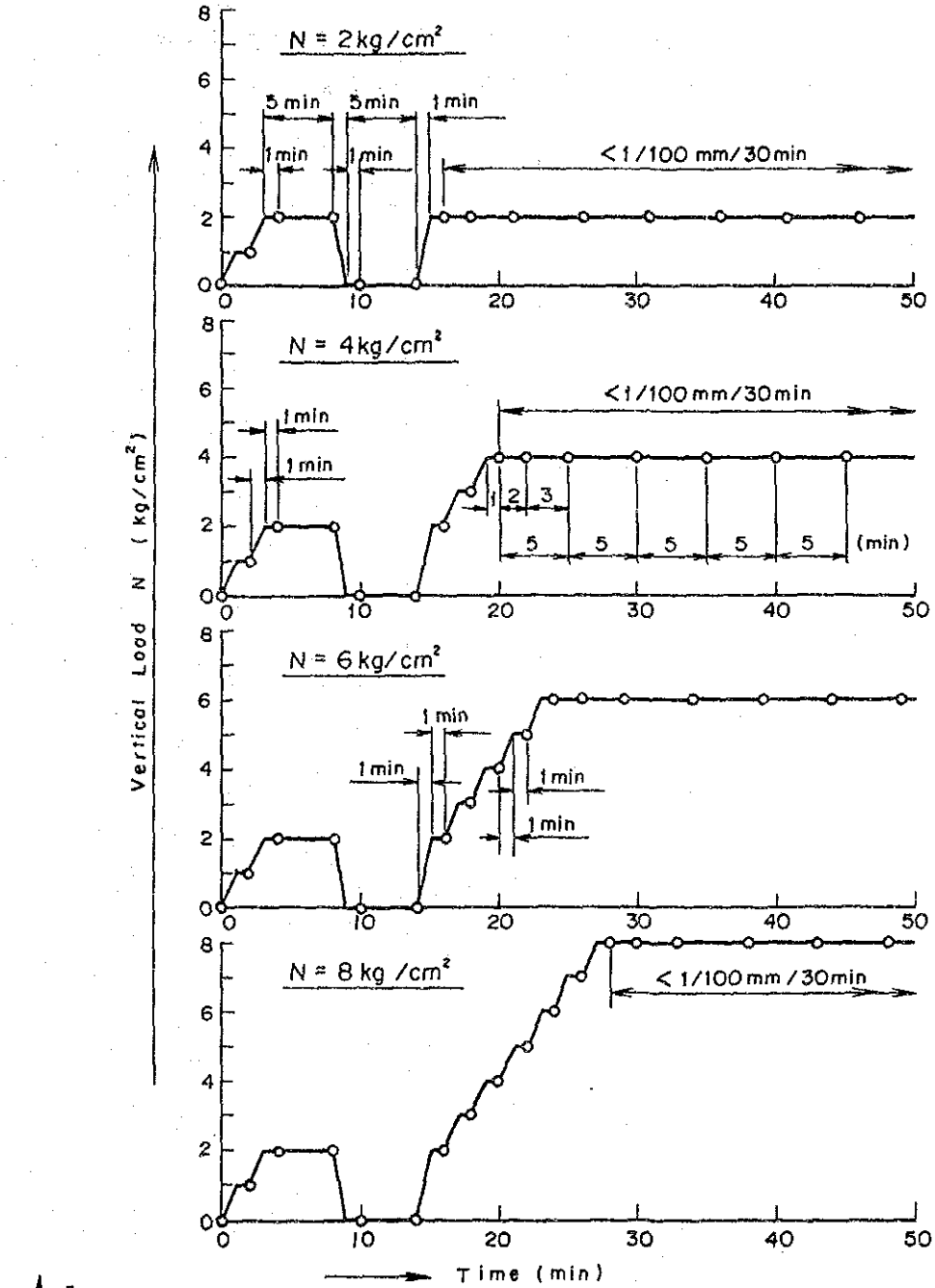
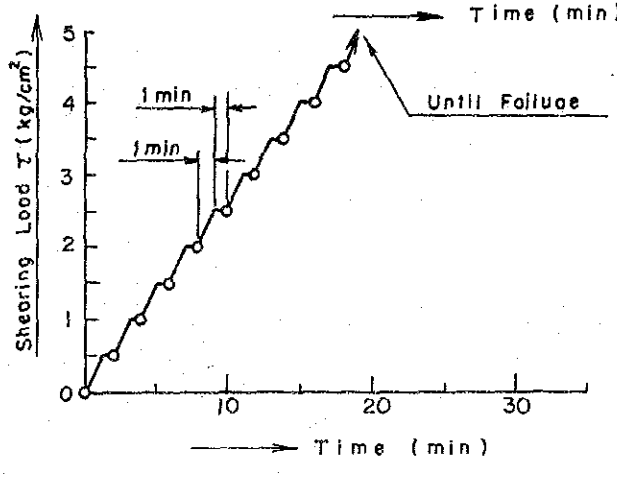
3-11 Block Shear Test

3-11-1 Loading Diagram of Block Shear Test

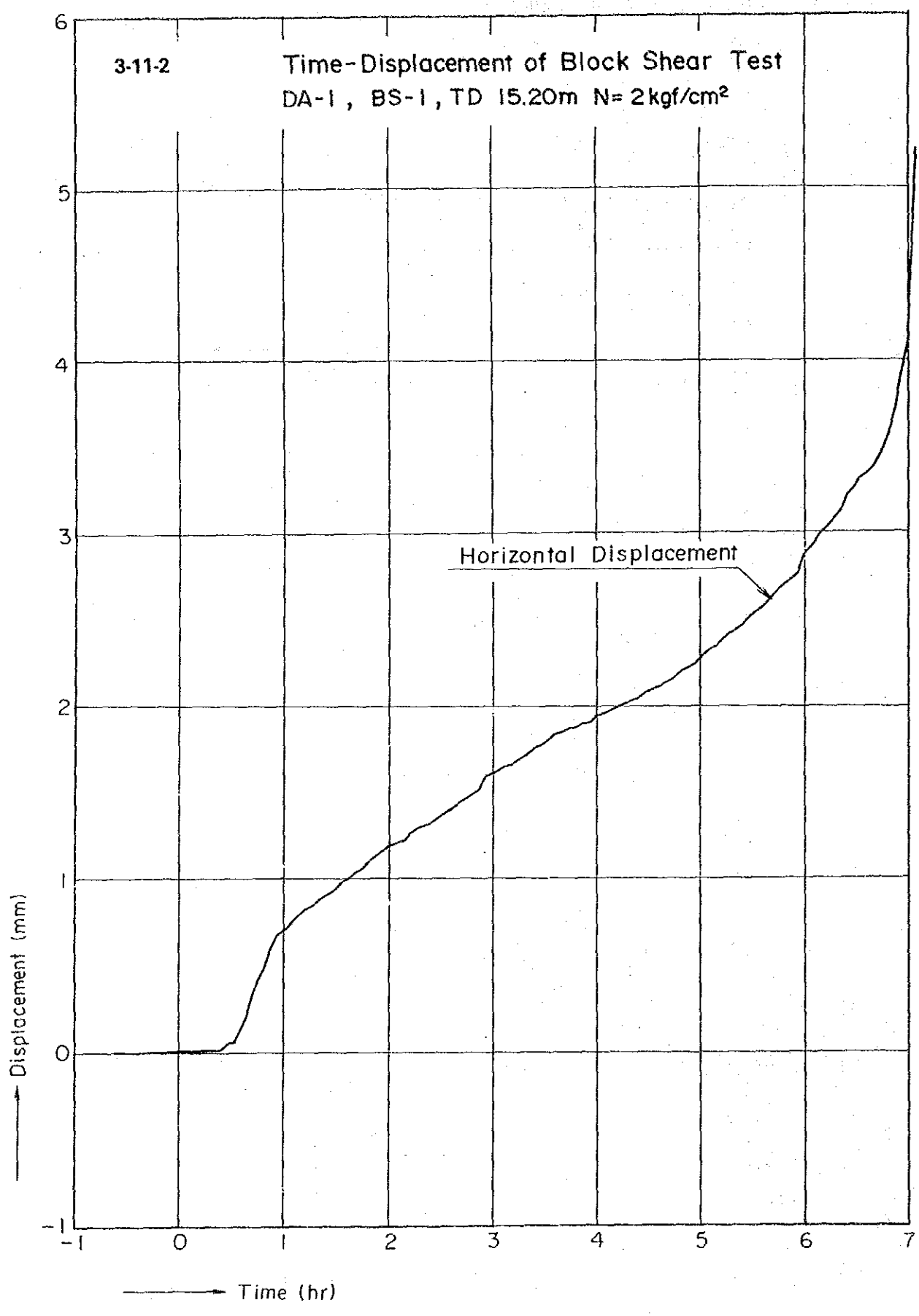




Rate of Loading

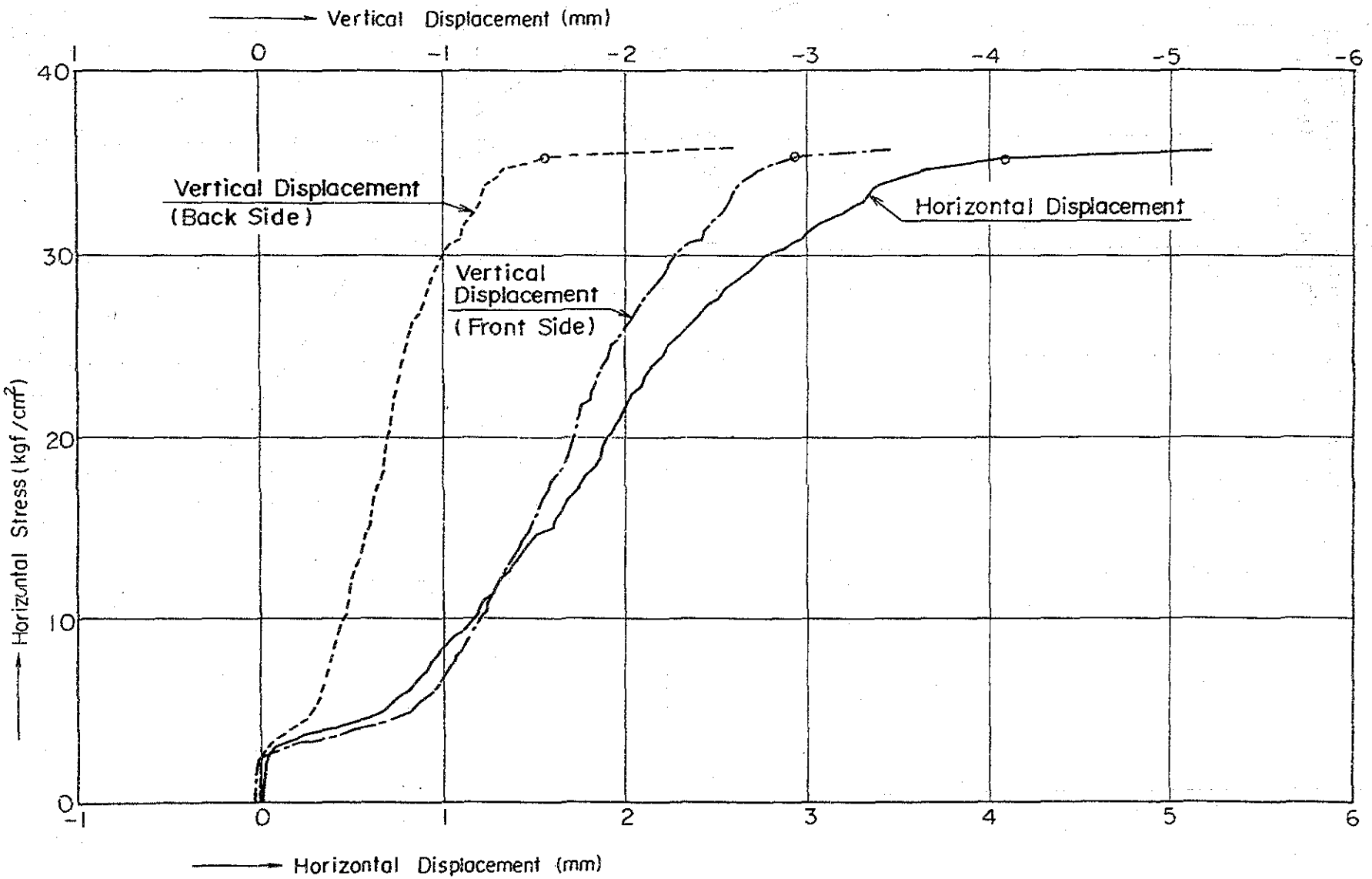
Vertical Load		Shearing Load
Virgin Load	1 kg/cm²/min	0.5 kg/cm²/min
Hysteresis Load	2 kg/cm²/min	

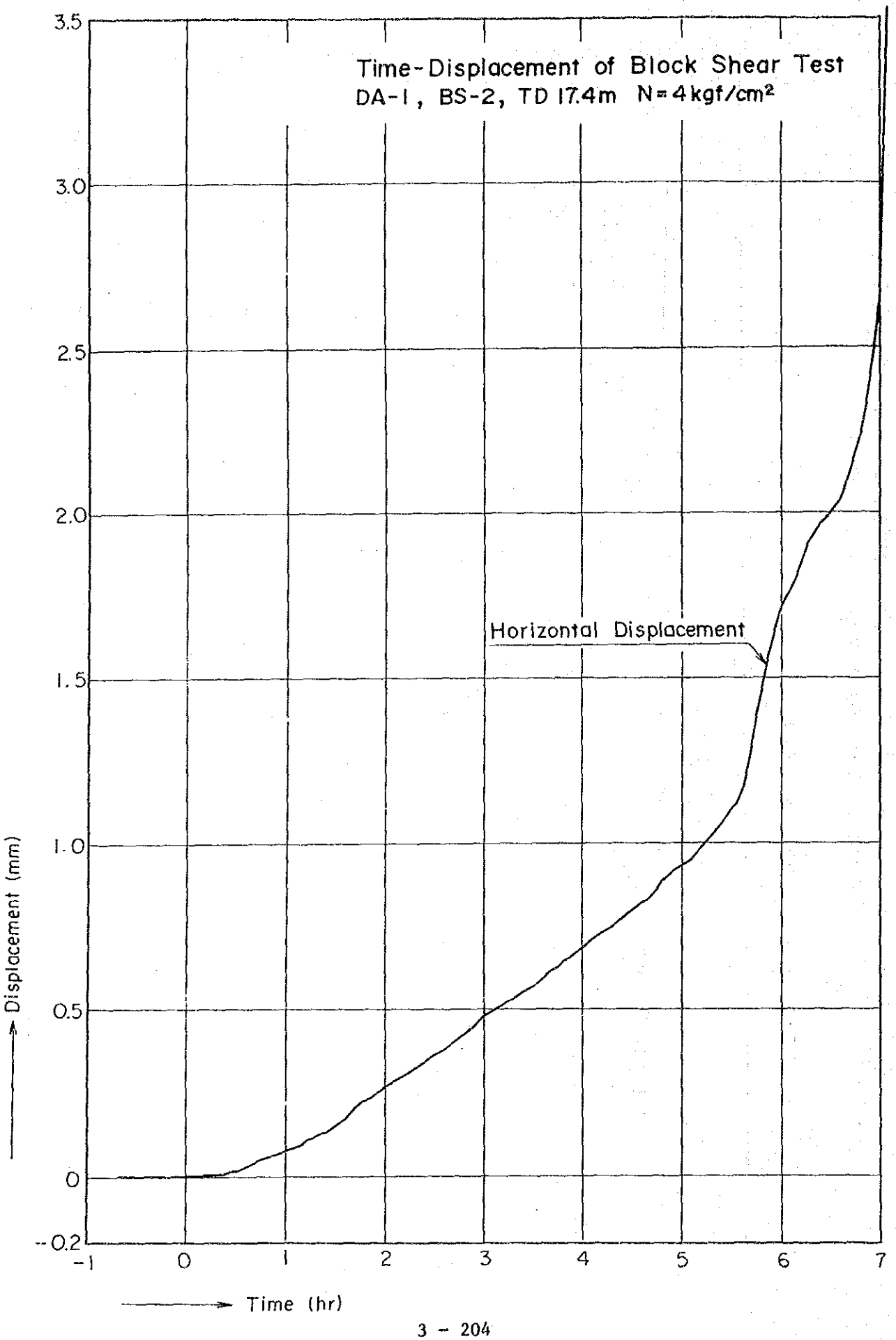
° : Mesurement Point


3-11-2
Time-Displacement of Block Shear Test
DA-1 , BS-1 , TD 15.20m N= 2kgf/cm²
Horizontal Displacement
Displacement (mm)
Time (hr)
6
5
4
3
2
1
0
-1
-1
0
1
2
3
4
5
6
7

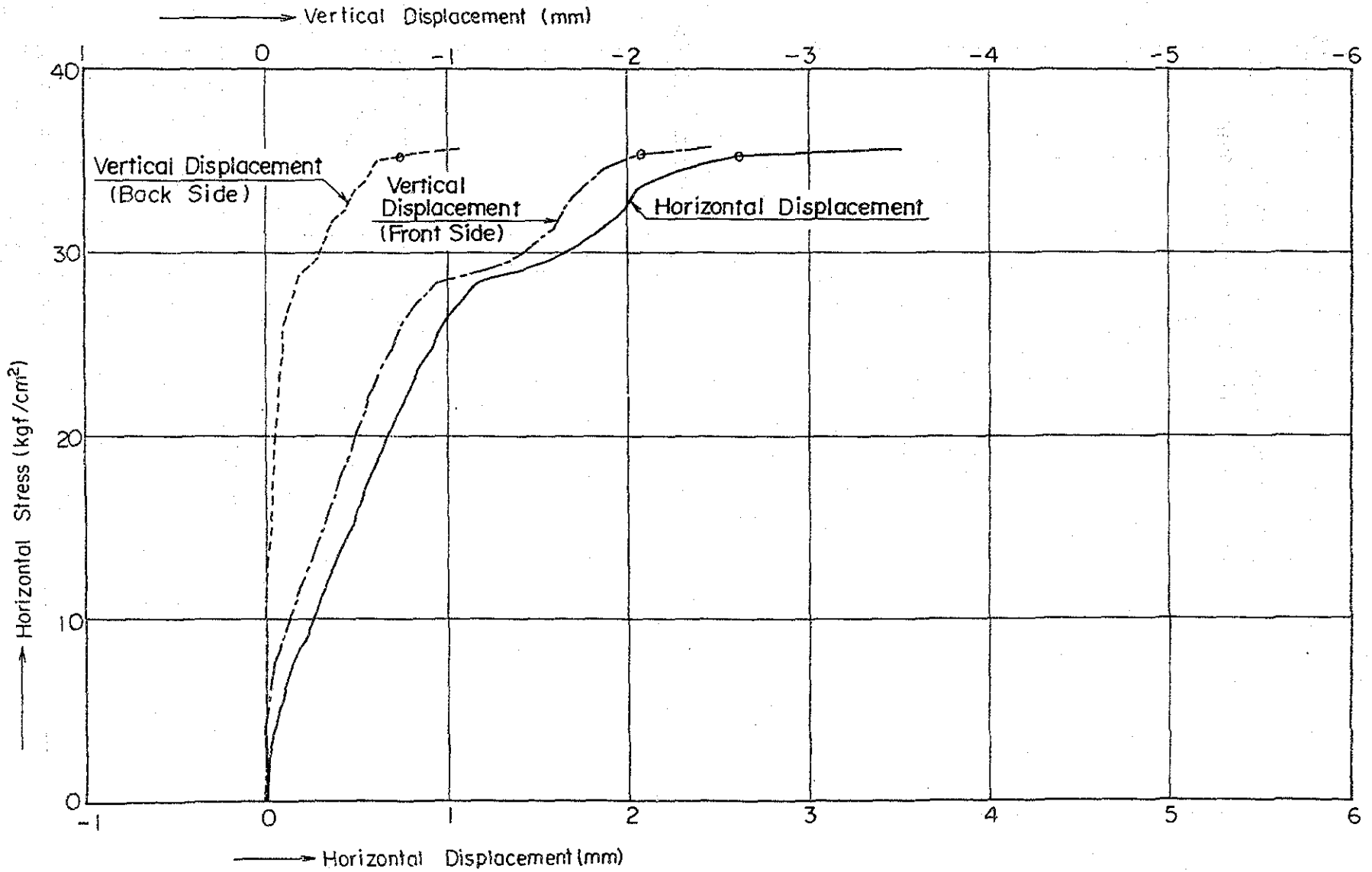
3-11-3 Horizontal Stress – Displacement of Block Shear Test

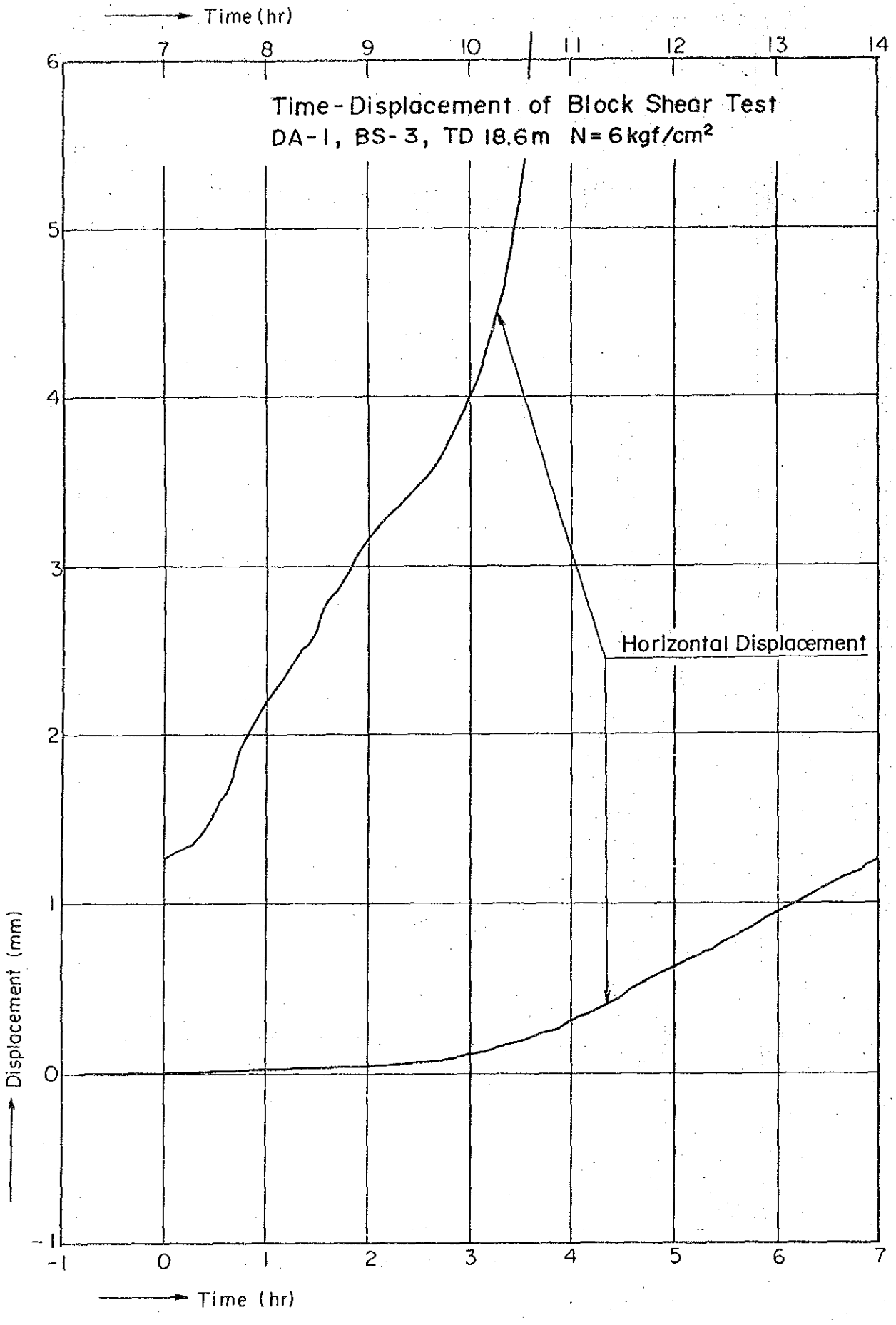
DA-1, BS-1, TD.15.20m N = 2 kgf/cm²




Time-Displacement of Block Shear Test
DA-1, BS-2, TD 17.4m N=4kgf/cm²
Horizontal Displacement
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0
-0.2
-1
0
1
2
3
4
5
6
7
Displacement (mm)
Time (hr)

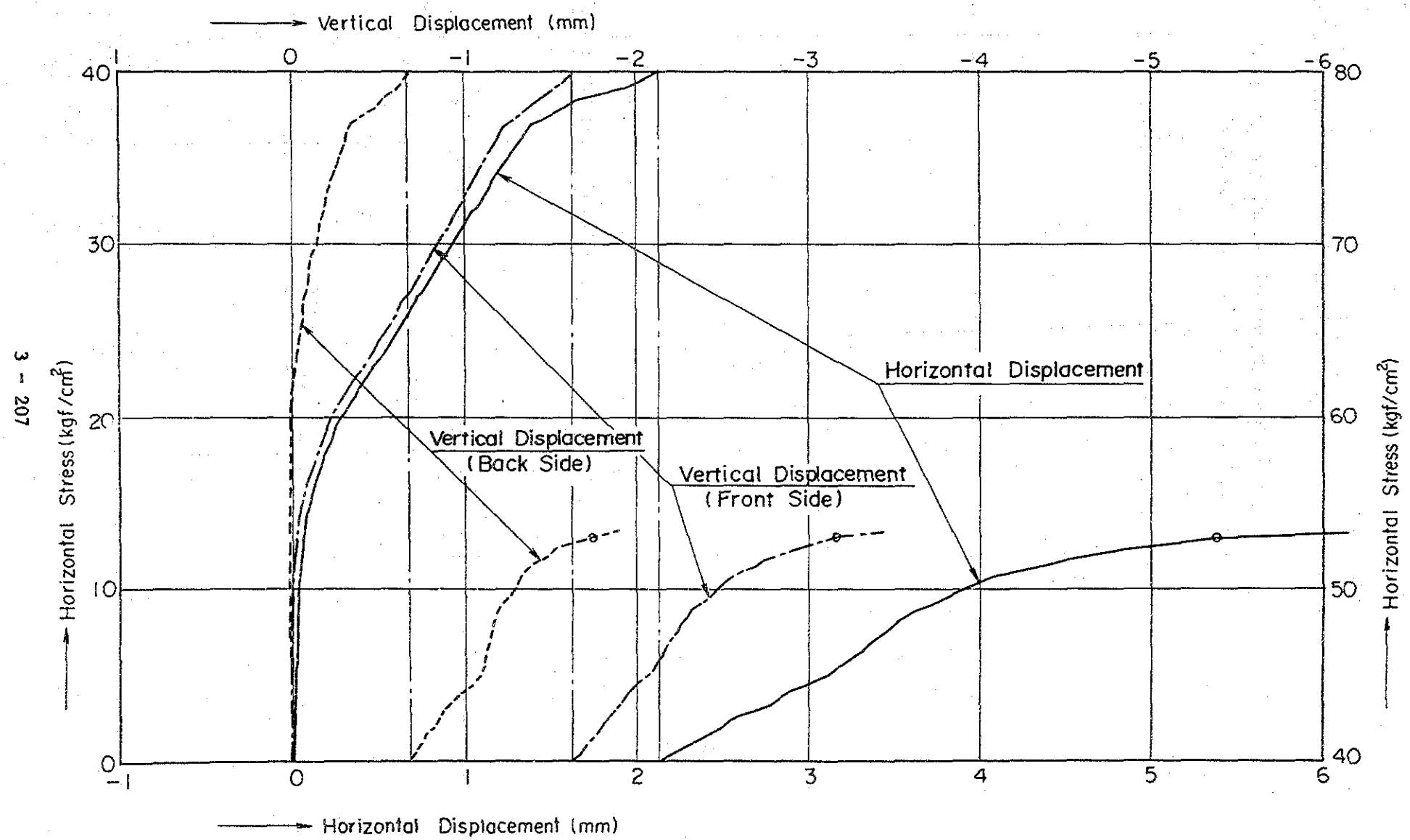
Horizontal Stress – Displacement of Block Shear Test
DA-1, BS-2, T.D. 17.4 m N = 4 kgf/cm²

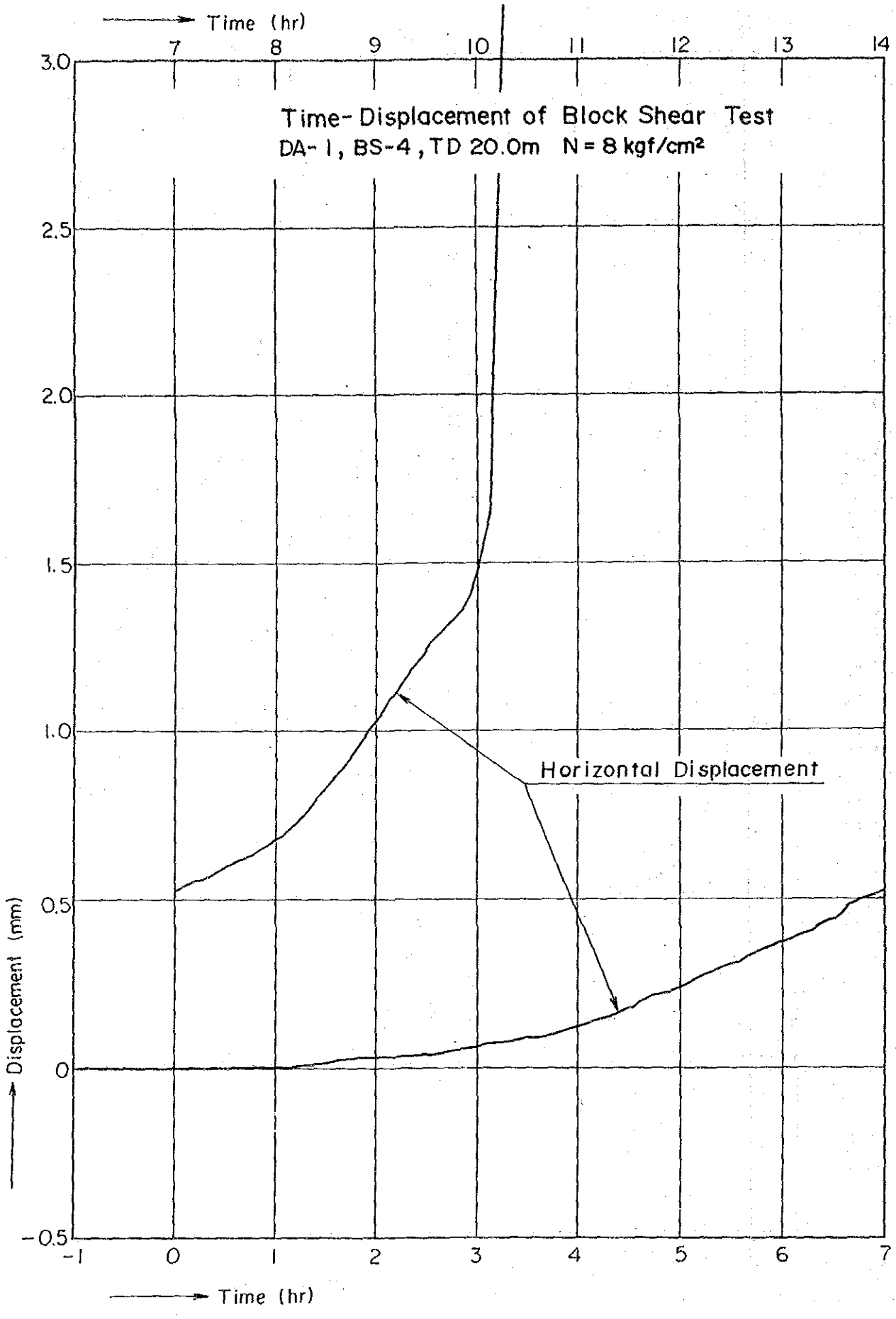



Time (hr)
7
8
9
10
11
12
13
14
Time-Displacement of Block Shear Test
DA-1, BS-3, TD 18.6m N=6kgf/cm²
6
5
4
3
2
1
0
-1
Horizontal Displacement
Displacement (mm)
-1
0
1
2
3
4
5
6
7
Time (hr)

