91401	5.8	1.41868	0.065	6.351
1060	1.06	0.10600	0.89400	21.96304	5.8	1.41868	0.065	6.337
1080	1.08	0.10800	0.89200	22.01228	5.8	1.41868	0.064	6.322
1100	1.1	0.11000	0.89000	22.06175	5.7	1.39422	0.063	6.200
1120	1.12	0.11200	0.88800	22.11143	5.7	1.39422	0.063	6.186
1140	1.14	0.11400	0.88600	22.16135	5.6	1.36976	0.062	6.063
1160	1.16	0.11600	0.88400	22.21149	5.4	1.32084	0.059	5.834
1180	1.18	0.11800	0.88200	22.26185	5.2	1.27192	0.057	5.605
1200	1.2	0.12000	0.88000	22.31245	5.2	1.27192	0.057	5.592
1220	1.22	0.12200	0.87800	22.36327	5.2	1.27192	0.057	5.579
1240	1.24	0.12400	0.87600	22.41433	5.1	1.24746	0.056	5.460

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	10/4/2018
Diameter, D :	5 cm	wc =	120%
Tinggi, L0 :	10 cm	cc =	8%
A0 :	19.6349541 cm^2	t =	24 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.00	0.00
20	0.02	0.00200	0.99800	19.67430	3.8	0.92948	0.05	4.63
40	0.04	0.00400	0.99600	19.71381	4	0.9784	0.05	4.87
60	0.06	0.00600	0.99400	19.75347	4.5	1.1007	0.06	5.47
80	0.08	0.00800	0.99200	19.79330	4.9	1.19854	0.06	5.94
100	0.1	0.01000	0.99000	19.83329	5.1	1.24746	0.06	6.17
120	0.12	0.01200	0.98800	19.87344	4	0.9784	0.05	4.83
140	0.14	0.01400	0.98600	19.91375	4.5	1.1007	0.06	5.42
160	0.16	0.01600	0.98400	19.95422	4.7	1.14962	0.06	5.65
180	0.18	0.01800	0.98200	19.99486	4.6	1.12516	0.06	5.52
200	0.2	0.02000	0.98000	20.03567	4.7	1.14962	0.06	5.63
220	0.22	0.02200	0.97800	20.07664	4.9	1.19854	0.06	5.86
240	0.24	0.02400	0.97600	20.11778	5.1	1.24746	0.06	6.08
260	0.26	0.02600	0.97400	20.15909	5.2	1.27192	0.06	6.19
280	0.28	0.02800	0.97200	20.20057	5.9	1.44314	0.07	7.01
300	0.3	0.03000	0.97000	20.24222	6	1.4676	0.07	7.11
320	0.32	0.03200	0.96800	20.28404	6.5	1.5899	0.08	7.69
340	0.34	0.03400	0.96600	20.32604	7	1.7122	0.08	8.26
360	0.36	0.03600	0.96400	20.36821	7.5	1.8345	0.09	8.84
380	0.38	0.03800	0.96200	20.41056	8	1.9568	0.10	9.41
400	0.4	0.04000	0.96000	20.45308	8.2	2.00572	0.10	9.62
420	0.42	0.04200	0.95800	20.49578	8.5	2.0791	0.10	9.95
440	0.44	0.04400	0.95600	20.53865	9	2.2014	0.11	10.51
460	0.46	0.04600	0.95400	20.58171	9.3	2.27478	0.11	10.84
480	0.48	0.04800	0.95200	20.62495	9.7	2.37262	0.12	11.29
500	0.5	0.05000	0.95000	20.66837	10	2.446	0.12	11.61
520	0.52	0.05200	0.94800	20.71198	10.1	2.47046	0.12	11.70
540	0.54	0.05400	0.94600	20.75577	10.2	2.49492	0.12	11.79
560	0.56	0.05600	0.94400	20.79974	10.5	2.5683	0.12	12.11
580	0.58	0.05800	0.94200	20.84390	10.8	2.64168	0.13	12.43
600	0.6	0.06000	0.94000	20.88825	10.9	2.66614	0.13	12.52
620	0.62	0.06200	0.93800	20.93279	10.9	2.66614	0.13	12.49
640	0.64	0.06400	0.93600	20.97752	10.9	2.66614	0.13	12.47
660	0.66	0.06600	0.93400	21.02243	11	2.6906	0.13	12.56
680	0.68	0.06800	0.93200	21.06755	11	2.6906	0.13	12.53

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	10/4/2018
Diameter, D :	5 cm	wc =	120%
Tinggi, L0 :	10 cm	cc =	8%
A0 :	19.6349541 cm^2	t =	24 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
700	0.7	0.07000	0.93000	21.11285	11	2.6906	0.13	12.50
720	0.72	0.07200	0.92800	21.15836	11	2.6906	0.13	12.47
740	0.74	0.07400	0.92600	21.20405	11	2.6906	0.13	12.45
760	0.76	0.07600	0.92400	21.24995	11	2.6906	0.13	12.42
780	0.78	0.07800	0.92200	21.29605	10.9	2.66614	0.13	12.28
800	0.8	0.08000	0.92000	21.34234	10.8	2.64168	0.12	12.14
820	0.82	0.08200	0.91800	21.38884	10.4	2.54384	0.12	11.67
840	0.84	0.08400	0.91600	21.43554	10.2	2.49492	0.12	11.42
860	0.86	0.08600	0.91400	21.48244	10	2.446	0.11	11.17
880	0.88	0.08800	0.91200	21.52955	9.9	2.42154	0.11	11.03
900	0.9	0.09000	0.91000	21.57687	9.8	2.39708	0.11	10.90
920	0.92	0.09200	0.90800	21.62440	9.5	2.3237	0.11	10.54
940	0.94	0.09400	0.90600	21.67213	9.4	2.29924	0.11	10.41
960	0.96	0.09600	0.90400	21.72008	9.3	2.27478	0.10	10.27
980	0.98	0.09800	0.90200	21.76824	9.2	2.25032	0.10	10.14
1000	1	0.10000	0.90000	21.81662	9.1	2.22586	0.10	10.01
1020	1.02	0.10200	0.89800	21.86520	8.9	2.17694	0.10	9.77
1040	1.04	0.10400	0.89600	21.91401	8.8	2.15248	0.10	9.64
1060	1.06	0.10600	0.89400	21.96304	8.3	2.03018	0.09	9.07
1080	1.08	0.10800	0.89200	22.01228	8.2	2.00572	0.09	8.94
1100	1.1	0.11000	0.89000	22.06175	8.1	1.98126	0.09	8.81
1120	1.12	0.11200	0.88800	22.11143	7.8	1.90788	0.09	8.46
1140	1.14	0.11400	0.88600	22.16135	7.6	1.85896	0.08	8.23
1160	1.16	0.11600	0.88400	22.21149	7.6	1.85896	0.08	8.21
1180	1.18	0.11800	0.88200	22.26185	7.6	1.85896	0.08	8.19
1200	1.2	0.12000	0.88000	22.31245	7.5	1.8345	0.08	8.07

