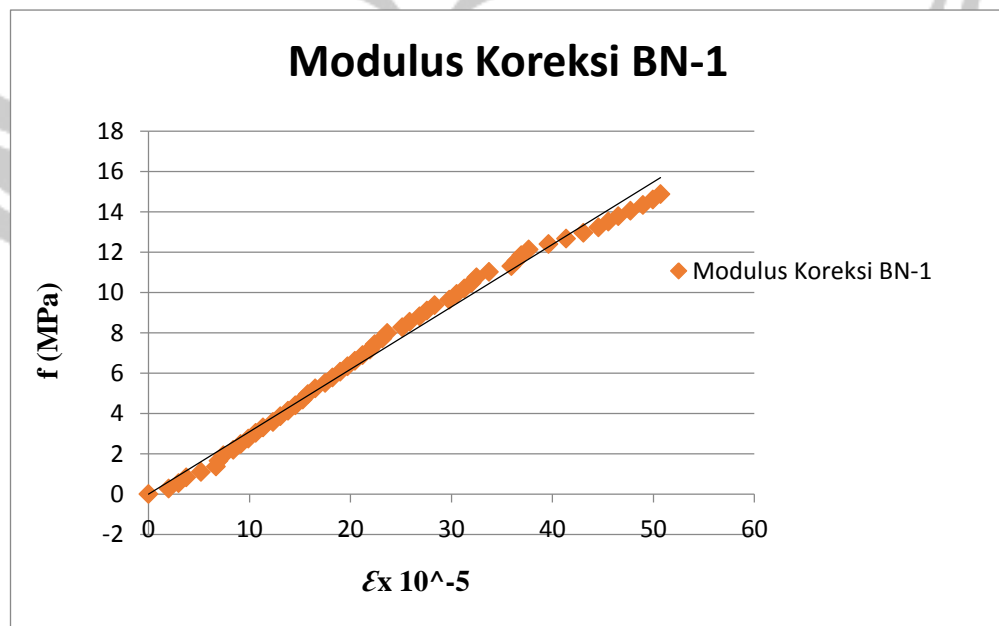
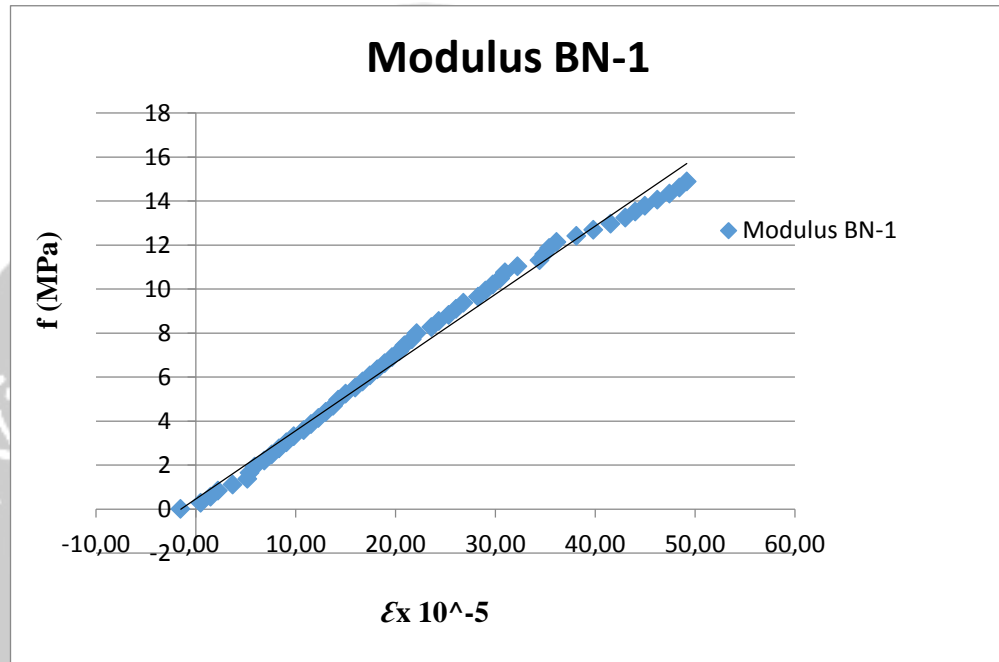




Beban		$\Delta P (10^{-3})$	$0,5 \times \Delta P (10^{-3})$	f	$\epsilon \times 10^{-5}$	$\epsilon_{koreksi} (10^{-5})$
Kgf	N			Mpa		
16000	156960	103	51,5	8,82	25,33	26,85
16500	161865	106	53	9,10	26,07	27,59
17000	166770	109	54,5	9,37	26,81	28,33
17500	171675	115	57,5	9,65	28,28	29,80
18000	176580	118	59	9,93	29,02	30,54
18500	181485	121	60,5	10,20	29,76	31,28
19000	186390	124	62	10,48	30,50	32,02
19500	191295	126	63	10,75	30,99	32,51
20000	196200	131	65,5	11,03	32,22	33,74
20500	201105	140	70	11,30	34,43	35,95
21000	206010	142	71	11,58	34,92	36,44
21500	210915	144	72	11,86	35,42	36,94
22000	215820	147	73,5	12,13	36,15	37,67
22500	220725	155	77,5	12,41	38,12	39,64
23000	225630	162	81	12,68	39,84	41,36
23500	230535	169	84,5	12,96	41,56	43,08
24000	235440	175	87,5	13,23	43,04	44,56
24500	240345	179	89,5	13,51	44,02	45,54
25000	245250	183	91,5	13,79	45,01	46,53
25500	250155	188	94	14,06	46,24	47,76
26000	255060	193	96,5	14,34	47,47	48,99
26500	259965	197	98,5	14,61	48,45	49,97
27000	264870	200	100	14,89	49,19	50,71



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C. Hasil Pengujian Benda Uji