Horizontal Stress — Displacement of Block Shear Test

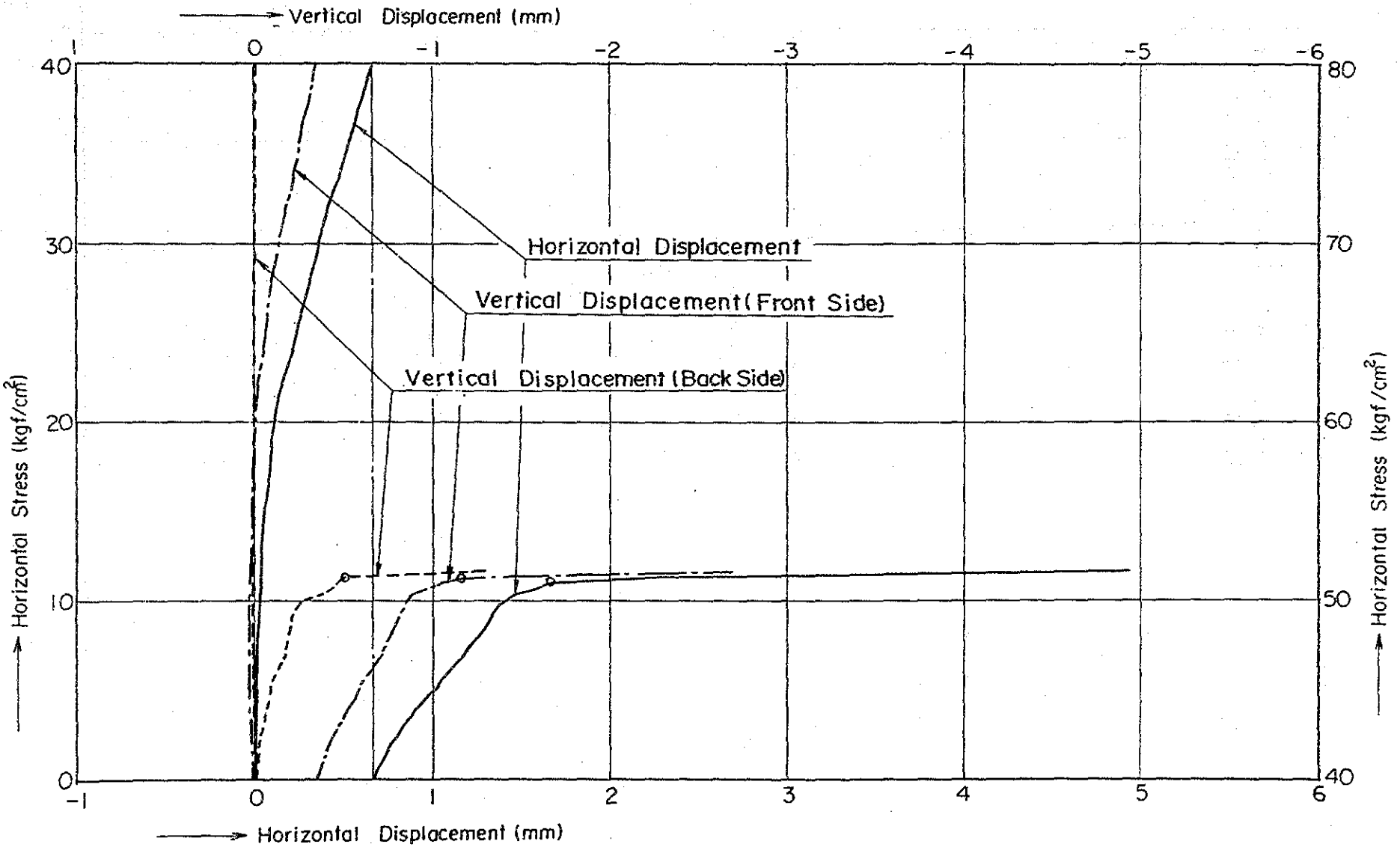
DA-1 , BS-3 , TD. 18.6m N = 6 kgf/cm²




Time (hr)
7
8
9
10
11
12
13
14
Time-Displacement of Block Shear Test
DA-1, BS-4, TD 20.0m N = 8 kgf/cm²
3.0
2.5
2.0
1.5
1.0
0.5
0
-0.5
Horizontal Displacement
Displacement (mm)
-1
0
1
2
3
4
5
6
7
Time (hr)

Horizontal Stress – Displacement of Block Shear Test

DA-1, BS-4, TD.20.0m N=8 kgf/cm²



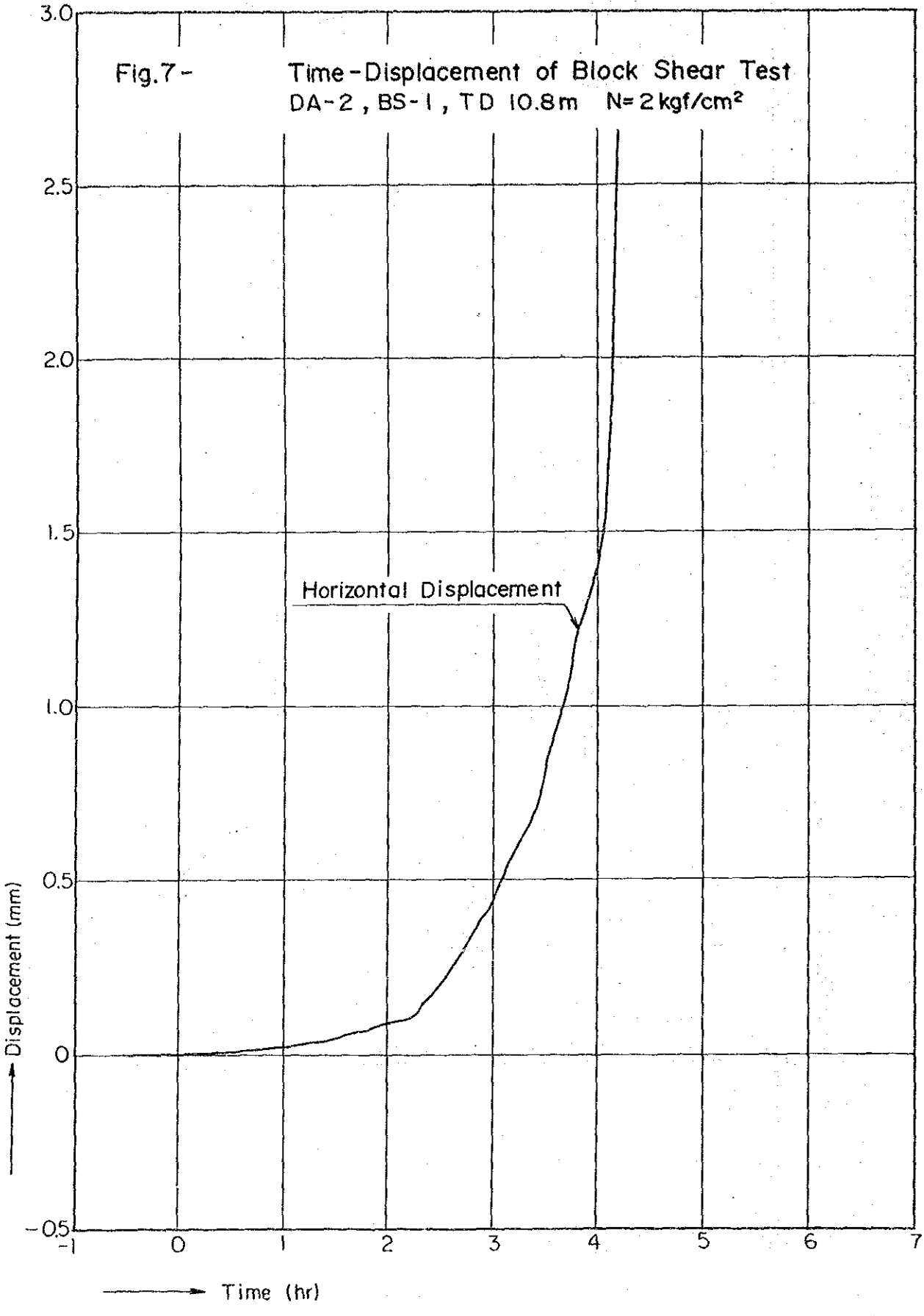
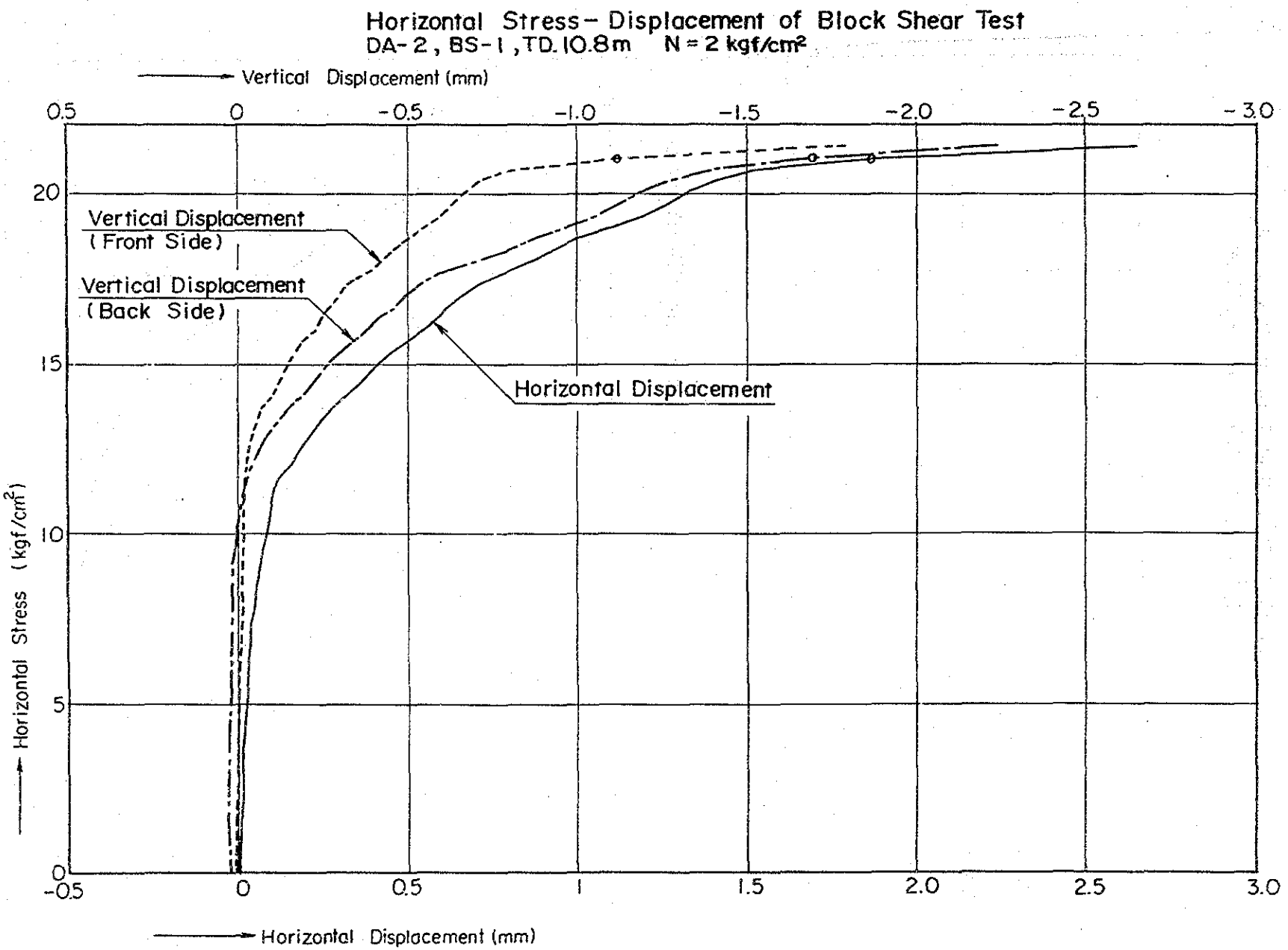
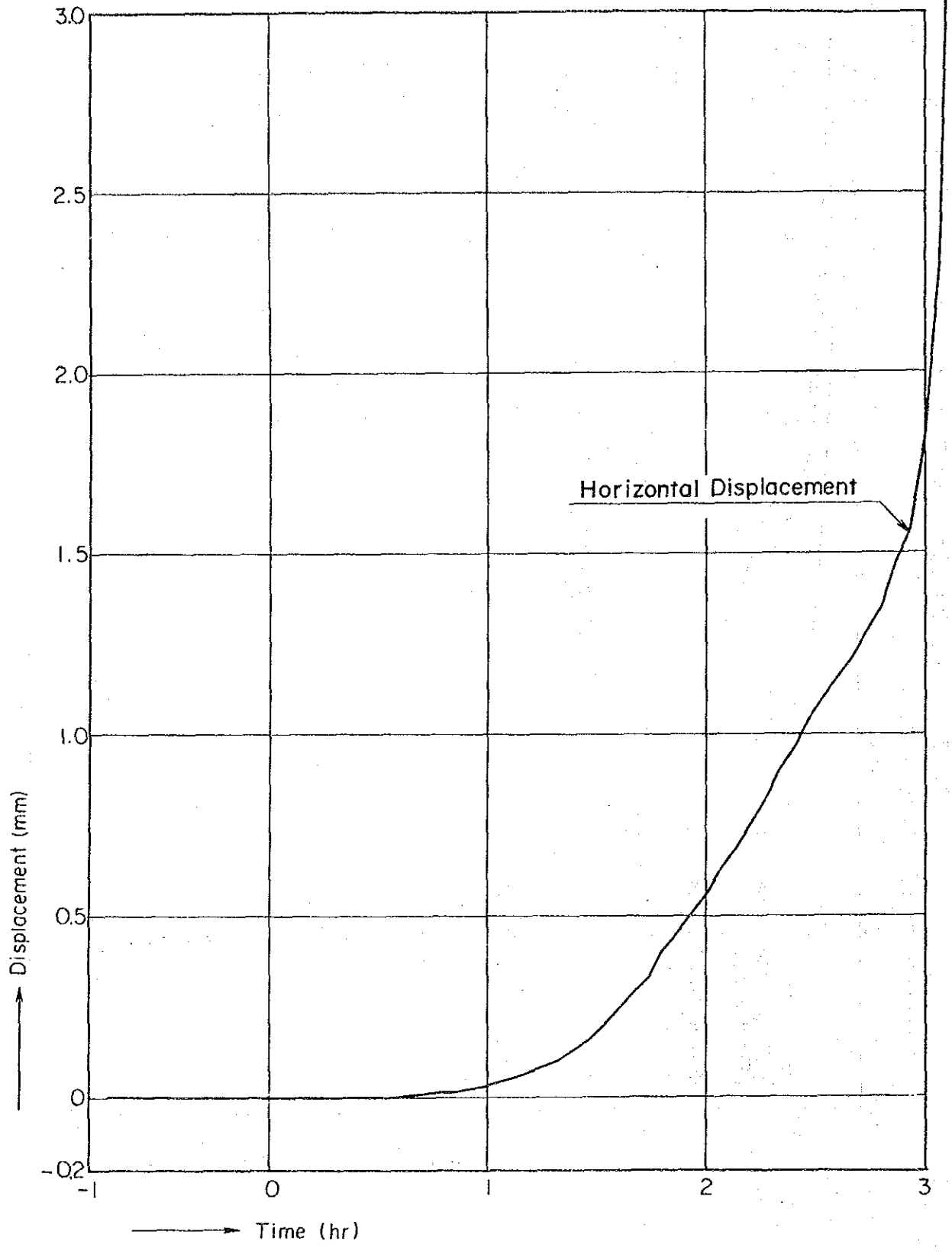


Fig.7 - Time-Displacement of Block Shear Test
DA-2 , BS-1 , TD 10.8m N= 2 kgf/cm²
Horizontal Displacement
Displacement (mm)
Time (hr)
3.0
2.5
2.0
1.5
1.0
0.5
0
-0.5
-1
0
1
2
3
4
5
6
7

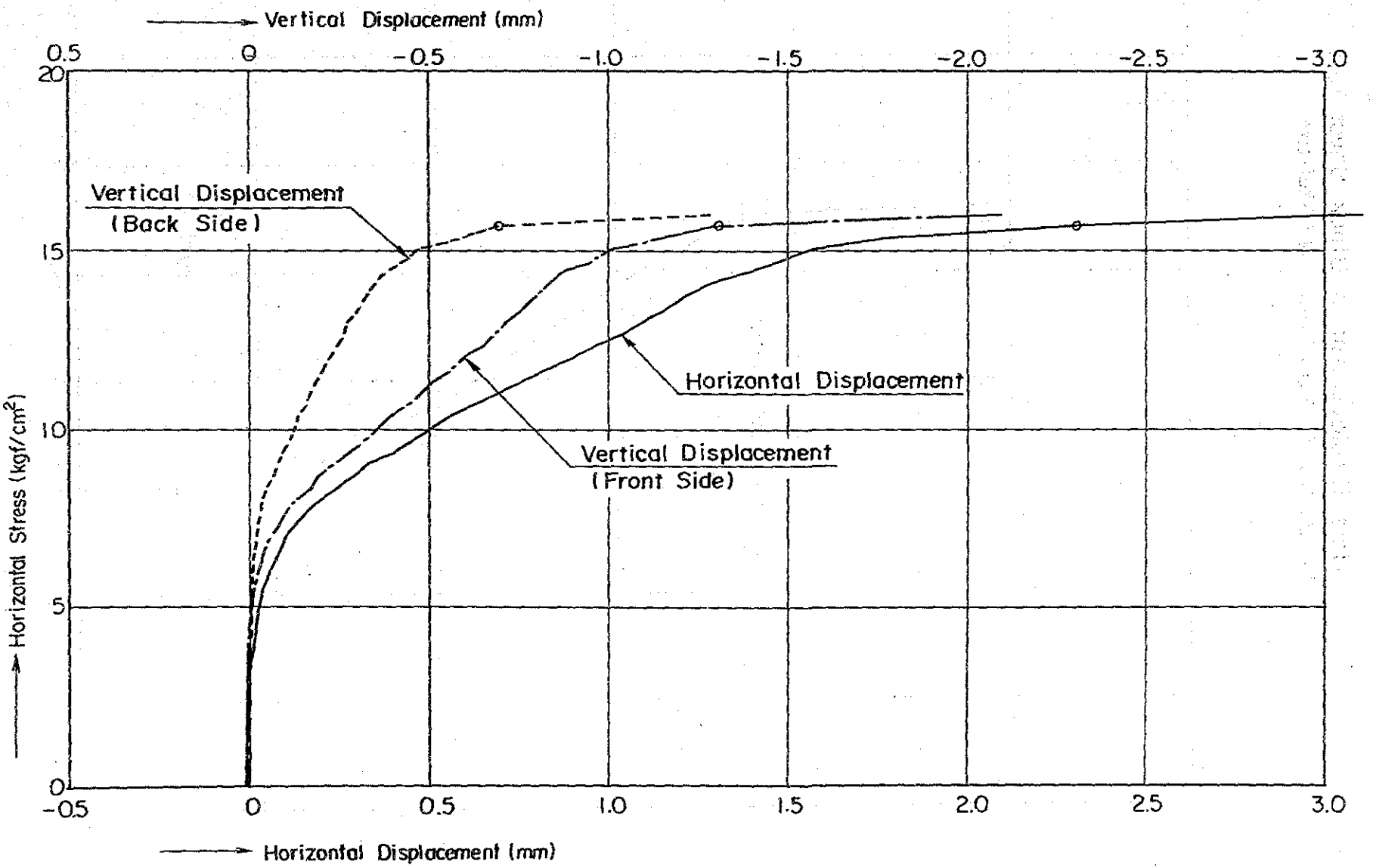

Horizontal Stress - Displacement of Block Shear Test
DA-2, BS-1, TD. 10.8m N = 2 kgf/cm²
Vertical Displacement (mm)
0.5
0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
20
15
10
5
0
Vertical Displacement (Front Side)
Vertical Displacement (Back Side)
Horizontal Displacement
Horizontal Stress (kgf/cm²)
-0.5
0
0.5
1
1.5
2.0
2.5
3.0
Horizontal Displacement (mm)

Time-Displacement of Block Shear Test
DA-2, BS-2, TD 12.0m, N = 4 kgf/cm²

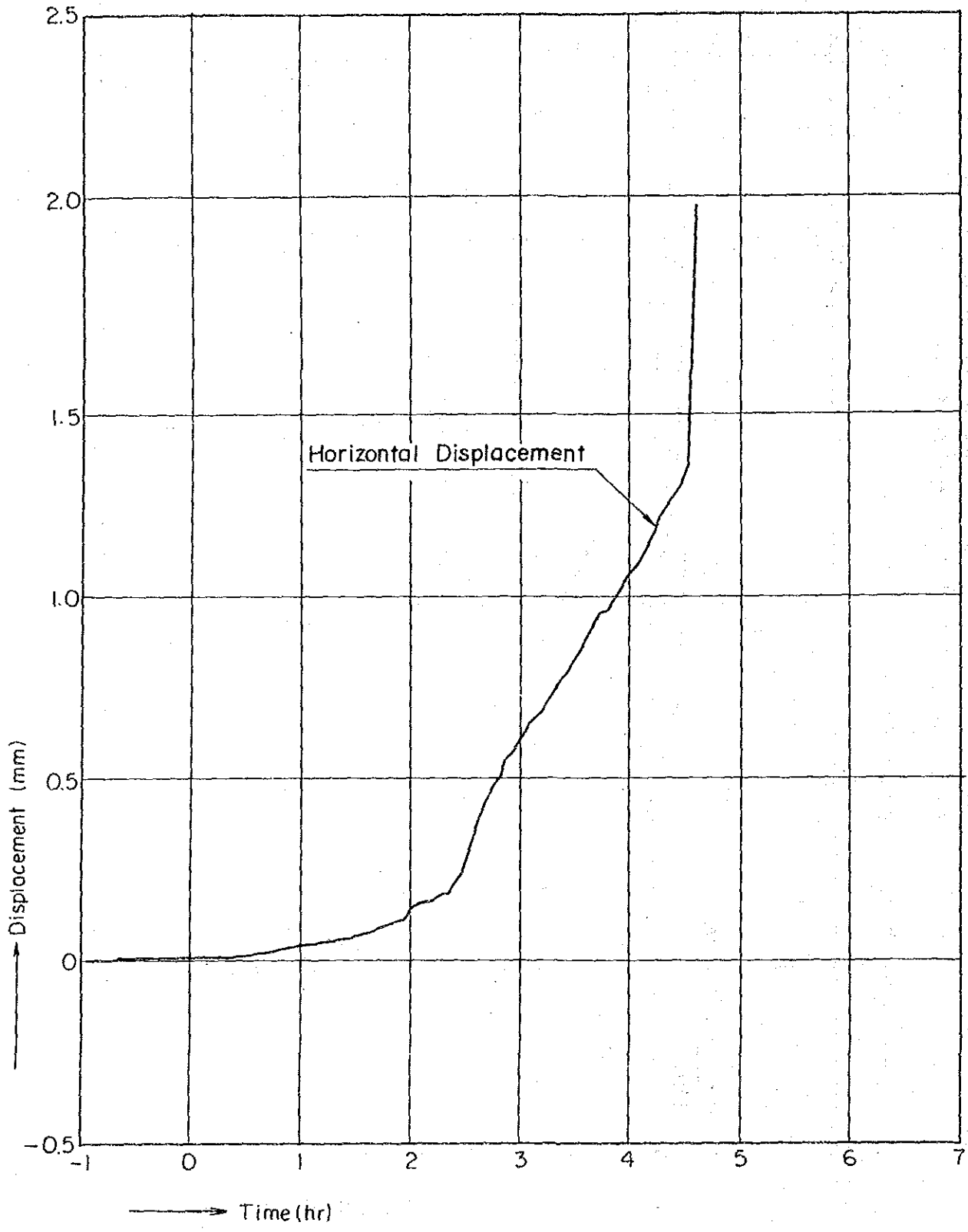


Horizontal Stress – Displacement of Block Shear Test

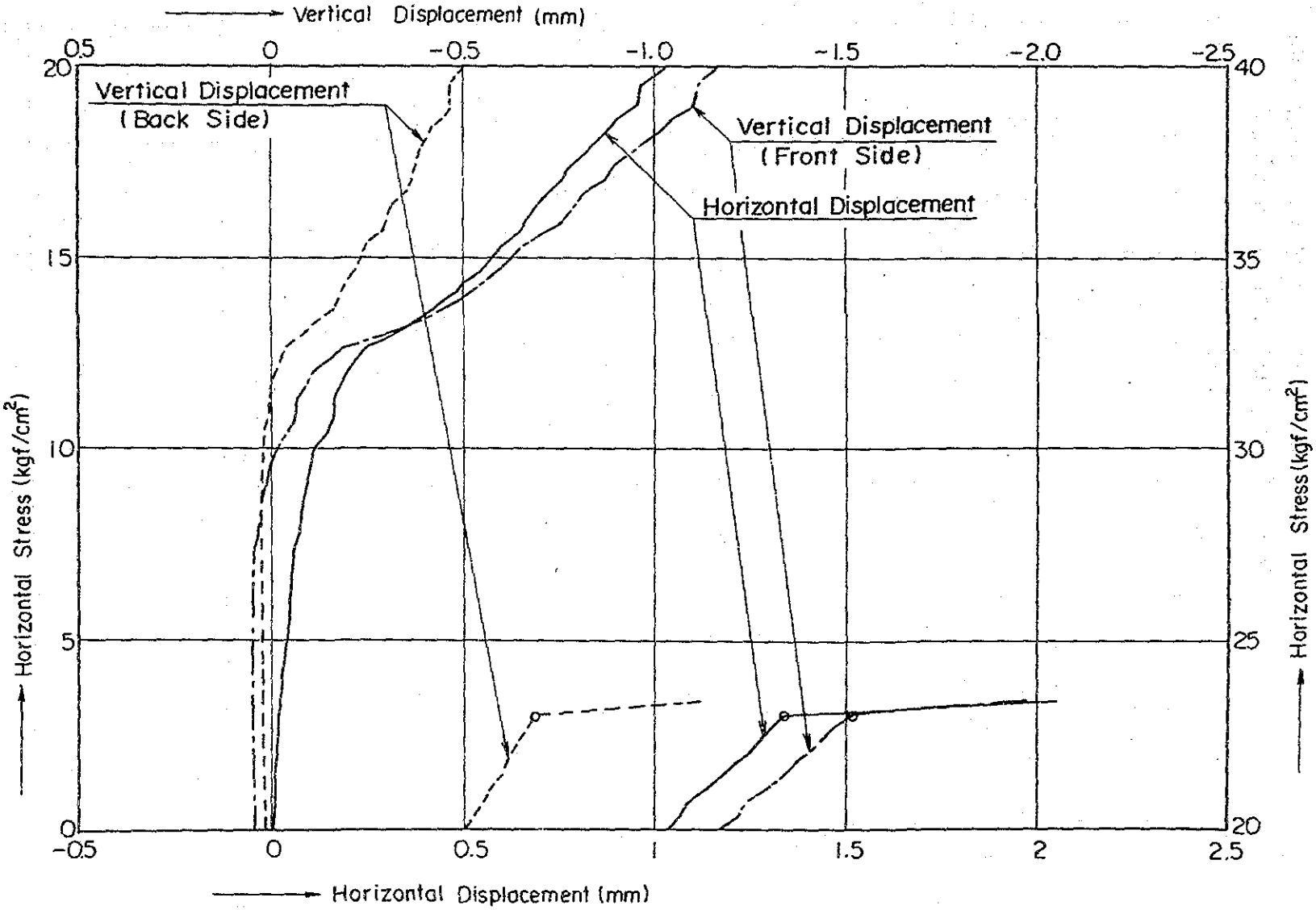
DA-2, BS-2, T.D. 12.0 m N = 4kgf/cm²

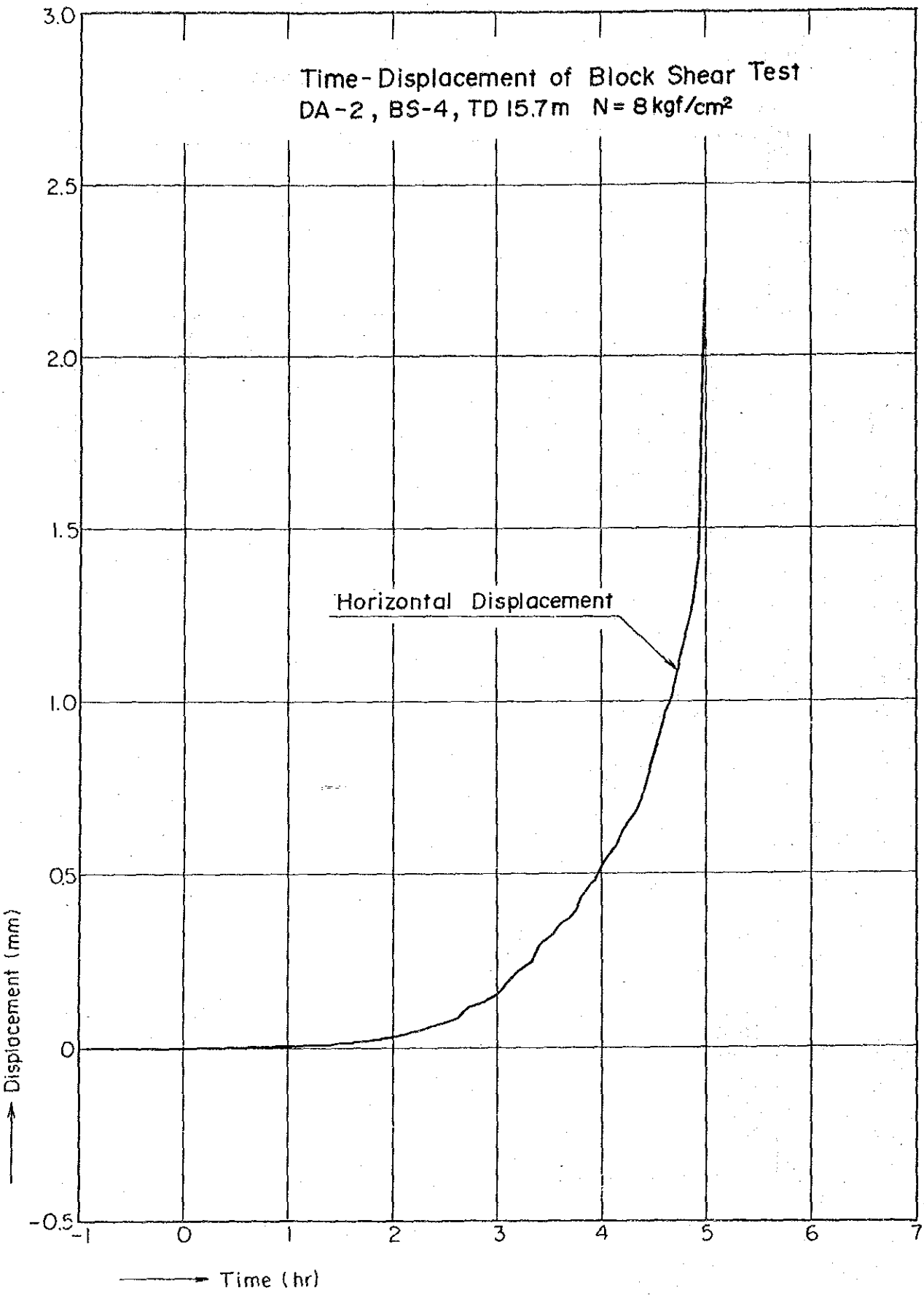


Time-Displacement of Block Shear Test
DA-2, BS-3, TD 13.5m N = 6kgf/cm²



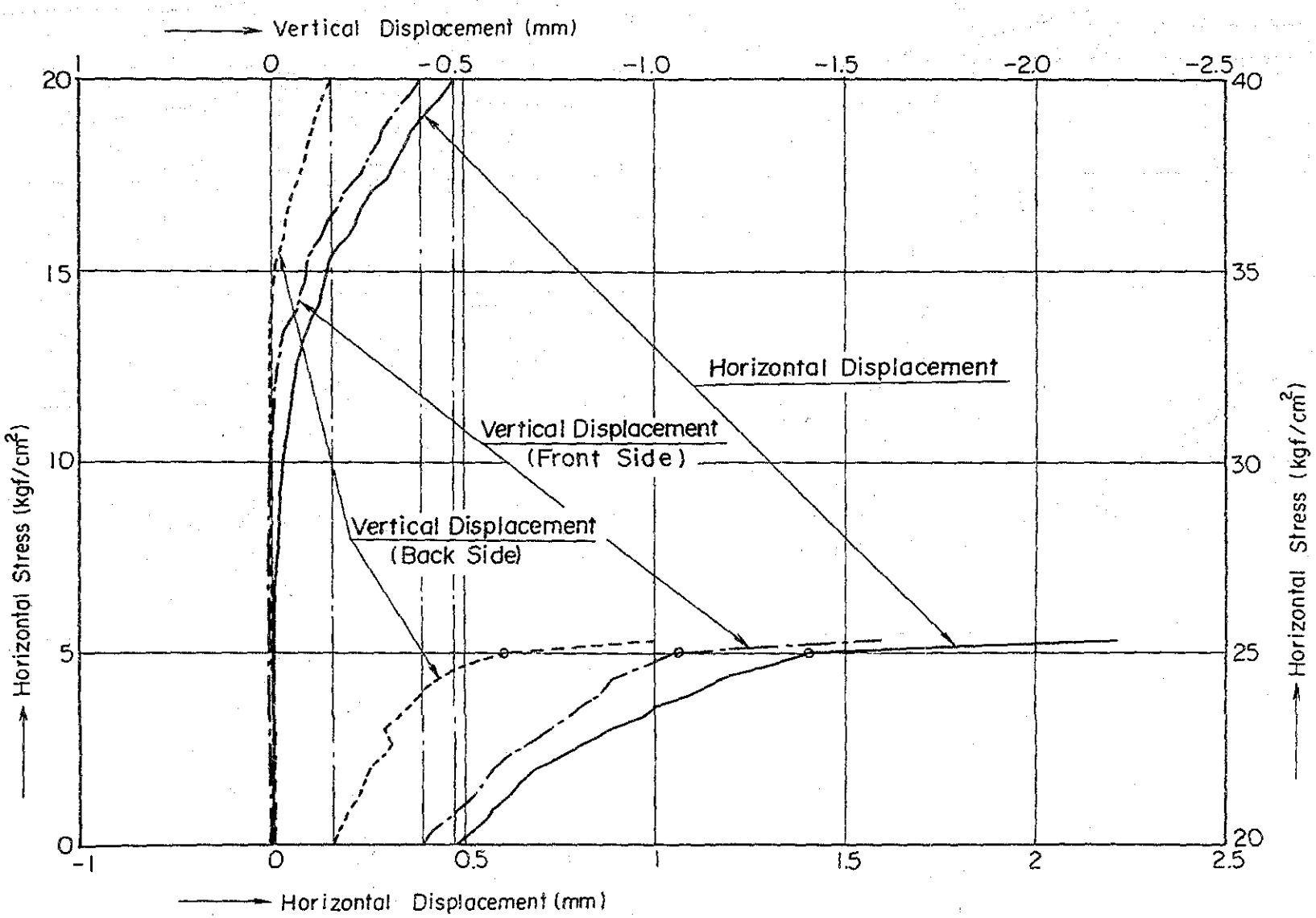
Horizontal Stress – Displacement of Block Shear Test
DA-2, BS-3, TD.13.5m N= 6 kgf/cm²




