

FUGRO TECHNICAL SERVICES LIMITED

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MaterialLab

Client Ref. : --

Report No : 124675ST130008(7)

Page 1 of 3

REPORT ON SHEAR STRENGTH TEST OF E10 ANCHOR BOLT EMBEDDED IN NON-CRACKED CONCRETE

Sample Description

Information Supplied by Client

Client : Sunway Metal Manufactory Limited
Project : Shear Strength Test of Anchor Bolt
Sample Description : E10 Anchor Bolt
Client's Sample I.D. : --

For Expanding Anchor

Supplier Name : Sunway Metal Manufactory Limited
Reference Number : E10
Location of the Fixings in the Base Specimen : (Please refer to the diagrams)
Embedded Length : 60 mm Minimum requirement of BS 5080 : 180 mm
Hole Diameter : 10 mm for distance of fixing from the edge
Bolt Diameter : 10 mm Minimum requirement of BS 5080 : 300 mm
Hole Depth : 60 mm anchor spacing of fixing
Concrete Grade : 22 N/mm²

For Concrete

Mix Proportions : Not provided
Location of Reinforcement : Not applicable
Type of reinforcement : Not applicable
Cast Unit Shape : Square
Dimensions of Cast Unit : 500 x 500 x 192 mm
Concrete Age : 30 days
Compressive Strength (Average) : 224 kgf/cm²

Laboratory Information

Location of Test : Product Testing Laboratory of MaterialLab
Lab. Sample I.D. : ST130008/47-50 & 52
Date Received : 03 January 2013
Date Specimens Fixed : 15 April 2013
Date Tested : 24 April 2013
Span of Reaction Support : 320 mm
Test Method : BS 5080 : Part 2 : 1986 and ETAG-001-Annex-A
Loading Method : Increment Loading

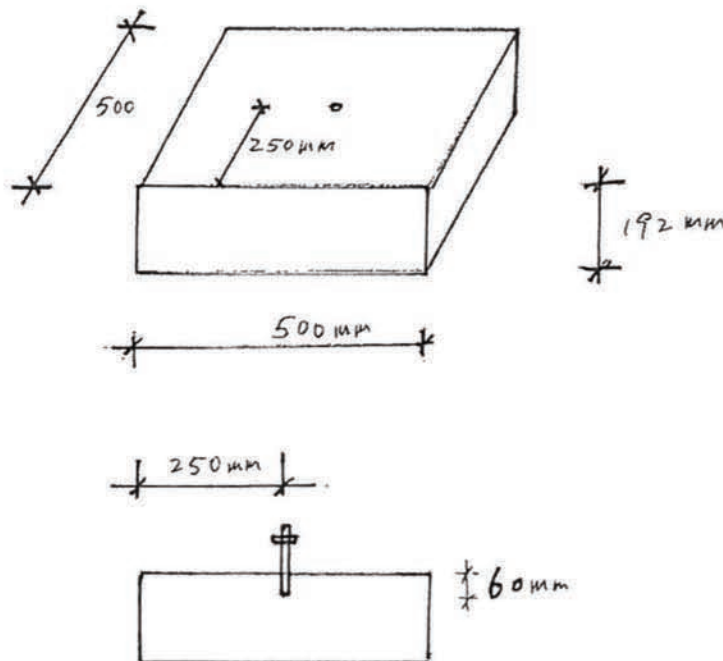
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**REPORT ON SHEAR STRENGTH TEST OF E10 ANCHOR BOLT EMBEDDED
IN NON-CRACKED CONCRETE**

Test Method

石矢強度: 25/20D \pm 5 MPA, 28 天
數量: 42 件



Sketch 1 : The specified concrete structure

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REPORT ON SHEAR STRENGTH TEST OF E10 ANCHOR BOLT EMBEDDED IN NON-CRACKED CONCRETE

Summary of Test Results

Lab. Sample I.D.	Force Interval (kN) / Displacement (mm)									Ultimate Force (max.) (kN)
	4 kN	8 kN	12 kN	16 kN	20 kN	24 kN	28 kN	32 kN	36 kN	
ST130008/47	0.373	0.631	0.911	1.984	--	--	--	--	--	18.20
ST130008/48	0.040	0.815	1.145	1.526	--	--	--	--	--	19.03
ST130008/49	0.006	0.362	0.641	0.902	1.504	--	--	--	--	20.12
ST130008/50	0.008	0.784	1.236	1.893	--	--	--	--	--	19.11
ST130008/52	0.007	0.919	1.519	2.069	5.343	--	--	--	--	20.01
Mean	--	--	--	--	--	--	--	--	--	19.29
Standard Deviation	--	--	--	--	--	--	--	--	--	0.79

Remark : The test results relate only to the samples tested.