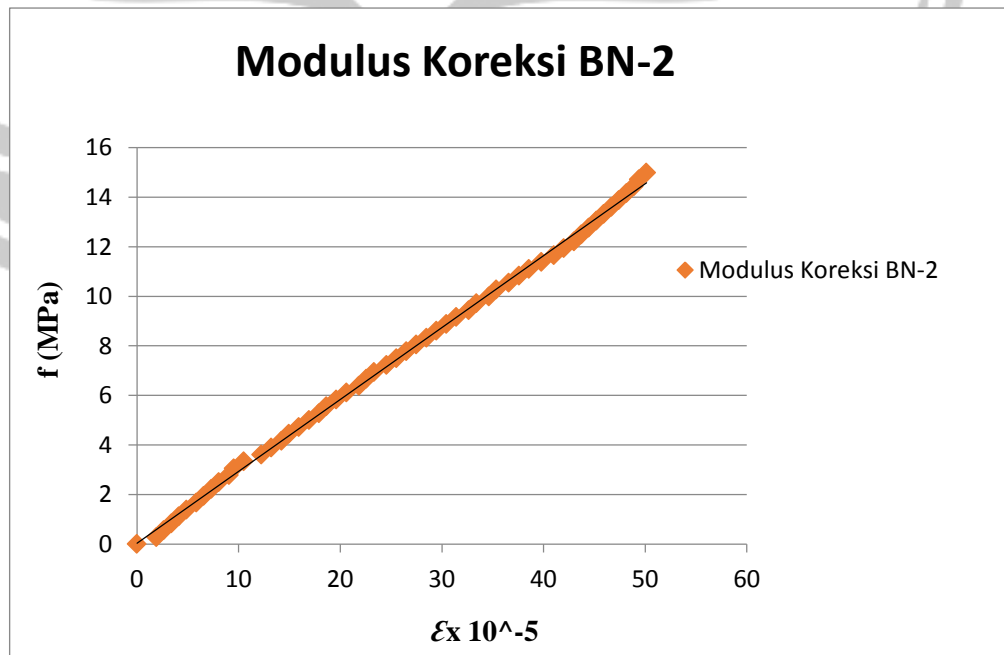
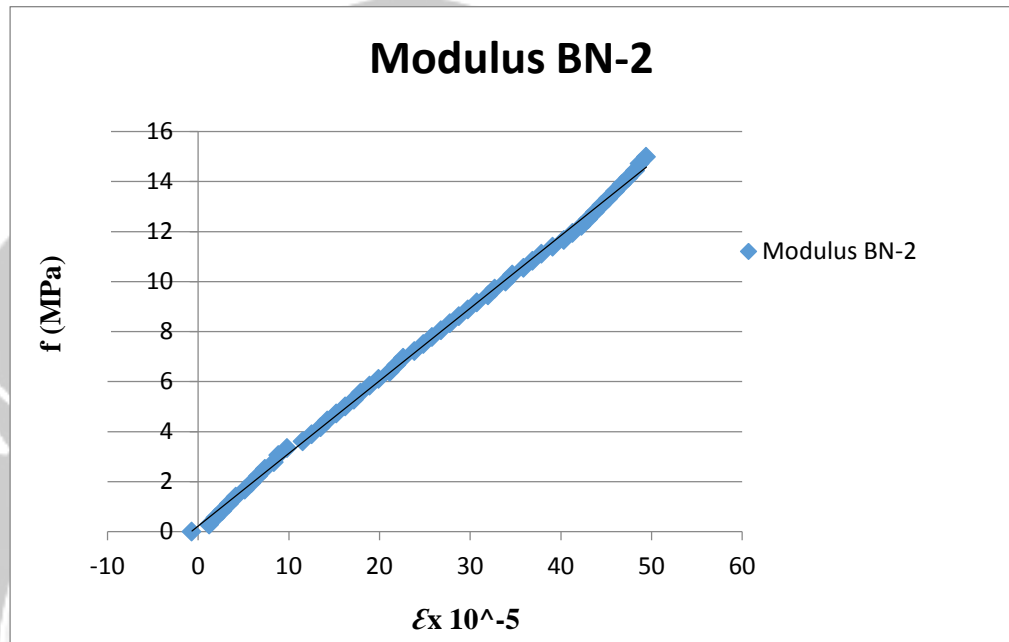
Kode Beton = BN -2
Po = 201,4 mm
Do = 150 mm

Ao = 17671,458 mm²
Beban Max = 27000 kgf
E = 29906,373 MPa

Beban		$\Delta P (10^{-3})$	$0,5x\Delta P (10^{-3})$	f	$\epsilon x 10^{-5}$	$\epsilon koreksi (10^{-5})$
Kgf	N			Mpa		
0	0	0	0	0	-0,684	0
500	4905	5	2,5	0,28	1,23	1,91
1000	9810	8	4	0,56	1,97	2,65
1500	14715	11	5,5	0,83	2,71	3,39
2000	19620	14	7	1,11	3,44	4,13
2500	24525	17	8,5	1,39	4,18	4,87
3000	29430	21	10,5	1,67	5,16	5,85
3500	34335	24	12	1,94	5,90	6,59
4000	39240	27	13,5	2,22	6,64	7,32
4500	44145	30	15	2,50	7,38	8,06
5000	49050	34	17	2,78	8,36	9,05
5500	53955	36	18	3,05	8,85	9,54
6000	58860	40	20	3,33	9,84	10,52
6500	63765	47	23,5	3,61	11,56	12,24
7000	68670	51	25,5	3,89	12,54	13,23
7500	73575	55	27,5	4,16	13,53	14,21
8000	78480	58	29	4,44	14,26	14,95
8500	83385	62	31	4,72	15,25	15,93
9000	88290	66	33	5,00	16,23	16,92
9500	93195	70	35	5,27	17,22	17,90
10000	98100	73	36,5	5,55	17,95	18,64
10500	103005	77	38,5	5,83	18,94	19,62
11000	107910	81	40,5	6,11	19,92	20,61
11500	112815	86	43	6,38	21,15	21,84
12000	117720	89	44,5	6,66	21,89	22,57
12500	122625	92	46	6,94	22,63	23,31
13000	127530	97	48,5	7,22	23,86	24,54
13500	132435	101	50,5	7,49	24,84	25,52
14000	137340	105	52,5	7,77	25,82	26,51
14500	142245	109	54,5	8,05	26,81	27,49
15000	147150	113	56,5	8,33	27,79	28,48
15500	152055	117	58,5	8,60	28,78	29,46



Beban		$\Delta P (10^{-3})$	$0,5 \times \Delta P (10^{-3})$	f	$\epsilon_x 10^{-5}$	$\epsilon_{koreksi} (10^{-5})$
Kgf	N			Mpa		
16000	156960	121	60,5	8,88	29,76	30,44
16500	161865	125	62,5	9,16	30,74	31,43
17000	166770	130	65	9,44	31,97	32,66
17500	171675	133	66,5	9,71	32,71	33,39
18000	176580	138	69	9,99	33,94	34,62
18500	181485	141	70,5	10,27	34,68	35,36
19000	186390	146	73	10,55	35,91	36,59
19500	191295	150	75	10,83	36,89	37,58
20000	196200	154	77	11,10	37,88	38,56
20500	201105	159	79,5	11,38	39,10	39,79
21000	206010	164	82	11,66	40,33	41,02
21500	210915	168	84	11,94	41,32	42,00
22000	215820	172	86	12,21	42,30	42,99
22500	220725	175	87,5	12,49	43,04	43,72
23000	225630	178	89	12,77	43,78	44,46
23500	230535	181	90,5	13,05	44,52	45,20
24000	235440	184	92	13,32	45,25	45,94
24500	240345	187	93,5	13,60	45,99	46,68
25000	245250	190	95	13,88	46,73	47,41
25500	250155	193	96,5	14,16	47,47	48,15
26000	255060	196	98	14,43	48,20	48,89
26500	259965	198	99	14,71	48,70	49,38
27000	264870	201	100,5	14,99	49,43	50,12