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	12/4/2018
Diameter, D :	5 cm	wc =	120%
Tinggi, L0 :	10 cm	cc =	8%
A0 :	19.6349541 cm^2	t =	72 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
0	0	0.00000	1.00000	19.63495	0	0	0.00	0.00
20	0.02	0.00200	0.99800	19.67430	2.8	0.68488	0.03	3.41
40	0.04	0.00400	0.99600	19.71381	3.9	0.95394	0.05	4.75
60	0.06	0.00600	0.99400	19.75347	4.9	1.19854	0.06	5.95
80	0.08	0.00800	0.99200	19.79330	5.9	1.44314	0.07	7.15
100	0.1	0.01000	0.99000	19.83329	6.7	1.63882	0.08	8.11
120	0.12	0.01200	0.98800	19.87344	7.5	1.8345	0.09	9.06
140	0.14	0.01400	0.98600	19.91375	8.1	1.98126	0.10	9.76
160	0.16	0.01600	0.98400	19.95422	8.9	2.17694	0.11	10.70
180	0.18	0.01800	0.98200	19.99486	9.4	2.29924	0.11	11.28
200	0.2	0.02000	0.98000	20.03567	10	2.446	0.12	11.98
220	0.22	0.02200	0.97800	20.07664	10.2	2.49492	0.12	12.19
240	0.24	0.02400	0.97600	20.11778	10.8	2.64168	0.13	12.88
260	0.26	0.02600	0.97400	20.15909	11.2	2.73952	0.14	13.33
280	0.28	0.02800	0.97200	20.20057	11.8	2.88628	0.14	14.02
300	0.3	0.03000	0.97000	20.24222	12	2.9352	0.15	14.22
320	0.32	0.03200	0.96800	20.28404	12.2	2.98412	0.15	14.43
340	0.34	0.03400	0.96600	20.32604	12.7	3.10642	0.15	14.99
360	0.36	0.03600	0.96400	20.36821	13	3.1798	0.16	15.31
380	0.38	0.03800	0.96200	20.41056	13.1	3.20426	0.16	15.40
400	0.4	0.04000	0.96000	20.45308	13.4	3.27764	0.16	15.72
420	0.42	0.04200	0.95800	20.49578	13.7	3.35102	0.16	16.04
440	0.44	0.04400	0.95600	20.53865	13.8	3.37548	0.16	16.12
460	0.46	0.04600	0.95400	20.58171	13.8	3.37548	0.16	16.09
480	0.48	0.04800	0.95200	20.62495	13.9	3.39994	0.16	16.17
500	0.5	0.05000	0.95000	20.66837	13.9	3.39994	0.16	16.14
520	0.52	0.05200	0.94800	20.71198	13.5	3.3021	0.16	15.64
540	0.54	0.05400	0.94600	20.75577	12.8	3.13088	0.15	14.80
560	0.56	0.05600	0.94400	20.79974	10.2	2.49492	0.12	11.77
580	0.58	0.05800	0.94200	20.84390	9.2	2.25032	0.11	10.59
600	0.6	0.06000	0.94000	20.88825	8.5	2.0791	0.10	9.76
620	0.62	0.06200	0.93800	20.93279	8.2	2.00572	0.10	9.40
640	0.64	0.06400	0.93600	20.97752	8	1.9568	0.09	9.15
660	0.66	0.06600	0.93400	21.02243	7.5	1.8345	0.09	8.56
680	0.68	0.06800	0.93200	21.06755	7.2	1.76112	0.08	8.20

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	9/4/2018	Tanggal Pengujian :	12/4/2018
Diameter, D :	5 cm	wc =	120%
Tinggi, L0 :	10 cm	cc =	8%
A0 :	19.6349541 cm^2	t =	72 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
700	0.7	0.07000	0.93000	21.11285	7.2	1.76112	0.08	8.18
720	0.72	0.07200	0.92800	21.15836	7.2	1.76112	0.08	8.17
740	0.74	0.07400	0.92600	21.20405	7.2	1.76112	0.08	8.15
760	0.76	0.07600	0.92400	21.24995	7.3	1.78558	0.08	8.24
780	0.78	0.07800	0.92200	21.29605	7.5	1.8345	0.09	8.45
800	0.8	0.08000	0.92000	21.34234	7.7	1.88342	0.09	8.66
820	0.82	0.08200	0.91800	21.38884	7.8	1.90788	0.09	8.75
840	0.84	0.08400	0.91600	21.43554	7.8	1.90788	0.09	8.73
860	0.86	0.08600	0.91400	21.48244	7.8	1.90788	0.09	8.71
880	0.88	0.08800	0.91200	21.52955	7.8	1.90788	0.09	8.69
900	0.9	0.09000	0.91000	21.57687	7.9	1.93234	0.09	8.79
920	0.92	0.09200	0.90800	21.62440	8	1.9568	0.09	8.88