Time-Displacement of Block Shear Test
DA-2, BS-4, TD 15.7m N = 8 kgf/cm²
Horizontal Displacement
3.0
2.5
2.0
1.5
1.0
0.5
0
-0.5
-1
0
1
2
3
4
5
6
7
Displacement (mm)
Time (hr)

Horizontal Stress – Displacement of Block Shear Test

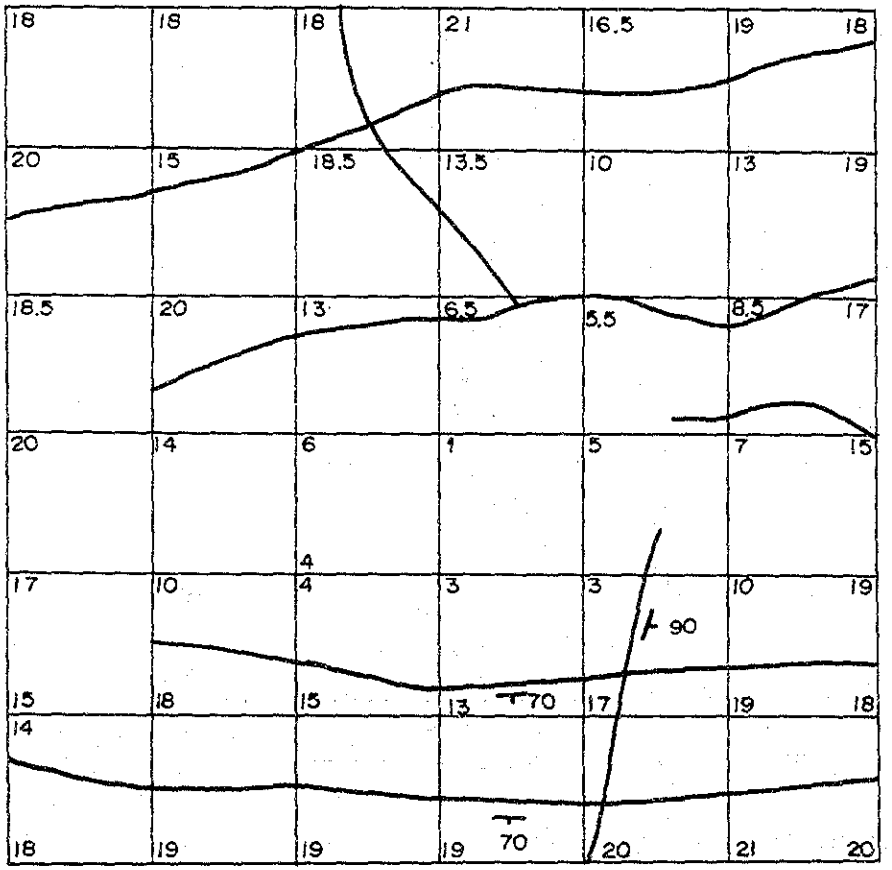
DA-2, BS-4, TD. 15.7m N = 8 kgf/cm²



3-11-4 SKETCHES OF ORIGINAL ROCK SURFACE

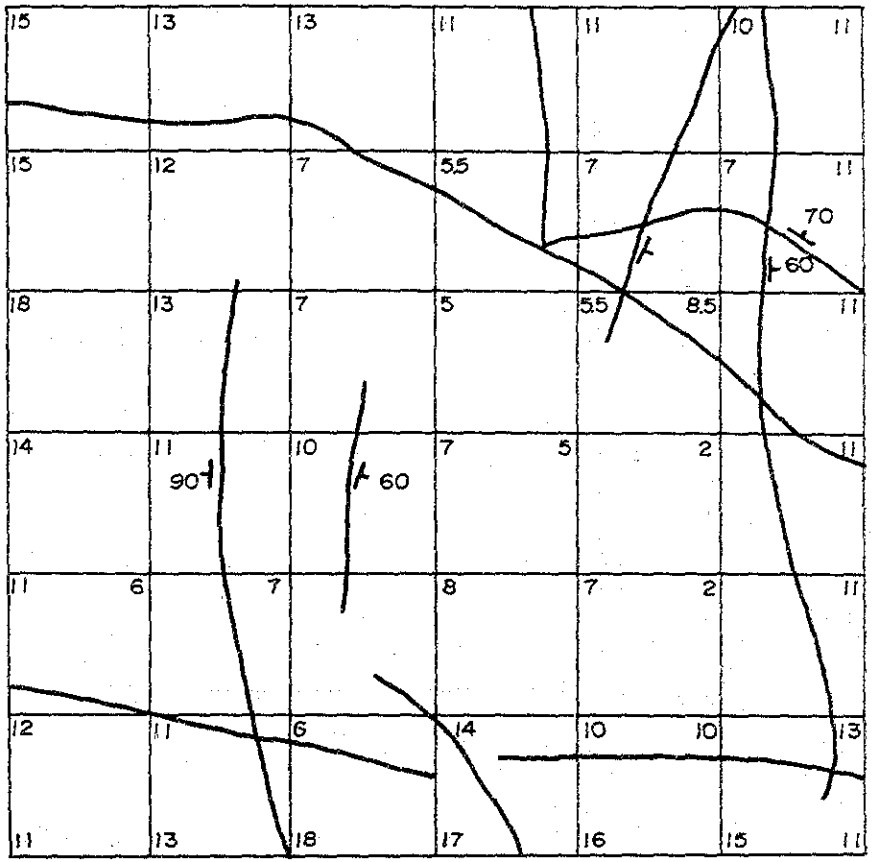
TEST LOCATION : DA-1 TEST NO. : BS-1

MEASURING POINT : TD-15.2m



TEST LOCATION : DA-1 TEST NO. : BS-2

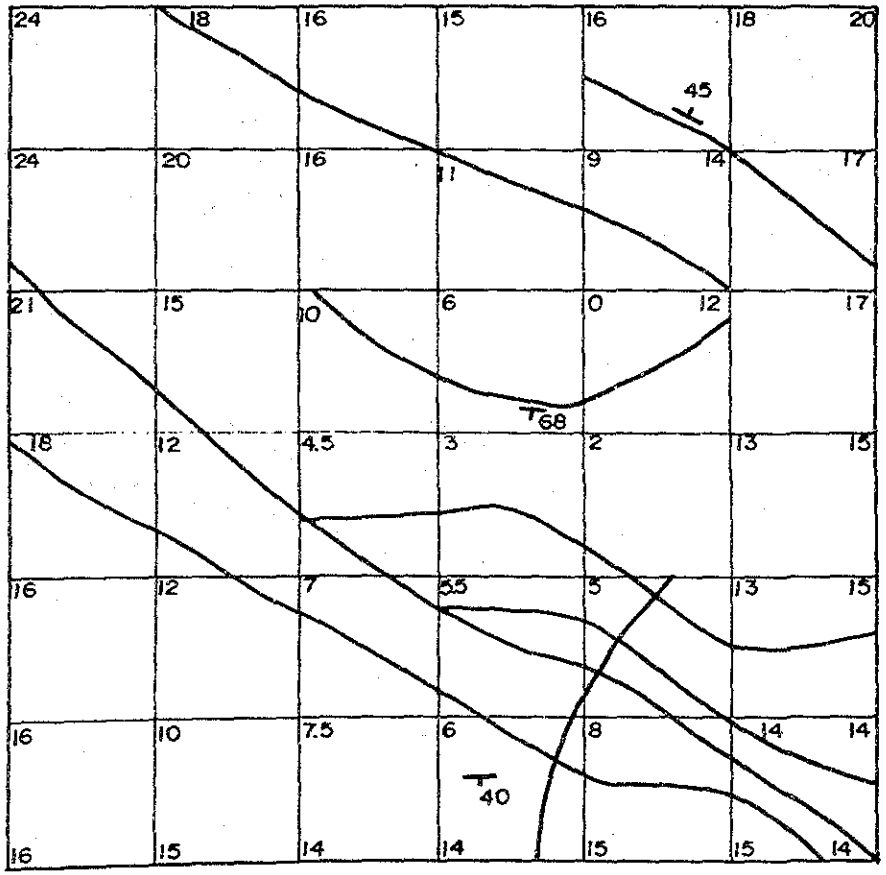
MEASURING POINT : TD-17.4m



SKETCHES OF ORIGINAL ROCK SURFACE

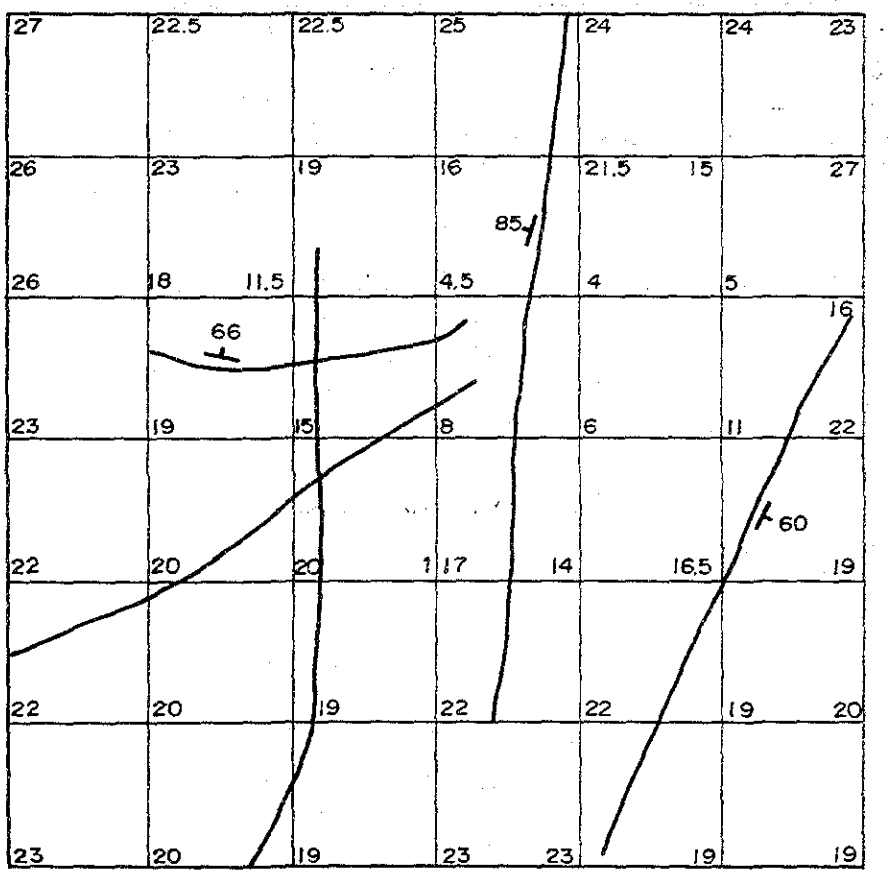
TEST LOCATION : DA-1 TEST NO. : BS-3

MEASURING POINT : TD-18.6 m



TEST LOCATION : DA-1 TEST NO. : BS-4

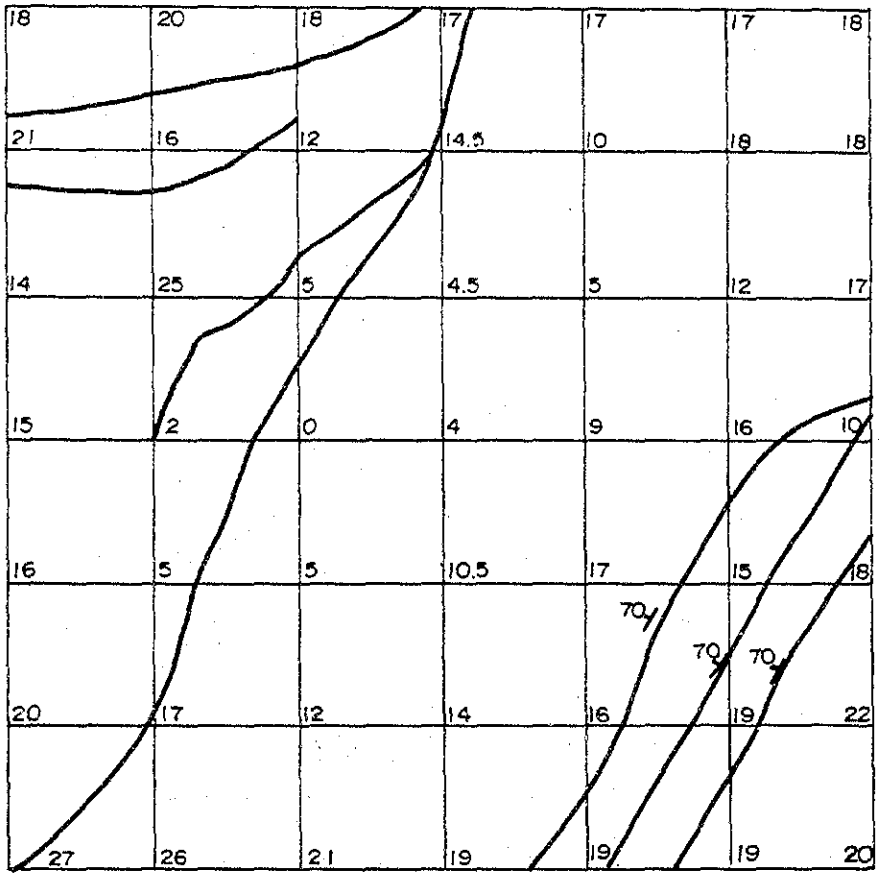
MEASURING POINT : TD-20.0 m



SKETCHES OF ORIGINAL ROCK SURFACE

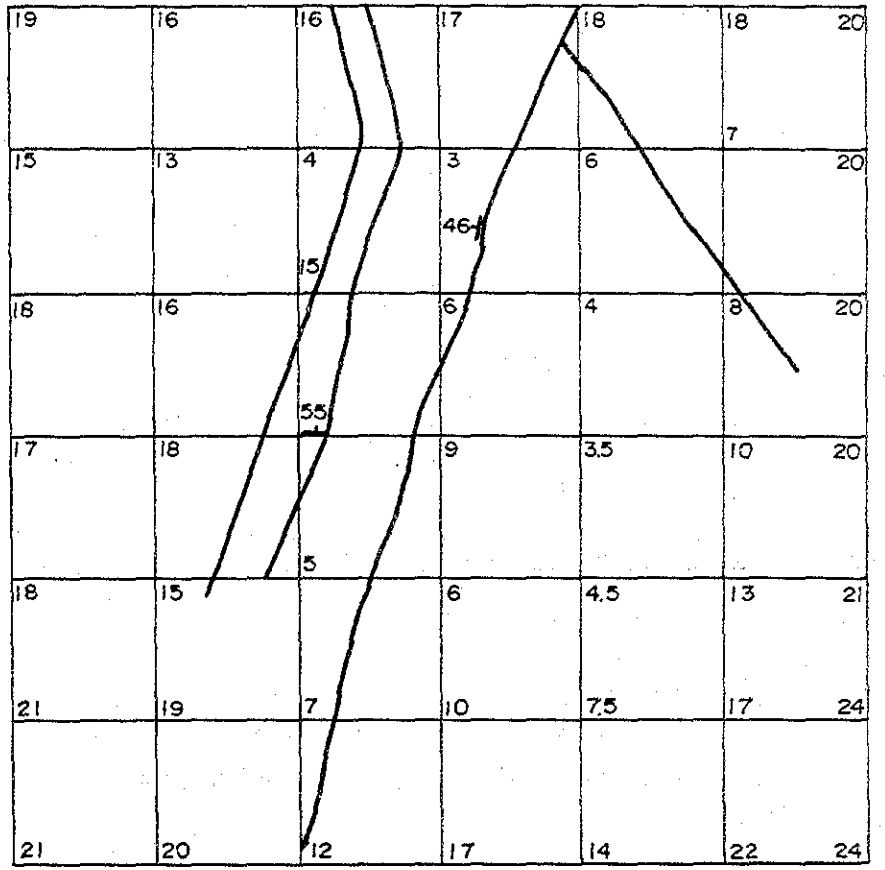
TEST LOCATION : DA-2 TEST NO. : BS-1

MEASURING POINT : TD-10.8 m



TEST LOCATION : DA-2 TEST NO. : BS-2

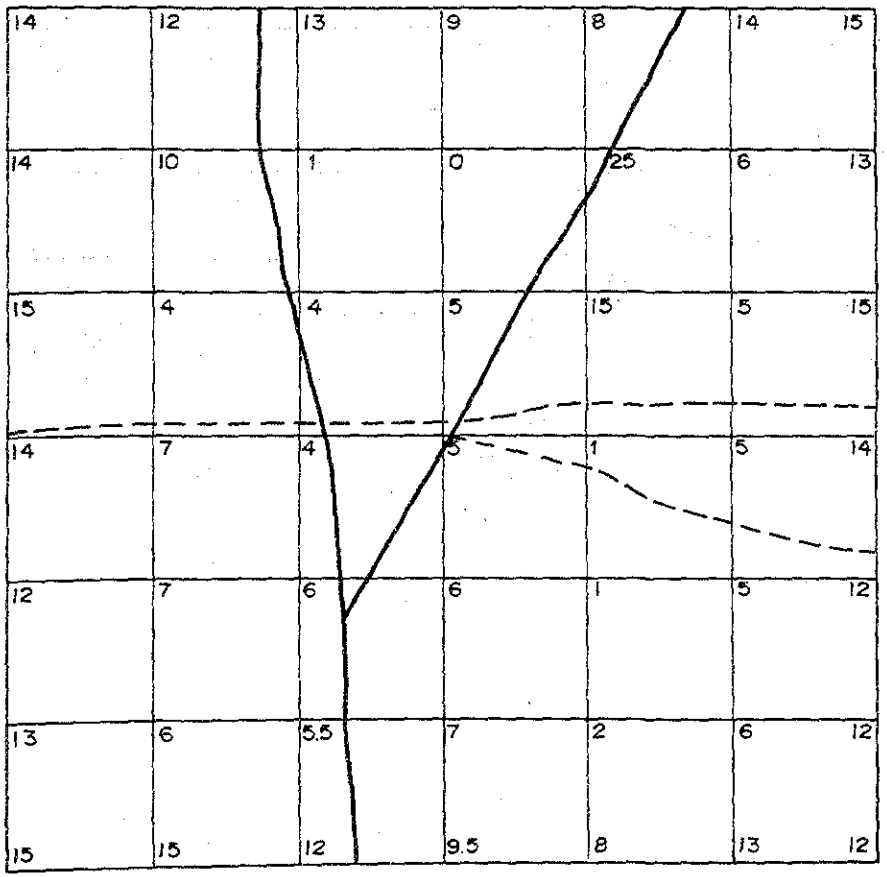
MEASURING POINT : TD-15.7 m



SKETCHES OF ORIGINAL ROCK SURFACE

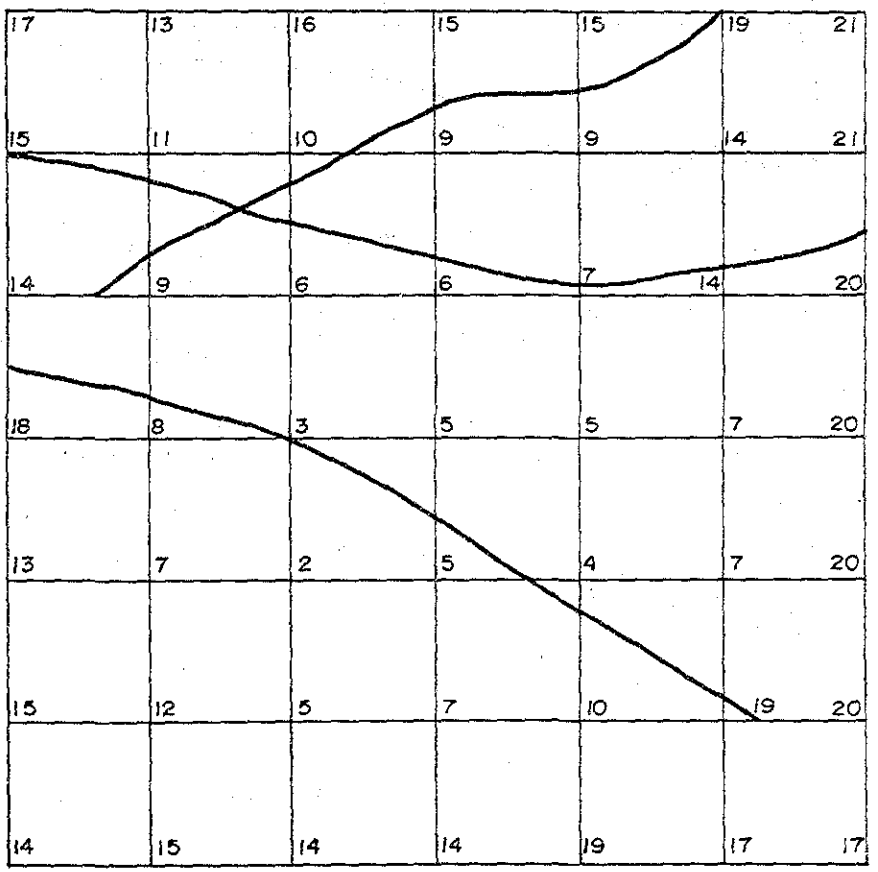
TEST LOCATION : DA-2 TEST NO. : BS-3

MEASURING POINT : TD-13.5 m



TEST LOCATION : DA-2 TEST NO. : BS-4

MEASURING POINT : TD-15.7m

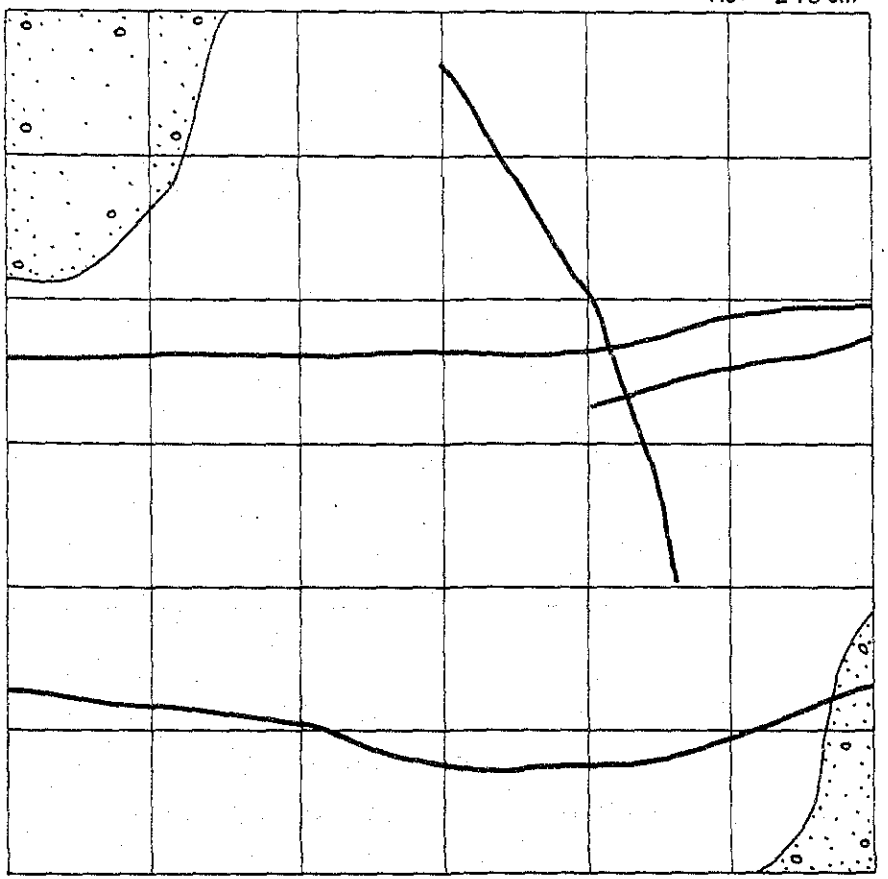


3-11-5 SKETCHES OF FRACTURED SURFACES

TEST LOCATION : DA-1 TEST NO: BS-1 MEASURING POINT: TD-15.2 m

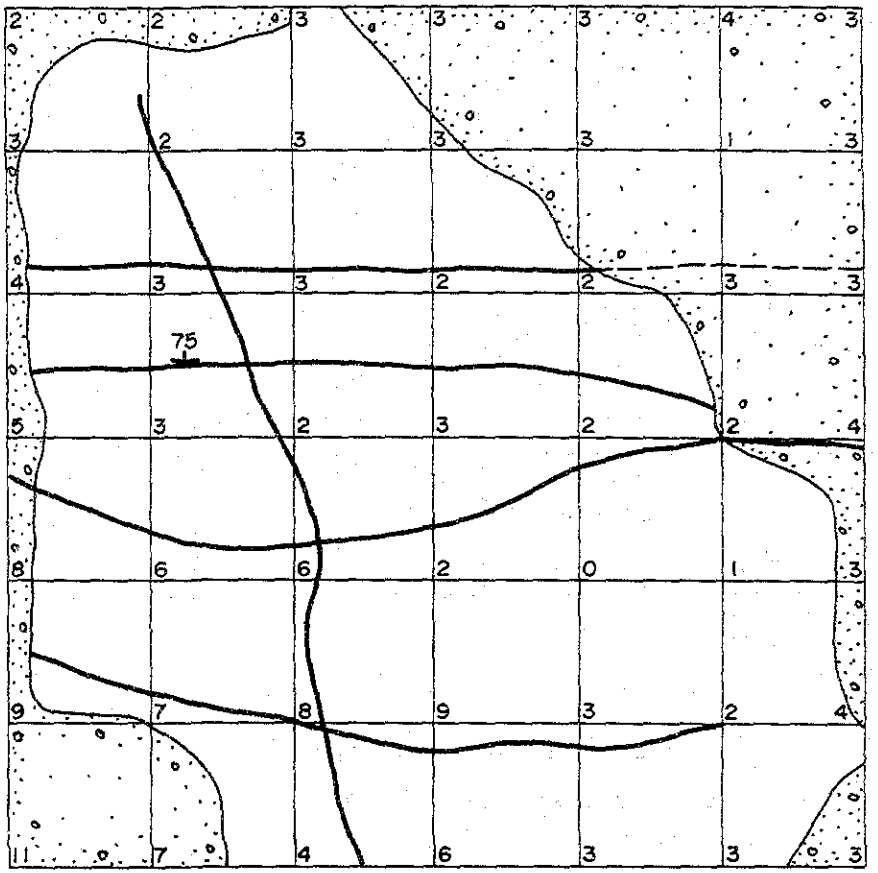
ROCK SURFACE

$A_R = 3360\ cm^2$
$A_C = 240\ cm^2$



BLOCK BOTTOM SURFACE

$A_R = 2570\ cm^2$
$A_C = 1030\ cm^2$

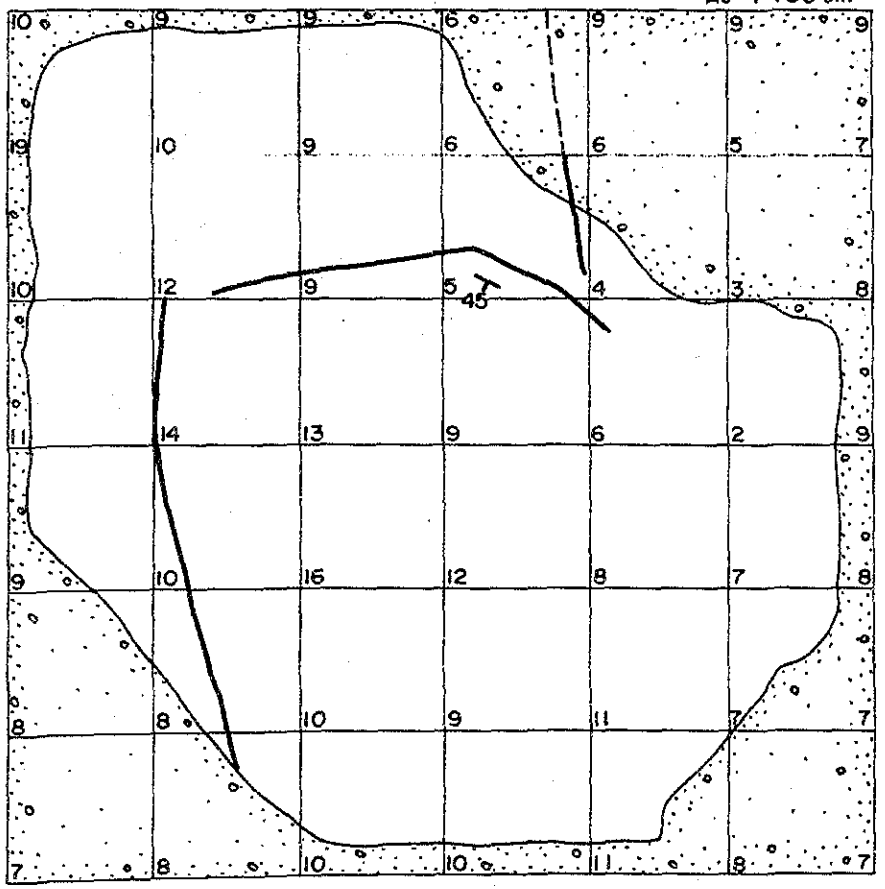


SKETCHES OF FRACTURED SURFACES

TEST LOCATION : DA-1　　TEST NO : BS-2　　MEASURING POINT : TD-17.4m

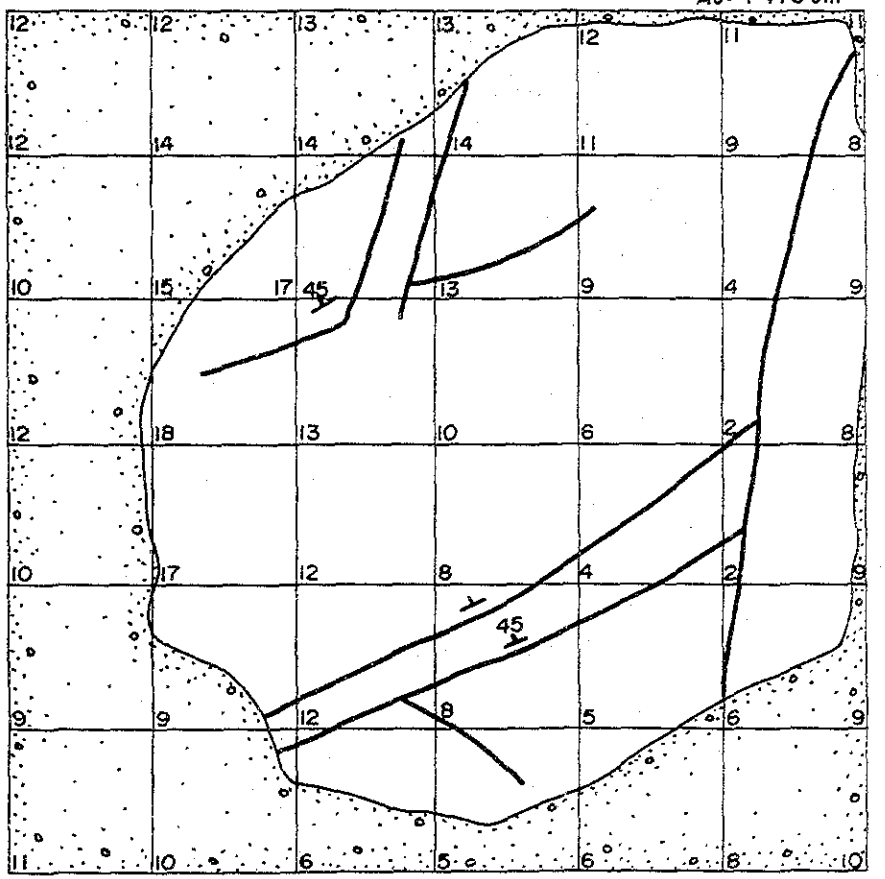
ROCK SURFACE

AR = 2 420 cm²
Ac = 1 180 cm²