Kode Beton = BLS 0%SP-2

Po = 203,1 mm

Do = 149,3 mm

Ao = 17506,91 mm²

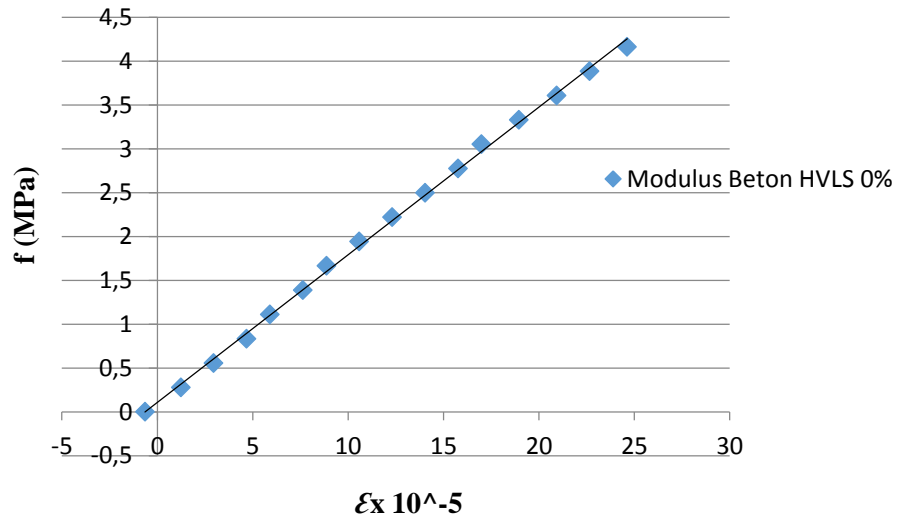
Beban Max = 7500 kgf

E = 16636,471 MPa

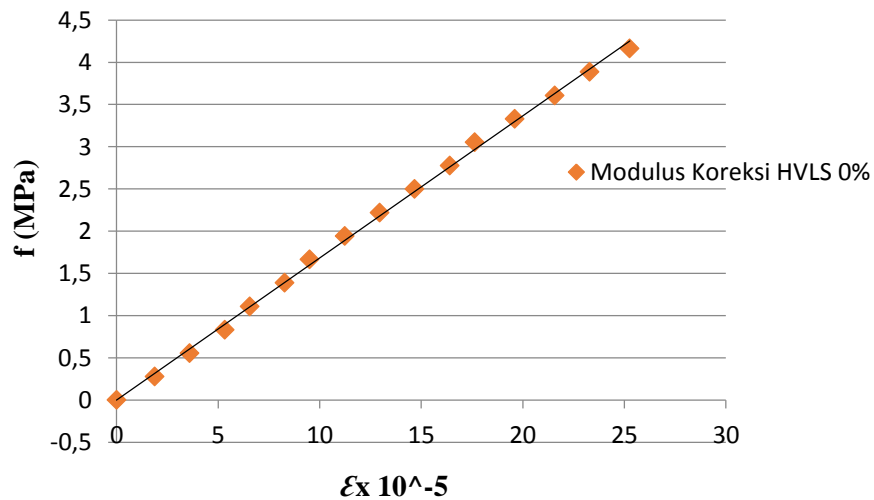
Beban		$\Delta P (10^{-3})$	$0,5x\Delta P (10^{-3})$	f	$\epsilon_x 10^{-5}$	$\epsilon_{koreksi} (10^{-5})$
Kgf	N			Mpa		
0	0	0	0	0	-0,64	0
500	4905	5	2,5	0,28	1,23	1,87
1000	9810	12	6	0,56	2,95	3,60
1500	14715	19	9,5	0,83	4,68	5,32
2000	19620	24	12	1,11	5,91	6,55
2500	24525	31	15,5	1,39	7,63	8,27
3000	29430	36	18	1,67	8,86	9,51
3500	34335	43	21,5	1,94	10,59	11,23
4000	39240	50	25	2,22	12,31	12,95
4500	44145	57	28,5	2,50	14,03	14,68
5000	49050	64	32	2,78	15,76	16,40
5500	53955	69	34,5	3,05	16,99	17,63
6000	58860	77	38,5	3,33	18,96	19,60
6500	63765	85	42,5	3,61	20,93	21,57
7000	68670	92	46	3,89	22,65	23,29
7500	73575	100	50	4,16	24,62	25,26



Modulus Beton HVLS 0%-2



Modulus Koreksi HVLS 0%-2





Kode Beton = BLS 0%SP-3

Po = 202,4 mm

Do = 150 mm

Ao = 17671,46 mm²

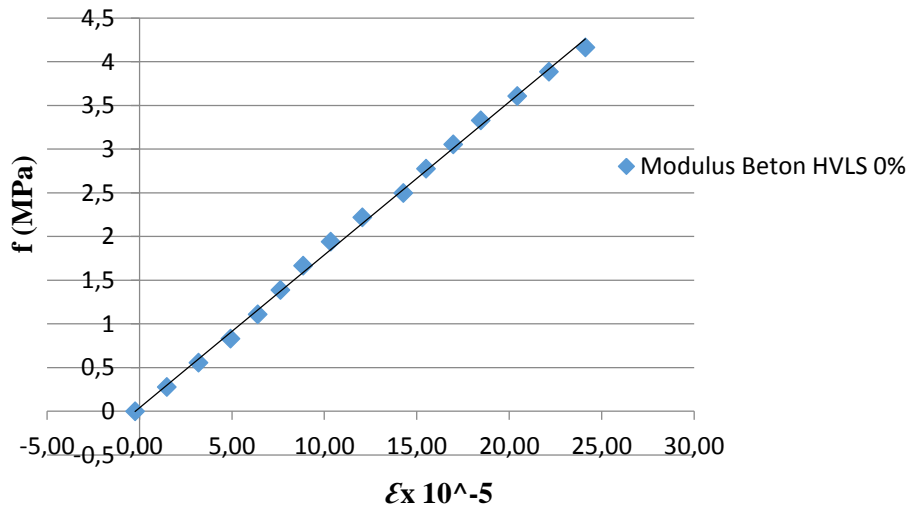
Beban Max = 7500 kgf

E = 17087,420 MPa

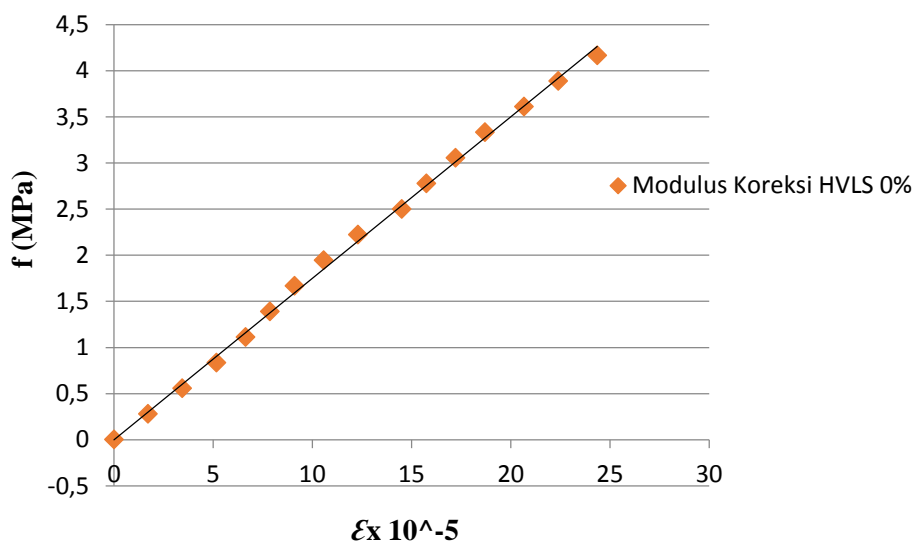
Beban		$\Delta P (10^{-3})$	$0,5x\Delta P (10^{-3})$	f	$\epsilon_x 10^{-5}$	$\epsilon_{koreksi} (10^{-5})$
Kgf	N			Mpa		
0	0	0	0	0	-0,24	0
500	4905	6	3	0,28	1,48	1,72
1000	9810	13	6,5	0,56	3,20	3,44
1500	14715	20	10	0,83	4,92	5,16
2000	19620	26	13	1,11	6,40	6,64
2500	24525	31	15,5	1,39	7,63	7,87
3000	29430	36	18	1,67	8,86	9,10
3500	34335	42	21	1,94	10,34	10,58
4000	39240	49	24,5	2,22	12,06	12,30
4500	44145	58	29	2,50	14,28	14,52
5000	49050	63	31,5	2,78	15,51	15,75
5500	53955	69	34,5	3,05	16,99	17,23
6000	58860	75	37,5	3,33	18,46	18,70
6500	63765	83	41,5	3,61	20,43	20,67
7000	68670	90	45	3,89	22,16	22,40
7500	73575	98	49	4,16	24,13	24,37