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	09/04/2018	Tanggal Pengujian :	09/04/2018
Diameter, D :	5 cm	wc =	120%
Tinggi, L0 :	10 cm	cc =	10%
A0 :	19,6349541 cm^2	t =	3 jam

Perubahan Tinggi			Luas Penampang (cross-section area)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,244	h	kN/m^2
0	0	0,00000	1,00000	19,63495	0	0	0,000	0,000
20	0,02	0,00200	0,99800	19,67430	0,2	0,0489	0,002	0,244
40	0,04	0,00400	0,99600	19,71381	0,3	0,0734	0,004	0,365
60	0,06	0,00600	0,99400	19,75347	0,5	0,1223	0,006	0,607
80	0,08	0,00800	0,99200	19,79330	0,7	0,1712	0,009	0,849
100	0,1	0,01000	0,99000	19,83329	0,9	0,2201	0,011	1,089
120	0,12	0,01200	0,98800	19,87344	0,9	0,2201	0,011	1,087
140	0,14	0,01400	0,98600	19,91375	0,9	0,2201	0,011	1,084
160	0,16	0,01600	0,98400	19,95422	0,9	0,2201	0,011	1,082
180	0,18	0,01800	0,98200	19,99486	0,9	0,2201	0,011	1,080
200	0,2	0,02000	0,98000	20,03567	1	0,2446	0,012	1,198
220	0,22	0,02200	0,97800	20,07664	1	0,2446	0,012	1,195
240	0,24	0,02400	0,97600	20,11778	1	0,2446	0,012	1,193
260	0,26	0,02600	0,97400	20,15909	1	0,2446	0,012	1,190
280	0,28	0,02800	0,97200	20,20057	1	0,2446	0,012	1,188
300	0,3	0,03000	0,97000	20,24222	1	0,2446	0,012	1,185
320	0,32	0,03200	0,96800	20,28404	1	0,2446	0,012	1,183
340	0,34	0,03400	0,96600	20,32604	1	0,2446	0,012	1,181
360	0,36	0,03600	0,96400	20,36821	1	0,2446	0,012	1,178
380	0,38	0,03800	0,96200	20,41056	1	0,2446	0,012	1,176
400	0,4	0,04000	0,96000	20,45308	1	0,2446	0,012	1,173
420	0,42	0,04200	0,95800	20,49578	1,1	0,2691	0,013	1,288
440	0,44	0,04400	0,95600	20,53865	1,1	0,2691	0,013	1,285
460	0,46	0,04600	0,95400	20,58171	1,1	0,2691	0,013	1,282
480	0,48	0,04800	0,95200	20,62495	1,1	0,2691	0,013	1,280
500	0,5	0,05000	0,95000	20,66837	1,1	0,2691	0,013	1,277
520	0,52	0,05200	0,94800	20,71198	1,1	0,2691	0,013	1,274
540	0,54	0,05400	0,94600	20,75577	1,1	0,2691	0,013	1,272
560	0,56	0,05600	0,94400	20,79974	1,1	0,2691	0,013	1,269
580	0,58	0,05800	0,94200	20,84390	1,1	0,2691	0,013	1,266
600	0,6	0,06000	0,94000	20,88825	1,1	0,2691	0,013	1,264
620	0,62	0,06200	0,93800	20,93279	1,1	0,2691	0,013	1,261
640	0,64	0,06400	0,93600	20,97752	1,2	0,2935	0,014	1,373
660	0,66	0,06600	0,93400	21,02243	1,2	0,2935	0,014	1,370

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	09/04/2018		Tanggal Pengujian :	09/04/2018	
Diameter, D	5	cm	wc =	120%	
Tinggi, L0 :	10	cm	cc =	10%	
A0 :	19,6349541	cm^2	t =	3 jam	

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	ε Reganga n	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - ε	$e = A_0 / d$	f	g = f*0,244 6	h	kN/m^2
680	0,68	0,06800	0,93200	21,06755	1,2	0,2935	0,014	1,367
700	0,7	0,07000	0,93000	21,11285	1,2	0,2935	0,014	1,364
720	0,72	0,07200	0,92800	21,15836	1,2	0,2935	0,014	1,361
740	0,74	0,07400	0,92600	21,20405	1,2	0,2935	0,014	1,358
760	0,76	0,07600	0,92400	21,24995	1,2	0,2935	0,014	1,355
780	0,78	0,07800	0,92200	21,29605	1,2	0,2935	0,014	1,352
800	0,8	0,08000	0,92000	21,34234	1,2	0,2935	0,014	1,349
820	0,82	0,08200	0,91800	21,38884	1,2	0,2935	0,014	1,346
840	0,84	0,08400	0,91600	21,43554	1,2	0,2935	0,014	1,343
860	0,86	0,08600	0,91400	21,48244	1,2	0,2935	0,014	1,340
880	0,88	0,08800	0,91200	21,52955	1,2	0,2935	0,014	1,337
900	0,9	0,09000	0,91000	21,57687	1,3	0,318	0,015	1,446
920	0,92	0,09200	0,90800	21,62440	1,3	0,318	0,015	1,443
940	0,94	0,09400	0,90600	21,67213	1,3	0,318	0,015	1,439
960	0,96	0,09600	0,90400	21,72008	1,3	0,318	0,015	1,436
980	0,98	0,09800	0,90200	21,76824	1,4	0,3424	0,016	1,543
1000	1	0,10000	0,90000	21,81662	1,4	0,3424	0,016	1,540
1020	1,02	0,10200	0,89800	21,86520	1,4	0,3424	0,016	1,536
1040	1,04	0,10400	0,89600	21,91401	1,5	0,3669	0,017	1,642
1060	1,06	0,10600	0,89400	21,96304	1,5	0,3669	0,017	1,639
1080	1,08	0,10800	0,89200	22,01228	1,5	0,3669	0,017	1,635
1100	1,1	0,11000	0,89000	22,06175	1,5	0,3669	0,017	1,631
1120	1,12	0,11200	0,88800	22,11143	1,6	0,3914	0,018	1,736
1140	1,14	0,11400	0,88600	22,16135	1,7	0,4158	0,019	1,841
1160	1,16	0,11600	0,88400	22,21149	1,7	0,4158	0,019	1,837
1180	1,18	0,11800	0,88200	22,26185	1,7	0,4158	0,019	1,832
1200	1,2	0,12000	0,88000	22,31245	1,7	0,4158	0,019	1,828
1220	1,22	0,12200	0,87800	22,36327	1,7	0,4158	0,019	1,824
1240	1,24	0,12400	0,87600	22,41433	1,7	0,4158	0,019	1,820
1260	1,26	0,12600	0,87400	22,46562	1,8	0,4403	0,020	1,923
1280	1,28	0,12800	0,87200	22,51715	1,8	0,4403	0,020	1,918
1300	1,3	0,13000	0,87000	22,56891	1,8	0,4403	0,020	1,914
1320	1,32	0,13200	0,86800	22,62091	1,9	0,4647	0,021	2,015
1340	1,34	0,13400	0,86600	22,67316	1,9	0,4647	0,020	2,011
1360	1,36	0,13600	0,86400	22,72564	1,9	0,4647	0,020	2,006
1380	1,38	0,13800	0,86200	22,77837	1,9	0,4647	0,020	2,002