BLOCK BOTTOM SURFACE

AR = 2 190 cm²
Ac = 1 410 cm²

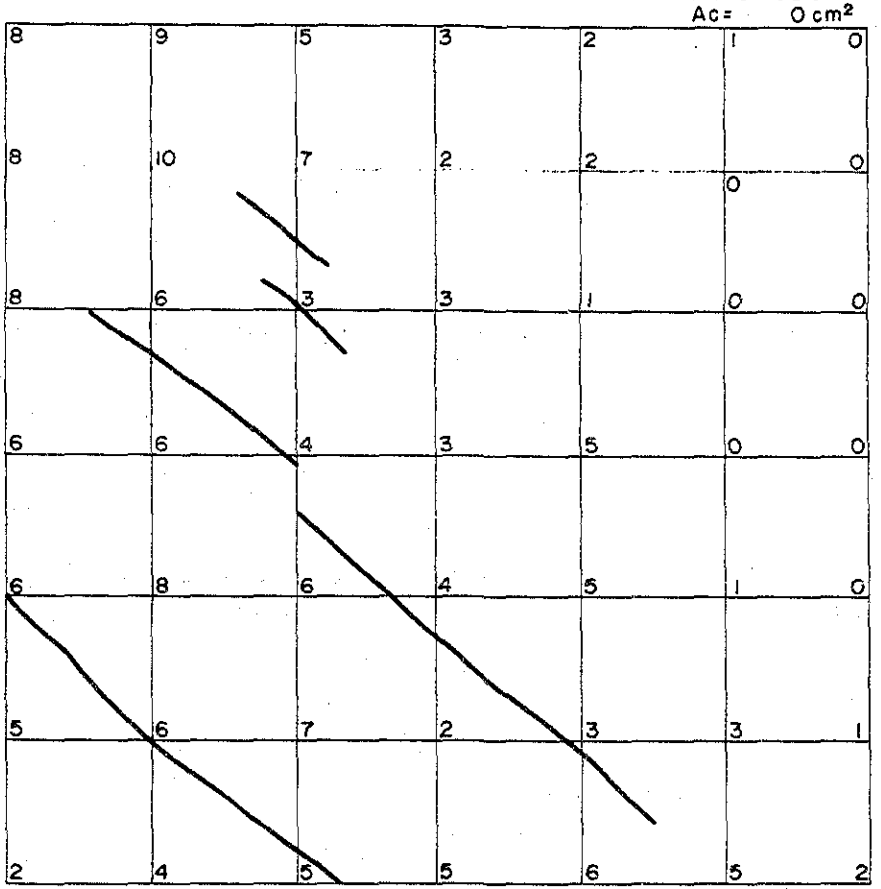


SKETCHES OF FRACTURED SURFACES

TEST LOCATION: DA-1 TEST NO: BS-3 MEASURING POINT: TD-18.6m

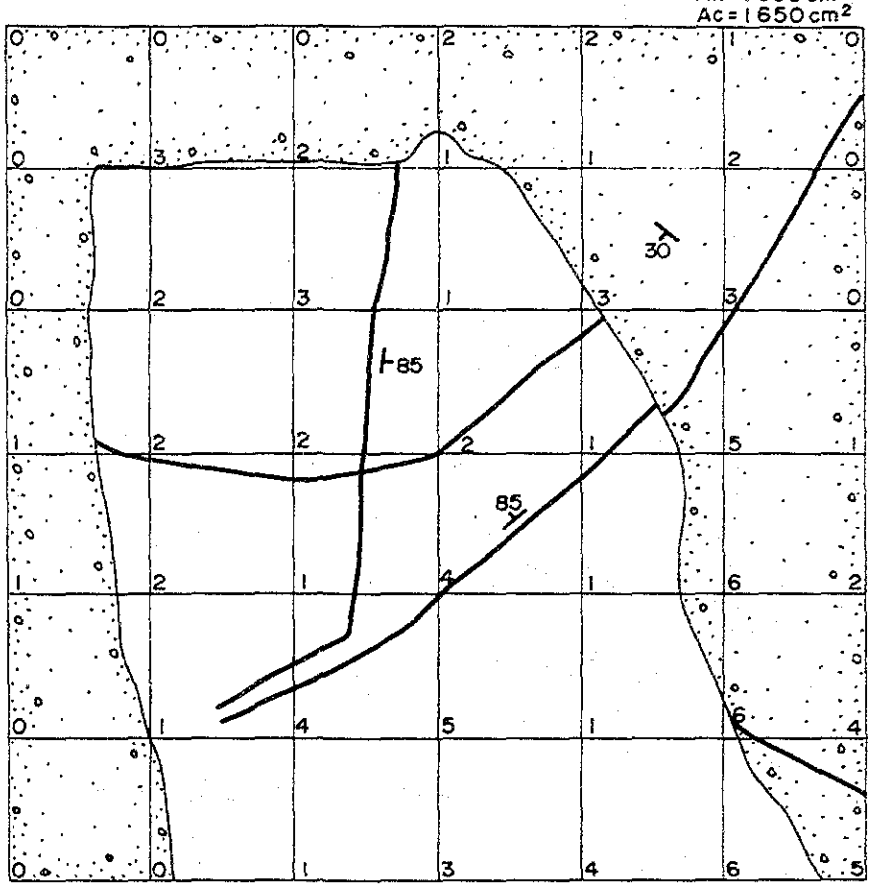
ROCK SURFACE

AR = 3 600 cm²
Ac = 0 cm²



BLOCK BOTTOM SURFACE

AR = 1 950 cm²
Ac = 1 650 cm²

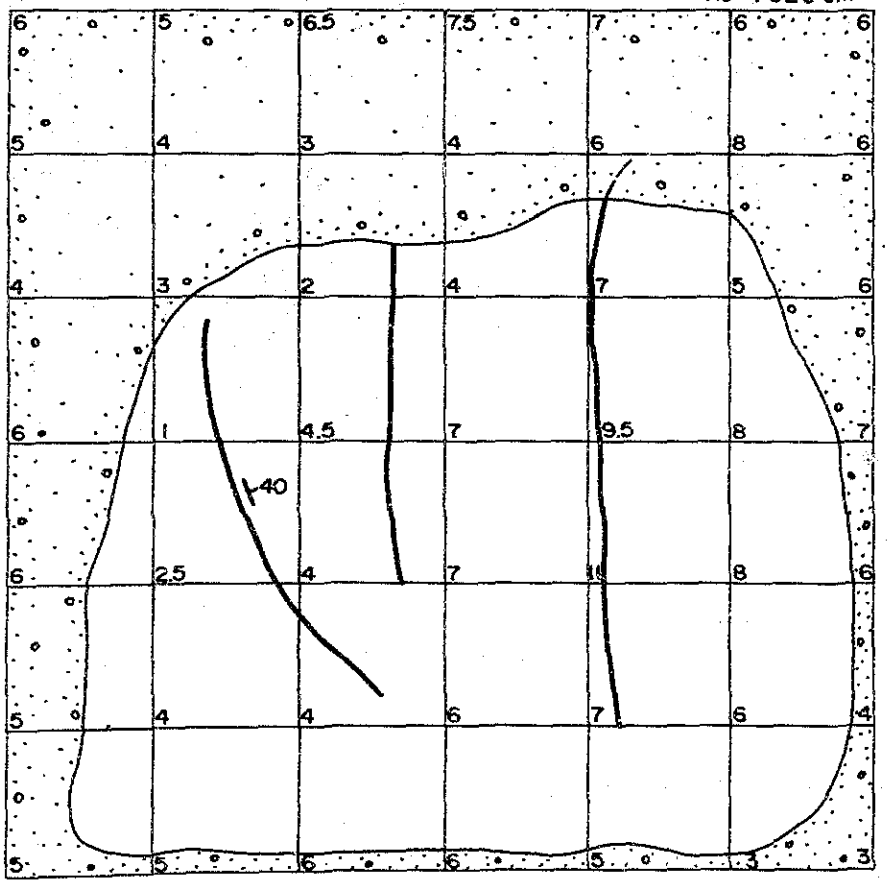


SKETCHES OF FRACTURED SURFACES

TEST LOCATION : DA-1　　TEST NO : BS-4　　MEASURING POINT : TD -20.0m

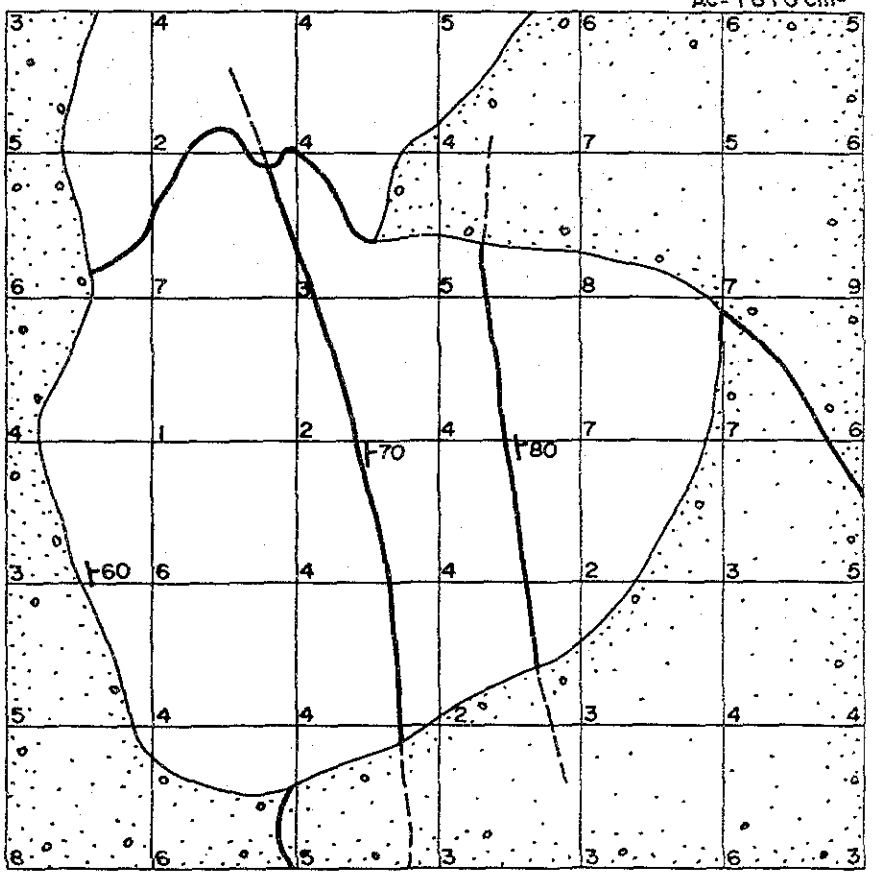
ROCK SURFACE

Ar = 2 080 cm²
Ac = 1 520 cm²



BLOCK BOTTOM SURFACE

Ar = 1 790 cm²
Ac = 1 810 cm²

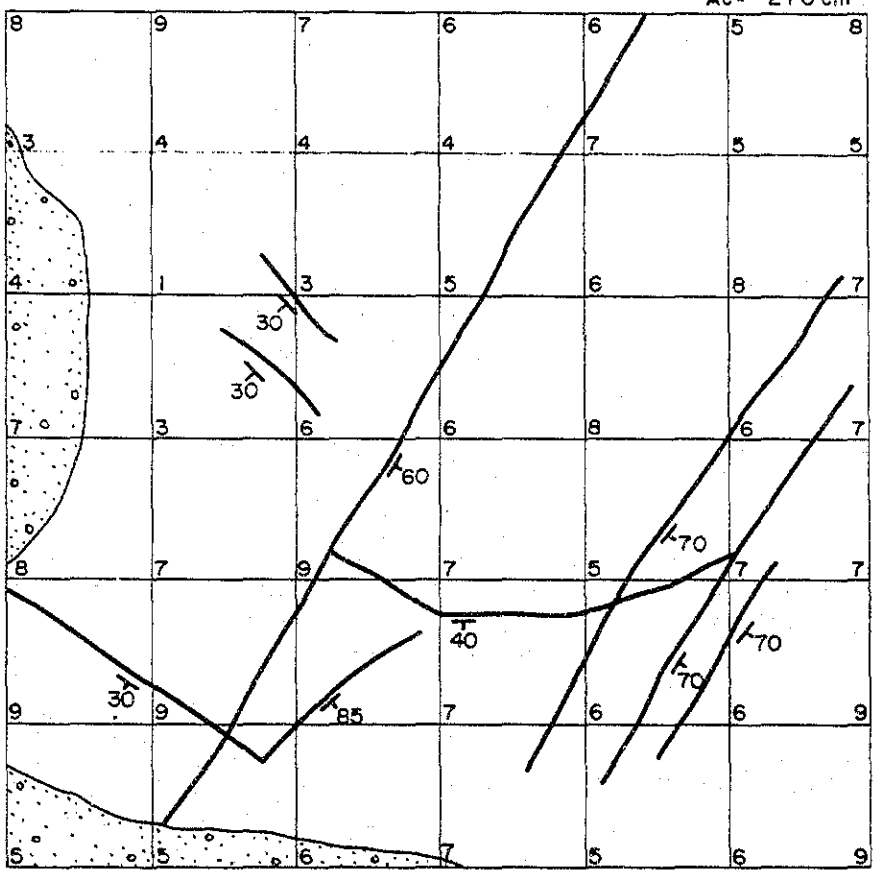


SKETCHES OF FRACTURED SURFACES

TEST LOCATION : DA-2　　TEST NO : BS-1　　MEASURING POINT : TD-10.1m

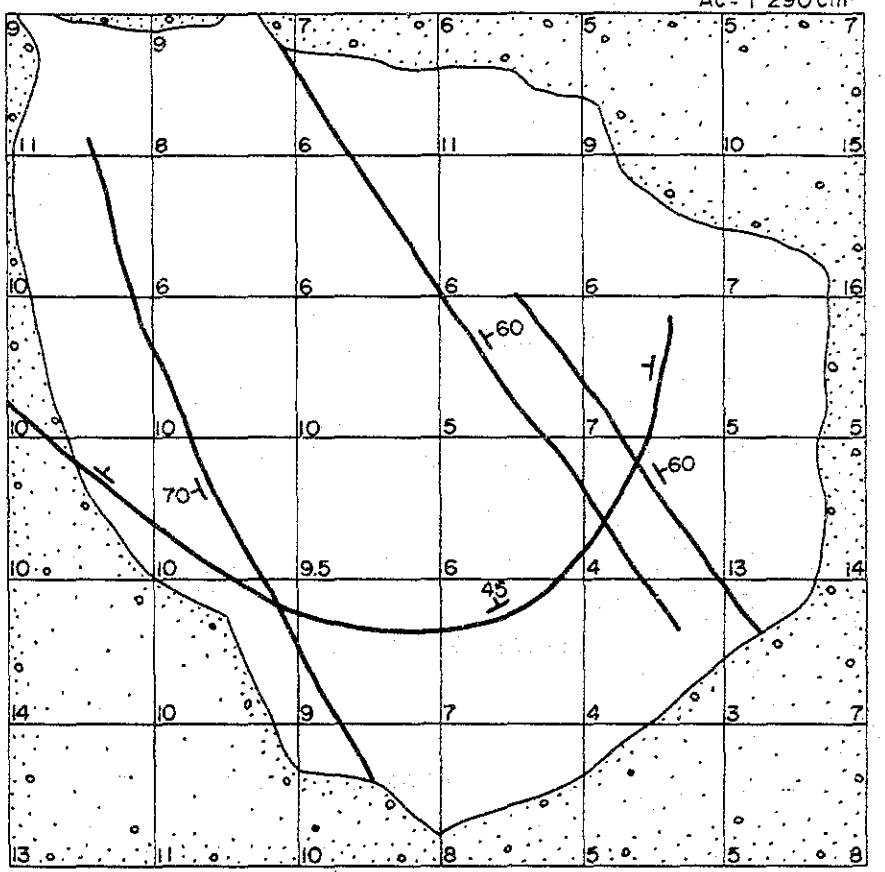
ROCK SURFACE

AR = 3390 cm²
Ac = 210 cm²



BLOCK BOTTOM SURFACE

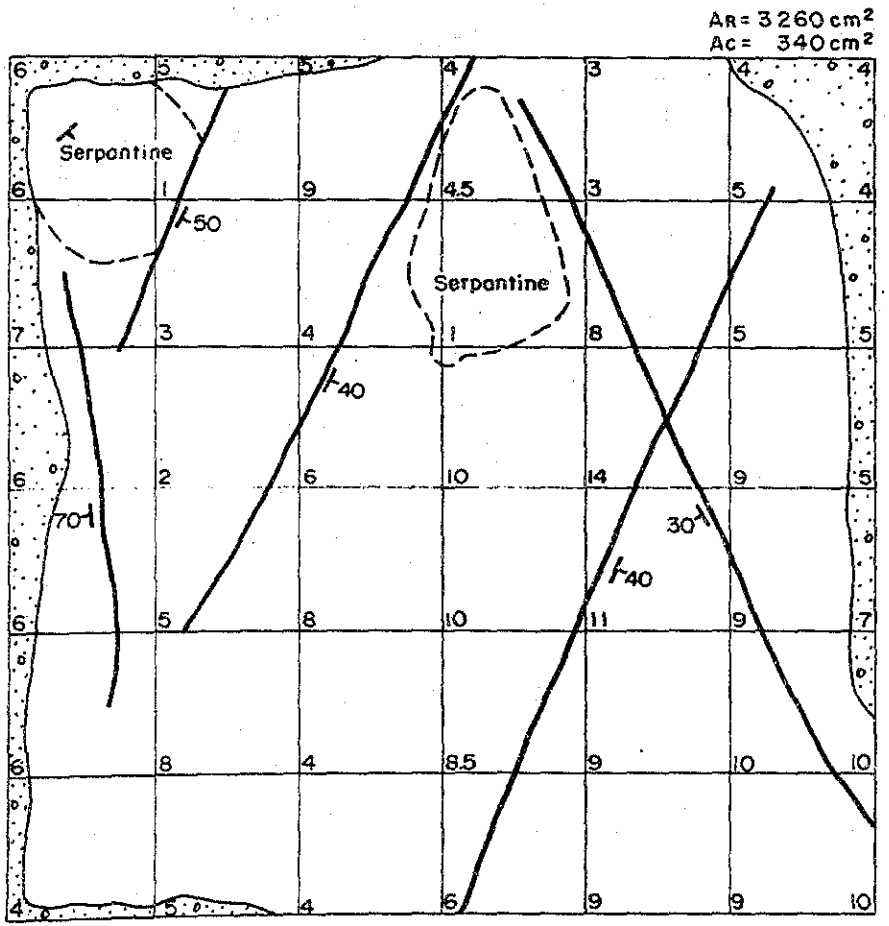
AR = 2310 cm²
Ac = 1290 cm²



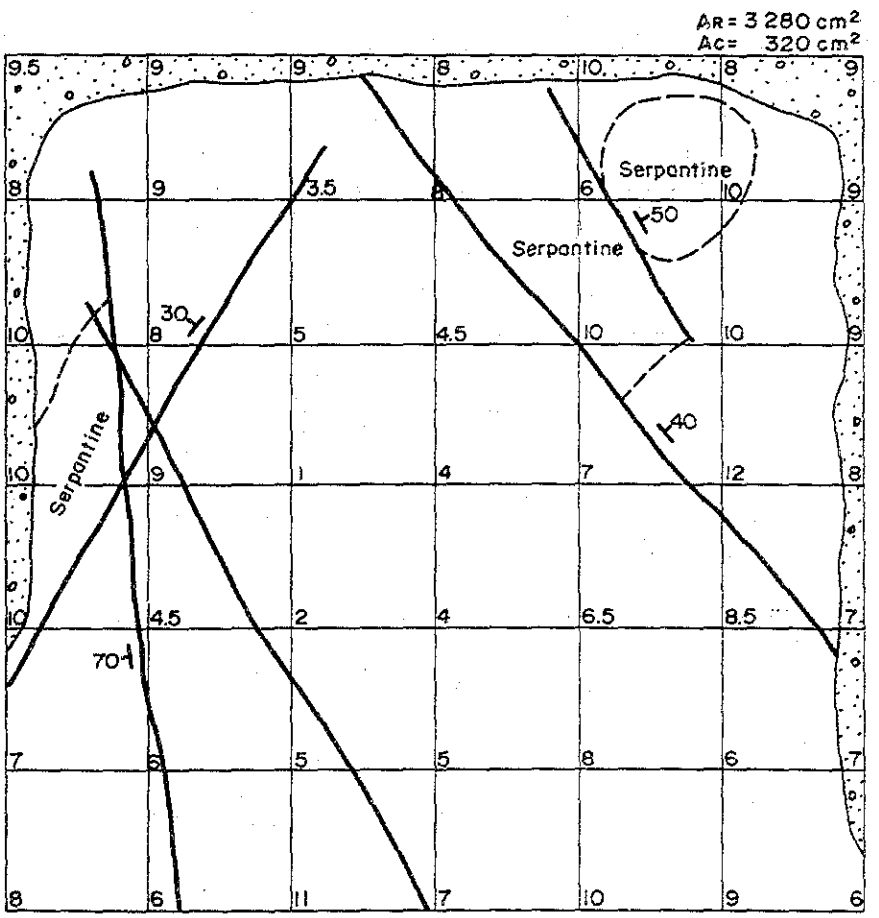
SKETCHES OF FRACTURED SURFACES

TEST LOCATION : DA-2　　TEST NO : BS-2　　MEASURING POINT : TD-12.0m

ROCK SURFACE



BLOCK BOTTOM SURFACE

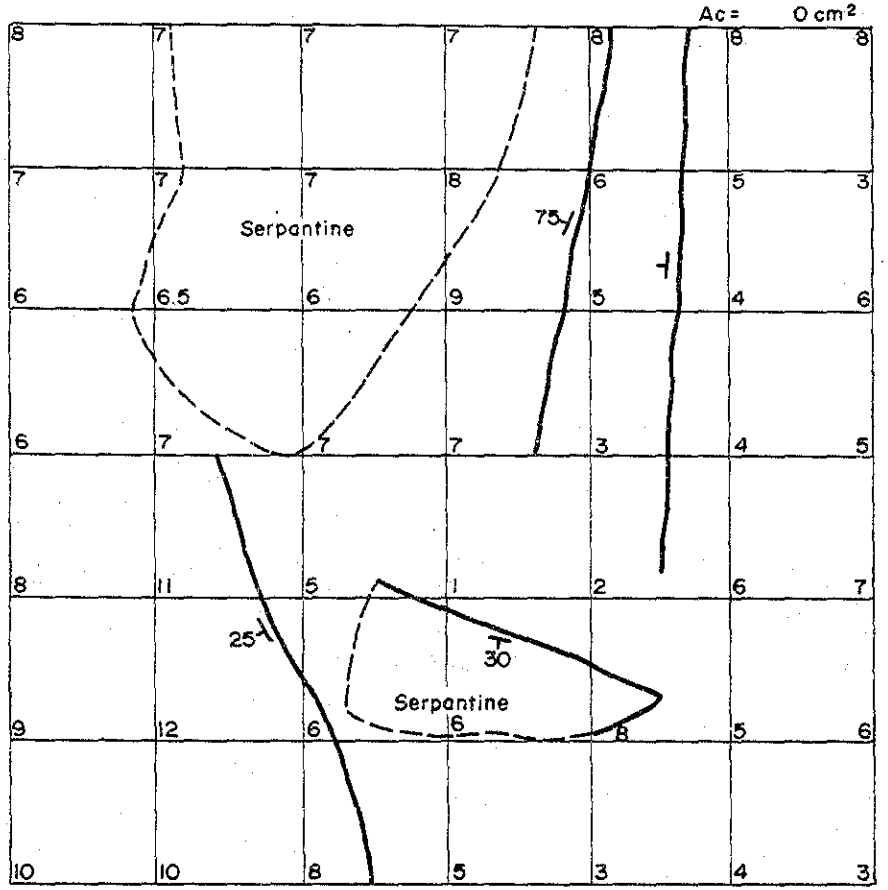


SKETCHES OF FRACTURED SURFACES

TEST LOCATION: DA-2 TEST NO: BS-3 MEASURING POINT: TD-13.5m

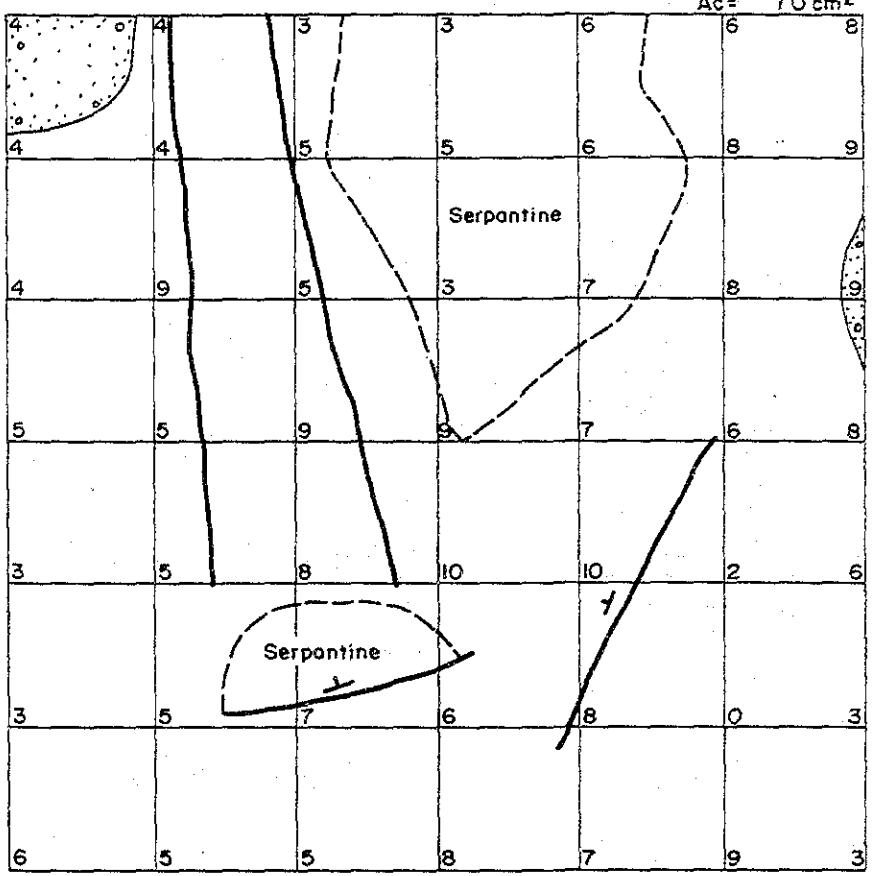
ROCK SURFACE

AR = 3 600 cm²
Ac = 0 cm²



BLOCK BOTTOM SURFACE

AR = 3530 cm²
Ac = 70 cm²

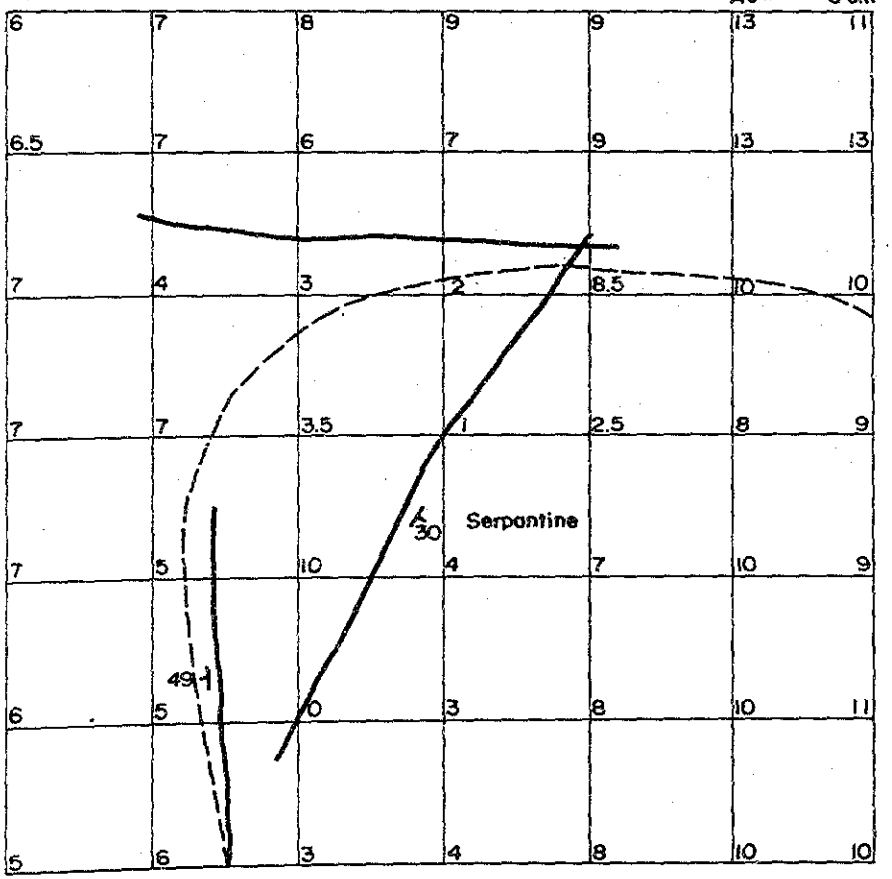


SKETCHES OF FRACTURED SURFACES

TEST LOCATION : DA-2　　TEST NO : BS-4　　MEASURING POINT : TD-12.0m

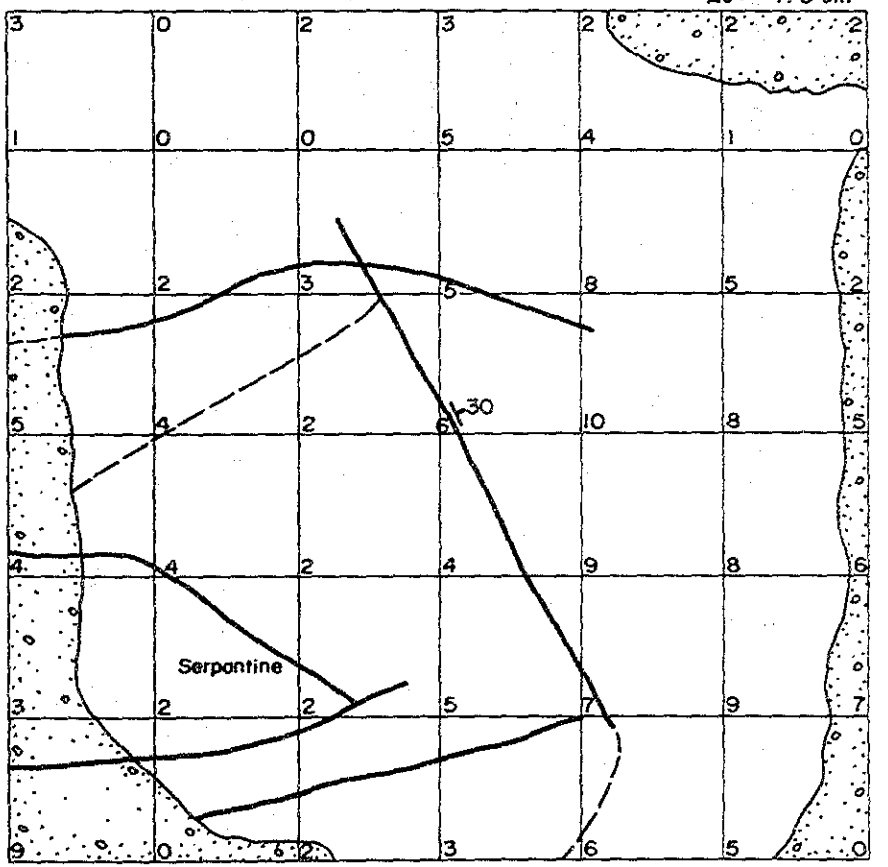
ROCK SURFACE

AR = 3 600 cm²
Ac = 0 cm²

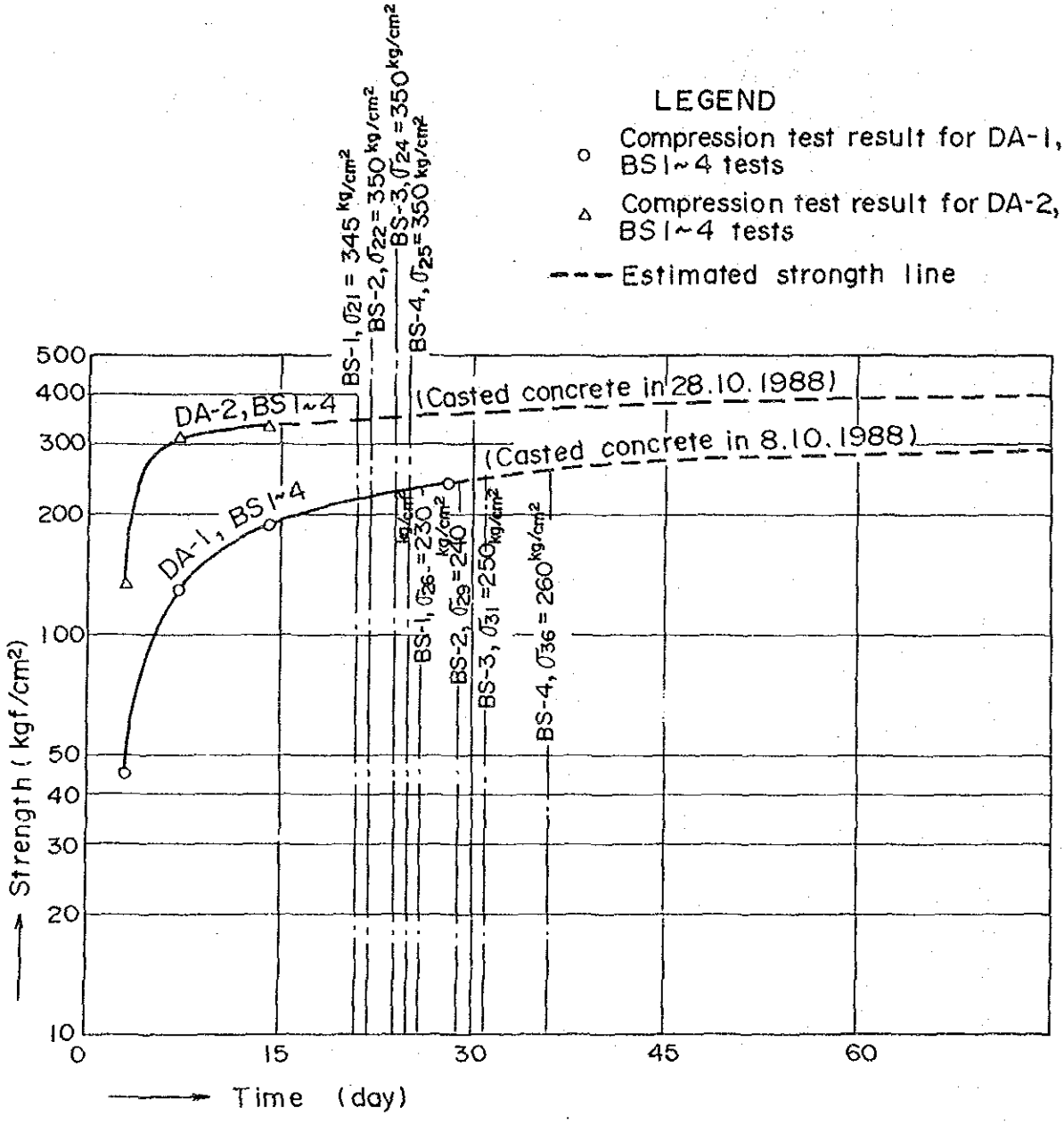


BLOCK BOTTOM SURFACE

AR = 3 130 cm²
Ac = 470 cm²



3-11-6 Time - Compression Strength of Concrete



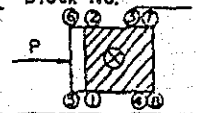
3-11-7 ROCK SHEAR TEST DATA SHEET (I)