Modulus Beton HVLS 0%-3



Modulus Koreksi HVLS 0%-3





Kode Beton = BLS 0.2%SP-1

Po = 203,5 mm

Do = 150,1 mm

Ao = 17695,02 mm²

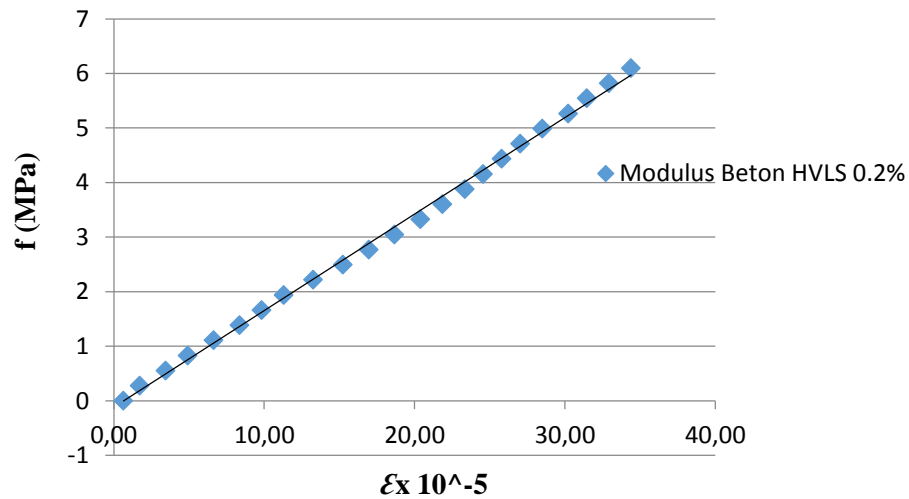
Beban Max = 11000 kgf

E = 18066,67 MPa

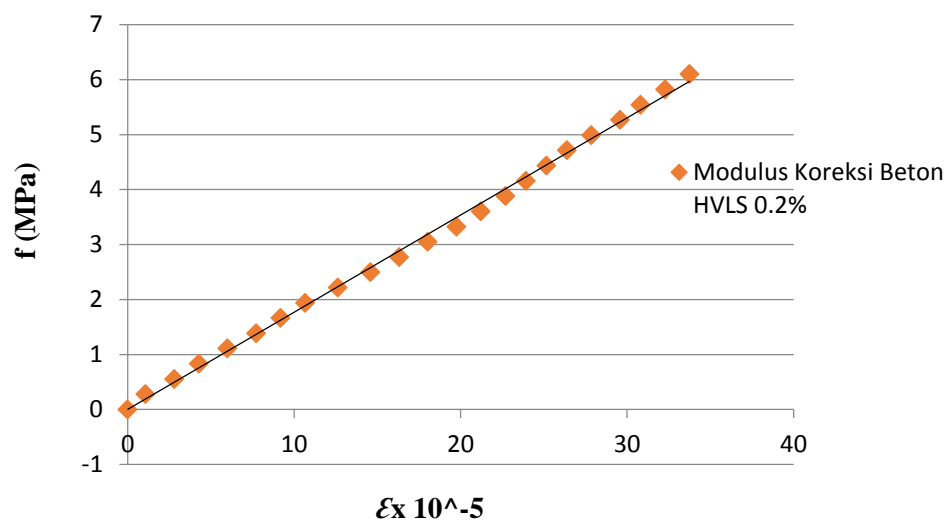
Beban		$\Delta P (10^{-3})$	$0,5 \times \Delta P (10^{-3})$	f	$\epsilon_x 10^{-5}$	$\epsilon_{koreksi} (10^{-5})$
Kgf	N			Mpa		
0	0	0	0	0	0,64	0
500	4905	7	3,5	0,28	1,72	1,08
1000	9810	14	7	0,55	3,44	2,80
1500	14715	20	10	0,83	4,91	4,27
2000	19620	27	13,5	1,11	6,63	5,99
2500	24525	34	17	1,39	8,35	7,71
3000	29430	40	20	1,66	9,83	9,18
3500	34335	46	23	1,94	11,30	10,66
4000	39240	54	27	2,22	13,27	12,62
4500	44145	62	31	2,49	15,23	14,59
5000	49050	69	34,5	2,77	16,95	16,31
5500	53955	76	38	3,05	18,67	18,03
6000	58860	83	41,5	3,33	20,39	19,75
6500	63765	89	44,5	3,60	21,87	21,22
7000	68670	95	47,5	3,88	23,34	22,70
7500	73575	100	50	4,16	24,57	23,93
8000	78480	105	52,5	4,44	25,80	25,16
8500	83385	110	55	4,71	27,03	26,38
9000	88290	116	58	4,99	28,50	27,86
9500	93195	123	61,5	5,27	30,22	29,58
10000	98100	128	64	5,54	31,45	30,81
10500	103005	134	67	5,82	32,92	32,28
11000	107910	140	70	6,10	34,40	33,75