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	09/04/2018	Tanggal Pengujian :	09/04/2018
Diameter, D	5 cm	wc =	120%
Tinggi, L0 :	10 cm	cc =	10%
A0 :	19,6349541 cm^2	t =	3 jam

Perubahan Tinggi			Luas Penampang (cross-section)		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	ε Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	ΔL / L_0	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,2446	h	kN/m^2
1400	1,4	0,14000	0,86000	22,83134	1,9	0,4647	0,020	1,997
1420	1,42	0,14200	0,85800	22,88456	1,9	0,4647	0,020	1,992
1440	1,44	0,14400	0,85600	22,93803	1,9	0,4647	0,020	1,988
1460	1,46	0,14600	0,85400	22,99175	1,9	0,4647	0,020	1,983
1480	1,48	0,14800	0,85200	23,04572	1,9	0,4647	0,020	1,978
1500	1,5	0,15000	0,85000	23,09995	1,9	0,4647	0,020	1,974
1520	1,52	0,15200	0,84800	23,15443	1,9	0,4647	0,020	1,969
1540	1,54	0,15400	0,84600	23,20917	2	0,4892	0,021	2,068

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	09/04/2018		Tanggal Pengujian :	09/04/2018	
Diameter, D	5	cm	wc =	120%	
Tinggi, L0 :	10	cm	cc =	10%	
A0 :	19,6349541	cm^2	t =	6 jam	

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
0	0	0,00000	1,00000	19,63495	0	0	0,000	0,000
20	0,02	0,00200	0,99800	19,67430	0,1	0,0245	0,001	0,122
40	0,04	0,00400	0,99600	19,71381	0,7	0,1712	0,009	0,852
60	0,06	0,00600	0,99400	19,75347	1	0,2446	0,012	1,215
80	0,08	0,00800	0,99200	19,79330	1,2	0,2935	0,015	1,455
100	0,1	0,01000	0,99000	19,83329	1,4	0,3424	0,017	1,694
120	0,12	0,01200	0,98800	19,87344	1,7	0,4158	0,021	2,053
140	0,14	0,01400	0,98600	19,91375	1,8	0,4403	0,022	2,169
160	0,16	0,01600	0,98400	19,95422	2,1	0,5137	0,026	2,525
180	0,18	0,01800	0,98200	19,99486	2,2	0,5381	0,027	2,640
200	0,2	0,02000	0,98000	20,03567	2,3	0,5626	0,028	2,755
220	0,22	0,02200	0,97800	20,07664	2,4	0,587	0,029	2,868
240	0,24	0,02400	0,97600	20,11778	2,5	0,6115	0,030	2,982
260	0,26	0,02600	0,97400	20,15909	2,7	0,6604	0,033	3,214
280	0,28	0,02800	0,97200	20,20057	2,8	0,6849	0,034	3,326
300	0,3	0,03000	0,97000	20,24222	2,9	0,7093	0,035	3,438
320	0,32	0,03200	0,96800	20,28404	3	0,7338	0,036	3,549
340	0,34	0,03400	0,96600	20,32604	3	0,7338	0,036	3,542
360	0,36	0,03600	0,96400	20,36821	3	0,7338	0,036	3,534
380	0,38	0,03800	0,96200	20,41056	3	0,7338	0,036	3,527
400	0,4	0,04000	0,96000	20,45308	3	0,7338	0,036	3,520
420	0,42	0,04200	0,95800	20,49578	3	0,7338	0,036	3,512
440	0,44	0,04400	0,95600	20,53865	3,1	0,7583	0,037	3,622
460	0,46	0,04600	0,95400	20,58171	3,1	0,7583	0,037	3,614
480	0,48	0,04800	0,95200	20,62495	3,2	0,7827	0,038	3,723
500	0,5	0,05000	0,95000	20,66837	3,2	0,7827	0,038	3,715
520	0,52	0,05200	0,94800	20,71198	3,2	0,7827	0,038	3,707
540	0,54	0,05400	0,94600	20,75577	3,4	0,8316	0,040	3,931
560	0,56	0,05600	0,94400	20,79974	3,4	0,8316	0,040	3,922
580	0,58	0,05800	0,94200	20,84390	3,5	0,8561	0,041	4,029
600	0,6	0,06000	0,94000	20,88825	3,5	0,8561	0,041	4,021
620	0,62	0,06200	0,93800	20,93279	3,5	0,8561	0,041	4,012
640	0,64	0,06400	0,93600	20,97752	3,5	0,8561	0,041	4,003
660	0,66	0,06600	0,93400	21,02243	3,6	0,8806	0,042	4,109
680	0,68	0,06800	0,93200	21,06755	3,8	0,9295	0,044	4,328
700	0,7	0,07000	0,93000	21,11285	3,8	0,9295	0,044	4,319