Test Location DA-1, BS-1 Measuring Point TD-15.20m Date Measured 3.11.1988 Block No. N = 2 kgf/cm²

Geological Classification Ophiolite Rock Grade Measured by

Vertical Jack Capacity 200 ton x 1 units, Max. Oil Pressure 396.3 kg/cm² Ram Diameter ϕ25.35cm A = 3600 cm²

Diagonal Jack Capacity 200 ton x 2 units, Max. Oil Pressure 201.7 kg/cm² Ram Diameter ϕ19.05cm θ = 16.7 °



Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x10⁻³ mm): ①	②	①+② / 2	③	④	③+④ / 2	Horizontal Displacement (x10⁻³ mm): ⑤	⑥	⑦	⑧	⑤~⑧ / 4	Remarks
	0	0	0			0	0	0 / 0	0	0	0 / 0	0	0	0	0	0 / 0	
	0	1	7			0	8	4 / 4	0	0	0 / 0	0	2	0	0	0 / 0	
	4	2	14			4	28	16 / 20	0	0	0 / 0	0	0	0	0	0 / 0	
	8	2	14			1	2	1.5 / 21.5	0	0	0 / 0	0	1	0	0	0.25 / 0.3	
	16	0	0			-3	-5	-3.5 / 18	1	-4	-1.5 / -1.5	0	0	0	0	0 / 0.3	
	20	0	0			-1	-9	-5 / 13	0	0	0 / -1.5	15	2	0	0	4.25 / 4.5	
	28	2	14			0	2	1 / 14	0	-1	-0.5 / -2	7	1	0	0	2 / 6.5	
	32	2	14			0	8	4 / 18	0	0	0 / -2	3	0	0	0	0.75 / 7.3	
	34	2	14			0	1	0.5 / 18.5	0	0	0 / -2	2	0	0	0	0.5 / 7.8	
	37	2	14			0	1	0.5 / 19°	0	0	0 / -2	3	0	0	0	0.75 / 8.5	
	42	2	14														

ROCK SHEAR TEST DATA SHEET (2) Measuring Point TD 15.2 Block No. DA-1 BS-1 N = 2 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³mm) ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³mm) ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	0	2	14	0.34	2.25	0	19	9.5 / 28.5	−1	8	3.5 / 1.5	2	0	0	34	9 / 17.5	
	4	〃	〃	0.68	4.5	0	1	0.5 / 29	0	0	0 / 1.5	1	0	0	0	0.3 / 17.8	
	8	〃	〃	0.99	6.5	0	1	0.5 / 29.5	0	0	0 / 1.5	2	1	0	0	0.8 / 18.6	
	12	〃	〃	1.33	8.75	0	0	0 / 29.5	0	0	0 / 1.5	2	0	0	0	0.5 / 19.1	
	16	〃	〃	1.67	11.0	0	−8	−4 / 25.5	0	0	0 / 1.5	1	1	0	0	0.5 / 19.6	
	20	〃	〃	2.01	13.25	0	−16	−8 / 17.5	0	1	0.5 / 2.0	1	0	0	0	0.3 / 19.9	
	24	〃	〃	2.35	15.5	0	−20	−10 / 7.5	0	4	2 / 4.0	0	2	0	1	0.8 / 20.7	
	28	〃	〃	2.65	17.5	−54	−82	−68 / −60.5	−21	0	−10.5 / −6.5	30	0	54	55	34.5 / 55.5	
	32	〃	〃	3.00	19.75	−63	−95	−79 / −139.5	−40	−4	−22 / −28.5	−60	2	34	62	9.5 / 65	
	36	〃	〃	3.34	22.0	−121	−138	−129.5 / −269	−30	−21	−25.5 / −54	175	8	52	100	83.5 / 148.5	
	40	〃	〃	3.68	24.25	−134	−177	−155.5 / −424.5	−97	−20	−58.5 / −112.5	125	82	103	116	106.5 / 255.3	
	44	〃	〃	4.02	26.5	24	−183	−79.5 / −504	−59	−32	−45.5 / −158	125	112	113	144	123.5 / 378.8	
	48	〃	〃	4.32	28.5	−119	−141	−130 / −634	−59	−31	−45 / −203	69	95	124	81	92.5 / 471.3	
	52	〃	〃	4.66	30.75	−169	−6	−87.5 / −721.5	−80	−20	−50 / −253	149	92	120	141	125.5 / 596.8	
	56	〃	〃	5.00	33.0	−25	−94	−84.5 / −806	−32	−19	−25.5 / −278.5	87	87	86	71	82.8 / 677.8	
	1:00	〃	〃	5.35	35.25	−31	−48	−39.5 / −845.5	−53	−1	−27 / −305.5	55	8	12	30	26.3 / 703.9	
	4	〃	〃	5.69	37.5	−40	−50	−45 / −890.5	−17	−2	−9.5 / −315	55	27	17	57	39 / 744.9	
	8	〃	〃	5.99	39.5	−25	−63	−44 / −934.5	−25	−2	−13.5 / −328.5	82	105	38	40	53.8 / 798.7	
	12	〃	〃	6.33	41.75	−26	−31	−28.5 / −963	−18	−3	−10.5 / −339	31	21	43	28	30.8 / 829.5	
	16	〃	〃	6.67	44.0	−19	−28	−23.5 / −986.5	−8	−9	−8.5 / −349.5	32	0	0	50	20.5 / 850.0	
	20	〃	〃	7.01	46.25	−3	−30	−16.5 / −1003	−14	0	−7 / −356.5	55	16	14	20	26.3 / 876.3	
	24	〃	〃	7.36	48.5	−25	−32	−28.5 / −1031.5	−27	−3	−15 / −371.5	28	21	34	26	27.3 / 903.6	
	28	〃	〃	7.66	50.5	−30	−18	−24 / −1055.5	−10	−4	−7 / −378.5	7	13	2	28	12.5 / 916.1	
	32	〃	〃	8.00	52.75	−6	−2	−4 / −1059.5	−20	−2	−11 / −389.5	35	60	67	28	47.5 / 963.6	
	36	〃	〃	8.34	55.0	−28	−53	−40.5 / −1100	−9	−6	−7.5 / −397	29	18	0	38	21.3 / 984.9	
	40	〃	〃	8.68	57.25	−11	−17	−14 / −1114	−17	−6	−11.5 / −408.5	23	23	65	27	34.5 / 1019.4	
	44	〃	〃	9.02	59.50	−22	−24	−23 / −1137	−2	−3	−2.5 / −411	19	19	0	34	18 / 1037.4	
	48	〃	〃	9.33	61.5	−17	−17	−17 / −1154	−12	−10	−11 / −422	83	10	65	44	50.5 / 1087.9	
	52	〃	〃	9.67	63.75	−22	−19	−20.5 / −1174.5	−3	−9	−6 / −428	28	49	3	41	30.3 / 1118.2	
	56	〃	〃	10.01	66.0	−24	−19	−21.5 / −1196	−24	−8	−16 / −444	35	4	39	37	28.8 / 1147.0	
	2:00	〃	〃	10.35	68.25	−28	−33	−30.5 / −1226.5	−39	−8	−23.5 / −467.5	38	38	3	29	26 / 1173.0	
	04	〃	〃	10.69	70.5	−3	−4	−3.5 / −1229.5	0	−3	−1.5 / −469	18	2	0	29	12.3 / 1185.3	

ROCK SHEAR TEST DATA SHEET (3) Measuring Point TD 15,2 m Block No. DA-1 BS-1 N = 2 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	①+②/2	③	④	③+④/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	⑤−⑧/4	Remarks
	08	2	14	11.00	72.5	−22	−15	−18.5	−7	−7	−7	31	12	0	23	19	
	12	〃	〃	11.84	74.75	−19	−4	−11.5	−9	−9	−9	57	48	0	36	35.3	
	16	〃	〃	11.68	77.0	−20	−33	−26.5	−8	−7	−7.5	15	10	58	30	28.3	
	20	〃	〃	12.02	79.25	−14	−15	−14.5	0	−2	−1	23	8	0	22	18.3	
	24	〃	〃	12.36	81.5	−8	−15	−11.5	−6	−9	−7.5	36	11	0	28	18.3	
	28	〃	〃	12.66	83.5	−39	−25	−32	−2	−15	−8.5	65	90	58	51	51	
	32	〃	〃	13.01	85.75	−3	−5	−4	−28	−7	−17.5	24	8	0	21	13.3	
	36	〃	〃	13.35	88.0	−26	−20	−23	−20	−7	−13.5	25	35	64	32	39	
	40	〃	〃	13.69	90.25	−52	−17	−34.5	−2	−14	−8	29	19	0	41	22.3	
	44	〃	〃	14.03	92.5	−12	−20	−16	−10	−4	−7	18	9	40	35	26.3	
	48	〃	〃	14.33	94.5	−18	−13	−15.5	−10	−10	−10	41	12	0	35	22	
	52	〃	〃	14.67	96.75	−23	−20	−21.5	−2	−13	−7.5	34	22	0	40	24	
	56	〃	〃	15.01	99.0	−23	−5	−14	−23	−17	−20	176	30	95	45	86.5	
	3:00	〃	〃	15.36	101.25	−14	−18	−16	0	0	0	8	5	0	12	6.3	
	04	〃	〃	15.70	103.5	−19	−31	−25	0	−11	−5.5	10	36	0	43	22.3	
	08	〃	〃	16.0	105.5	−14	0	−7	−15	−6	−10.5	18	15	37	23	25.8	
	12	〃	〃	16.34	107.75	−23	−9	−16	0	−2	−1	9	11	6	15	10.3	
	16	〃	〃	16.68	110.0	−2	−22	−12	0	−6	−3	59	13	0	41	28.3	
	20	〃	〃	17.02	112.25	−9	−20	−14.5	−20	−7	−13.5	0	24	72	20	29	
	24	〃	〃	17.37	114.5	−33	−20	−26.5	−30	−5	−17.5	41	19	5	66	32.8	
	28	〃	〃	17.67	116.5	0	−16	−8	0	0	0	7	38	3	15	15.8	
	32	〃	〃	17.97	118.5	−28	−19	−23.5	−29	−19	−24	34	37	0	40	22.8	
	36	〃	〃	18.35	121.0	−22	−43	−32.5	0	−6	−3	23	51	36	36	36.5	
	40	〃	〃	18.65	123.0	−17	−2	−9.5	−5	−2	−3.5	21	23	−1	4	11.8	
	44	〃	〃	18.96	125.0	−11	−8	−9.5	0	−16	−8	36	4	4	45	22.3	
	48	〃	〃	19.34	127.5	−10	−7	−8.5	−7	−1	−4	12	1	0	0	3.3	
	52	〃	〃	19.68	129.75	−18	−12	−15	0	−6	−3	19	26	26	18	22.3	
	56	〃	〃	20.02	132.0	0	−13	−6.5	−20	−4	−12	4	−4	2	23	6.3	
	4:00	〃	〃	20.36	134.25	−4	−8	−6	0	−3	−1.5	37	15	55	30	34.3	
	04	〃	〃	20.70	136.5	0	−22	−11	0	−4	−2	8	9	0	41	14.5	
	08	〃	〃	21.01	138.5	1	−7	−3	−13	−2	−7.5	15	15	29	23	20.8	
	12	〃	〃	21.38	141.0	0	−25	−12.5	−7	−8	−7.5	18	18	28	20	21	

ROCK SHEAR TEST DATA SHEET (4) Measuring Point TD 15.2 Block No. DA-1, BS-1. N = 2 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤~⑧)/4	Remarks
	16	2	14	21.69	143.0	0	1	0.5	0	0	0	25	32	0	3	15	
	20	〃	〃	22.03	145.25	-94	-33	-63.5	-17	-14	-15.5	34	27	3	37	25.3	
	24	〃	〃	22.37	147.5	0	-3	-1.5	0	-1	-0.5	10	11	0	20	10.3	
	28	〃	〃	22.67	149.5	-8	-20	-14	-20	-4	-12	38	11	83	33	41.3	
	32	〃	〃	23.05	152.0	-15	-17	-16	0	-6	-3	19	13	0	30	15.5	
	36	〃	〃	23.36	154.0	-11	-11	-11	-6	-3	-4.5	7	15	37	14	18.3	
	40	〃	〃	23.66	156.0	0	-20	-10	-20	-2	-11	24	26	1	20	17.8	
	44	〃	〃	23.96	158.0	-18	-28	-23	0	-16	-8	50	29	0	28	26.8	
	48	〃	〃	24.34	160.5	-32	-15	-23.5	-15	-3	-9	20	7	116	13	39	
	52	〃	〃	24.65	162.5	-13	-10	-11.5	0	-5	-2.5	14	14	0	41	17.3	
	56	〃	〃	25.02	165.0	-3	-17	-10	0	-5	-2.5	18	17	0	30	16.3	
	5:00	〃	〃	25.33	167.0	-27	-29	-28	-20	-13	-16.5	64	33	60	33	45	
	04	〃	〃	25.63	169.0	-29	-13	-21	-12	-6	-9	64	44	28	18	38.5	
	08	〃	〃	25.93	171.0	-19	-18	-18.5	-3	-11	-7	30	12	0	51	23.3	
	12	〃	〃	26.31	173.5	-17	-25	-21	-17	-2	-9.5	31	10	82	31	38.5	
	16	〃	〃	26.69	176.0	-26	-28	-27	-46	-23	-34.5	40	53	3	56	38	
	20	〃	〃	27.00	178.0	-15	-19	-17	-6	-4	-5	30	26	0	17	18.3	
	24	〃	〃	27.30	180.0	-26	-15	-20.5	-14	-12	-13	64	7	10	30	27.8	
	28	〃	〃	27.60	182.0	-19	-33	-26	-17	-9	-13	31	40	45	57	43.3	
	32	〃	〃	27.98	184.5	-20	-38	-29	-10	-10	-10	44	12	37	45	34.5	
	36	〃	〃	28.36	187.0	-28	-14	-21	-15	-13	-14	27	51	41	50	42.3	
	40	〃	〃	28.66	189.0	-27	-27	-27	-18	-8	-13	35	43	47	28	38.3	
	44	〃	〃	28.97	191.0	-22	-33	-27.5	-17	-15	-16	71	37	39	35	45.5	
	48	〃	〃	29.27	193.0	-3	-22	-12.5	-17	-4	-10.5	12	51	41	40	36	
	52	〃	〃	29.65	195.5	-17	-27	-23	-18	-6	-12	28	19	35	38	30	
	56	〃	〃	30.03	198.0	-20	-31	-25.5	-15	-24	-19.5	37	30	25	31	30.8	
	6:00	〃	〃	30.33	200.0	-33	-46	-39.5	-28	-28	-28	56	81	185	91	103	
	04	〃	〃	30.64	202.0	-43	-45	-44	-37	-7	-22	59	85	6	55	51.3	
	08	〃	〃	30.94	204.0	-71	-83	-77	-75	-43	-59	145	35	14	70	66	
	12	〃	〃	31.32	206.5	0	0	0	0	0	0	-3	0	50	55	26.3	
	16	〃	〃	31.70	209.0	-36	-45	-40.5	-23	-22	-22.5	53	45	90	45	58.3	
	20	〃	〃	32.00	211.0	-20	-31	-25.5	-22	-15	-18.5	54	12	85	70	55.3	

ROCK SHEAR TEST DATA SHEET (5) Measuring Point TD 15, 2 Block No. DA-1, B5-1 N = 2 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	24	2	14	32.80	213.0°	-19	-58	-38.5 / -2549	-42	-16	-29 / -1168	77	119	19	115	82.5 / 8200	
	28	〃	〃	32.61	215.0°	-30	-10	-20 / -2554	-18	-8	-13 / -1161	60	44	36	23	40.8 / 8244	
	32	〃	〃	32.91	217.0°	-26	-20	-23 / -2577	-20	-16	-18 / -1199	79	48	65	77	64.8 / 8269	
	36	〃	〃	33.37	220.0°	-8	-20	-14 / -2577	-10	-10	-10 / -1209	25	21	17	43	26.5 / 8334	
	40	〃	〃	33.67	222.0°	-11	-26	-18.5 / -2604	-15	-10	-12.5 / -1221.5	43	131	25	42	35.5 / 8390.7	
	44	〃	〃	33.97	224.0°	-43	-34	-38.5 / -2648.9	-37	-26	-31.5 / -1253	87	72	48	95	75.5 / 8446.5	
	48	〃	〃	34.28	226.0°	-52.5 / -2701.4	-62	-57.25	-58	-39	-48.5 / -1301.5	125	49	59	118	87.5 / 8504	
	52	〃	〃	34.66	228.5°	-32	-58	-45 / -2748.4	-15	-61	-38 / -1339.5	126	138	57	192	130.8 / 8568.8	
	56	〃	〃	05.03	231.0°	-131	-80	-105.5 / -2854.9	-130	-110	-120 / -1459.5	276	136	254	243	227 / 8692.1	
	7:00	〃	〃	35.34	233.0°	-72	-90	-81 / -2932.9	-85	-105	-95 / -1554.5	382	218	65	112	194.3 / 8858.4	
	04	〃	〃	35.64	235.0°	-50	-1130	-540 / -3472.9	-640	-829	-734.5 / -2289	1100	1872	1010	211	612.3 / 9209.7	

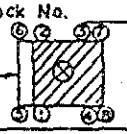
ROCK SHEAR TEST DATA SHEET (1)

Test Location DA-1, BS-2 Measuring Point TD 17.4 m Date Measured 6.11.1988 Block No. N = 4 kgf/cm²

Geological Classification Ophiolite Rock Grade Measured by

Vertical Jack Capacity 200 ton x 1 units, Max. Oil Pressure 396.3 kg/cm² Ram Diameter φ25.35 cm

Diagonal Jack Capacity 200 ton x 2 units, Max. Oil Pressure 701.7 kg/cm² Ram Diameter φ19.05 cm



A = 3600 cm²

θ = 16.7 °

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (×10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (×10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	0	0	0			0	0	0/0	0	0	0/0	0	0	0	0	0/0	
	0	1	7			0	1	0.5/0.5	0	1	0.5/0.5	0	0	0	0	0/0	
	4	2	14			1	0	0.5/1	0	0	0/0.5	0	0	13	0	3.3/3.3	
	8	2	14			0	0	0/1	0	0	0/0.5	1	0	0	0	0.3/3.6	
	16	0	0			5	0	2.5/3.5	0	0	0/0.5	−4	0	0	0	−1/2.6	
	20	0	0			0	0	0/3.5	0	0	0/0.5	−1	0	0	0	−0.3/2.3	
	28	2	14			0	0	0/3.5	0	2	1/1.5	0	0	3	0	0.8/3.1	
	32	3	21			5	0	2.5/6	0	0	0/1.5	0	0	0	0	0/3.1	
	36	4	29			3	0	1.5/7.5	0	1	0.5/2	0	0	0	0	0/3.1	
	40	4	29			4	0	2/9.5	0	4	2/4	0	0	0	1	0.3/3.4	
	42	4	29			0	0	0/9.5	0	0	0/4	0	0	0	1	0.3/3.7	

ROCK SHEAR TEST DATA SHEET (2) Measuring Point TD 17.4 Block No. DA-1, BS-2 N = 4 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤~⑧)/4	Remarks
	0	4	29	0.34	2.25	0	0	0/9.5	0	0	0/4	0	0	0	0	0/3.7	
	4	〃	〃	0.68	4.5	0	0	0/9.5	0	0	0/4	0	0	0	0	0/3.7	
	8	〃	〃	0.99	6.5	0	0	0/9.5	0	0	0/4	0	0	0	0	0/3.7	
	12	〃	〃	1.33	8.75	0	0	0/9.5	0	0	0/4	0	0	0	0	0/3.7	
	16	〃	〃	1.67	11.0	-1	0	-0.5/9	0	0	0/4	0	0	2	0	0.5/4.2	
	20	〃	〃	2.01	13.25	-1	0	-0.5/8.5	0	0	0/4	0	4	6	0	2.5/6.7	
	24	〃	〃	2.35	15.50	-2	0	-1/7.5	0	0	0/4	0	2	0	1	0.8/7.5	
	28	〃	〃	2.65	17.5	-2	8	3/10.5	0	0	0/4	0	12	4	1	4.3/11.8	
	32	〃	〃	3.00	19.25	-3	10	3.5/14	-1	0	-0.5/3.5	0	11	8	5	6/17.8	
	36	〃	〃	3.34	22.0	-4	4	0/14	0	0	0/3.5	0	22	10	4	9/26.8	
	40	〃	〃	3.68	24.25	-6	6	0/14	0	0	0/3.5	3	2	12	16	8.3/35.1	
	44	〃	〃	4.02	26.5	-8	0	-4/10	0	0	0/3.5	1	23	15	5	11/46.1	
	48	〃	〃	4.32	28.5	-7	0	-3.5/6.5	0	0	0/3.5	11	9	6	5	7.8/53.9	
	52	〃	〃	4.66	30.75	-4	0	-2/4.5	0	0	0/3.5	5	11	2	8	6.5/60.4	
	56	〃	〃	5.00	33.0	-6	0	-3/1.5	0	0	0/3.5	3	0	15	13	7.8/68.2	
	1:00	〃	〃	5.35	35.25	-6	-2	-4/-2.5	0	0	0/3.5	11	11	13	9	10.8/79	
	4	〃	〃	5.69	37.5	-4	0	-2/-4.5	0	0	0/3.5	3	1	8	11	5.8/84.8	
	8	〃	〃	5.99	39.5	-8	-2	-5/-9.5	0	0	0/3.5	8	10	12	6	9/93.8	
	12	〃	〃	6.33	41.75	-12	-5	-8.5/-18	0	0	0/3.5	10	12	17	19	14.5/108.3	
	16	〃	〃	6.67	44.0	-7	-6	-6.5/-24.5	0	0	0/3.5	6	10	6	2	6/114.3	
	20	〃	〃	7.01	46.25	-3	-5	-4/-28.5	0	0	0/3.5	7	6	12	12	9.3/123.6	
	24	〃	〃	7.36	48.5	-8	-5	-6.5/-35	0	0	0/3.5	9	3	12	8	8/131.6	
	28	〃	〃	7.66	50.5	-10	-3	-6.5/-41.5	0	0	0/3.5	12	16	20	18	16.5/148.1	
	32	〃	〃	8.00	52.75	-17	-7	-12/-50.5	0	0	0/3.5	6	14	18	10	12/160.1	
	36	〃	〃	8.34	55.0	-13	-7	-10/-63.5	0	0	0/3.5	33	7	17	13	17.5/177.6	
	40	〃	〃	8.68	57.25	-22	-8	-15/-78.5	0	0	0/3.5	29	23	20	17	22.3/199.9	
	44	〃	〃	9.02	59.5	-17	-10	-13.5/-92	0	0	0/3.5	0	21	28	20	17.3/217.2	
	48	〃	〃	9.33	61.5	-8	-10	-9/-101	0	0	0/3.5	8	1	12	7	5/222.7	
	52	〃	〃	9.67	63.75	-15	-14	-14.5/-115.5	0	0	0/3.5	16	12	24	14	16.5/238.7	
	56	〃	〃	10.01	66.0	-15	-11	-13/-128.5	0	0	0/3.5	9	23	16	17	16.3/255.0	
	2:00	〃	〃	10.35	68.25	-10	0	-5/-133.5	0	0	0/3.5	12	13	17	14	14/269	
	04	〃	〃	10.69	70.5	-13	-30	-21.5/-155	0	0	0/3.5	12	10	10	10	10.5/279.5	

ROCK SHEAR TEST DATA SHEET (3) Measuring Point TD 17.4 Block No. DA-1, BS-2 N = 4 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	8	4	29	11.00	72.5	−6	−10	−8 −16.0	0	0	0 −3.5	10	8	14	18	12.5 −29.2	
	12	〃	〃	11.34	74.75	−17	−10	−8.5 −17.15	0	−1	−0.5 −3	8	9	16	10	10.8 −30.28	
	16	〃	〃	11.68	77.0	−15	−23	−19 −19.05	0	−1	−0.5 −2.5	8	16	18	15	14.3 −31.71	
	20	〃	〃	12.02	79.25	−9	−7	−8 −19.85	0	0	0 −2.5	14	13	12	10	12.3 −32.94	
	24	〃	〃	12.36	81.5	−13	−10	−11.5 −21.0	0	−3	−1.5 −4	9	13	18	10	12.3 −34.17	
	28	〃	〃	12.66	83.5	−9	−20	−14.5 −22.45	0	−3	−1.5 −5.5	10	14	15	18	14.3 −35.6	
	32	〃	〃	13.01	85.75	−20	−11	−15.5 −24.0	0	−2	−1 −6.5	11	15	20	19	16.3 −37.23	
	36	〃	〃	13.35	88.0	−13	−21	−17 −25.7	0	−1	−0.5 −7	12	8	10	4	8.5 −38.08	
	40	〃	〃	13.69	90.25	−10	−7	−8.5 −26.55	−18	−3	−10.5 −17.5	12	25	20	9	16.5 −39.73	
	44	〃	〃	14.03	92.5	−12	−6	−9 −27.45	−8	0	−4 −21.5	10	11	21	23	16.3 −41.36	
	48	〃	〃	14.23	94.5	−13	−15	−14 −28.85	−7	−1	−4 −25.5	10	18	18	9	13.8 −42.74	
	52	〃	〃	14.67	96.75	−7	−16	−11.5 −30.0	−1	−2	−1.5 −27	10	21	16	13	15 −44.24	
	56	〃	〃	15.01	99.0	−8	−14	−11 −31.1	−1	−1	−1 −28	20	20	25	17	20.5 −46.29	
	3:00	〃	〃	15.36	101.25	−15	−11	−13 −32.4	−3	−4	−3.5 −31.5	34	11	11	13	17.3 −48.02	
	4	〃	〃	15.70	103.5	−15	−15	−15 −33.9	−5	−5	−5 −36.5	14	9	8	19	12.5 −49.27	
	8	〃	〃	16.00	105.5	−8	−14	−11 −35.0	−1	−2	−1.5 −38	18	18	10	19	16.3 −50.9	
	12	〃	〃	16.34	107.75	−18	−10	−14 −36.4	0	−2	−1 −39	11	9	9	11	10 −51.9	
	16	〃	〃	16.68	110.0	−13	−12	−11.5 −37.55	−1	−1	−1 −40	10	6	12	10	8.5 −52.85	
	20	〃	〃	17.02	112.25	−6	−8	−7 −38.25	−2	−1	−1.5 −41.5	9	11	20	10	12.5 −54.1	
	24	〃	〃	17.37	114.5	−9	−10	−9.5 −39.2	0	0	0 −41.5	8	32	15	15	17.5 −55.85	
	28	〃	〃	17.67	116.5	−8	−10	−9 −40.1	−4	−2	−3 −44.5	9	9	14	8	10 −56.85	
	32	〃	〃	17.97	118.5	−17	−18	−17.5 −41.85	−1	−1	−1 −45.5	8	19	9	13	12.3 −58.08	
	36	〃	〃	18.35	121.0	−11	−12	−11.5 −43.0	−2	−1	−1.5 −47	11	19	20	22	18 −59.88	
	40	〃	〃	18.65	123.0	−14	−14	−14 −44.4	−1	−3	−2 −49	17	13	19	12	15.3 −61.41	
	44	〃	〃	18.96	125.0	−16	−16	−16 −46.0	−1	−2	−1.5 −50.5	15	11	19	12	14.3 −62.84	
	48	〃	〃	19.34	127.5	−5	−6	−5.5 −46.55	−2	−2	−2 −52.5	14	6	17	14	12.8 −64.12	
	52	〃	〃	19.68	129.75	−13	−10	−11.5 −47.7	−1	−1	−1 −53.5	9	12	15	14	12.5 −65.37	
	56	〃	〃	20.02	132.0	−12	−10	−11 −48.8	−1	−3	−2 −55.5	12	19	16	20	16.8 −67.05	
	4:00	〃	〃	20.36	134.25	−10	−11	−10.5 −49.85	−3	−2	−2.5 −58	15	11	18	20	16 −68.65	
	04	〃	〃	20.70	136.5	−17	−13	−15 −51.35	−1	−2	−1.5 −59.5	13	16	17	16	15.5 −70.2	
	08	〃	〃	21.01	138.5	−9	−12	−10.5 −52.4	−2	−3	−2.5 −62	9	6	29	17	15 −71.7	
	12	〃	〃	21.38	141.0	−19	−18	−18.5 −54.25	−4	−2	−3 −65	17	25	25	12	19.8 −73.65	

ROCK SHEAR TEST DATA SHEET (4) Measuring Point TD 17.4m Block No. DA-1, BS-2 N= 4 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	16	4	29	21.69	148.0	−10	−5	−7.5 / 540	−1	−3	−2 / −62	9	9	5	17	10 / 746.8	
	20	〃	〃	22.03	145.25	−12	−5	−8.5 / 558.5	−5	−1	−3 / −65	17	14	25	8	16 / 762.8	
	24	〃	〃	22.87	147.5	−19	−20	−19.5 / 578	−1	−1	−1 / −66	16	18	16	12	15.5 / 778.3	
	28	〃	〃	22.67	149.5	−12	−12	−12 / 590	−5	−3	−4 / −70	17	11	27	18	18.3 / 796.6	
	32	〃	〃	23.05	152.0	−8	−8	−8 / 598	−4	−2	−3 / −73	5	15	12	12	11 / 807.6	
	36	〃	〃	23.36	154.0	−18	−22	−20 / 618	−1	−2	−1.5 / −74.5	17	9	19	19	16 / 823.6	
	40	〃	〃	23.66	156.0	−11	−10	−11.5 / 629.5	−5	−3	−4 / −78.5	8	9	13	6	9 / 832.6	
	44	〃	〃	23.96	158.0	−18	−23	−20.5 / 650	−6	−1	−3.5 / −82	18	22	35	17	23 / 855.6	
	48	〃	〃	24.34	160.5	−20	−15	−17.5 / 667.5	−3	−4	−3.5 / −85.5	29	27	35	36	31.8 / 887.4	
	52	〃	〃	24.65	162.5	−17	−25	−21 / 688.5	−2	−6	−4 / −89.5	27	24	23	8	20.5 / 907.9	
	56	〃	〃	25.02	165.0	−14	−20	−17 / 705.5	−1	−6	−3.5 / −93	12	14	17	18	15.3 / 923.2	
	5:00	〃	〃	25.33	167.0	−12	−10	−11 / 716.5	−2	−1	−1.5 / −94.5	7	11	25	8	12.8 / 936	
	4	〃	〃	25.63	169.0	−10	−5	−7.5 / 724	−1	−2	−1.5 / −96	11	7	16	16	12.5 / 948.5	
	8	〃	〃	25.93	171.0	−20	−12	−16 / 740	−5	−5	−5 / −101	23	9	19	17	16.8 / 965.3	
	12	〃	〃	26.31	173.5	−9	−28	−18.5 / 758.5	−1	−5	−3 / −104	16	25	36	29	26.5 / 991.8	
	16	〃	〃	26.69	176.0	−35	−22	−28.5 / 787	−12	−8	−10 / −114	16	33	40	16	26.3 / 1018.1	
	20	〃	〃	27.00	178.0	−18	−20	−19 / 806	−15	−3	−9 / −123	14	19	25	16	18.5 / 1036.6	
	24	〃	〃	27.30	180.0	−19	−40	−29.5 / 835.5	−16	−5	−10.5 / −133.5	15	28	60	17	30 / 1066.6	
	28	〃	〃	27.60	182.0	−24	−28	−26 / 861.5	−17	−7	−12 / −145.5	31	31	25	25	28 / 1094.6	
	32	〃	〃	27.98	184.5	−30	−40	−35 / 896.5	−12	−7	−9.5 / −155	17	33	37	28	28.8 / 1123.4	
	36	〃	〃	28.36	187.0	−31	−55	−43 / 939.5	−2	−8	−5 / −160	24	52	53	47	44 / 1167.4	
	40	〃	〃	28.66	189.0	−84	−115	−99.5 / 1039	−9	−25	−17 / −177	81	120	110	60	92.8 / 1260.2	
	44	〃	〃	28.97	191.0	−115	−160	−137.5 / 1176.5	−8	−50	−29 / −206	70	184	180	103	134.3 / 1394.5	
	48	〃	〃	29.27	193.0	−100	−100	−100 / 1276.5	−11	−50	−30.5 / −266.5	69	114	255	67	83.8 / 1478.3	
	52	〃	〃	29.65	195.5	−75	−76	−75.5 / 1352	−28	−35	−31.5 / −298	62	123	135	65	96.3 / 1574.6	
	56	〃	〃	30.03	198.0	−65	−56	−60.5 / 1412.5	−21	−22	−21.5 / −319.5	61	84	63	62	67.5 / 1642.1	
	6:00	〃	〃	30.33	200.0	−45	−53	−49 / 1461.5	−11	−18	−14.5 / −334	39	94	82	56	67.8 / 1709.9	
	4	〃	〃	30.64	202.0	−25	−47	−36 / 1497.5	−12	−15	−13.5 / −347.5	37	17	75	34	40.8 / 1750.7	
	8	〃	〃	30.94	204.0	−40	−38	−39 / 1536.5	−11	−20	−15.5 / −363	50	28	55	53	46.5 / 1797.2	
	12	〃	〃	31.32	206.5	−45	−45	−45 / 1581.5	−19	−18	−18.5 / −381.5	53	83	45	65	61.5 / 1858.7	
	16	〃	〃	31.70	209.0	−30	−30	−30 / 1611.5	−17	−12	−14.5 / −396	29	54	60	42	46.3 / 1905	
	20	〃	〃	32.00	211.0	−18	−13	−15.5 / 1627	−9	−45	−27 / −393	27	16	44	30	29.4 / 1934.3	