Modulus Beton HVLS 0.2%-1



Modulus Koreksi Beton HVLS 0.2%-1





Kode Beton = BLS 0.2%SP-2

Po = 202,8 mm

Do = 150,6 mm

Ao = 17813,113 mm²

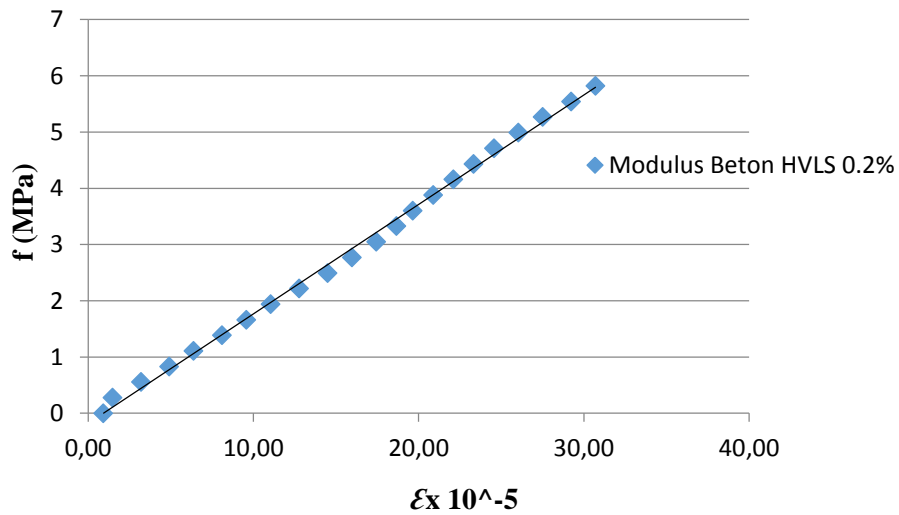
Beban Max = 10500 kgf

E = 19541,93 MPa

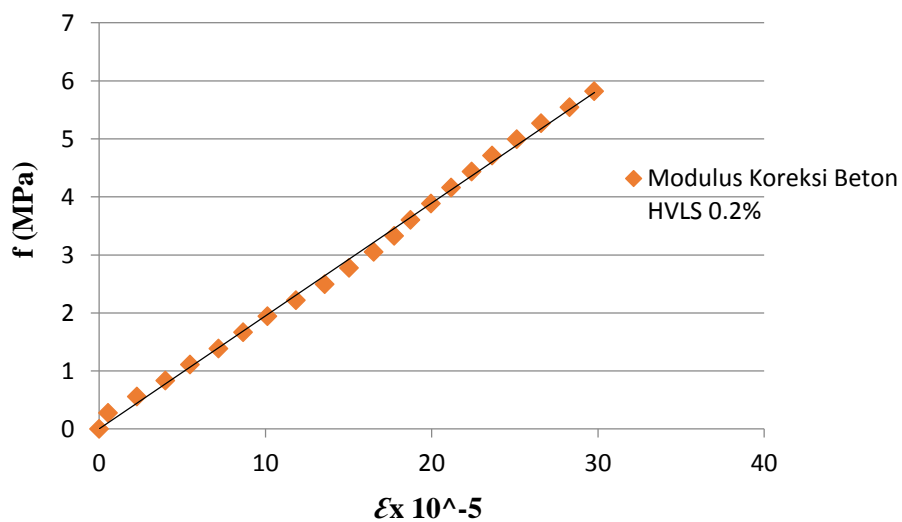
Beban		$\Delta P (10^{-3})$	$0,5 \times \Delta P (10^{-3})$	f	$\epsilon_x 10^{-5}$	$\epsilon_{koreksi} (10^{-5})$
Kgf	N			Mpa		
0	0	0	0	0	0,92	0
500	4905	6	3	0,28	1,47	0,55
1000	9810	13	6,5	0,55	3,19	2,27
1500	14715	20	10	0,83	4,91	3,99
2000	19620	26	13	1,11	6,39	5,46
2500	24525	33	16,5	1,39	8,11	7,18
3000	29430	39	19,5	1,66	9,58	8,66
3500	34335	45	22,5	1,94	11,06	10,13
4000	39240	52	26	2,22	12,78	11,85
4500	44145	59	29,5	2,49	14,50	13,57
5000	49050	65	32,5	2,77	15,97	15,05
5500	53955	71	35,5	3,05	17,44	16,52
6000	58860	76	38	3,33	18,67	17,75
6500	63765	80	40	3,60	19,66	18,73
7000	68670	85	42,5	3,88	20,88	19,96
7500	73575	90	45	4,16	22,11	21,19
8000	78480	95	47,5	4,44	23,34	22,42
8500	83385	100	50	4,71	24,57	23,65
9000	88290	106	53	4,99	26,04	25,12
9500	93195	112	56	5,27	27,52	26,59
10000	98100	119	59,5	5,54	29,24	28,31
10500	103005	125	62,5	5,82	30,71	29,79



Modulus Beton HVLS 0.2%-2



Modulus Koreksi Beton HVLS 0.2%-2





Kode Beton = BLS 0.4%SP-3

Po = 202,1 mm

Do = 149,1 mm

Ao = 17460,037 mm²

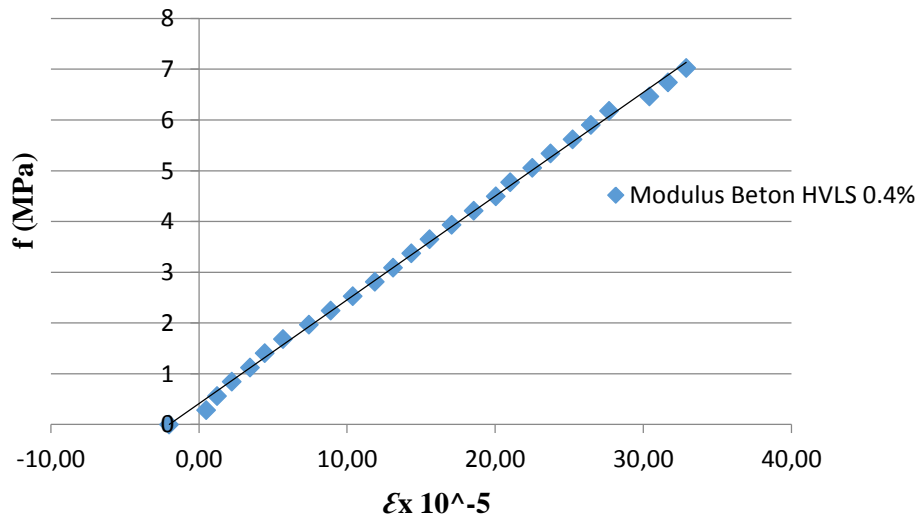
Beban Max = 12500 kgf

E = 20119,978 MPa

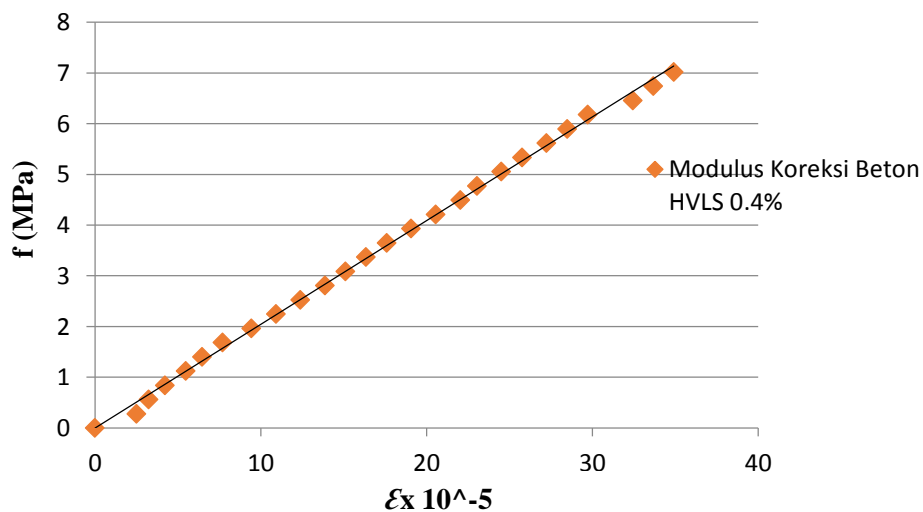
Beban		$\Delta P (10^{-3})$	$0,5x\Delta P (10^{-3})$	f	$\epsilon_x 10^{-5}$	$\epsilon_{koreksi} (10^{-5})$
Kgf	N			Mpa		
0	0	0	0	0	-2,00	0
500	4905	2	1	0,28	0,49	2,50
1000	9810	5	2,5	0,56	1,24	3,24
1500	14715	9	4,5	0,84	2,23	4,23
2000	19620	14	7	1,12	3,46	5,47
2500	24525	18	9	1,40	4,45	6,46
3000	29430	23	11,5	1,69	5,69	7,69
3500	34335	30	15	1,97	7,42	9,42
4000	39240	36	18	2,25	8,91	10,91
4500	44145	42	21	2,53	10,39	12,39
5000	49050	48	24	2,81	11,88	13,88
5500	53955	53	26,5	3,09	13,11	15,11
6000	58860	58	29	3,37	14,35	16,35
6500	63765	63	31,5	3,65	15,59	17,59
7000	68670	69	34,5	3,93	17,07	19,07
7500	73575	75	37,5	4,21	18,56	20,56
8000	78480	81	40,5	4,49	20,04	22,04
8500	83385	85	42,5	4,78	21,03	23,03
9000	88290	91	45,5	5,06	22,51	24,52
9500	93195	96	48	5,34	23,75	25,75
10000	98100	102	51	5,62	25,24	27,24
10500	103005	107	53,5	5,90	26,47	28,47
11000	107910	112	56	6,18	27,71	29,71
11500	112815	123	61,5	6,46	30,43	32,43
12000	117720	128	64	6,74	31,67	33,67
12500	122625	133	66,5	7,02	32,90	34,91