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	09/04/2018		Tanggal Pengujian :	09/04/2018	
Diameter, D	5	cm	wc =	120%	
Tinggi, L0 :	10	cm	cc =	10%	
A0 :	19,6349541	cm^2	t =	6 jam	

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Reganga n	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,244 6	h	kN/m^2
720	0,72	0,07200	0,92800	21,15836	3,8	0,9295	0,044	4,310
740	0,74	0,07400	0,92600	21,20405	3,8	0,9295	0,044	4,300
760	0,76	0,07600	0,92400	21,24995	3,8	0,9295	0,044	4,291
780	0,78	0,07800	0,92200	21,29605	3,8	0,9295	0,044	4,282
800	0,8	0,08000	0,92000	21,34234	3,8	0,9295	0,044	4,272
820	0,82	0,08200	0,91800	21,38884	3,8	0,9295	0,043	4,263
840	0,84	0,08400	0,91600	21,43554	3,8	0,9295	0,043	4,254
860	0,86	0,08600	0,91400	21,48244	3,8	0,9295	0,043	4,244
880	0,88	0,08800	0,91200	21,52955	3,8	0,9295	0,043	4,235
900	0,9	0,09000	0,91000	21,57687	3,8	0,9295	0,043	4,226
920	0,92	0,09200	0,90800	21,62440	3,8	0,9295	0,043	4,217
940	0,94	0,09400	0,90600	21,67213	3,8	0,9295	0,043	4,207
960	0,96	0,09600	0,90400	21,72008	3,8	0,9295	0,043	4,198
980	0,98	0,09800	0,90200	21,76824	3,8	0,9295	0,043	4,189
1000	1	0,10000	0,90000	21,81662	3,8	0,9295	0,043	4,179
1020	1,02	0,10200	0,89800	21,86520	3,8	0,9295	0,043	4,170
1040	1,04	0,10400	0,89600	21,91401	3,5	0,8561	0,039	3,832
1060	1,06	0,10600	0,89400	21,96304	3,5	0,8561	0,039	3,824
1080	1,08	0,10800	0,89200	22,01228	3,5	0,8561	0,039	3,815
1100	1,1	0,11000	0,89000	22,06175	3,5	0,8561	0,039	3,807
1120	1,12	0,11200	0,88800	22,11143	3,5	0,8561	0,039	3,798
1140	1,14	0,11400	0,88600	22,16135	3,5	0,8561	0,039	3,790
1160	1,16	0,11600	0,88400	22,21149	3,5	0,8561	0,039	3,781
1180	1,18	0,11800	0,88200	22,26185	3,5	0,8561	0,038	3,773
1200	1,2	0,12000	0,88000	22,31245	3,5	0,8561	0,038	3,764
1220	1,22	0,12200	0,87800	22,36327	3,5	0,8561	0,038	3,755
1240	1,24	0,12400	0,87600	22,41433	3,5	0,8561	0,038	3,747
1260	1,26	0,12600	0,87400	22,46562	3,5	0,8561	0,038	3,738
1280	1,28	0,12800	0,87200	22,51715	3,7	0,905	0,040	3,943
1300	1,3	0,13000	0,87000	22,56891	3,7	0,905	0,040	3,934
1320	1,32	0,13200	0,86800	22,62091	3,7	0,905	0,040	3,925
1340	1,34	0,13400	0,86600	22,67316	3,7	0,905	0,040	3,916
1360	1,36	0,13600	0,86400	22,72564	3,7	0,905	0,040	3,907
1380	1,38	0,13800	0,86200	22,77837	3,8	0,9295	0,041	4,003
1400	1,4	0,14000	0,86000	22,83134	3,8	0,9295	0,041	3,994

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	09/04/2018		Tanggal Pengujian :	09/04/2018	
Diameter, D	5	cm	wc =	120%	
Tinggi, L0 :	10	cm	cc =	10%	
A0 :	19,6349541	cm^2	t =	6 jam	

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
1420	1,42	0,14200	0,85800	22,88456	3,8	0,9295	0,041	3,984
1440	1,44	0,14400	0,85600	22,93803	3,8	0,9295	0,041	3,975
1460	1,46	0,14600	0,85400	22,99175	3,8	0,9295	0,040	3,966
1480	1,48	0,14800	0,85200	23,04572	3,8	0,9295	0,040	3,957
1500	1,5	0,15000	0,85000	23,09995	3,8	0,9295	0,040	3,947
1520	1,52	0,15200	0,84800	23,15443	3,8	0,9295	0,040	3,938
1540	1,54	0,15400	0,84600	23,20917	3,8	0,9295	0,040	3,929

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	09/04/2018		Tanggal Pengujian :	09/04/2018	
Diameter, D	5	cm	wc =	120%	
Tinggi, L0 :	10	cm	cc =	10%	
A0 :	19,6349541	cm^2	t =	12 jam	