ROCK SHEAR TEST DATA SHEET (S) Measuring Point TD 17.4 m Block No. DA-1, BS-2 N = 4 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	24	4	29	32.30	213°	-22	-22	-22 / -1649	-32	-46	-39 / -432	56	22	36	23	34.3 / 1968.4	
	28	〃	〃	32.61	215°	-15	-20	-17.5 / -1666.5	-29	-8	-18.5 / -445.5	1	27	47	3	19.5 / 1988.1	
	32	〃	〃	32.91	217°	-5	-15	-10 / -1676.5	-33	-5	-19 / -464.5	8	23	33	17	20.3 / 2008.4	
	36	〃	〃	33.37	220°	-40	-54	-47 / -1723.5	-39	-10	-24.5 / -489	37	32	25	20	28.5 / 2036.9	
	40	〃	〃	33.67	222°	-30	-36	-33 / -1756.5	-49	-15	-32 / -521	35	46	85	50	54 / 2090.9	
	44	〃	〃	33.97	224°	-30	-55	-42.5 / -1799	-38	-10	-24 / -545	60	52	95	80	71.5 / 2162.4	
	48	〃	〃	34.28	226°	-24	-28	-26 / -1825	-31	-12	-21.5 / -566.5	67	56	95	45	65.8 / 2228.2	
	52	〃	〃	34.66	228.5°	-36	-92	-64 / -1889	-31	-18	-24.5 / -591	48	125	155	98	106.5 / 2334.7	
	56	〃	〃	35.03	231°	-60	-80	-70 / -1959	-38	-30	-34 / -625	124	106	145	122	124.3 / 2459.0	
	7:00	〃	〃	35.34	233°	-53	-150	-101.5 / -2060.5	-33	-175	-104 / -729	123	239	125	117	151 / 2610.0	
	04	〃	〃	35.64	235°	-170	-535	-352.5 / -2413	-309	-375	-342 / -1071	789	1197	1120	533	909.8 / 3520.8	

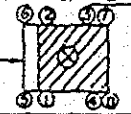
ROCK SHEAR TEST DATA SHEET (1)

Test Location DA-1, BS-3 Measuring Point TD 18.6m Date Measured 8-11-1988 Block No. 3 N = 6 kgf/cm²

Geological Classification Ophiolite Rock Grade _____ Measured by _____

Vertical Jack Capacity 200 ton x 1 units, Max. Oil Pressure 396.3 kg/cm² Ram Diameter φ25.35 cm

Diagonal Jack Capacity 200 ton x 2 units, Max. Oil Pressure 701.7 kg/cm² Ram Diameter φ19.05 cm



A = 3600 cm²

θ = 16.7 °

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (×10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (×10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	0	0	0			0	0	0/0	0	0	0/0	0	0	0	0	0/0	
	0	1	7			0	2	1/1	0	0	0/0	0	0	0	0	0/0	
	4	2	14			1	2	1.5/2.5	1	2	1.5/1.5	0	0	0	0	0/0	
	8	2	14			0	0	0/2.5	0	0	0/1.5	0	0	0	0	0/0	
	16	0	0			−1	−3	−2/0.5	0	−1	−0.5/1.0	0	0	0	0	0/0	
	20	0	0			0	0	0/0.5	0	0	0/1.0	0	0	0	0	0/0	
	28	2	14			1	4	2.5/3	0	2	1/2	0	0	0	0	0/0	
	32	3	21			0	0	0/0	0	1	0.5/2.5	0	0	0	1	0.5/0.5	
	36	4	29			1	2	1.5/3.5	0	1	0.5/3	0	0	0	0	0/0.5	
	40	5	36			0	2	1/4.5	1	2	1.5/4.5	0	0	0	0	0/0.5	
	44	6	43			3	2	2.5/7	0	4	2/6.5	0	0	0	0	0/0.5	
	48	6	43			6	0	3/10	0	2	1/7.5	0	0	0	0	0/0.5	
	50	6	43			0	0	0/10	0	0	0/7.5	0	0	0	0	0/0.5	

ROCK SHEAR TEST DATA SHEET (2) Measuring Point TD 18.6m Block No. DA-1, BS-3 N= 6 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	①+② / 2	③	④	③+④ / 2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	⑤~⑧ / 4	Remarks
	0	6	43	0.34	2.25	0	0	0/10	0	0	0/7.5	0	0	0	1	0.3/0.8	
	4	〃	〃	0.68	4.5	0	1	0.5/10.5	0	1	0.5/8	0	0	0	0	0/0.8	
	8	〃	〃	0.99	6.5	1	2	1.5/12	0	0	0/8	0	0	0	0	0/0.8	
	12	〃	〃	1.33	8.75	0	0	0/12	0	0	0/8	0	0	0	0	0/0.8	
	16	〃	〃	1.67	11.0	0	0	0/12	0	0	0/8	0	0	0	0	0/0.8	
	20	〃	〃	2.01	13.25	0	0	0/12	0	0	0/8	0	0	2	1	0.8/1.6	
	24	〃	〃	2.35	15.50	1	0	0.5/12.5	0	0	0/8	0	0	0	1	0.3/1.9	
	28	〃	〃	2.65	17.5	0	0	0/12.5	0	1	0.5/8.5	0	0	2	3	1.3/3.2	
	32	〃	〃	3.00	19.75	0	0	0/12.5	0	0	0/8.5	0	7	0	0	1.8/5	
	36	〃	〃	3.34	22.0	1	−1	0/12.5	0	1	0.5/9	0	0	1	2	0.8/5.8	
	40	〃	〃	3.68	24.25	0	0	0/12.5	0	0	0/9	0	3	0	1	1/6.8	
	44	〃	〃	4.02	26.5	0	0	0/12.5	0	1	0.5/9.5	0	0	3	3	1.5/8.3	
	48	〃	〃	4.32	28.5	1	−1	−0.5/12	0	0	0/9.5	0	2	0	0	0.5/8.8	
	52	〃	〃	4.66	30.75	0	0	0/12	0	3	1.5/11	0	1	1	1	0.8/9.6	
	56	〃	〃	5.00	33.0	2	−3	−0.5/11.5	0	0	0/11	0	1	1	0	0.5/10.1	
	1:00	〃	〃	5.35	35.25	0	0	0/11.5	1	2	1.5/12.5	0	2	3	2	1.8/11.9	
	4	〃	〃	5.69	37.5	1	−1	0/11.5	0	0	0/12.5	0	2	0	2	1/12.9	
	8	〃	〃	5.99	39.5	0	−1	−0.5/11	0	3	1.5/14	0	3	1	1	1.3/14.2	
	12	〃	〃	6.33	41.75	0	0	0/11	0	0	0/14	6	2	4	4	4/18.2	
	16	〃	〃	6.67	44.0	−1	−1	−1/10	0	0	0/14	2	2	1	3	2/20.2	
	20	〃	〃	7.01	46.25	0	0	0/10	0	2	1/15	0	2	2	0	1/21.2	
	24	〃	〃	7.36	48.5	0	−1	−0.5/9.5	0	0	0/15	1	2	1	2	1.5/22.7	
	28	〃	〃	7.66	50.5	0	0	0/9.5	1	0	0.5/15.5	1	3	1	3	2/24.7	
	32	〃	〃	8.00	52.75	−1	−2	−1.5/8	0	0	0/15.5	1	1	0	1	0.8/25.5	
	36	〃	〃	8.34	55.0	−1	−1	−1/7	0	0	0/15.5	0	1	2	0	0.8/26.3	
	40	〃	〃	8.68	57.25	0	0	0/7	0	0	0/15.5	2	1	0	3	1.5/27.8	
	44	〃	〃	9.02	59.5	−1	−2	−1.5/5.5	0	0	0/15.5	1	2	1	0	1/28.8	
	48	〃	〃	9.33	61.5	−1	−2	−1.5/4	0	0	0/15.5	0	1	1	1	0.8/29.6	
	52	〃	〃	9.67	63.75	−1	−1	−1/3	0	0	0/15.5	0	3	2	2	1.8/31.2	
	56	〃	〃	10.01	66.0	−2	−1	−1.5/1.5	0	0	0/15.5	0	5	2	1	2/33.2	
	2:00	〃	〃	10.35	68.25	0	−2	−1/0.5	0	0	0/15.5	0	4	3	3	2.5/35.9	
	4	〃	〃	10.69	70.5	−2	−2	−2/−1.5	0	0	0/15.5	2	4	4	2	3/38.9	

ROCK SHEAR TEST DATA SHEET (3) Measuring Point TD 18.6 m Block No. DA-1, B5-3 N = 6 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	8	6	43	11.00	72.5	−2	−2	−2 / −35	0	0	0 / 15.5	1	5	0	0	1.5 / 40.4	
	12	〃	〃	11.34	74.75	0	−3	−1.5 / −5	0	0	0 / 15.5	1	3	2	3	5.3 / 46.7	
	16	〃	〃	11.68	77.0	−5	−5	−5 / −10	0	0	0 / 15.5	4	4	0	3	2.8 / 48.5	
	20	〃	〃	12.02	79.25	−5	−1	−3 / −13	0	0	0 / 15.5	3	3	1	0	1.8 / 50.3	
	24	〃	〃	12.36	81.5	−4	−1	−2.5 / −15.5	0	0	0 / 15.5	4	4	0	7	3.8 / 54.1	
	28	〃	〃	12.66	83.5	−2	−3	−2.5 / −18	0	0	0 / 15.5	7	2	1	4	3.5 / 57.6	
	32	〃	〃	13.01	85.75	−3	−5	−4 / −22	0	0	0 / 15.5	7	5	0	1	3.3 / 60.9	
	36	〃	〃	13.35	88.0	−3	−2	−2.5 / −24.5	0	0	0 / 15.5	5	5	0	2	3 / 63.9	
	40	〃	〃	13.69	90.25	−7	−3	−5 / −29.5	0	0	0 / 15.5	8	2	13	10	8.3 / 72.2	
	44	〃	〃	14.03	92.5	−3	−8	−5.5 / −35	0	0	0 / 15.5	8	3	5	5	5.3 / 77.5	
	48	〃	〃	14.33	94.5	−4	−7	−5.5 / −40.5	0	0	0 / 15.5	9	3	2	8	5.5 / 83	
	52	〃	〃	14.67	96.75	−5	−5	−5 / −45.5	0	0	0 / 15.5	4	14	13	5	9 / 92	
	56	〃	〃	15.01	99.0	−12	−5	−8.5 / −54	0	0	0 / 15.5	4	5	0	9	4.5 / 96.5	
	5:00	〃	〃	15.36	101.25	−6	−10	−8 / −62	0	0	0 / 15.5	8	6	20	6	10 / 106.5	
	4	〃	〃	15.70	103.5	−7	−2	−4.5 / −66.5	0	0	0 / 15.5	6	9	5	12	8 / 114.5	
	8	〃	〃	16.00	105.5	−14	−18	−16 / −82.5	0	0	0 / 15.5	8	19	20	18	16.3 / 130.8	
	12	〃	〃	16.34	107.75	−6	−5	−5.5 / −88	0	0	0 / 15.5	7	14	5	8	8.5 / 139.3	
	16	〃	〃	16.68	110.0	−14	−12	−13 / −101	0	0	0 / 15.5	9	15	15	6	11.3 / 150.6	
	20	〃	〃	17.02	112.25	−9	−18	−13.5 / −114.5	0	0	0 / 15.5	12	10	20	16	14.5 / 165.1	
	24	〃	〃	17.37	114.5	−11	−5	−8 / −122.5	0	0	0 / 15.5	3	9	4	7	5.8 / 170.9	
	28	〃	〃	17.67	116.5	−9	−15	−12 / −134.5	0	0	0 / 15.5	8	7	21	10	11.5 / 182.4	
	32	〃	〃	17.97	118.5	−7	−8	−7.5 / −142	0	0	0 / 15.5	14	14	9	9	11.5 / 193.9	
	36	〃	〃	18.35	121.0	−25	−17	−21 / −163	0	0	0 / 15.5	52	9	21	19	25.3 / 219.2	
	40	〃	〃	18.65	123.0	−13	−5	−9 / −172	0	0	0 / 15.5	11	7	5	12	8.8 / 228	
	44	〃	〃	18.96	125.0	−5	−15	−10 / −182	0	0	0 / 15.5	4	13	16	3	9 / 237	
	48	〃	〃	19.34	127.5	−17	−11	−14 / −196	0	0	0 / 15.5	4	9	14	15	10.5 / 247.5	
	52	〃	〃	19.68	129.75	−15	−10	−12.5 / −208.5	0	0	0 / 15.5	9	19	15	12	13.8 / 261.3	
	56	〃	〃	20.02	132.0	−15	−19	−17 / −225.5	−2	0	−1 / 14.5	29	51	18	15	28.3 / 289.6	
	6:00	〃	〃	20.36	134.25	−24	−13	−18.5 / −244	0	0	0 / 14.5	25	15	12	20	18 / 307.6	
	4	〃	〃	20.70	136.5	−16	−14	−15 / −259	−2	0	−1 / 13.5	12	15	20	20	16.8 / 324.4	
	8	〃	〃	21.01	138.5	−20	−13	−16.5 / −275.5	0	0	0 / 13.5	28	13	7	25	18.3 / 342.7	
	12	〃	〃	21.38	141.0	−25	−20	−22.5 / −298	−16	−2	−9 / 4.5	23	16	16	20	18.8 / 361.5	

ROCK SHEAR TEST DATA SHEET (4) Measuring Point TD. 186 m Block No. DA-1, B5-3 N = 6 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	16	6	4.3	21.69	143.0	-18	-18	-18 / -816	0	-1	-0.5 / -4	31	21	24	25	25.3 / 3865	
	20	〃	〃	22.03	145.26	-25	-15	-20 / -836	0	-2	-1 / -8	17	14	18	22	17.8 / 4046	
	24	〃	〃	22.37	147.5	-27	-18	-22.5 / -858.5	0	-4	-2 / -12	27	15	12	26	20 / 4246	
	28	〃	〃	22.67	149.5	-33	-18	-22.5 / -881	-17	-10	-13.5 / -125	25	12	23	17	24.3 / 4489	
	32	〃	〃	23.05	152.0	-30	-23	-26.5 / -907.5	0	-12	-6 / -185	43	15	24	40	30.5 / 4794	
	36	〃	〃	23.36	154.0	-27	-22	-24.5 / -932	0	-3	-1.5 / -20	33	15	16	19	20.8 / 5002	
	40	〃	〃	23.66	156.0	-23	-18	-20.5 / -952.5	-17	-3	-10 / -30	16	25	20	26	21.8 / 5222	
	44	〃	〃	23.96	158.0	-20	-20	-20 / -972.5	0	-5	-2.5 / -32.5	33	22	19	38	24.8 / 5468	
	48	〃	〃	24.34	160.5	-24	-20	-22 / -994.5	0	-10	-5 / -37.5	24	17	21	18	20 / 5668	
	52	〃	〃	24.65	162.5	-24	-24	-24 / -5185	-5	-5	-5 / -42.5	16	14	10	34	18.5 / 5853	
	56	〃	〃	25.02	165.0	-22	-17	-20.5 / -539	-3	-5	-4 / -46.5	27	15	24	20	21.5 / 6061.5	
	5:00	〃	〃	25.33	167.0	-25	-17	-21 / -560	-10	-8	-9 / -555	21	11	15	18	16.3 / 6231	
	4	〃	〃	25.63	169.0	-18	-20	-19 / -579	-3	-2	-2.5 / -58	25	23	16	28	23 / 6461	
	8	〃	〃	25.93	171.0	-17	-21	-19 / -598	-2	-3	-2.5 / -60.5	32	11	19	25	21.8 / 6679	
	12	〃	〃	26.31	173.5	-17	-19	-18 / -616	-2	-4	-3 / -63.5	20	15	13	20	17 / 6849	
	16	〃	〃	26.69	176.0	-20	-16	-18 / -634	0	-3	-1.5 / -65	10	27	23	25	21.3 / 7062	
	20	〃	〃	27.00	178.0	-20	-14	-17 / -651	-14	-8	-11 / -76	20	11	4	10	11.3 / 7173	
	24	〃	〃	27.30	180.0	-33	-27	-30 / -681	-9	-12	-10.5 / -86.5	37	10	31	50	32 / 7495	
	28	〃	〃	27.60	182.0	-23	-17	-20 / -701	-1	-10	-5.5 / -92	31	29	22	20	25.5 / 775	
	32	〃	〃	27.98	184.5	-17	-21	-19 / -720	0	-7	-3.5 / -95.5	10	20	13	20	15.8 / 7908	
	36	〃	〃	28.36	187.0	-23	-21	-22 / -742	0	-5	-2.5 / -98	27	10	10	33	20 / 8108	
	40	〃	〃	28.66	189.0	-17	-20	-18.5 / -760.5	0	0	0 / -98	32	30	20	20	25.5 / 8363	
	44	〃	〃	28.97	191.0	-10	-14	-12 / -768	-6	-8	-7 / -105	29	1	3	22	13.8 / 8501	
	48	〃	〃	29.27	193.0	-34	-18	-26 / -794	-4	-9	-6.5 / -111.5	20	40	23	38	30.3 / 8804	
	52	〃	〃	29.65	195.5	-28	-19	-23.5 / -817.5	-42	-9	-25.5 / -137	37	10	46	29	30.5 / 9109	
	56	〃	〃	30.03	198.0	-28	-28	-28 / -845.5	-5	-9	-7 / -144	31	7	8	30	19 / 9299	
	6:00	〃	〃	30.32	200.0	-25	-13	-19 / -864.5	0	-3	-1.5 / -145.5	32	2	10	30	18.5 / 9484	
	4	〃	〃	30.64	202.0	-25	-15	-20 / -884.5	-5	-15	-10 / -155.5	19	17	14	31	20.3 / 9687	
	8	〃	〃	30.94	204.0	-20	-13	-16.5 / -901	-5	-7	-6 / -161.5	31	8	16	24	19.8 / 9885	
	12	〃	〃	31.32	206.5	-20	-7	-13.5 / -9145	-5	-3	-4 / -165.5	14	15	4	18	12.8 / 10013	
	16	〃	〃	31.70	209.0	-22	-15	-18.5 / -933	-10	-10	-10 / -175.5	21	21	18	40	25 / 10263	
	20	〃	〃	32.00	211.0	-23	-18	-20.5 / -9535	-8	-2	-5 / -180.5	44	14	19	22	24.8 / 10511	

ROCK SHEAR TEST DATA SHEET (5) Measuring Point TD. 18.6 m Block No. DA-1 . BS-3 N = 6 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤~⑧)/4	Remarks
	24	6	43	32.30	213.0	-32	-21	-26.5 / -980	-9	-13	-11.5 / -192	32	21	22	33	27.0 / 1078	
	28	〃	〃	32.61	215.0	-12	-8	-10 / -990	-9	-5	-7 / -199	26	12	4	20	15.5 / 1093	
	32	〃	〃	32.91	217.0	-15	-11	-13 / -1003	-6	-5	-5.5 / -204.5	19	18	22	25	21.0 / 1114.5	
	36	〃	〃	33.37	220.0	-45	-11	-28 / -1081	-11	-10	-10.5 / -215	48	17	11	40	29.0 / 1143.5	
	40	〃	〃	33.67	222.0	-13	-11	-12 / -1093	-12	-10	-11 / -226	12	4	10	0	6.5 / 1150.0	
	44	〃	〃	33.97	224.0	-22	-12	-17 / -1060	-12	-10	-11 / -237	34	16	7	55	28.0 / 1178.0	
	48	〃	〃	34.28	226.0	-19	-9	-14 / -1024	-15	-7	-11 / -248	21	15	13	32	17.0 / 1195.0	
	52	〃	〃	34.66	228.5	-28	-10	-19 / -1093	-10	-16	-13 / -261	39	17	16	38	27.5 / 1222.5	
	56	〃	〃	35.03	231.0	-27	-14	-20.5 / -1135	-9	-11	-10 / -271	26	7	9	30	18.0 / 1240.5	
	7:00	〃	〃	35.34	233.0	-18	-15	-16.5 / -1180	-9	-11	-10 / -281	41	3	4	48	24.0 / 1266.5	
	4	〃	〃	35.64	235.0	-23	-10	-16.5 / -1145	-17	-13	-15 / -296	34	6	11	32	20.8 / 1287.3	
	8	〃	〃	35.94	237.0	-20	-21	-20.5 / -1167	-5	-9	-7 / -303	31	7	13	37	22.0 / 1309.3	
	12	〃	〃	36.32	239.5	-20	-25	-22.5 / -1189.5	-7	-10	-8.5 / -311.5	29	5	13	19	16.5 / 1325.8	
	16	〃	〃	36.55	241.0	-24	-12	-18 / -1207.5	-9	-13	-11 / -322.5	31	7	13	37	22.0 / 1347.8	
	20	〃	〃	37.01	244.0	-31	-14	-22.5 / -1230	-19	-21	-20 / -342.5	66	32	11	62	42.8 / 1390.6	
	24	〃	〃	37.21	246.0	-47	-20	-33.5 / -1263.5	-25	-51	-38 / -380.5	90	7	19	108	56.0 / 1446.6	
	28	〃	〃	37.61	248.0	-83	-18	-50.5 / -1314	-20	-53	-36.5 / -417	136	6	12	110	66.0 / 1512.6	
	32	〃	〃	37.99	250.5	-75	-25	-50 / -1364	-16	-120	-68 / -485	133	6	20	145	76.0 / 1588.6	
	36	〃	〃	38.37	253.0	-62	-20	-41 / -1405	-9	-38	-23.5 / -508.5	107	13	8	100	57.0 / 1645.6	
	40	〃	〃	38.67	255.0	-81	-29	-55 / -1460	-5	-72	-38.5 / -547	163	37	135	180	128.9 / 1774.5	
	44	〃	〃	38.98	257.0	-87	-21	-54 / -1514	-1	-106	-53.5 / -600.5	163	33	143	155	123.3 / 1897.8	
	48	〃	〃	39.38	259.0	-60	-25	-42.5 / -1557.5	-14	-44	-29 / -629.5	130	33	22	120	76.3 / 1974.1	
	52	〃	〃	39.66	261.5	-70	-15	-42.5 / -1600	-17	-30	-23.5 / -653	101	27	37	120	71.3 / 2045.4	
	56	〃	〃	40.04	264.0	-28	-22	-25 / -1625	-5	-43	-24 / -677	139	22	33	120	78.5 / 2123.9	
	8:00	〃	〃	40.34	266.0	-42	-23	-32.5 / -1657.5	-9	-32	-20.5 / -697.5	109	32	34	120	73.8 / 2197.7	
	4	〃	〃	40.65	268.0	-30	-17	-23.5 / -1681	-7	-21	-14 / -711.5	84	25	26	78	53.3 / 2251.0	
	8	〃	〃	40.95	270.0	-30	-14	-22 / -1703	-13	-31	-22 / -733.5	82	31	43	85	60.3 / 2311.3	
	12	〃	〃	41.33	272.5	-43	-26	-34.5 / -1737.5	-1	-53	-27 / -760.5	97	21	25	103	61.5 / 2372.8	
	16	〃	〃	41.71	275.0	-37	-18	-27.5 / -1765	-2	-25	-13.5 / -774	109	22	32	80	60.8 / 2433.6	
	20	〃	〃	42.01	277.0	-35	-20	-27.5 / -1792.5	-10	-57	-33.5 / -807.5	77	28	35	115	63.8 / 2497.4	
	24	〃	〃	42.31	279.0	-20	-15	-17.5 / -1810	-1	-18	-9.5 / -817	56	23	18	45	35.5 / 2532.9	
	28	〃	〃	42.66	281.25	-37	-22	-29.5 / -1839.5	-17	-40	-28.5 / -845.5	92	34	42	98	66.5 / 2599.4	

ROCK SHEAR TEST DATA SHEET (6) Measuring Point TD. 18.6m Block No. DA-1, BS-3 N = 6 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	①+② / 2	③	④	③+④ / 2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	⑤−⑧ / 4	Remarks
	32	6	43	43.00	283.5	-46	-25	-35.5 / -1879	-3	-20	-56.5 / 888	139	25	148	147	14.8 / 2712.6	
	36	"	"	43.30	285.5	-34	-15	-25 / -1304	-15	-28	-21.5 / -9095	102	20	131	60	78.3 / 2790.3	
	40	"	"	43.68	288.0	-27	-18	-22.5 / -1265	-35	-39	-37 / -9465	64	20	33	80	49.3 / 2840.2	
	44	"	"	42.98	290.0	-37	-22	-29.5 / -1353.5	-30	-33	-31.5 / -9578	64	21	39	100	56 / 2896.2	
	48	"	"	42.32	292.25	-43	-30	-36.5 / -1990	-42	-54	-48 / -10026	54	36	54	141	71.3 / 2967.5	
	52	"	"	44.67	294.5	-35	-33	-34 / -2024	-33	-35	-34 / -10060	158	20	45	94	79.3 / 3046.8	
	56	"	"	44.97	296.5	-60	-35	-47.5 / -2071.5	-32	-21	-26.5 / -10086.5	-3	70	100	80	61.8 / 3108.6	
	9:00	"	"	45.35	299.0	-30	-20	-25 / -2098.5	-10	-31	-20.5 / -10107	72	28	43	47	47.5 / 3156.1	
	4	"	"	45.65	301.0	-22	-6	-14 / -2110.5	0	0	0 / -10107	71	55	29	58	53.3 / 3209.4	
	8	"	"	45.97	303.25	-19	-30	-24.5 / -2135	-6	-9	-7.5 / -10114.5	45	38	50	51	46 / 3255.4	
	12	"	"	46.33	305.5	-21	-7	-14 / -2149	-12	-8	-10 / -10124.5	57	33	39	57	46.5 / 3301.9	
	16	"	"	46.64	307.5	-18	-23	-20.5 / -2169.5	-11	-8	-9.5 / -10134	56	23	29	43	37.8 / 3339.7	
	20	"	"	47.02	310.0	-15	-21	-18 / -2187.5	-8	-8	-8 / -10142	55	28	31	56	42.5 / 3382.2	
	24	"	"	47.32	312.0	-32	-26	-29 / -2216.5	-12	-10	-11 / -10153	53	32	32	46	40.8 / 3423	
	28	"	"	47.66	314.25	-27	-27	-27 / -2243.5	-3	-5	-4 / -10157	61	41	39	48	47.3 / 3470.3	
	32	"	"	48.00	316.5	-15	-13	-14 / -2257.5	-2	-4	-3 / -10160	43	29	30	35	34.3 / 3504.6	
	36	"	"	48.31	318.5	-31	-32	-31.5 / -2289	-12	-17	-14.5 / -10174.5	81	40	37	57	54.3 / 3558.9	
	40	"	"	48.68	321.0	-25	-17	-21 / -2310	-15	-11	-13 / -10187.5	75	33	35	57	50 / 3608.9	
	44	"	"	48.99	323.0	-35	-25	-30 / -2340	-17	-17	-17 / -10204.5	113	55	61	97	81.5 / 3690.4	
	48	"	"	49.33	325.25	-54	-49	-51.5 / -2391.5	-42	-35	-38.5 / -10243	79	69	65	45	64.5 / 3754.9	
	52	"	"	49.67	327.5	-38	-42	-40 / -2431.5	-21	-18	-19.5 / -10262.5	127	62	27	72	72 / 3826.9	
	56	"	"	49.97	329.5	-31	-41	-36 / -2467.5	-18	-21	-19.5 / -10282	126	55	59	104	86 / 3912.9	
	10:00	"	"	50.35	332.0	-28	-35	-31.5 / -2499	-16	-22	-19 / -10301	116	44	61	90	77.8 / 3990.7	
	4	"	"	50.66	334.0	-51	-43	-47 / -2546	-21	-17	-19 / -10320	135	96	77	64	93 / 4083.7	
	8	"	"	51.00	336.25	-66	-56	-61 / -2607	-31	-33	-32 / -10352	191	78	74	125	117 / 4200.7	
	12	"	"	51.34	338.5	-88	-83	-85.5 / -2692.5	-44	-43	-43.5 / -10395.5	193	98	110	207	152 / 4352.7	
	16	"	"	51.64	340.5	-92	-4	-48 / -2740.5	-52	-42	-47 / -10442.5	132	163	153	117	141.3 / 4494	
	20	"	"	51.98	342.75	-91	-82	-86.5 / -2827	-48	-46	-47 / -10489.5	123	196	191	101	152.8 / 4646.8	
	24	"	"	52.32	345.0	-88	-81	-84.5 / -2911.5	-46	-18	-32 / -10521.5	196	162	235	165	201.8 / 4848.6	
	28	"	"	52.67	347.25	-133	-121	-127 / -3038.5	-104	-147	-125.5 / -10647	341	281	238	211	267.8 / 5116.4	
	32	"	"	53.01	349.50	-125	-114	-119.5 / -3158	-85	-98	-91.5 / -10738.5	314	263	235	217	257.2 / 5373.7	
	36	"	"	53.31	351.5	-352	-167	-259.5 / -3417.5	-181	-128	-154.5 / -10893	617	528	915	961	755.3 / 6129	

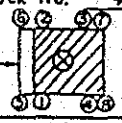
ROCK SHEAR TEST DATA SHEET (1)

Test Location DA-1, BS-4 Measuring Point TD 20.0m Date Measured 13-11-1988 Block No. 4 N = 8 kgf/cm²

Geological Classification Ophiolite Rock Grade _____ Measured by _____

Vertical Jack Capacity 200 ton x 1 units, Max. Oil Pressure 396.3 kg/cm² Ram Diameter ϕ25.35 cm

Diagonal Jack Capacity 200 ton x 2 units, Max. Oil Pressure 701.7 kg/cm² Ram Diameter ϕ19.05 cm



A = 3600 cm²

θ = 16.7 °

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤~⑧)/4	Remarks
	0	0	0			0	0	0/0	0	0	0/0	0	0	0	0	0/0	
	0	1	7			0	0	0/0	0	0	0/0	0	0	0	0	0/0	
	4	2	14			1	1	1/1	0	0	0/0	0	0	0	0	0/0	
	8	2	14			0	0	0/1	0	0	0/0	0	0	0	0	0/0	
	16	0	0			0	0	0/1	0	0	0/0	0	0	0	0	0/0	
	20	0	0			0	0	0/1	0	0	0/0	0	0	0	0	0/0	
	28	2	14			0	0	0/1	0	0	0/0	0	0	0	0	0/0	
	32	3	21			2	2	2/3	3	0	1.5/1.5	0	0	0	0	0/0	
	36	4	29			1	2	1.5/45	3	0	1.5/3	0	0	0	0	0/0	
	40	5	36			2	2	2/45	2	1	1.5/45	0	0	0	0	0/0	
	44	6	43			2	1	1.5/8	1	0	0.5/5	0	0	0	0	0/0	
	48	7	50			2	2	2/10	1	0	0.5/45	0	0	0	0	0/0	
	52	8	57			3	1	2/12	0	0	0/45	0	1	2	0	0.8/0.8	
	56	〃	〃			1	0	0.5/12.5	0	0	0/45	0	0	1	0	0.2/1.1	
	1:00	〃	〃			0	0	0/12.5	0	0	0/45	0	0	0	0	0/1.1	

ROCK SHEAR TEST DATA SHEET (2) Measuring Point TD 20.0 Block No. DA-1, BS-4 N = 8 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	0	8	57	0.34	2.25	0	0	0/12.5	0	0	0/4.5	0	0	0	0	0/1.1	
	4	〃	〃	0.68	4.5	0	0	0/12.5	0	0	0/4.5	0	0	0	0	0/1.1	
	8	〃	〃	0.99	6.5	0	0	0/12.5	0	0	0/4.5	0	0	0	0	0/1.1	
	12	〃	〃	1.33	8.75	0	0	0/12.5	0	0	0/4.5	0	0	0	0	0/1.1	
	16	〃	〃	1.67	11.0	0	0	0/12.5	0	0	0/4.5	0	0	0	0	0/1.1	
	20	〃	〃	2.01	13.25	6	0	3/18.5	0	0	0/4.5	0	0	0	0	0/1.1	
	24	〃	〃	2.35	15.50	2	2	2/17.5	0	0	0/4.5	0	0	0	0	0/1.1	
	28	〃	〃	2.65	17.5	0	1	0.5/18	6	0	3/7.5	0	0	0	0	0/1.1	
	32	〃	〃	3.00	19.75	0	2	1/19	2	−1	0.5/8.0	0	0	0	0	0/1.1	
	36	〃	〃	3.34	22.0	1	0	0.5/19.5	1	−1	0/8	0	0	0	0	0/1.1	
	40	〃	〃	3.68	24.25	0	3	1.5/21	1	−1	0/8	0	0	0	0	0/1.1	
	44	〃	〃	4.02	26.5	0	1	0.5/21.5	1	−1	0/8	0	0	0	0	0/1.1	
	48	〃	〃	4.32	28.5	0	1	0.5/22	1	−1	0/8	0	0	0	0	0/1.1	
	52	〃	〃	4.66	30.75	0	0	0/22	2	−1	0.5/8.5	0	0	0	0	0/1.1	
	56	〃	〃	5.00	33.0	0	1	0.5/22.5	1	−1	0/8.5	0	0	0	0	0/1.1	
	1:00	〃	〃	5.35	35.25	0	1	0.5/23	1	−2	−0.5/8	0	2	0	0	0.5/1.6	
	4	〃	〃	5.69	37.5	0	1	0.5/23.5	2	−2	0/8	0	11	0	0	2.8/4.4	
	8	〃	〃	5.99	39.5	0	0	0/23.5	2	−1	0.5/8.5	0	10	2	0	3/7.4	
	12	〃	〃	6.33	41.75	0	0	0/23.5	1	−1	0/8.5	0	3	2	0	1.3/8.7	
	16	〃	〃	6.67	44.0	0	1	0.5/24	1	−2	−0.5/8	0	3	3	0	1.5/10.2	
	20	〃	〃	7.01	46.25	0	0	0/24	1	−2	−0.5/7.5	0	3	2	0	1.3/10.5	
	24	〃	〃	7.36	48.5	0	0	0/24	7	−4	1.5/9.0	0	3	2	0	1.3/12.8	
	28	〃	〃	7.66	50.5	−1	1	0/24	2	−2	0/9.0	0	5	2	0	1.8/14.6	
	32	〃	〃	8.00	52.75	0	0	0/24	3	0	1.5/10.5	0	4	4	0	2/16.6	
	36	〃	〃	8.34	55.0	0	0	0/24	1	0	0.5/11	0	4	4	0	2/18.6	
	40	〃	〃	8.68	57.25	−1	0	−0.5/23.5	0	0	0/11	0	5	3	0	2/20.6	
	44	〃	〃	9.02	59.5	−1	0	−0.5/23	0	0	0/11	0	5	4	0	2.3/22.9	
	48	〃	〃	9.33	61.5	0	0	0/23	0	0	0/11	0	1	4	0	1.3/24.2	
	52	〃	〃	9.67	63.75	−2	0	−1/22	0	0	0/11	0	5	2	0	1.8/26	
	56	〃	〃	10.01	66.0	−1	0	−0.5/21.5	0	0	0/11	0	4	4	0	2/28	
	2:00	〃	〃	10.35	68.25	−1	0	−0.5/21	6	0	0/11	0	1	1	0	0.5/28.5	
	4	0	〃	10.69	70.5	−1	0	−0.5/20.5	0	0	0/11	0	0	1	0	0.3/29	