Modulus Beton HVLS 0.4%-3



Modulus Koreksi Beton HVLS 0.4%-3





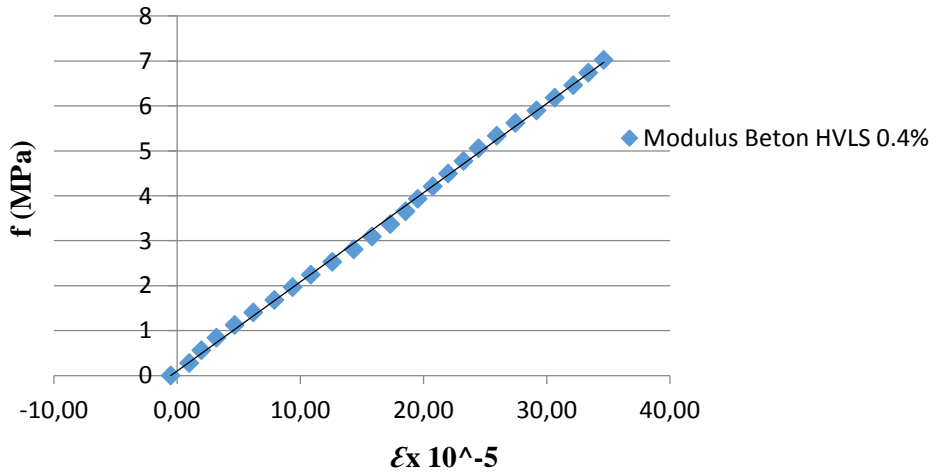
Kode Beton = BLS 0.4%SP-2
Po = 202 mm
Do = 150 mm

Ao = 17671,458 mm²
Beban Max = 12500 kgf
E = 19982,897 MPa

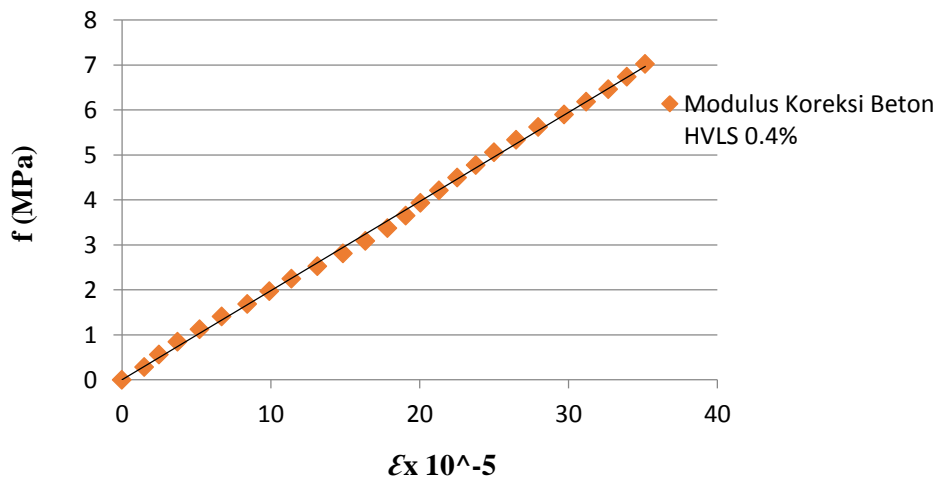
Beban		$\Delta P (10^{-3})$	$0,5 \times \Delta P (10^{-3})$	f	$\epsilon_x 10^{-5}$	$\epsilon_{koreksi} (10^{-5})$
Kgf	N			Mpa		
0	0	0	0	0	-0,51	0
500	4905	4	2	0,28	0,99	1,50
1000	9810	8	4	0,56	1,98	2,49
1500	14715	13	6,5	0,84	3,22	3,73
2000	19620	19	9,5	1,12	4,70	5,21
2500	24525	25	12,5	1,40	6,19	6,69
3000	29430	32	16	1,69	7,92	8,43
3500	34335	38	19	1,97	9,40	9,91
4000	39240	44	22	2,25	10,89	11,40
4500	44145	51	25,5	2,53	12,62	13,13
5000	49050	58	29	2,81	14,35	14,86
5500	53955	64	32	3,09	15,83	16,34
6000	58860	70	35	3,37	17,32	17,83
6500	63765	75	37,5	3,65	18,56	19,06
7000	68670	79	39,5	3,93	19,54	20,05
7500	73575	84	42	4,21	20,78	21,29
8000	78480	89	44,5	4,49	22,02	22,53
8500	83385	94	47	4,78	23,26	23,77
9000	88290	99	49,5	5,06	24,49	25,00
9500	93195	105	52,5	5,34	25,98	26,49
10000	98100	111	55,5	5,62	27,46	27,97
10500	103005	118	59	5,90	29,19	29,70
11000	107910	124	62	6,18	30,68	31,19
11500	112815	130	65	6,46	32,16	32,67
12000	117720	135	67,5	6,74	33,40	33,91
12500	122625	140	70	7,02	34,64	35,15