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
0	0	0,00000	1,00000	19,63495	0	0	0,000	0,000
20	0,02	0,00200	0,99800	19,67430	0,8	0,1957	0,010	0,976
40	0,04	0,00400	0,99600	19,71381	1,3	0,318	0,016	1,582
60	0,06	0,00600	0,99400	19,75347	2	0,4892	0,025	2,429
80	0,08	0,00800	0,99200	19,79330	2,4	0,587	0,030	2,910
100	0,1	0,01000	0,99000	19,83329	2,7	0,6604	0,033	3,267
120	0,12	0,01200	0,98800	19,87344	2,6	0,636	0,032	3,139
140	0,14	0,01400	0,98600	19,91375	2,6	0,636	0,032	3,133
160	0,16	0,01600	0,98400	19,95422	2,8	0,6849	0,034	3,367
180	0,18	0,01800	0,98200	19,99486	2,9	0,7093	0,035	3,480
200	0,2	0,02000	0,98000	20,03567	3	0,7338	0,037	3,593
220	0,22	0,02200	0,97800	20,07664	3,1	0,7583	0,038	3,705
240	0,24	0,02400	0,97600	20,11778	3,4	0,8316	0,041	4,055
260	0,26	0,02600	0,97400	20,15909	3,6	0,8806	0,044	4,285
280	0,28	0,02800	0,97200	20,20057	3,8	0,9295	0,046	4,514
300	0,3	0,03000	0,97000	20,24222	4	0,9784	0,048	4,742
320	0,32	0,03200	0,96800	20,28404	4,2	1,0273	0,051	4,968
340	0,34	0,03400	0,96600	20,32604	4,4	1,0762	0,053	5,194
360	0,36	0,03600	0,96400	20,36821	4,6	1,1252	0,055	5,419
380	0,38	0,03800	0,96200	20,41056	4,8	1,1741	0,058	5,643
400	0,4	0,04000	0,96000	20,45308	4,9	1,1985	0,059	5,749
420	0,42	0,04200	0,95800	20,49578	5	1,223	0,060	5,854
440	0,44	0,04400	0,95600	20,53865	5,2	1,2719	0,062	6,075
460	0,46	0,04600	0,95400	20,58171	5,3	1,2964	0,063	6,179
480	0,48	0,04800	0,95200	20,62495	5,7	1,3942	0,068	6,631
500	0,5	0,05000	0,95000	20,66837	5,9	1,4431	0,070	6,850
520	0,52	0,05200	0,94800	20,71198	6	1,4676	0,071	6,951
540	0,54	0,05400	0,94600	20,75577	6,1	1,4921	0,072	7,052
560	0,56	0,05600	0,94400	20,79974	6,2	1,5165	0,073	7,153
580	0,58	0,05800	0,94200	20,84390	6,4	1,5654	0,075	7,368
600	0,6	0,06000	0,94000	20,88825	6,7	1,6388	0,078	7,697
620	0,62	0,06200	0,93800	20,93279	6,8	1,6633	0,079	7,795
640	0,64	0,06400	0,93600	20,97752	6,9	1,6877	0,080	7,893
660	0,66	0,06600	0,93400	21,02243	7	1,7122	0,081	7,990
680	0,68	0,06800	0,93200	21,06755	7,1	1,7367	0,082	8,087

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	09/04/2018		Tanggal Pengujian :	09/04/2018	
Diameter, D	5	cm	wc =	120%	
Tinggi, L0 :	10	cm	cc =	10%	
A0 :	19,6349541	cm^2	t =	12 jam	

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,2446	h	kN/m^2
700	0,7	0,07000	0,93000	21,11285	7,1	1,7367	0,082	8,069
720	0,72	0,07200	0,92800	21,15836	7,2	1,7611	0,083	8,165
740	0,74	0,07400	0,92600	21,20405	7,2	1,7611	0,083	8,148
760	0,76	0,07600	0,92400	21,24995	7,3	1,7856	0,084	8,243
780	0,78	0,07800	0,92200	21,29605	7,4	1,81	0,085	8,338
800	0,8	0,08000	0,92000	21,34234	7,2	1,7611	0,083	8,095
820	0,82	0,08200	0,91800	21,38884	7,2	1,7611	0,082	8,077
840	0,84	0,08400	0,91600	21,43554	7	1,7122	0,080	7,836
860	0,86	0,08600	0,91400	21,48244	6,2	1,5165	0,071	6,925
880	0,88	0,08800	0,91200	21,52955	6,1	1,4921	0,069	6,799
900	0,9	0,09000	0,91000	21,57687	6	1,4676	0,068	6,672
920	0,92	0,09200	0,90800	21,62440	6	1,4676	0,068	6,658
940	0,94	0,09400	0,90600	21,67213	5,9	1,4431	0,067	6,532
960	0,96	0,09600	0,90400	21,72008	5,8	1,4187	0,065	6,408
980	0,98	0,09800	0,90200	21,76824	5,8	1,4187	0,065	6,393
1000	1	0,10000	0,90000	21,81662	5,7	1,3942	0,064	6,269
1020	1,02	0,10200	0,89800	21,86520	5,5	1,3453	0,062	6,036
1040	1,04	0,10400	0,89600	21,91401	5,3	1,2964	0,059	5,803
1060	1,06	0,10600	0,89400	21,96304	5,5	1,3453	0,061	6,009
1080	1,08	0,10800	0,89200	22,01228	5,6	1,3698	0,062	6,104
1100	1,1	0,11000	0,89000	22,06175	5,7	1,3942	0,063	6,200
1120	1,12	0,11200	0,88800	22,11143	5,8	1,4187	0,064	6,294
1140	1,14	0,11400	0,88600	22,16135	5,8	1,4187	0,064	6,280
1160	1,16	0,11600	0,88400	22,21149	5,8	1,4187	0,064	6,266
1180	1,18	0,11800	0,88200	22,26185	5,9	1,4431	0,065	6,359
1200	1,2	0,12000	0,88000	22,31245	5,9	1,4431	0,065	6,345
1220	1,22	0,12200	0,87800	22,36327	6	1,4676	0,066	6,438
1240	1,24	0,12400	0,87600	22,41433	6,1	1,4921	0,067	6,530

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	09/04/2018		Tanggal Pengujian :	10/04/2018	
Diameter, D	5	cm	wc =	120%	
Tinggi, L0 :	10	cm	cc =	10%	
A0 :	19,6349541	cm^2	t =	18 jam	