ROCK SHEAR TEST DATA SHEET (3) Measuring Point TD-20.0 Block No. DA-1, BS-4 N= 8 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	8	8	57	11.00	72.5	0	0	0/20.5	0	0	0/11	0	3	0	0	0.8/29.8	
	12	〃	〃	11.34	74.75	0	0	0/20.5	0	0	0/11	0	2	1	0	0.8/30.6	
	16	〃	〃	11.68	77.0	0	0	0/20.5	0	0	0/11	0	3	2	0	1.3/31.9	
	20	〃	〃	12.02	79.25	0	0	0/20.5	0	0	0/11	0	3	2	0	1.3/33.2	
	24	〃	〃	12.36	81.5	0	0	0/20.5	0	0	0/11	0	3	3	0	1.5/34.7	
	28	〃	〃	12.66	83.5	−2	0	−1/19.5	0	0	0/11	0	2	2	0	1/35.7	
	32	〃	〃	13.01	85.75	−1	0	−0.5/19	0	0	0/11	0	6	3	0	2.3/38	
	36	〃	〃	13.35	88.0	−2	0	−1/18	0	0	0/11	0	5	3	2	2.5/40.5	
	40	〃	〃	13.69	90.25	−2	0	−1/17	0	0	0/11	2	6	4	1	3.3/43.8	
	44	〃	〃	14.03	92.5	−3	0	−1.5/16.5	−2	0	−1/10	4	4	2	1	2.8/46.6	
	48	〃	〃	14.33	94.5	−4	0	−2/13.5	−1	0	−0.5/9.5	6	7	4	1	4.5/51.1	
	52	〃	〃	14.67	96.75	−3	0	−1.5/12	−2	−3	−2.5/7	5	7	6	2	5/56.1	
	56	〃	〃	15.01	99.0	−2	0	−1/11	−1	3	1/5	6	5	2	3	4/60.1	
	3:00	〃	〃	15.36	101.25	−2	0	−1/10	−1	−6	−3.5/1.5	3	4	3	2	3/63.1	
	4	〃	〃	15.70	103.5	−2	0	−1/9	−1	−1	−1/0.5	3	5	3	5	4/67.1	
	8	〃	〃	16.00	105.5	−1	0	−0.5/8.5	−1	−1	−1/−0.5	2	3	5	3	3.3/70.4	
	12	〃	〃	16.34	107.75	−2	0	−1/7.5	−1	0	−0.5/−1	4	5	3	2	3.5/73.9	
	16	〃	〃	16.68	110.0	−3	0	−1.5/7	−1	0	−0.5/−1.5	2	4	4	0	2.5/76.4	
	20	〃	〃	17.02	112.25	−2	0	−1/6	0	0	0/−1.5	3	4	4	0	2.8/79.2	
	24	〃	〃	17.37	114.5	−3	0	−1.5/4.5	0	0	0/−1.5	2	3	5	2	3/82.2	
	28	〃	〃	17.67	116.5	−2	0	−1/3.5	1	−1	0/−1.5	2	4	5	0	2.8/85	
	32	〃	〃	17.97	118.5	−1	0	−0.5/3	1	−1	0/−1.5	3	2	3	1	2.3/87.3	
	36	〃	〃	18.35	121.0	−2	−3	−2.5/0.5	1	0	0.5/−1	4	1	2	2	2.3/89.6	
	40	〃	〃	18.65	123.0	−1	−2	−1.5/−1	1	−1	0/−1	2	3	3	3	2.8/92.4	
	44	〃	〃	18.96	125.0	−1	−1	−1/−2	1	0	0.5/−0.5	8	3	2	12	6.3/98.7	
	48	〃	〃	19.34	127.5	−2	−1	−1.5/−3.5	0	0	0/−0.5	11	3	2	13	7.3/106	
	52	〃	〃	19.68	129.75	−1	−1	−1/−4.5	1	−1	0/−0.5	3	4	3	8	4.5/110.5	
	56	〃	〃	20.02	132.0	−2	−2	−2/−6.5	1	−1	0/−0.5	6	5	3	7	5.3/115.8	
	4:00	〃	〃	20.36	134.25	−3	−1	−2/−8.5	1	0	0.5/0	11	4	2	4	5.3/121.1	
	4	〃	〃	20.70	136.5	−2	−2	−2/−10.5	0	0	0/0	7	10	5	6	2/123.1	
	8	〃	〃	21.01	138.5	−2	−2	−2/−12.5	1	0	0.5/0.5	3	4	5	5	1.3/132.4	
	12	〃	〃	21.38	141.0	−2	−2	−2/−14.5	1	0	0.5/0.5	5	11	7	6	7.3/139.7	

ROCK SHEAR TEST DATA SHEET (4) Measuring Point TD 20.0m Block No. DA-1, BS-4 N = 8 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻² mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	4:16	8	57	21.69	143°	−4	−3	−3.5 / −18	1	0	0.5 / 1.0	3	7	7	1	4.5 / 1445	
	20	〃	〃	22.03	145.5°	−4	−2	−3 / −21	1	0	0.5 / 1.5	5	14	11	6	9 / 1583	
	24	〃	〃	22.37	147.5	−8	−1	−4.5 / −25.5	0	0	0 / 1.5	12	9	10	7	9.5 / 1627	
	28	〃	〃	22.67	149.5	−12	−3	−7.5 / −33	1	0	0.5 / 2	10	19	10	15	13.5 / 1762	
	32	〃	〃	23.05	152°	−9	−2	−5.5 / −38.5	0	0	0 / 2	7	12	7	3	7.3 / 1835	
	36	〃	〃	23.36	154°	−7	−2	−4.5 / −43	0	0	0 / 2	20	11	10	4	11.3 / 1945	
	40	〃	〃	23.66	156°	−4	−7	−5.5 / −48.5	0	0	0 / 2	5	16	10	4	8.8 / 2035	
	44	〃	〃	23.96	158°	−1	−3	−2 / −50.5	0	0	0 / 2	11	5	12	5	8.3 / 2119	
	48	〃	〃	24.24	160.5	−2	−7	−4.5 / −55	0	0	0 / 2	5	5	5	4	4.8 / 2167	
	52	〃	〃	24.65	162.5	−2	−1	−1.5 / −57.5	0	0	0 / 2	4	4	6	5	4.8 / 2215	
	56	〃	〃	25.02	165°	−1	−3	−2 / −59.5	0	0	0 / 2	9	8	10	5	8 / 2295	
	5:00	〃	〃	25.33	167°	−2	−3	−2.5 / −61	0	0	0 / 2	11	9	10	6	9 / 2385	
	4	〃	〃	25.63	169°	−3	−6	−4.5 / −65.5	0	0	0 / 2	12	11	9	4	9 / 2475	
	8	〃	〃	25.93	171°	−4	−6	−5 / −70.5	0	0	0 / 2	12	11	9	12	11 / 2585	
	12	〃	〃	26.31	173.5	−4	−4	−4 / −74.5	0	0	0 / 2	4	12	8	5	7.3 / 2658	
	16	〃	〃	26.69	176°	−4	−4	−4 / −78.5	0	0	0 / 2	7	9	8	3	6.8 / 2726	
	20	〃	〃	27.00	178°	−3	−5	−4 / −82.5	0	0	0 / 2	15	12	15	5	11.5 / 2841	
	24	〃	〃	27.30	180°	−4	−5	−4.5 / −87	0	0	0 / 2	6	12	12	6	9 / 2934	
	28	〃	〃	27.60	182°	−7	−2	−4.5 / −91.5	0	0	0 / 2	13	11	5	7	9 / 3024	
	32	〃	〃	27.98	184.5	−10	−3	−6.5 / −98	0	0	0 / 2	2	11	4	7	6 / 3084	
	36	〃	〃	28.36	187°	−11	−5	−8 / −106	0	0	0 / 2	7	19	11	7	11 / 3194	
	40	〃	〃	28.66	189°	−9	−10	−8.5 / −114.5	0	0	0 / 2	13	9	16	15	13.3 / 3327	
	44	〃	〃	28.97	191°	−9	−6	−7.5 / −123	0	0	0 / 2	3	12	14	2	7.8 / 3503	
	48	〃	〃	29.27	193°	−7	−7	−7 / −130	0	0	0 / 2	5	7	9	4	6.0 / 3548	
	52	〃	〃	29.65	195.5	−3	−6	−4.5 / −134.5	0	0	0 / 2	7	9	8	7	7.8 / 3584	
	56	〃	〃	30.03	198°	−4	−7	−5.5 / −140	0	0	0 / 2	2	11	16	5	8.5 / 3631	
	6:00	〃	〃	30.33	200°	−5	−8	−6.5 / −146.5	0	0	0 / 2	3	4	12	7	4.5 / 3696	
	4	〃	〃	30.64	202°	−6	−4	−5 / −151.5	0	0	0 / 2	6	8	8	10	8 / 3776	
	8	〃	〃	30.94	204°	−4	−1	−2.5 / −154	0	0	0 / 2	4	13	14	3	8.5 / 3861	
	12	〃	〃	31.32	206.5	−5	−10	−7.5 / −161.5	0	0	0 / 2	7	16	6	7	7 / 3951	
	16	〃	〃	31.70	209°	−11	−14	−12.5 / −174	0	0	0 / 2	14	6	6	3	7.3 / 4024	
	20	〃	〃	32.00	211°	−9	0	−4.5 / −178.5	0	0	0 / 2	9	26	16	9	15 / 4174	

ROCK SHEAR TEST DATA SHEET (5) Measuring Point TD 20.0m Block No. DA-1, BS-4 N = 8 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm) ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm) ⑤	⑥	⑦	⑧	(⑤~⑧)/4	Remarks
	24	8	57	32.30	213.0	-7	-6	-6.5 -185	0	0	0 -2	0	12	17	8	9.3 426.7	
	28	〃	〃	32.61	215.0	-13	-6	-9.5 -194.5	0	0	0 -2	8	9	18	8	10.8 437.5	
	32	〃	〃	32.91	217.0	-21	-13	-17 -211.5	0	0	0 -2	7	9	8	7	7.8 445.3	
	36	〃	〃	33.87	220.0	-2	0	-1 -212.5	0	0	0 -2	26	12	14	20	18 463.3	
	40	〃	〃	33.67	222.0	-4	-5	-4.5 -217	-6	0	-3 -5	31	18	17	10	19 482.3	
	44	〃	〃	33.97	224.0	-8	-5	-6.5 -223.5	-1	0	-0.5 -5.5	7	9	11	11	9.5 491.8	
	48	〃	〃	34.28	226.0	-11	-10	-10.5 -234	-1	-2	-1.5 -7	7	19	9	2	9.3 501.1	
	52	〃	〃	34.66	228.5	-9	-5	-7 -241	0	-1	-0.5 -7.5	-5	13	17	5	7.5 508.6	
	56	〃	〃	35.03	231.0	-6	-5	-5.5 -246.5	-1	0	-0.5 -8	1	9	10	7	6.8 515.4	
	7:00	〃	〃	35.34	233.0	-2	-4	-3 -249.5	0	-1	-0.5 -8.5	1	12	15	7	8.8 524.2	
	4	〃	〃	35.64	235.0	-11	-16	-13.5 -263	0	0	0 -8.5	6	18	19	13	14 538.2	
	8	〃	〃	35.94	237.0	-5	-3	-4 -267	0	0	0 -8.5	1	9	10	2	5.5 543.7	
	12	〃	〃	36.32	239.5	-4	-2	-3 -270	0	0	0 -8.5	2	22	13	4	10.3 554	
	16	〃	〃	36.55	241.0	-8	-13	-10.5 -280.5	0	0	0 -8.5	0	9	17	8	8 562	
	20	〃	〃	37.01	244.0	-2	-2	-2 -282.5	0	0	0 -8.5	4	19	6	8	9.3 571.3	
	24	〃	〃	37.31	246.0	-12	-5	-8.5 -291	0	0	0 -8.5	15	11	17	3	9 580.3	
	28	〃	〃	37.61	248.0	-10	-15	-12.5 -303.5	0	0	0 -8.5	12	19	16	8	13.8 594.1	
	32	〃	〃	37.99	250.5	-5	-2	-3.5 -307	0	0	0 -8.5	11	8	8	10	9.3 603.4	
	36	〃	〃	38.37	253.0	-4	-6	-5 -312	0	0	0 -8.5	5	6	16	10	9.3 612.7	
	40	〃	〃	38.67	255.0	-8	-13	-10.5 -322.5	0	0	0 -8.5	5	16	16	5	10.5 623.2	
	44	〃	〃	38.98	257.0	-5	-4	-4.5 -327	0	0	0 -8.5	4	14	11	5	8.5 629.7	
	48	〃	〃	39.28	259.0	-4	-5	-4.5 -331.5	0	0	0 -8.5	7	11	11	5	8.5 638.2	
	52	〃	〃	39.66	261.5	-4	-15	-9.5 -341	0	0	0 -8.5	7	29	19	7	15.5 653.7	
	56	〃	〃	40.04	264.0	-10	-8	-9 -350	0	0	0 -8.5	1	16	17	6	10 663.7	
	8:00	〃	〃	40.34	266.0	-6	-1	-3.5 -353.5	0	0	0 -8.5	6	21	27	7	15.3 679	
	4	〃	〃	40.65	268.0	-9	-14	-11.5 -365	0	0	0 -8.5	15	9	16	2	10.5 689.5	
	8	〃	〃	40.95	270.0	-10	-10	-10 -375	0	0	0 -8.5	1	22	22	13	14.5 704	
	12	〃	〃	41.33	272.5	-25	-25	-25 -400	0	0	0 -8.5	10	32	40	5	21.8 725.8	
	16	〃	〃	41.71	275.0	-11	-7	-9 -409	-15	0	-7.5 -16	4	24	38	4	17.5 743.3	
	20	〃	〃	42.01	277.0	-5	-17	-11 -420	-18	0	-9 -25	4	31	40	11	21.5 764.8	
	24	〃	〃	42.31	279.0	-14	-28	-21 -441	-18	0	-9 -34	12	41	60	5	29.5 794.3	
	28	〃	〃	42.66	281.25	-20	-13	-16.5 -457.5	-10	0	-5 -39	6	39	42	10	24.3 818.6	

ROCK SHEAR TEST DATA SHEET (6) Measuring Point TD 20.0 m Block No. DA-1, BS-4 N = 8 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	32	8	57	42.00	283.5	−2	−15	−8.5 / −466	−10	−3	−6.5 / −415	3	32	40	5	19.8 / 838.4	
	36	〃	〃	43.30	285.5	−16	−21	−18.5 / −584.5	−14	−1	−7.5 / −49	4	34	54	10	25.6 / 863.9	
	40	〃	〃	43.68	288.0	−7	−21	−14 / −498.5	−9	−2	−5.5 / −54.5	8	37	40	10	23.8 / 887.7	
	44	〃	〃	43.98	290.0	−30	−20	−25 / −523.5	−15	−4	−9.5 / −64	14	34	43	14	26.3 / 914	
	48	〃	〃	44.32	292.25	−10	−31	−20.5 / −544	−21	−3	−13 / −76	12	56	61	4	33.3 / 947.3	
	52	〃	〃	44.67	294.5	−19	−25	−22 / −566	−19	−1	−10 / −86	9	39	53	6	26.8 / 974.1	
	56	〃	〃	44.97	296.5	−16	−9	−12.5 / −578.5	−5	−3	−4 / −90	9	49	74	9	35.3 / 1009.4	
	9:00	〃	〃	45.35	299.0	−5	−31	−18 / −596.5	−21	−5	−13 / −103	14	38	25	10	21.8 / 1031.2	
	4	〃	〃	45.65	301.0	−37	−23	−30 / −626.5	−14	−3	−8.5 / −111.5	5	48	49	2	26 / 1057.2	
	8	〃	〃	45.99	303.25	−17	−36	−26.5 / −653	−32	−5	−18.5 / −130	18	59	47	22	36.5 / 1093.7	
	12	〃	〃	46.33	305.5	−9	−11	−10 / −663	−17	−10	−13.5 / −143.5	6	33	20	8	16.8 / 1110.5	
	16	〃	〃	46.64	307.5	−33	−30	−31.5 / −694.5	−14	−10	−12 / −155.5	7	62	60	10	34.8 / 1145.3	
	20	〃	〃	47.02	310.0	−18	−29	−23.5 / −718	−23	−3	−13 / −168.5	11	35	57	10	28.3 / 1173.6	
	24	〃	〃	47.32	312.0	−11	−14	−12.5 / −730.5	−10	−7	−8.5 / −177	9	39	54	5	26.8 / 1200.4	
	28	〃	〃	47.66	314.25	−15	−17	−16 / −746.5	−9	−2	−5.5 / −182.5	12	58	36	7	28.3 / 1228.7	
	32	〃	〃	48.00	316.5	−30	−16	−23 / −769.5	−8	−16	−12 / −194.5	15	39	44	20	29.5 / 1258.2	
	36	〃	〃	48.31	318.5	−20	−18	−19 / −788.5	−8	−4	−6 / −200.5	6	35	52	11	26 / 1284.2	
	40	〃	〃	48.68	321.0	−10	−6	−8 / −796.5	−4	−3	−3.5 / −204	5	34	26	7	18 / 1302.2	
	44	〃	〃	48.99	323.0	−15	−19	−17 / −813.5	−20	−5	−12.5 / −216.5	10	51	21	8	22.5 / 1324.7	
	48	〃	〃	49.33	325.25	−4	−12	−8 / −821.5	−3	−6	−4.5 / −221	8	48	16	7	19.8 / 1344.5	
	52	〃	〃	49.67	327.5	−21	−28	−24.5 / −846.0	−35	−13	−24 / −245	12	59	13	18	25.6 / 1370	
	56	〃	〃	49.97	329.5	−25	−28	−26.5 / −872.5	−17	−24	−20.5 / −265.5	6	64	45	17	33 / 1403	
	10:00	〃	〃	50.35	332.0	−5	−32	−18.5 / −891	−20	−180	−100 / −365.5	42	74	136	15	66.8 / 1469.8	
	4	〃	〃	50.66	334.0	−98	−41	−69.5 / −960.5	−25	−75	−50 / −415.5	27	134	159	35	88.8 / 1558.6	
	8	〃	〃	51.00	336.25	−97	−59	−78 / −1038.5	−35	−49	−42 / −457.5	59	221	45	62	96.8 / 1655.4	
	12	〃	〃	51.34	338.5	−288	35	−126.5 / −1165	−55	−39	−47 / −504.5	202	2208	143	240	698.3 / 2353.7	
	16	〃	〃	51.64	340.5	−1627	−1388	−1507.5 / −2672.5	−74	−1613	−769.5 / −1274	1573	−4649	2110	1883	2534.8 / 4907.5	
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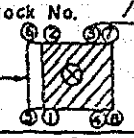
ROCK SHEAR TEST DATA SHEET (1)

Test Location DA-2, BS-1 Measuring Point TD 10.8 m Date Measured 18-11-1988 Block No. 1 N = 2 kgf/cm²

Geological Classification Ophiolite Rock Grade _____ Measured by _____

Vertical Jack Capacity 200 ton x 1 units, Max. Oil Pressure 396.3 kg/cm² Ram Diameter ϕ25.35 cm

Diagonal Jack Capacity 200 ton x 2 units, Max. Oil Pressure 701.7 kg/cm² Ram Diameter ϕ18.05 cm



A = 3600 cm²

θ = 16.7 °

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	0	1	7			0	0	0/0	0	0	0/0	0	0	0	0	0/0	
	4	2	14			29	−1	14/14	0	0	0/0	4	0	0	0	1/1	
	8	2	14			6	0	3/17	0	0	0/0	0	0	0	0	0/1	
	16	0	0			1	−2	0.5/17.5	0	3	1.5/1.5	0	0	0	0	0/1	
	20	0	0			1	−1	0/17.5	0	1	0.5/2	0	0	0	0	0/1	
	28	2	14			16	0	8/25.5	0	5	2.5/4.5	0	0	0	0	0/1	
	32	2	14			1	0	0.5/26	0	0	0/4.5	0	0	0	0	0/1	
	34	2	14			0	0	0/26	0	0	0/4.5	0	0	0	0	0/1	

ROCK SHEAR TEST DATA SHEET (2) Measuring Point TD 10.8m Block No. DA-2, BS-1 N = 2 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	0	2	14	0.34	2.25	1	0	0.5 / 26.5	0	0	0 / 4.5	0	0	0	0	0 / 1	
	4	〃	〃	0.68	4.5	3	−1	−1 / 32.5	−5	2	−1.5 / 3	0	0	0	0	0 / −1	
	8	〃	〃	0.99	6.5	3	−1	1 / 28.5	−3	2	−0.5 / 2.5	1	0	0	3	1 / 2	
	12	〃	〃	1.33	8.75	4	−1	1.5 / 30	−3	2	−0.5 / 2	1	0	0	3	1 / 3	
	16	〃	〃	1.67	11.0	2	−3	−0.5 / 30.5	−2	2	0 / 2	4	0	0	3	1.8 / 4.8	
	20	〃	〃	2.01	13.25	2	−2	0 / 30.5	−1	1	0 / 2	3	0	0	4	1.8 / 6.6	
	24	〃	〃	2.35	15.50	2	−2	0 / 30.5	−1	1	0 / 2	2	0	0	2	1 / 7.6	
	28	〃	〃	2.65	17.50	1	−1	0 / 30.5	−3	2	−0.5 / 1.5	1	0	0	1	0.5 / 8.1	
	32	〃	〃	3.00	19.75	0	−1	−0.5 / 30	−1	0	−0.5 / 1	4	0	0	1	1.3 / 9.4	
	36	〃	〃	3.34	22.0	1	−1	0 / 30	−1	0	−0.5 / 0.5	5	0	0	1	1.5 / 10.9	
	40	〃	〃	3.68	24.25	0	0	0 / 30	−2	1	−0.5 / 0	3	0	0	4	1.8 / 12.7	
	44	〃	〃	4.02	26.5	0	−2	−1 / 29	−1	0	−0.5 / −0.5	2	0	0	4	1.5 / 14.2	
	48	〃	〃	4.32	28.5	0	−1	−0.5 / 28.5	−2	2	0 / −0.5	5	0	0	4	2.3 / 16.5	
	52	〃	〃	4.66	30.75	0	−2	−1 / 27.5	−2	2	0 / −0.5	5	0	0	6	2.8 / 19.8	
	56	〃	〃	5.00	33.0	0	−1	−0.5 / 27	−3	2	−0.5 / −1	3	0	0	1	1 / 20.3	
	1:00	〃	〃	5.35	35.25	0	−2	−1 / 26	−2	2	0 / −1	3	0	0	2	1.3 / 21.6	
	4	〃	〃	5.69	37.5	0	−3	−1.5 / 24.5	−3	2	−0.5 / −1.5	3	0	0	8	2.8 / 24.4	
	8	〃	〃	5.99	39.5	0	−2	−1 / 23.5	−5	2	−1.5 / −3	2	0	0	8	2.5 / 26.9	
	12	〃	〃	6.33	41.75	0	−1	−0.5 / 23	−4	0	−2 / −5	4	2	3	2	2.8 / 29.7	
	16	〃	〃	6.67	44.0	0	−2	−1 / 22	−5	1	−2 / −7	5	3	2	2	3 / 32.7	
	20	〃	〃	7.01	46.25	0	−1	−0.5 / 21.5	−7	1	−3 / −10	2	2	3	1	2 / 34.7	
	24	〃	〃	7.36	48.5	0	−2	−1 / 20.5	−2	1	−0.5 / −10.5	3	3	3	2	2.8 / 37.5	
	28	〃	〃	7.66	50.5	0	−1	−0.5 / 20	−3	2	−0.5 / −11	5	5	5	4	4.8 / 42.3	
	32	〃	〃	8.00	52.75	0	−2	−1 / 19	−4	1	−1.5 / −12.5	5	7	6	5	5.8 / 48.1	
	36	〃	〃	8.34	55.0	0	−2	−1 / 18	−2	2	0 / −12.5	5	6	6	2	4.8 / 52.9	
	40	〃	〃	8.68	57.25	0	−2	−1 / 17	−1	1	0 / −12.5	3	5	6	3	4.3 / 57.2	
	44	〃	〃	9.02	59.5	0	−2	−1 / 16	−2	1	−0.5 / −13	7	6	6	3	5.5 / 62.7	
	48	〃	〃	9.33	61.5	−2	−10	−6 / 10	−2	1	−0.5 / −13.5	4	6	5	4	4.8 / 67.5	
	52	〃	〃	9.67	63.75	−3	−4	−3.5 / 6.5	−3	1	−1 / −14.5	6	10	6	8	7.5 / 75.	
	56	〃	〃	10.01	66.0	−2	−3	−2.5 / 4	−2	0	−1 / −15.5	8	5	4	8	6.3 / 81.3	
	2:00	〃	〃	10.35	68.25	−2	−6	−4 / 0	−3	0	−1.5 / −17	9	3	2	10	6 / 87.3	
	4	〃	〃	10.69	70.5	−3	−7	−5 / −5	−3	2	−0.5 / −17.5	8	2	2	10	5.5 / 92.8	

ROCK SHEAR TEST DATA SHEET (3) Measuring Point TD 10.8m Block No. DA-2, BS-1 N = 2 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	8	2	14	11.0	72.5	-4	-8	-6 -41	-2	0	-1 -18.5	5	7	5	3	5 57.5	
	12	〃	〃	11.34	74.75	-5	-9	-7 -48	-2	0	-1 -19.5	6	8	7	4	6.3 104.1	
	16	〃	〃	11.68	77.0	-7	-10	-8.5 -24.5	-5	0	-2.5 -22	12	16	18	13	14.8 118.9	
	20	〃	〃	12.02	79.25	-5	-18	-11.5 -38	-7	0	-3.5 -25.5	12	26	55	26	29.8 148.7	
	24	〃	〃	12.36	81.5	-6	-27	-16.5 -54.5	-9	0	-4.5 -30	20	13	10	20	15.8 164.5	
	28	〃	〃	12.66	83.5	-7	-23	-15 -69.5	-6	-2	-4 -34	15	25	30	30	25 187.5	
	32	〃	〃	13.01	85.75	-9	-28	-18.5 -88	-20	-1	-10.5 -44.5	24	28	24	17	23.3 212.8	
	36	〃	〃	13.35	88.0	-27	-30	-28.5 -116.5	-21	-2	-11.5 -56	17	22	38	24	25.3 238.1	
	40	〃	〃	13.69	90.25	-18	-42	-30 -146.5	-21	-2	-11.5 -67.5	38	62	23	34	39.3 277.4	
	44	〃	〃	14.03	92.5	-35	-37	-36 -182.5	-59	-2	-30.5 -98	40	38	22	16	29 305.3	
	48	〃	〃	14.33	94.5	-19	-38	-28.5 -211	-31	-2	-16.5 -114.5	21	45	52	48	41.3 346.6	
	52	〃	〃	14.67	96.75	-26	-25	-25.5 -236.5	-22	-5	-13.5 -128	50	25	24	20	29.8 376	
	56	〃	〃	15.01	99.0	-15	-35	-25 -261.5	-18	-13	-15.5 -143.5	5	36	28	41	26.3 401.3	
	8:00	〃	〃	15.36	101.25	-36	-40	-38 -299.5	-29	-20	-24.5 -168	25	49	36	53	40.8 442.1	
	4	〃	〃	15.70	103.5	-43	-50	-46.5 -346	-31	-10	-20.5 -188.5	50	45	75	46	54 496.1	
	8	〃	〃	16.00	105.5	-18	-45	-31.5 -377.5	-59	-15	-37 -225.5	30	47	44	52	43.3 539.4	
	12	〃	〃	16.34	107.75	-36	-37	-36.5 -414	-31	-5	-18 -243.5	50	63	34	31	44.5 583.9	
	16	〃	〃	16.68	110.0	-44	-48	-46 -460	-23	-32	-27.5 -271	50	18	32	25	31.3 615.2	
	20	〃	〃	17.02	112.25	-24	-35	-29.5 -489.5	-25	-24	-24.5 -295.5	16	62	21	44	35.8 651	
	24	〃	〃	17.37	114.5	-49	-50	-49.5 -539	-31	-31	-31 -326.5	54	50	41	60	51.3 702.3	
	28	〃	〃	17.67	116.5	-36	-65	-50.5 -589.5	-44	-49	-46.5 -373	80	60	53	84	69.3 771.6	
	32	〃	〃	17.97	118.5	-65	-115	-90 -679.5	-39	-43	-41 -414	64	110	77	87	84.5 856.1	
	36	〃	〃	18.35	121.0	-50	-175	-112.5 -792	-33	-50	-41.5 -455.5	74	20	110	93	74.3 930.4	
	40	〃	〃	18.65	123.0	-48	-105	-76.5 -868.5	-39	-31	-35 -490.5	63	80	57	56	64 994.4	
	44	〃	〃	18.96	125.0	-51	-100	-75.5 -944	-53	-44	-48.5 -539	79	110	72	86	86.6 1081.2	
	48	〃	〃	19.34	127.5	-77	-149	-113 -1057	-65	-50	-57.5 -596.5	101	121	117	86	106.3 1187.5	
	52	〃	〃	19.65	129.5	-28	-94	-61 -1118	-31	-24	-27.5 -624	69	85	51	67	68 1255.5	
	56	〃	〃	20.02	132.0	-40	-77	-60.5 -1178.5	-41	-33	-37 -661	50	64	69	53	59 1314.5	
	4:00	〃	〃	20.36	134.25	-55	-120	-87.5 -1266	-56	-47	-51.5 -712.5	100	90	64	83	84.3 1398.8	
	4	〃	〃	20.70	136.5	-102	-185	-143.5 -1409.5	-87	-84	-85.5 -798	140	70	163	155	132 1530.8	
	8	〃	〃	21.01	138.5	-163	-405	-284 -1693.5	-269	-374	-321.5 -1119.5	330	430	447	140	336.8 1867.6	
	12	〃	〃	21.38	141.0	-338	-720	-529 -2222.5	-1073	-261	-667 -1786.5	820	850	633	820	780.8 2648.4	

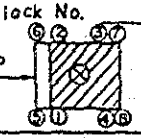
ROCK SHEAR TEST DATA SHEET (1)

Test Location DA-2, BS-2 Measuring Point TD. 12.0m Date Measured 19.11.1988 Block No. N = 4 kgf/cm²

Geological Classification Ophiolite Rock Grade Measured by

Vertical Jack Capacity 200 ton x 1 units, Max. Oil Pressure 396.3 kg/cm² Ram Diameter φ25.25cm

Diagonal Jack Capacity 200 ton x 2 units, Max. Oil Pressure 701.7 kg/cm² Ram Diameter φ19.95cm



A = 3600 cm²

θ = 16.7 °

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (×10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (×10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤~⑧)/4	Remarks
	0	1	7			0	0	0/0	0	0	0/0	0	0	0	0	0/0	
	4	2	14			2	2	2/2	1	0	0.5/0.5	0	0	0	0	0/0	
	8	2	14			0	0	0/2	1	0	0.5/1	0	0	0	0	0/0	
	16	0	0			−1	−1	−1/−1	−1	0	−0.5/−0.5	0	0	0	0	0/0	
	20	0	0			0	−1	−0.5/0.5	0	0	0/0.5	0	0	0	0	0/0	
	28	2	14			1	2	1.5/2	1	−1	0/0.5	0	0	0	0	0/0	
	32	3	21			0	2	1/3	0	0	0/0.5	0	−2	−5	0	−2.5/−2.5	
	36	4	29			0	2	1/4	0	0	0/0.5	0	−5	−4	0	−4.5/−7	
	40	4	29			0	2	1/5	0	0	0/0.5	0	−4	−2	0	−3/−10	
	42	4	29			0	2	1/6	0	0	0/0.5	0	0	0	0	0/−10	
	45	4	29			0	0	0/6	0	0	0/0.5	0	0	0	0	0/−10	