Checked by : Egor Date : 28/5/2013 Certified by : Chan Chun Wai Ivan Date : 28.5.2013
Chan Chun Wai Ivan
Manager (Product Testing Laboratory)

**** End of Report ****

REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Client : Sunway Metal Manufactory Limited

Project : Testing of Anchor Bolt SW-E10

Client Ref. : --

Report No. : 092660ST90534(1)

Date : 26 April 2010

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- 3.0 Individual Results
- 4.0 Diagram
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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

1.0 Sample Description

1.1 Information Supplied by Client

Client : Sunway Metal Manufactory Limited
Project : Testing of Anchor Bolt SW-E10
Sample Description : SW-E10 Anchor Bolt
Client's Sample I.D. : --

For Expanding Anchor

Type of Drilled Employed : Rotary-Percussive
Location of the Fixings in the Base Specimen : (Please refer to the diagrams)
Embedded Length : 50 mm Minimum requirement of BS 5080
Predrilled Hole Diameter : 10 mm for distance of fixing from the edge : 150 mm
Bolt Diameter : 10 mm Minimum requirement of BS 5080
Hole Depth : 60 mm anchor spacing of fixing : 200 mm
Tightening Torque : 35 Nm Concrete Grade : 30 MPa

For Concrete

Mix Proportions : Not Provided
Location of Reinforcement : NIL
Type of reinforcement : NIL
Cast Unit Shape : Cube
Dimensions of Cast Unit : 800 x 800 x 800 mm
Date Cast : 19 October 2009

1.2 Laboratory Information

Location of Test : Kam Tin Laboratory of MaterialLab
Address of Test Location : DD111, Lot 3028, Wang Toi Shan Village, Pat Heung, Kam Tin, N.T.
Lab. Sample I.D. : ST90534/B51 to B70
Date Received : 25 August 2009
Date Test Started : 10 February 2010
Date Test Completed : 18 February 2010
Span of Support : 300 mm
Test Method : BS 5080 : Part 2 : 1986
Loading Method : Increment Increasing

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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT**2.0 Summary of Test Results**

Lab. Sample I.D.	Ultimate Force (kN)
ST90333/B51	18.5
ST90333/B52	17.6
ST90333/B53	21.6
ST90333/B56	19.0
ST90333/B58	20.9
ST90333/B59	21.2
ST90333/B62	18.4
ST90333/B63	19.7
ST90333/B64	20.6
ST90333/B68	15.7
ST90333/B69	19.1
ST90333/B70	19.6
Mean	19.3
Standard Deviation	1.7

Remark : The test results relate only to the samples tested.

Checked by :  Date : 26/4/2010 Certified by :  Date : 26.4.2010
Chan Chun Wai Ivan
Manager (Product Testing Laboratory)

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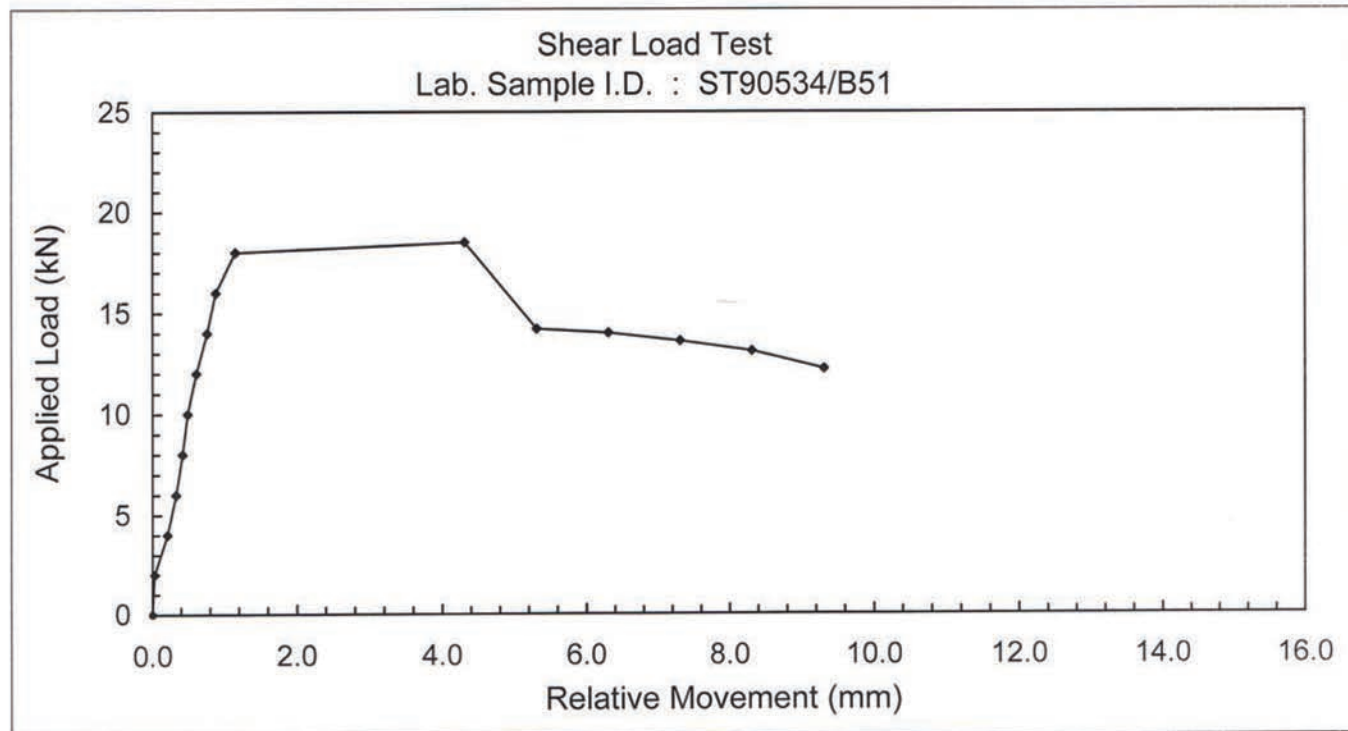
REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