Modulus Beton HVLS 0.4%-2



Modulus Koreksi Beton HVLS 0.4%-2





Kode Beton = BLS 0.6%SP-1

Po = 202,5 mm

Do = 150,5 mm

Ao = 17789,464 mm²

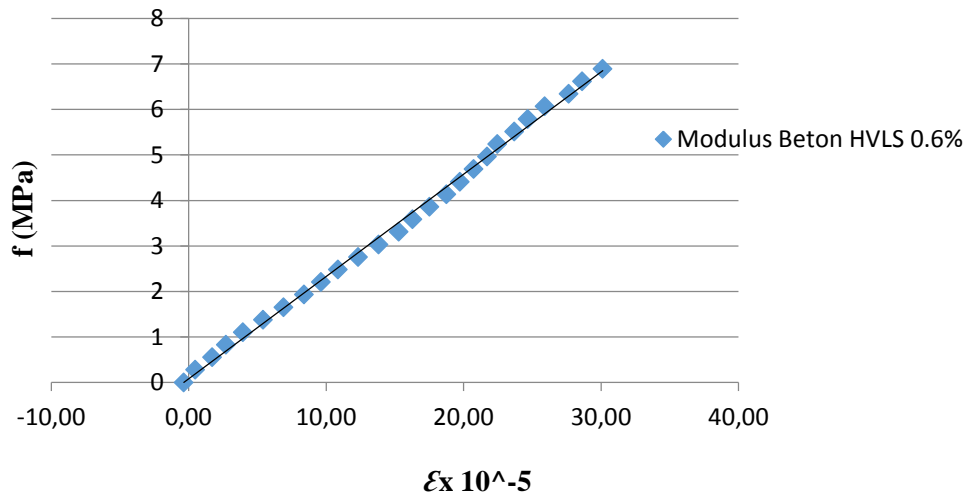
Beban Max = 12500 kgf

E = 22615,612 MPa

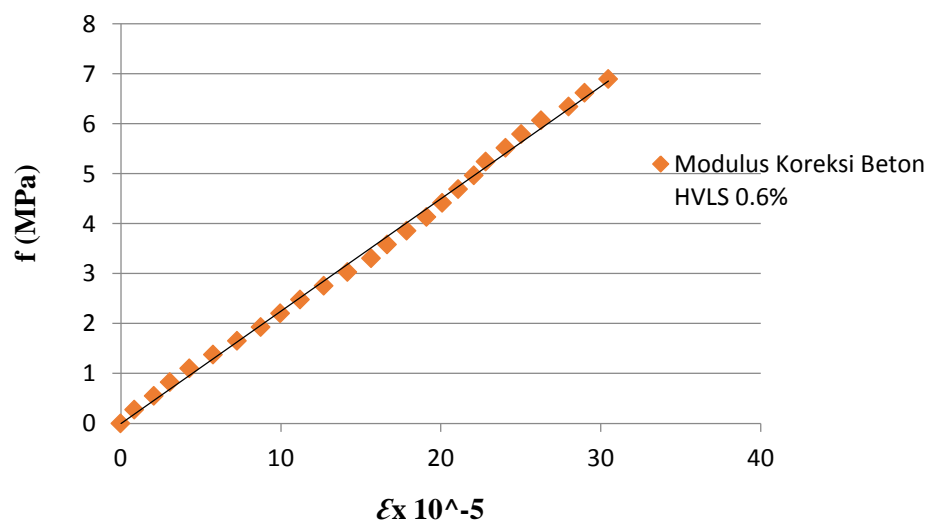
Beban		$\Delta P (10^{-3})$	$0,5x\Delta P (10^{-3})$	f	$\epsilon x 10^{-5}$	$\epsilon koreksi (10^{-5})$
Kgf	N			Mpa		
0	0	0	0	0	-0,36	0
500	4905	2	1	0,28	0,49	0,85
1000	9810	7	3,5	0,55	1,73	2,08
1500	14715	11	5,5	0,83	2,72	3,07
2000	19620	16	8	1,10	3,95	4,31
2500	24525	22	11	1,38	5,43	5,79
3000	29430	28	14	1,65	6,91	7,27
3500	34335	34	17	1,93	8,40	8,75
4000	39240	39	19,5	2,21	9,63	9,99
4500	44145	44	22	2,48	10,86	11,22
5000	49050	50	25	2,76	12,35	12,70
5500	53955	56	28	3,03	13,83	14,18
6000	58860	62	31	3,31	15,31	15,66
6500	63765	66	33	3,58	16,30	16,65
7000	68670	71	35,5	3,86	17,53	17,89
7500	73575	76	38	4,14	18,77	19,12
8000	78480	80	40	4,41	19,75	20,11
8500	83385	84	42	4,69	20,74	21,10
9000	88290	88	44	4,96	21,73	22,08
9500	93195	91	45,5	5,24	22,47	22,83
10000	98100	96	48	5,51	23,70	24,06
10500	103005	100	50	5,79	24,69	25,05
11000	107910	105	52,5	6,07	25,93	26,28
11500	112815	112	56	6,34	27,65	28,01
12000	117720	116	58	6,62	28,64	29,00
12500	122625	122	61	6,89	30,12	30,48



Modulus Beton HVLS 0.6% - 1



Modulus Koreksi Beton HVLS 0.6% - 1





Kode Beton = BLS 0.6%SP-2

Po = 202,5 mm

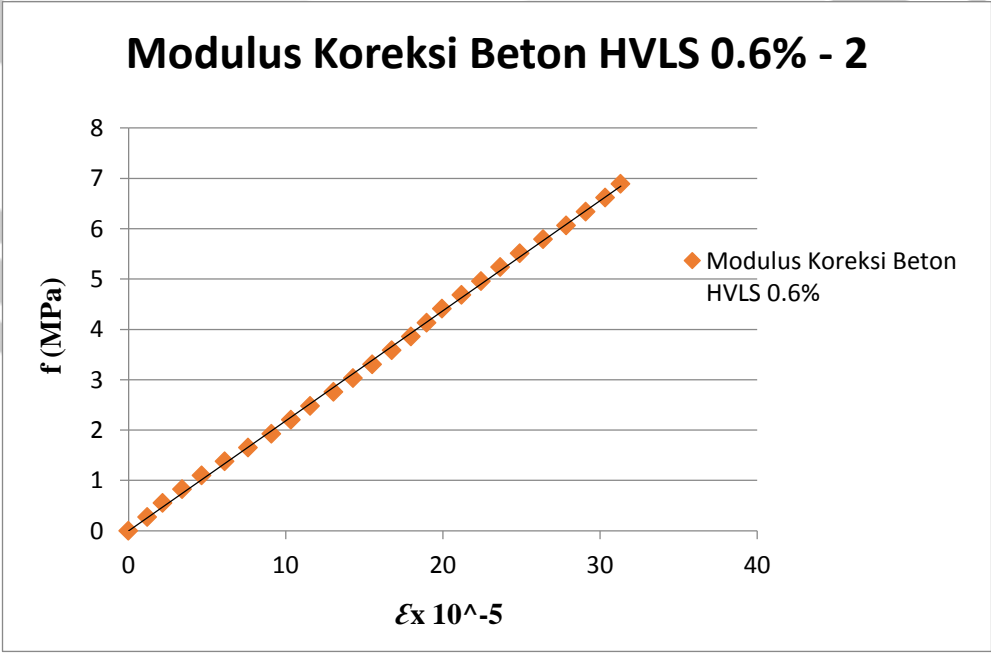
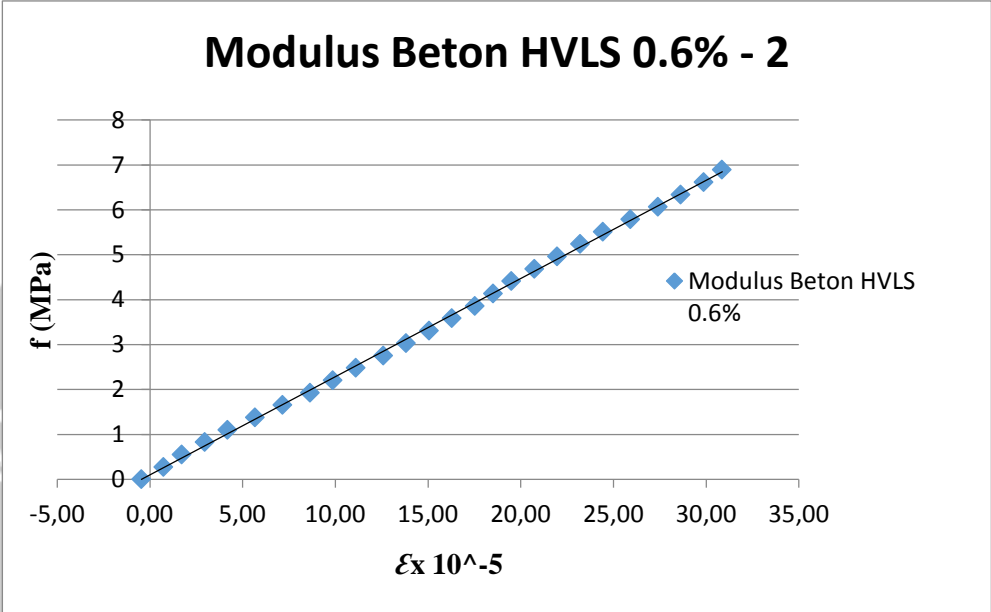
Do = 150 mm