ROCK SHEAR TEST DATA SHEET (2) Measuring Point TD 12.0 Block No. DA-2, BS-2 N = 4 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	0	4	29	0.84	2.25	0	0	0/6	0	0	0/0.5	0	0	0	0	0/-10	
	4	〃	〃	0.68	4.5	0	0	0/6	0	0	0/0.5	0	0	0	0	0/-10	
	8	〃	〃	0.99	6.5	0	0	0/6	0	0	0/0.5	0	0	0	0	0/-10	
	12	〃	〃	1.83	8.75	0	0	0/6	0	0	0/0.5	0	0	0	0	0/-10	
	16	〃	〃	1.67	11.0	0	0	0/6	0	0	0/0.5	0	2	0	0	0.5/-7.5	
	20	〃	〃	2.01	13.25	0	0	0/6	0	0	0/0.5	0	2	0	0	0.5/-9	
	24	〃	〃	2.35	15.50	0	0	0/6	0	0	0/0.5	0	3	2	0	1.3/-7.7	
	28	〃	〃	2.65	17.5	0	0	0/6	0	0	0/0.5	0	2	1	0	0.8/-6.9	
	32	〃	〃	3.00	19.75	0	0	0/6	0	0	0/0.5	0	9	6	0	3.8/-8.1	
	36	〃	〃	3.34	22.0	0	0	0/6	0	0	0/0.5	0	7	7	0	3.5/-0.4	
	40	〃	〃	3.68	24.25	−1	−1	−1/5	0	0	0/0.5	3	8	7	0	4.5/-4.9	
	44	〃	〃	4.02	26.5	−1	−2	−1.5/3.5	0	0	0/0.5	5	6	8	0	4.8/-5.7	
	48	〃	〃	4.32	28.5	−2	0	−1/2.5	−2	−1	−1.5/−1	1	8	2	3	3.5/-13.2	
	52	〃	〃	4.66	30.75	−2	−2	−2/0.5	−2	−2	−2/−3	1	8	6	0	3.8/-17	
	56	〃	〃	5.00	33.0	−7	−1	−4/−3.5	−1	−1	−1/−4	5	7	12	4	7/-24	
	1:00	〃	〃	5.35	35.25	−9	−2	−5.5/−8.5	−1	−1	−1/−6	5	7	13	3	7/-31	
	4	〃	〃	5.69	37.5	−11	−6	−8.5/−17	−2	−2	−2/−7	12	20	16	10	14.5/-55.5	
	8	〃	〃	5.99	39.5	−11	−6	−8.5/−25.5	0	−1	−0.5/−7.4	13	15	18	4	12.5/-58	
	12	〃	〃	6.33	41.75	−10	−7	−8.5/−34	−2	−2	−2/−9.5	7	20	20	6	13.3/-71.3	
	16	〃	〃	6.67	44.0	−10	−9	−9.5/−43.5	−6	−3	−4.5/−14	8	20	22	5	13.8/-85.1	
	20	〃	〃	7.01	46.25	−18	−15	−16.5/−60	−5	−4	−4.5/−18.5	5	25	30	5	16.3/-101.4	
	24	〃	〃	7.36	48.5	−20	−24	−22/−82	−7	−4	−5.5/−24	7	65	36	9	29.3/-130.7	
	28	〃	〃	7.66	50.5	−28	−25	−26.5/−108.5	−4	−4	−4/−28	13	40	38	11	25.5/-156.2	
	32	〃	〃	8.00	52.75	−27	−12	−19.5/−128	−8	−7	−7.5/−35.5	23	40	71	28	40.3/-176.7	
	36	〃	〃	8.34	55.0	−43	−31	−37/−165	−10	−12	−11/−46.5	12	80	59	25	44/-240.7	
	40	〃	〃	8.68	57.25	−24	−22	−23/−188	−21	−18	−19.5/−66	10	55	53	50	42/-282.7	
	44	〃	〃	9.02	59.5	−49	−41	−45/−233	−9	−12	−10.5/−76.5	−2	65	82	28	43.3/-326	
	48	〃	〃	9.33	61.5	−52	−33	−42.5/−275.5	−12	−15	−13.5/−90	56	90	87	67	75/-401	
	52	〃	〃	9.67	63.75	−49	−26	−37.5/−313	−15	−23	−19/−109	46	55	61	22	48.5/-449.5	
	56	〃	〃	10.01	66.0	−36	−40	−38/−351	−13	−14	−13.5/−122.5	28	65	77	30	50/-499.5	
	2:00	〃	〃	10.35	68.25	−45	−20	−32.5/−383.5	−9	−13	−11/−133.5	52	60	62	34	52/-587.5	
	4	〃	〃	10.69	70.5	−65	−46	−55.5/−439	−16	−35	−25.5/−159	64	90	88	41	70.8/-622.3	

ROCK SHEAR TEST DATA SHEET (3) Measuring Point TD 12.0m Block No. DA-2. BS-2 N = 4 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤~⑧)/4	Remarks
	08	4	29	11.90	72.5	-44	-34	-39 / -478	-8	-13	-10.5 / -169.5	54	75	72	42	60.8 / 682.1	
	12	〃	〃	11.84	74.75	-43	-31	-37 / -570	-17	-17	-17 / -185.5	62	75	78	57	68 / 751.1	
	16	〃	〃	11.68	77.0	-47	-49	-48 / -558	-12	-16	-14 / -200.5	50	90	82	49	67.8 / 818.9	
	20	〃	〃	12.02	79.25	-43	-27	-35 / -593	-18	-24	-21 / -221.5	59	80	81	87	76.8 / 895.7	
	24	〃	〃	12.36	81.5	-54	-50	-52 / -645	-19	-24	-21.5 / -243	51	95	94	20	65 / 960.7	
	28	〃	〃	12.66	83.5	-36	-33	-34.5 / -679.5	-14	-23	-18.5 / -261.5	69	35	101	90	73.8 / 1034.5	
	32	〃	〃	13.01	85.75	-43	-20	-31.5 / -711	-7	-11	-9 / -270.5	36	120	62	10	57 / 1091.5	
	36	〃	〃	13.35	88.0	-50	-40	-45 / -756	-26	-37	-31.5 / -302	46	70	70	61	61.8 / 1153.3	
	40	〃	〃	13.69	90.25	-40	-35	-37.5 / -793.5	-15	-23	-19 / -321	49	60	55	56	55 / 1208.3	
	44	〃	〃	14.03	92.5	-32	-35	-33.5 / -827	-24	-24	-24 / -345	49	80	75	81	71.3 / 1279.6	
	48	〃	〃	14.33	94.5	-53	-52	-52.5 / -879.5	-25	-33	-29 / -374	71	103	100	50	81 / 1360.6	
	52	〃	〃	14.67	96.25	-77	-48	-62.5 / -942	-32	-65	-48.5 / -422.5	90	122	118	104	108.5 / 1469.1	
	56	〃	〃	15.01	99.0	-50	-60	-55 / -997	-43	-45	-44 / -466.5	75	97	105	78	88.8 / 1557.9	
	8:00	〃	〃	15.36	101.25	-150	-130	-140 / -1137	-50	-140	-120 / -586.5	200	288	82	214	221 / 1778.9	
	04	〃	〃	15.70	103.5	-190	-145	-167.5 / -1304.5	-115	-95	-105 / -691.5	380	540	605	558	520.8 / 2299.7	
	08	〃	〃	16.00	105.5	-805	-773	-789 / -2093.5	-485	-658	-571.5 / -1263	1905	980	1540	797	1270.5 / 3569.2	

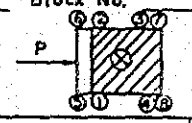
ROCK SHEAR TEST DATA SHEET (1)

Test Location DA-2. BS-3 Measuring Point TD 13.5m Date Measured 21.11.1988 Block No. N = 6 kgf/cm²

Geological Classification Ophiolite Rock Grade Measured by

Vertical Jack Capacity 200 ton x 1 units, Max. Oil Pressure 396.3 kg/cm² Ram Diameter ø25.35cm A = 3600 cm²

Diagonal Jack Capacity 200 ton x 2 units, Max. Oil Pressure 701.7 kg/cm² Ram Diameter ø19.05cm θ = 16.7 °



Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (×10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (×10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	0	1	7			0	0	0/0	0	0	0/0	0	0	0	0	0/0	
	4	1	14			3	16	9.5/6.5	7	-3	2/2	0	0	0	0	0/0	
	8	2	14			0	6	3/12.5	2	0	1/3	0	0	0	0	0/0	
	16	0	0			-2	0	-1/7.5	4	-1	1.5/4.5	0	2	0	0	0.5/0.5	
	20	0	0			0	0	0/0	2	-2	0/4.5	0	0	0	0	0/0.5	
	28	2	14			2	7	4.5/16	1	0	0.5/5	0	0	0	0	0/0.5	
	32	3	21			1	14	7.5/23.5	6	0	3/8	0	0	0	0	0/0.5	
	36	4	29			0	20	10/33.5	10	0	5/13	5	13	0	0	4.5/5	
	40	5	36			1	12	6.5/40	11	0	5.5/18.5	5	0	0	1	1.5/6.5	
	44	6	43			0	6	3/43	1	0	0.5/19	0	5	0	0	1.3/7.8	
	48	6	43			0	4	2/45	1	0	0.5/19.5	0	0	0	0	0/7.8	
	50	6	43			0	3	1.5/46.5	1	0	0.5/20	0	0	0	0	0/7.8	
	53	6	43			0	2	1/47.5	2	0	1/21	0	0	0	0	0/7.8	
	58	6	43			0	0	0/47.5	0	0	0/21	0	0	0	0	0/7.8	

ROCK SHEAR TEST DATA SHEET (2) Measuring Point TD 13.5m Block No. DA-2, BS-3 N = 6 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	①+② / 2	③	④	③+④ / 2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	⑤~⑧ / 4	Remarks
	0	6	43	0.34	2.25	0	0	0 / 475	0	0	0 / 21	0	0	0	0	0 / 7.8	
	4	〃	〃	0.68	4.5	0	0	0 / 475	2	0	1 / 22	0	0	0	0	0 / 7.8	
	8	〃	〃	0.99	6.5	0	2	1 / 485	2	0	1 / 23	0	1	0	0	0.3 / 8.1	
	12	〃	〃	1.33	8.75	0	1	0.5 / 49	1	0	0.5 / 235	0	1	0	1	0.5 / 8.6	
	16	〃	〃	1.67	11.0	0	1	0.5 / 495	1	0	0.5 / 24	3	0	0	1	1 / 9.6	
	20	〃	〃	2.01	13.25	0	0	0 / 495	1	0	0.5 / 245	2	1	0	2	1.3 / 10.9	
	24	〃	〃	2.35	15.50	0	1	0.5 / 50	1	0	0.5 / 25	2	3	0	2	1.8 / 12.7	
	28	〃	〃	2.65	17.5	0	0	0 / 50	1	0	0.5 / 255	3	3	3	3	3 / 15.7	
	32	〃	〃	3.00	19.75	0	0	0 / 50	1	0	0.5 / 26	4	2	1	3	2.5 / 18.2	
	36	〃	〃	3.34	22.0	0	1	0.5 / 505	2	0	1 / 27	3	1	0	3	1.8 / 20	
	40	〃	〃	3.68	24.25	0	0	0 / 505	1	0	0.5 / 275	2	4	4	2	3 / 23	
	44	〃	〃	4.02	26.4	0	0	0 / 505	1	0	0.5 / 28	2	4	4	3	3.3 / 26.3	
	48	〃	〃	4.32	28.5	0	0	0 / 505	0	0	0 / 28	4	3	4	4	3.8 / 30.1	
	52	〃	〃	4.66	30.75	−1	0	−0.5 / 500	0	0	0 / 28	5	2	2	4	3.3 / 33.4	
	56	〃	〃	5.00	33.0	0	0	0 / 50	1	0	0.5 / 285	4	2	3	4	3.3 / 36.7	
	1:00	〃	〃	5.35	35.25	0	0	0 / 50	0	0	0 / 285	3	3	2	5	3.3 / 40	
	4	〃	〃	5.69	37.5	0	0	0 / 50	1	−1	0 / 285	2	4	3	3	3 / 43	
	8	〃	〃	5.99	39.5	−1	0	−0.5 / 495	0	0	0 / 285	1	4	4	3	3 / 46	
	12	〃	〃	6.33	41.75	0	0	0 / 495	0	0	0 / 285	5	2	1	7	3.8 / 498	
	16	〃	〃	6.67	44.0	−1	0	−0.5 / 49	1	0	0.5 / 29	5	1	1	5	3 / 528	
	20	〃	〃	7.01	46.25	−3	−1	−2 / 47	0	0	0 / 29	2	4	5	3	3.5 / 563	
	24	〃	〃	7.36	48.5	−4	−2	−3 / 44	0	0	0 / 29	2	4	3	3	3 / 593	
	28	〃	〃	7.66	50.5	−6	−3	−4.5 / 395	0	0	0 / 29	11	3	3	5	5.5 / 648	
	32	〃	〃	8.00	52.75	−7	−3	−5 / 345	0	0	0 / 29	10	4	5	6	6.3 / 71.1	
	36	〃	〃	8.34	55.0	−5	−2	−3.5 / 31	0	0	0 / 29	10	2	1	3	4 / 75.1	
	40	〃	〃	8.68	57.25	−6	−2	−4 / 27	0	0	0 / 29	15	2	1	3	5.3 / 80.4	
	44	〃	〃	9.02	59.5	−5	−10	−7.5 / 19.5	0	0	0 / 29	7	6	5	22	10 / 90.4	
	48	〃	〃	9.33	61.5	−5	−10	−7.5 / 12	−1	0	−0.5 / 28.5	8	6	6	8	7 / 97.4	
	52	〃	〃	9.67	63.75	−9	−13	−11 / 1	−3	0	−1.5 / 28	8	8	0	11	6.8 / 104.2	
	56	〃	〃	10.01	66.0	−8	−16	−12 / −11	−4	−3	−3.5 / 24.5	7	6	4	13	7.5 / 111.7	
	2:00	〃	〃	10.35	68.25	−16	−36	−26 / −37	−6	−3	−4.5 / 20	25	30	30	20	26.3 / 138	
	4	〃	〃	10.69	70.5	−12	−28	−20 / −57	−7	−2	−4.5 / 15.5	23	14	17	13	16.8 / 154.8	

ROCK SHEAR TEST DATA SHEET (3) Measuring Point TD 13.5m Block No. DA-2, BS-3 N = 6 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻² mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	8	6	43	11.00	72.5	-4	-4	-4 -61	-2	-3	-2.5 -12	4	4	4	9	5.3 160.1	
	12	〃	〃	11.34	74.75	-5	-3	-4 -65	-2	-3	-2.5 -8.5	5	4	4	9	5.5 165.6	
	16	〃	〃	11.68	77.0	-19	-20	-19.5 -84.5	-5	-11	-8 -1.5	15	11	8	27	15.3 180.9	
	20	〃	〃	12.02	79.25	-19	-20	-19.5 -104	-6	-12	-9 -1.5	21	7	7	28	15.8 198.4	
	24	〃	〃	12.36	81.5	-48	-42	-45 -149	-20	-4	-12 -19.5	89	13	2	30	21 217.4	
	28	〃	〃	12.66	83.5	-40	-38	-39 -188	-22	-7	-14.5 -34	40	25	18	27	27.5 244.9	
	32	〃	〃	13.01	85.75	-100	-110	-105 -293	-33	-41	-37 -71	70	65	60	59	63.5 308.4	
	36	〃	〃	13.35	88.0	-72	-105	-88.5 -381.5	-40	-40	-40 -111	80	58	57	77	68 376.4	
	40	〃	〃	13.69	90.25	-74	-60	-67 -448.5	-22	-77	-49.5 -160.5	60	22	40	78	50 426.4	
	44	〃	〃	14.03	92.5	-53	-65	-59 -507.5	-21	-3	-12 -172.5	45	50	38	80	40.8 467.2	
	48	〃	〃	14.37	94.5	-40	-39	-39.5 -547	-14	-25	-19.5 -192	35	20	25	42	30.5 497.7	
	52	〃	〃	14.67	96.75	-42	-46	-44 -591	-18	-4	-22 -214	37	40	89	29	48.8 546.5	
	56	〃	〃	15.01	99.0	-35	-29	-32 -623	-5	-28	-16.5 -230.5	23	5	46	19	23.3 569.8	
	3:00	〃	〃	15.36	101.25	-40	-41	-40.5 -663.5	-24	-10	-17 -247.5	25	23	37	50	33.8 603.6	
	4	〃	〃	15.70	103.5	-58	-65	-61.5 -725	-43	-38	-41 -288.5	75	42	19	37	43.3 646.9	
	8	〃	〃	16.00	105.5	-38	-36	-37 -762	-13	-10	-11.5 -300	20	12	18	25	18.8 665.7	
	12	〃	〃	16.34	107.75	-29	-21	-25 -787	-14	-5	-9.5 -309.5	28	16	19	18	20.3 686	
	16	〃	〃	16.68	110.0	-43	-14	-28.5 -815.5	-18	-50	-34 -343.5	34	13	42	55	36 722	
	20	〃	〃	17.02	112.25	-41	-69	-55 -870.5	-25	-10	-17.5 -361	33	54	20	26	33.3 755.3	
	24	〃	〃	17.37	114.5	-19	-35	-27 -897.5	-8	-10	-9 -370	32	10	40	14	24 779.3	
	28	〃	〃	17.67	116.5	-35	-30	-32.5 -930	-15	-10	-12.5 -382.5	33	15	37	47	33 812.3	
	32	〃	〃	17.97	118.5	-40	-45	-42.5 -972.5	-13	-21	-17 -399.5	90	45	26	41	35.5 847.8	
	36	〃	〃	18.35	121.0	-37	-43	-40 -1012.5	-19	-19	-19 -418.5	38	15	45	24	30.5 878.3	
	40	〃	〃	18.65	123.0	-43	-44	-43.5 -1056	-40	-28	-34 -452.5	42	22	32	48	36 914.3	
	44	〃	〃	18.96	125.0	-33	-63	-48 -1104	-25	-1	-13 -465.5	35	43	59	33	42.5 956.8	
	48	〃	〃	19.24	127.5	-10	-10	-10 -1114	-1	0	-0.5 -466	5	5	9	6	6.3 963.1	
	52	〃	〃	19.68	129.75	-12	-22	-17 -1131	-9	-11	-10 -476	34	26	43	23	31.5 994.6	
	56	〃	〃	20.02	132.0	-32	-42	-37 -1168	-28	-17	-22.5 -498.5	41	24	58	33	39 1033.6	
	4:00	〃	〃	20.36	134.25	-33	-68	-50.5 -1218.5	-29	-20	-24.5 -523	25	60	9	35	32.3 1065.9	
	4	〃	〃	20.70	136.5	-15	-18	-16.5 -1235	-19	-28	-23.5 -546.5	20	22	24	18	21 1086.9	
	8	〃	〃	21.01	138.5	-38	-45	-41.5 -1276.5	-21	-12	-16.5 -563	35	18	63	32	37 1123.9	
	12	〃	〃	21.38	141.0	-37	-65	-51 -1327.5	-48	-11	-29.5 -592.5	45	55	32	40	43 1166.9	

ROCK SHEAR TEST DATA SHEET (4) Measuring Point TD 13.5 Block No. DA-2, BS-3 N = 6 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	4:16	6	43	21.69	143.0	-23	-45	-34 / -1361.5	-18	-12	-15 / -607.5	23	45	68	43	44.8 / 211.7	
	20	〃	〃	22.03	145.25	-34	-45	-38.5 / -1401	-25	-13	-19 / -826.5	32	28	68	29	39.3 / 1251	
	24	〃	〃	22.37	147.5	-26	-46	-36 / -1437	-35	-12	-23.5 / -650	26	42	21	26	28.8 / 2778	
	28	〃	〃	22.67	149.5	-14	-34	-24 / -1461	-20	-5	-12.5 / -862.5	29	20	31	27	26.8 / 8066	
	32	〃	〃	23.05	152.0	-33	-64	-48.5 / -1509.5	-30	-24	-27 / -889.5	44	52	55	53	51 / 7357.6	
	36	〃	〃	23.36	154.0	-243	-656	-449.5 / -1959	-535	-321	-428 / -1317.5	901	468	518	907	698.5 / 20561	

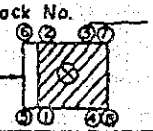
ROCK SHEAR TEST DATA SHEET (1)

Test Location DA-2, BS-4 Measuring Point TD -15.70m Date Measured 22.11.1988 Block No. N = 8 kgf/cm²

Geological Classification Ophiolite Rock Grade Measured by

Vertical Jack Capacity 200 ton x 1 units, Max. Oil Pressure 3963 kg/cm² Ram Diameter ø25.85 cm

Diagonal Jack Capacity 200 ton x 2 units, Max. Oil Pressure 701.7 kg/cm² Ram Diameter ø19.05 cm



A = 3600 cm²

θ = 16.7 °

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	0	1	7			0	0	0/0	0	0	0/0	0	0	0	0	0/0	
	4	2	14			0	0	0/0	0	0	0/0	0	0	0	0	0/0	
	8	2	14			0	0	0/0	0	0	0/0	0	0	0	0	0/0	
	16	0	0			0	0	0/0	0	0	0/0	0	1	0	0	0.3/0.3	
	20	0	0			0	0	0/0	0	0	0/0	0	0	0	0	0/0.3	
	28	2	14			0	2	1/1	0	−1	−0.5/−0.5	0	0	0	0	0/0.3	
	32	3	21			0	2	1/2	0	0	0/−0.5	0	0	0	0	0/0.3	
	36	4	29			0	1	0.5/2.5	0	0	0/−0.5	0	0	0	0	0/0.3	
	40	5	36			0	0	0/2.5	0	0	0/−0.5	0	0	0	0	0/0.3	
	44	6	43			0	0	0/2.5	0	0	0/−0.5	0	0	0	0	0/0.3	
	48	7	50			2	0	1/3.5	0	0	0/−0.5	0	0	0	0	0/0.3	
	52	8	57			0	2	1/4.5	0	0	0/−0.5	2	0	0	1	0.7/1.0	
	56	8	57			0	0	0/4.5	0	0	0/−0.5	0	0	0	0	0/1.0	

ROCK SHEAR TEST DATA SHEET (2) Measuring Point TD 15.7 m Block No. DA-2, BS-4 N = 8 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	0	8	57	0.34	2.25	0	0	0/4.5	0	0	0/-0.5	0	0	0	0	0/1	
	4	〃	〃	0.64	4.5	0	2	1/5.5	0	0	0/-0.5	0	0	0	0	0/1	
	8	〃	〃	0.99	6.5	0	0	0/5.5	0	0	0/-0.5	0	0	0	0	0/1	
	12	〃	〃	1.33	8.75	0	1	0.5/6	0	0	0/-0.5	0	0	0	0	0/1	
	16	〃	〃	1.67	11.0	0	0	0/6	0	0	0/-0.5	0	0	0	0	0/1	
	20	〃	〃	2.01	13.25	0	0	0/6	6	0	3/2.5	0	0	0	0	0/1	
	24	〃	〃	2.35	15.5	0	0	0/6	4	0	2/4.5	0	0	0	0	0/1	
	28	〃	〃	2.65	17.5	0	0	0/6	1	0	0.5/5	0	0	0	0	0/1	
	32	〃	〃	3.00	19.75	0	5	2.5/8.5	2	0	1/6	0	0	0	0	0/1	
	36	〃	〃	3.34	22.0	−6	5	−0.5/8	0	0	0/6	0	0	0	0	0/1	
	40	〃	〃	3.68	24.25	0	0	0/8	1	0	0.5/6.5	1	0	0	0	0.3/1.3	
	44	〃	〃	4.02	26.5	0	0	0/8	0	0	0/6.5	2	0	0	0	0.5/1.8	
	48	〃	〃	4.32	28.5	0	0	0/8	0	0	0/6.5	1	0	0	0	0.3/2.1	
	52	〃	〃	4.66	30.75	0	0	0/8	0	0	0/6.5	0	0	0	0	0/2.1	
	56	〃	〃	5.00	33.0	0	0	0/8	0	0	0/6.5	1	0	0	0	0.3/2.4	
	1:00	〃	〃	5.35	35.25	0	0	0/8	0	0	0/6.5	1	0	0	0	0.3/2.7	
	4	〃	〃	5.69	37.5	0	0	0/8	0	0	0/6.5	1	0	1	1	0.8/3.5	
	8	〃	〃	5.99	39.5	0	0	0/8	0	0	0/6.5	1	0	0	0	0.3/3.8	
	12	〃	〃	6.33	41.75	0	0	0/8	0	0	0/6.5	1	2	1	0	1/4.8	
	16	〃	〃	6.67	44.0	0	0	0/8	0	0	0/6.5	3	0	0	0	0.8/5.6	
	20	〃	〃	7.01	46.25	0	0	0/8	0	0	0/6.5	4	0	0	0	1/6.6	
	24	〃	〃	7.36	48.5	0	−1	−0.5/7.5	0	0	0/6.5	5	1	1	0	1.8/8.4	
	28	〃	〃	7.66	50.5	0	0	0/7.5	0	0	0/6.5	2	0	3	0	1.3/9.7	
	32	〃	〃	8.00	52.75	0	0	0/7.5	0	0	0/6.5	4	1	0	0	1.3/11	
	36	〃	〃	8.34	55.0	0	−1	−0.5/7	0	0	0/6.5	5	0	3	1	2.3/13.3	
	40	〃	〃	8.68	57.25	1	−1	0/7	0	0	0/6.5	5	0	3	1	2.3/15.6	
	44	〃	〃	9.02	59.5	0	0	0/7	0	0	0/6.5	1	1	1	4	1.8/17.4	
	48	〃	〃	9.33	61.5	0	0	0/7	0	0	0/6.5	2	0	2	3	1.8/19.2	
	52	〃	〃	9.67	63.75	0	−2	−1/6	0	0	0/6.5	4	0	2	3	2.3/21.5	
	56	〃	〃	10.01	66.0	0	−1	−0.5/5.5	0	0	0/6.5	4	1	2	4	2.8/24.3	
	2:00	〃	〃	10.35	68.25	0	−4	−2/3.5	0	0	0/6.5	10	1	1	10	5.3/29.6	
	4	〃	〃	10.69	70.5	0	−3	−1.5/2	0	0	0/6.5	10	0	1	12	5.8/35.4	

ROCK SHEAR TEST DATA SHEET (3) Measuring Point TD-15.7m Block No. DA-2. BS-4 N = 8 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	(①+②)/2	③	④	(③+④)/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	(⑤−⑧)/4	Remarks
	8	8	57	11.00	72.5	−1	−4	−2.5 / −0.5	0	0	0 / 6.5	4	0	6	7	4.3 / 39.7	
	12	〃	〃	11.34	74.25	−1	−2	−1.5 / −2	0	0	0 / 6.5	4	1	8	8	5.3 / 45	
	16	〃	〃	11.68	77.0	−1	−2	−1.5 / −3.5	0	0	0 / 6.5	10	1	5	2	4.5 / 49.5	
	20	〃	〃	12.02	79.25	0	−2	−1 / −4.5	0	0	0 / 6.5	6	1	5	2	3.5 / 53	
	24	〃	〃	12.36	81.5	−3	−7	−5 / −9.5	0	0	0 / 6.5	3	4	6	10	5.8 / 58.8	
	28	〃	〃	12.66	83.5	−3	−7	−5 / −14.5	0	0	0 / 6.5	3	4	4	8	4.8 / 63.6	
	32	〃	〃	13.01	85.75	−1	−11	−6 / −20.5	0	0	0 / 6.5	10	11	10	8	9.8 / 73.4	
	36	〃	〃	13.35	88.0	−3	−11	−7 / −27.5	0	0	0 / 6.5	6	7	10	9	8 / 81.4	
	40	〃	〃	13.69	90.25	−23	−13	−18 / −45.5	0	−4	−2 / 4.5	26	10	16	11	15.8 / 97.2	
	44	〃	〃	14.03	92.5	−21	−11	−16 / −61.5	0	−8	−4 / 0.5	25	18	13	13	17.3 / 114.5	
	48	〃	〃	14.33	94.5	−9	−13	−11 / −72.5	−8	0	−4 / −3.5	1	10	20	10	10.3 / 124.8	
	52	〃	〃	14.67	96.75	−10	−12	−11 / −83.5	−6	0	−3 / −6.5	1	10	15	10	9 / 133.8	
	56	〃	〃	15.01	99.0	−3	−10	−6.5 / −90	−5	−2	−3.5 / −10	5	7	12	7	7.8 / 141.6	
	9:00	〃	〃	15.36	101.25	−2	−9	−5.5 / −95.5	−4	−1	−2.5 / −12.5	5	8	13	8	8.5 / 150.1	
	4	〃	〃	15.70	103.5	−15	−28	−16.5 / −112	−22	0	−11 / −23.5	17	27	42	17	25.8 / 175.8	
	8	〃	〃	16.00	105.5	−16	−28	−22 / −134	−18	−1	−9.5 / −33	18	28	42	15	25.8 / 201.7	
	12	〃	〃	16.34	107.75	−6	−25	−15.5 / −149.5	−12	0	−6 / −39	10	38	19	10	19.3 / 221	
	16	〃	〃	16.68	110.0	−18	−25	−21.5 / −171	−16	0	−8 / −47	7	16	30	7	15 / 236	
	20	〃	〃	17.02	112.25	−2	−26	−14 / −185	−15	−2	−8.5 / −55.5	5	18	20	18	15.3 / 251.3	
	24	〃	〃	17.37	114.5	−18	−43	−30.5 / −215.5	−27	0	−13.5 / −69	18	66	54	37	43.8 / 295.1	
	28	〃	〃	17.67	116.5	−32	−18	−25 / −240.5	−13	−8	−10.5 / −79.5	40	6	12	6	16 / 311.1	
	32	〃	〃	17.97	118.5	−6	−18	−12 / −252.5	−14	−1	−7.5 / −87	0	16	32	12	15 / 326.1	
	36	〃	〃	18.35	121.0	−16	−33	−24.5 / −277	−26	0	−13 / −100	10	52	25	14	25.3 / 351.4	
	40	〃	〃	18.65	123.0	−4	−18	−11 / −288	−7	0	−3.5 / −103.5	8	10	16	9	10.8 / 362.2	
	44	〃	〃	18.96	125.0	−13	−28	−20.5 / −308.5	−19	0	−9.5 / −113	17	42	37	3	24.8 / 387	
	48	〃	〃	19.34	127.5	−15	−41	−28 / −336.5	−22	−2	−12 / −125	7	48	45	44	36 / 423	
	52	〃	〃	19.68	129.75	−37	−31	−34 / −370.5	−32	−5	−18.5 / −143.5	57	24	33	9	30.8 / 453.8	
	56	〃	〃	20.02	132.0	−10	−26	−18 / −388.5	−19	−5	−12 / −155	7	46	23	5	20.3 / 474.1	
	4:00	〃	〃	20.36	134.25	−7	−40	−23.5 / −412	−25	0	−12.5 / −168.5	52	60	46	16	43.5 / 517.6	
	4	〃	〃	20.70	136.5	−31	−57	−44 / −456	−36	−1	−18.5 / −187	−17	48	76	31	34.5 / 552.1	
	8	〃	〃	21.01	138.5	−22	−45	−33.5 / −489.5	−38	−2	−20 / −207	5	47	31	12	23.8 / 575.9	
	12	〃	〃	21.38	141.0	−33	−48	−40.5 / −530	−42	−3	−22.5 / −229.5	33	75	74	10	45 / 620.9	

ROCK SHEAR TEST DATA SHEET (4) Measuring Point TD. 15.7 m Block No. DA-2, BS-4 N = 8 kg/cm²

Time	Time Elapsed	Vertical Jack: Vertical Stress (kg/cm²)	Vertical Jack: Jack Pressure (kg/cm²)	Diagonal Jack: Horizontal Stress (kg/cm²)	Diagonal Jack: Jack Pressure (kg/cm²)	Vertical Displacement (x 10⁻³ mm): ①	②	①+②/2	③	④	③+④/2	Horizontal Displacement (x 10⁻³ mm): ⑤	⑥	⑦	⑧	⑤−⑧/4	Remarks
	16	8	67	21.69	143°	-16	-26	-21 / -537	-17	-7	-12 / -239.5	2	40	43	14	24.2 / 648.7	
	20	〃	〃	22.03	145.25	-23	-27	-25 / -776	-17	-7	-12 / -351.5	20	55	47	18	35 / 683.7	
	24	〃	〃	22.37	147.5	-35	-50	-42.5 / -1185	-58	-15	-36.5 / -288	20	75	63	47	51.3 / 735	
	28	〃	〃	22.67	149.5	-40	-76	-58 / -678.5	-22	-13	-17.5 / -305.5	40	130	115	19	76 / 811	
	32	〃	〃	23.05	152°	-37	-61	-49 / -735	43	-11	16 / -289	15	130	107	15	74.3 / 885.3	
	36	〃	〃	23.36	154°	-43	-53	-48 / -773.5	-52	-26	-39 / -328.5	21	120	115	48	76 / 961.3	
	40	〃	〃	23.66	156°	-26	-53	-39.5 / -813	-51	-8	-29.5 / -358	24	90	60	10	46 / 1007.3	
	44	〃	〃	23.96	158°	-39	-45	-42 / -855	-52	-7	-29.5 / -387.5	30	102	116	122	92.3 / 1099.8	
	48	〃	〃	24.34	160.5	-30	-37	-33.5 / -888.5	-71	-26	-48.5 / -436	50	118	109	46	80.8 / 1180.6	
	52	〃	〃	24.65	162.5	-80	-53	-66.5 / -955	-49	-44	-46.5 / -482.5	90	80	91	87	87 / 1267.6	
	56	〃	〃	25.02	165°	-100	-111	-105.5 / -1060.5	-156	-79	-117.5 / -600	120	190	118	105	133.3 / 1400.9	
	5:00	〃	〃	25.33	167°	-228	-831	-529.5 / -1590	-447	-356	-401.5 / -1001.5	580	1180	974	455	797.3 / 2198.2	
	4	〃	〃														
	8	〃	〃														
	12	〃	〃														
	16	〃	〃														