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	ΔL / L_0	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,2446	h	kN/m^2
0	0	0,00000	1,00000	19,63495	0	0	0,000	0,000
20	0,02	0,00200	0,99800	19,67430	1	0,2446	0,012	1,220
40	0,04	0,00400	0,99600	19,71381	1,5	0,3669	0,019	1,826
60	0,06	0,00600	0,99400	19,75347	1,9	0,4647	0,024	2,308
80	0,08	0,00800	0,99200	19,79330	2,2	0,5381	0,027	2,667
100	0,1	0,01000	0,99000	19,83329	2,9	0,7093	0,036	3,509
120	0,12	0,01200	0,98800	19,87344	3,5	0,8561	0,043	4,226
140	0,14	0,01400	0,98600	19,91375	4	0,9784	0,049	4,820
160	0,16	0,01600	0,98400	19,95422	4,6	1,1252	0,056	5,532
180	0,18	0,01800	0,98200	19,99486	5	1,223	0,061	6,000
200	0,2	0,02000	0,98000	20,03567	5,2	1,2719	0,063	6,228
220	0,22	0,02200	0,97800	20,07664	5,7	1,3942	0,069	6,813
240	0,24	0,02400	0,97600	20,11778	6,1	1,4921	0,074	7,276
260	0,26	0,02600	0,97400	20,15909	6,2	1,5165	0,075	7,380
280	0,28	0,02800	0,97200	20,20057	6,6	1,6144	0,080	7,840
300	0,3	0,03000	0,97000	20,24222	6,8	1,6633	0,082	8,061
320	0,32	0,03200	0,96800	20,28404	6,9	1,6877	0,083	8,162
340	0,34	0,03400	0,96600	20,32604	7,1	1,7367	0,085	8,382
360	0,36	0,03600	0,96400	20,36821	7,2	1,7611	0,086	8,482
380	0,38	0,03800	0,96200	20,41056	7,2	1,7611	0,086	8,465
400	0,4	0,04000	0,96000	20,45308	7,5	1,8345	0,090	8,799
420	0,42	0,04200	0,95800	20,49578	7,7	1,8834	0,092	9,015
440	0,44	0,04400	0,95600	20,53865	7,8	1,9079	0,093	9,113
460	0,46	0,04600	0,95400	20,58171	7,9	1,9323	0,094	9,210
480	0,48	0,04800	0,95200	20,62495	8	1,9568	0,095	9,307
500	0,5	0,05000	0,95000	20,66837	8,1	1,9813	0,096	9,404
520	0,52	0,05200	0,94800	20,71198	8,2	2,0057	0,097	9,500
540	0,54	0,05400	0,94600	20,75577	8,3	2,0302	0,098	9,595
560	0,56	0,05600	0,94400	20,79974	8,3	2,0302	0,098	9,575
580	0,58	0,05800	0,94200	20,84390	8,4	2,0546	0,099	9,670
600	0,6	0,06000	0,94000	20,88825	8,2	2,0057	0,096	9,420
620	0,62	0,06200	0,93800	20,93279	8,1	1,9813	0,095	9,285
640	0,64	0,06400	0,93600	20,97752	8	1,9568	0,093	9,151
660	0,66	0,06600	0,93400	21,02243	7,8	1,9079	0,091	8,903

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	09/04/2018		Tanggal Pengujian :	10/04/2018	
Diameter, D	5	cm	wc =	120%	
Tinggi, L0 :	10	cm	cc =	10%	
A0 :	19,6349541	cm^2	t =	18 jam	

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Reganga n	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,244 6	h	kN/m^2
680	0,68	0,06800	0,93200	21,06755	7,7	1,8834	0,089	8,770
700	0,7	0,07000	0,93000	21,11285	7,4	1,81	0,086	8,410
720	0,72	0,07200	0,92800	21,15836	7,2	1,7611	0,083	8,165
740	0,74	0,07400	0,92600	21,20405	7,1	1,7367	0,082	8,035
760	0,76	0,07600	0,92400	21,24995	7,1	1,7367	0,082	8,017
780	0,78	0,07800	0,92200	21,29605	7,1	1,7367	0,082	8,000
800	0,8	0,08000	0,92000	21,34234	7,1	1,7367	0,081	7,983
820	0,82	0,08200	0,91800	21,38884	7,1	1,7367	0,081	7,965
840	0,84	0,08400	0,91600	21,43554	7,1	1,7367	0,081	7,948
860	0,86	0,08600	0,91400	21,48244	7,1	1,7367	0,081	7,930
880	0,88	0,08800	0,91200	21,52955	7,1	1,7367	0,081	7,913

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	09/04/2018		Tanggal Pengujian :	10/04/2018	
Diameter, D	5	cm	wc =	120%	
Tinggi, L0 :	10	cm	cc =	10%	
A0 :	19,6349541	cm^2	t =	24 jam	

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	e = A_0 / d	f	g = f*0,2446	h	kN/m^2
0	0	0,00000	1,00000	19,63495	0	0	0,000	0,000
20	0,02	0,00200	0,99800	19,67430	5,9	1,4431	0,073	7,196
40	0,04	0,00400	0,99600	19,71381	6,9	1,6877	0,086	8,399
60	0,06	0,00600	0,99400	19,75347	7,6	1,859	0,094	9,232
80	0,08	0,00800	0,99200	19,79330	8,6	2,1036	0,106	10,426
100	0,1	0,01000	0,99000	19,83329	9	2,2014	0,111	10,889
120	0,12	0,01200	0,98800	19,87344	10	2,446	0,123	12,074
140	0,14	0,01400	0,98600	19,91375	10,7	2,6172	0,131	12,893
160	0,16	0,01600	0,98400	19,95422	11	2,6906	0,135	13,228
180	0,18	0,01800	0,98200	19,99486	11,5	2,8129	0,141	13,801
200	0,2	0,02000	0,98000	20,03567	11,8	2,8863	0,144	14,132
220	0,22	0,02200	0,97800	20,07664	11,8	2,8863	0,144	14,103
240	0,24	0,02400	0,97600	20,11778	11,8	2,8863	0,143	14,074
260	0,26	0,02600	0,97400	20,15909	11,9	2,9107	0,144	14,165
280	0,28	0,02800	0,97200	20,20057	12,2	2,9841	0,148	14,492
300	0,3	0,03000	0,97000	20,24222	12,7	3,1064	0,153	15,055
320	0,32	0,03200	0,96800	20,28404	13	3,1798	0,157	15,379
340	0,34	0,03400	0,96600	20,32604	13,1	3,2043	0,158	15,465
360	0,36	0,03600	0,96400	20,36821	13,2	3,2287	0,159	15,551
380	0,38	0,03800	0,96200	20,41056	12,9	3,1553	0,155	15,166
400	0,4	0,04000	0,96000	20,45308	12,9	3,1553	0,154	15,134
420	0,42	0,04200	0,95800	20,49578	12,8	3,1309	0,153	14,985
440	0,44	0,04400	0,95600	20,53865	12,2	2,9841	0,145	14,253
460	0,46	0,04600	0,95400	20,58171	11,6	2,8374	0,138	13,524
480	0,48	0,04800	0,95200	20,62495	10,8	2,6417	0,128	12,565
500	0,5	0,05000	0,95000	20,66837	10,3	2,5194	0,122	11,958
520	0,52	0,05200	0,94800	20,71198	10,2	2,4949	0,120	11,817
540	0,54	0,05400	0,94600	20,75577	10,2	2,4949	0,120	11,792
560	0,56	0,05600	0,94400	20,79974	10,3	2,5194	0,121	11,882
580	0,58	0,05800	0,94200	20,84390	10,5	2,5683	0,123	12,087
600	0,6	0,06000	0,94000	20,88825	10,5	2,5683	0,123	12,062
620	0,62	0,06200	0,93800	20,93279	10,6	2,5928	0,124	12,151