Ao = 17671,458 mm²

Beban Max = 12500 kgf

E = 22006,7271 MPa

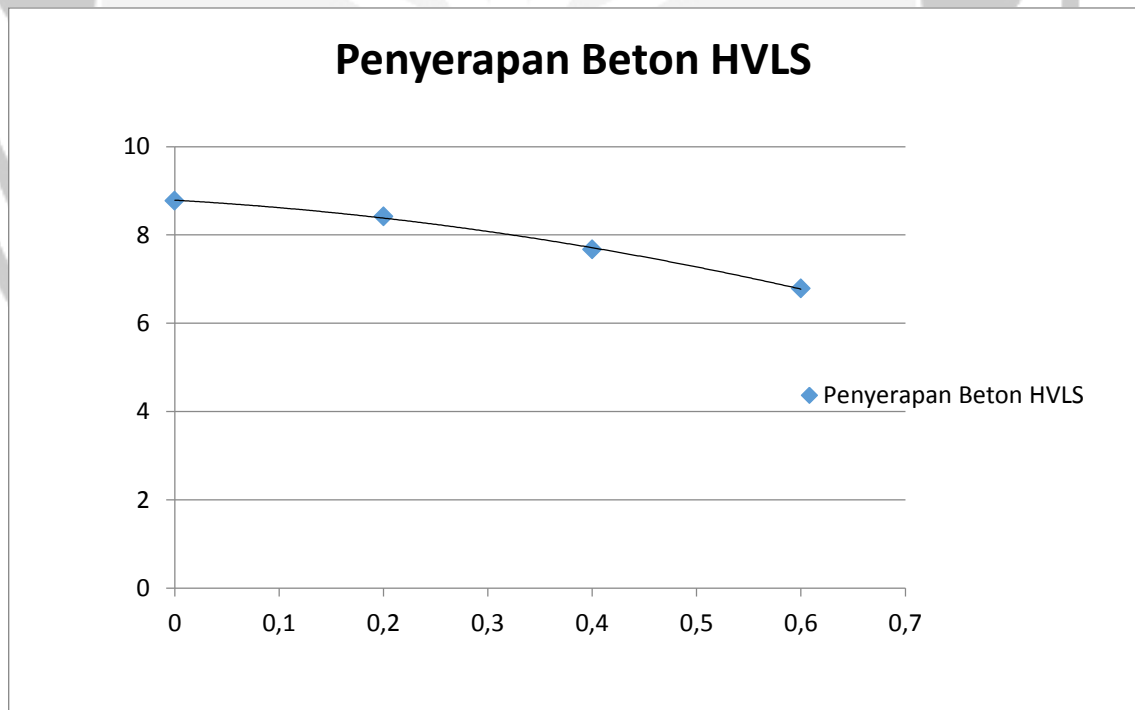
Beban		$\Delta P (10^{-3})$	$0,5x\Delta P (10^{-3})$	f	$\epsilon x 10^{-5}$	$\epsilon koreksi (10^{-5})$
Kgf	N			Mpa		
0	0	0	0	0	-0,46	0
500	4905	3	1,5	0,28	0,74	1,20
1000	9810	7	3,5	0,55	1,73	2,19
1500	14715	12	6	0,83	2,96	3,42
2000	19620	17	8,5	1,10	4,20	4,66
2500	24525	23	11,5	1,38	5,68	6,14
3000	29430	29	14,5	1,65	7,16	7,62
3500	34335	35	17,5	1,93	8,64	9,10
4000	39240	40	20	2,21	9,88	10,34
4500	44145	45	22,5	2,48	11,11	11,57
5000	49050	51	25,5	2,76	12,59	13,05
5500	53955	56	28	3,03	13,83	14,29
6000	58860	61	30,5	3,31	15,06	15,52
6500	63765	66	33	3,58	16,30	16,75
7000	68670	71	35,5	3,86	17,53	17,99
7500	73575	75	37,5	4,14	18,52	18,98
8000	78480	79	39,5	4,41	19,51	19,96
8500	83385	84	42	4,69	20,74	21,20
9000	88290	89	44,5	4,96	21,98	22,43
9500	93195	94	47	5,24	23,21	23,67
10000	98100	99	49,5	5,51	24,44	24,90
10500	103005	105	52,5	5,79	25,93	26,38
11000	107910	111	55,5	6,07	27,41	27,87
11500	112815	116	58	6,34	28,64	29,10
12000	117720	121	60,5	6,62	29,88	30,34
12500	122625	125	62,5	6,89	30,86	31,32





C.4 PENYERAPAN BETON

No	Kode	W1 (kg)	W2 (kg)	S (%)	S rerata (%)
1	BN	1,257	1,309	4,137	3,819
2		1,257	1,301	3,500	
1	BLS0%	1,12	1,222	9,107	8,774
2		1,173	1,272	8,440	
1	BLS0,2%	1,136	1,231	8,363	8,422
2		1,179	1,279	8,482	
1	BLS0,4%	1,1	1,2	9,091	7,670
2		1,12	1,19	6,250	
1	BLS0,6%	1,22	1,3	6,557	6,787
2		1,14	1,22	7,018	





D. DOKUMENTASI PENGUJIAN

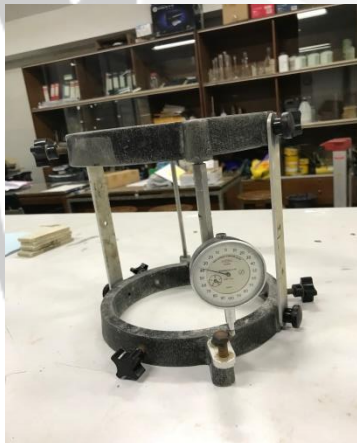
D.1 ALAT DAN BAHAN



Mesin UTM merek *Shimadzu*



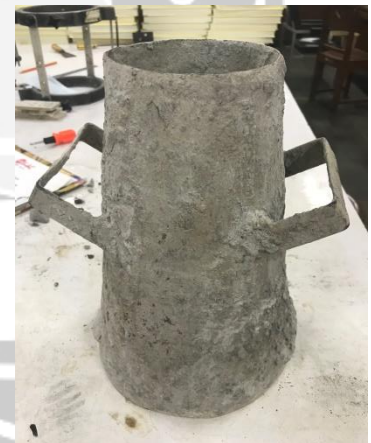
Mesin CTM merek *ELE*



Compressometer



Timbangan



Kerucut Abrams



Concrete Mixer



Vibrator



Cetakan Silinder
15 cm x 30 cm



Cetakan Silinder
10 cm x 20 cm



Cetakan Silinder
7 cm x 14 cm



Gelas Ukur 25 ml



Gelas Ukur 500 ml



Kerucut Kuningan



Alat Kaping



Oven



Semen



Lumpur Sidoarjo



Kerikil



Pasir



Air



Superplasticizer

D.2 PENGUJIAN BAHAN SUSUN



Pengujian Berat Jenis Kerikil



Pengujian Berat Jenis Pasir



Pengujian Zat Organik



Pengujian Kandungan Lumpur Pasir



Pengujian Kandungan lumpur Kerikil



Pengujian Berat Satuan Volume



Pengujian Kadar Air dan Penyerapan Agregat kasar



Pengujian Keausan Agregat



Kadar Air dan Penyerapan Agregat Halus

D.3 PENGELOLAAN LUMPUR SIDOARJO



Pengambilan Lumpur Sidoarjo



Pembakaran Lumpur Sidoarjo



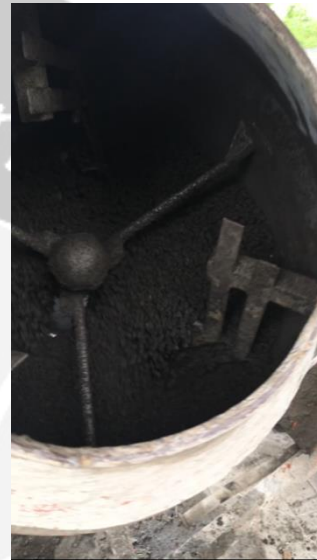
Hasil Pembakaran



D.4 PEMBUATAN BENDA UJI



Penuangan bahan kedalam *mixer*



Proses pengadukan oleh *mixer*



Pengukuran nilai *slump*



Pencetakan beton pada silinder



D.5 PENGUJIAN BENDA UJI



Penimbangan beton 28 hari



Pengujian modulus elastisitas beton



Pengujian kuat tekan beton 28 hari



Penimbangan beton 56 hari



Pengujian kuat tekan 56 hari



Hasil pengujian kuat tekan 56 hari