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	09/04/2018		Tanggal Pengujian :	12/04/2018
Diameter, D	5	cm	wc =	120%
Tinggi, L0 :	10	cm	cc =	10%
A0 :	19,6349541	cm^2	t =	72 jam

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	ε Regangan	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	ΔL / L_0	d = 1 - ε	e = A_0 / d	f	g = f*0,2446	h	kN/m^2
0	0	0,00000	1,00000	19,63495	0	0	0,000	0,000
20	0,02	0,00200	0,99800	19,67430	2,5	0,6115	0,031	3,049
40	0,04	0,00400	0,99600	19,71381	5,5	1,3453	0,068	6,694
60	0,06	0,00600	0,99400	19,75347	7	1,7122	0,087	8,503
80	0,08	0,00800	0,99200	19,79330	8,5	2,0791	0,105	10,304
100	0,1	0,01000	0,99000	19,83329	9,7	2,3726	0,120	11,736
120	0,12	0,01200	0,98800	19,87344	10,3	2,5194	0,127	12,436
140	0,14	0,01400	0,98600	19,91375	11	2,6906	0,135	13,255
160	0,16	0,01600	0,98400	19,95422	11,8	2,8863	0,145	14,190
180	0,18	0,01800	0,98200	19,99486	12,2	2,9841	0,149	14,641
200	0,2	0,02000	0,98000	20,03567	12,7	3,1064	0,155	15,210
220	0,22	0,02200	0,97800	20,07664	13,1	3,2043	0,160	15,657
240	0,24	0,02400	0,97600	20,11778	13,6	3,3266	0,165	16,221
260	0,26	0,02600	0,97400	20,15909	13,9	3,3999	0,169	16,545
280	0,28	0,02800	0,97200	20,20057	14,2	3,4733	0,172	16,867
300	0,3	0,03000	0,97000	20,24222	14,6	3,5712	0,176	17,307
320	0,32	0,03200	0,96800	20,28404	14,9	3,6445	0,180	17,626
340	0,34	0,03400	0,96600	20,32604	15,2	3,7179	0,183	17,944
360	0,36	0,03600	0,96400	20,36821	15,6	3,8158	0,187	18,378
380	0,38	0,03800	0,96200	20,41056	15,9	3,8891	0,191	18,693
400	0,4	0,04000	0,96000	20,45308	16,2	3,9625	0,194	19,006
420	0,42	0,04200	0,95800	20,49578	16,5	4,0359	0,197	19,317
440	0,44	0,04400	0,95600	20,53865	16,7	4,0848	0,199	19,511
460	0,46	0,04600	0,95400	20,58171	16,8	4,1093	0,200	19,586
480	0,48	0,04800	0,95200	20,62495	16,8	4,1093	0,199	19,545
500	0,5	0,05000	0,95000	20,66837	16,7	4,0848	0,198	19,388
520	0,52	0,05200	0,94800	20,71198	16,7	4,0848	0,197	19,347
540	0,54	0,05400	0,94600	20,75577	16	3,9136	0,189	18,497
560	0,56	0,05600	0,94400	20,79974	15,4	3,7668	0,181	17,766
580	0,58	0,05800	0,94200	20,84390	15	3,669	0,176	17,268
600	0,6	0,06000	0,94000	20,88825	14,9	3,6445	0,174	17,116
620	0,62	0,06200	0,93800	20,93279	14,8	3,6201	0,173	16,965
640	0,64	0,06400	0,93600	20,97752	14,7	3,5956	0,171	16,815
660	0,66	0,06600	0,93400	21,02243	14,8	3,6201	0,172	16,893
680	0,68	0,06800	0,93200	21,06755	14,8	3,6201	0,172	16,857
700	0,7	0,07000	0,93000	21,11285	14,8	3,6201	0,171	16,821

PENGUJIAN TEKAN BEBAS

Tanggal Pembuatan :	09/04/2018		Tanggal Pengujian :	12/04/2018	
Diameter, D	5	cm	wc =	120%	
Tinggi, L0 :	10	cm	cc =	10%	
A0 :	19,6349541	cm^2	t =	72 jam	

Perubahan Tinggi			Luas Penampang (cross-		Beban		Tekanan (Q)	
Angka Dial Vertikal	ΔL (cm)	Ɛ Reganga n	Koreksi	Luas Terkoreksi A (cm^2)	Angka Dial Beban	Beban P (kg)	P/A	
a	a x 10^{-3}	$\Delta L / L_0$	d = 1 - Ɛ	$e = A_0 / d$	f	g = f*0,244 6	h	kN/m^2
720	0,72	0,07200	0,92800	21,15836	14,9	3,6445	0,172	16,898
740	0,74	0,07400	0,92600	21,20405	15	3,669	0,173	16,975
760	0,76	0,07600	0,92400	21,24995	15,1	3,6935	0,174	17,051