3.0 Test Results

Lab. Sample I.D. : ST90534/B51

Date Tested : 10 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	16.0	0.88
2.0	0.03	18.0	1.15
4.0	0.21	18.5	4.31
6.0	0.33	14.2	5.31
8.0	0.42	14.0	6.31
10.0	0.49	13.6	7.31
12.0	0.61	13.1	8.31
14.0	0.76	12.2	9.31



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 18.5 kN.

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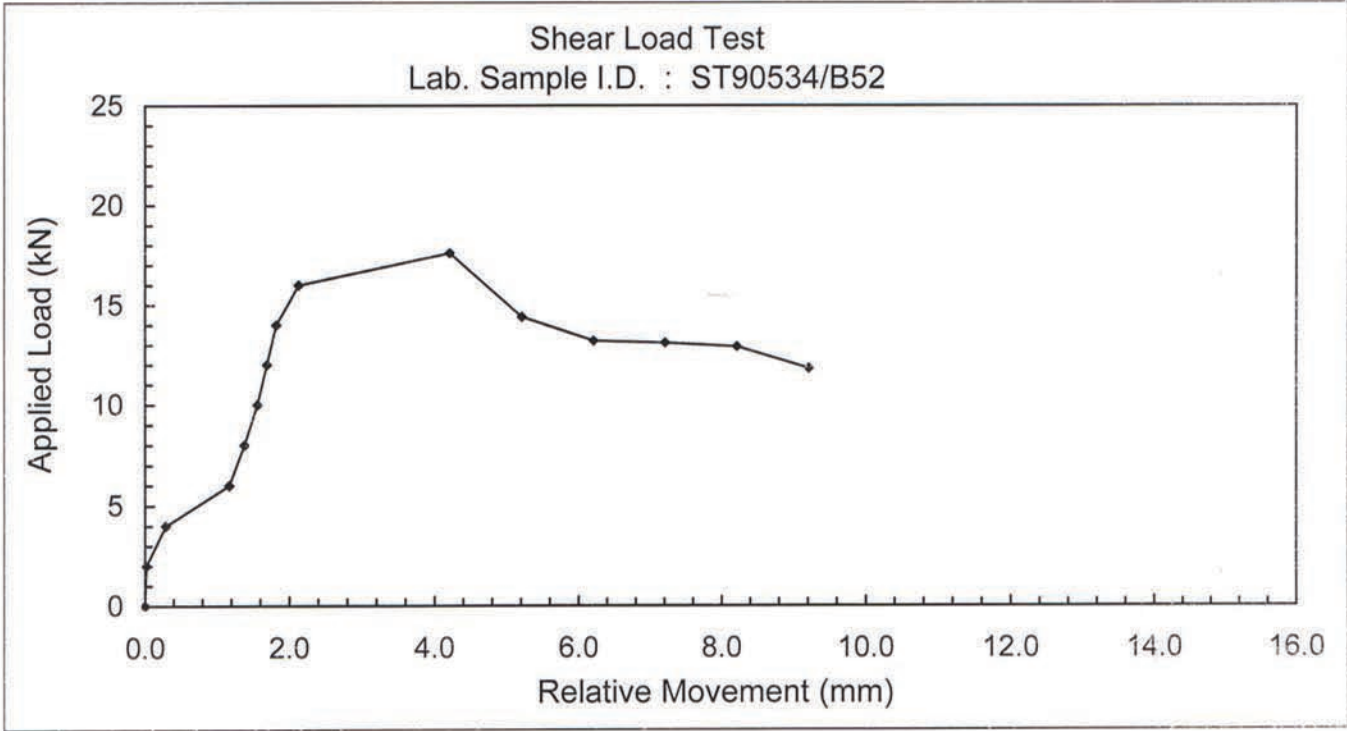


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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B52 Date Tested : 10 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	16.0	2.13
2.0	0.02	17.6	4.21
4.0	0.29	14.4	5.21
6.0	1.17	13.2	6.21
8.0	1.38	13.1	7.21
10.0	1.56	12.9	8.21
12.0	1.69	11.8	9.21
14.0	1.82		



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 17.6 kN.

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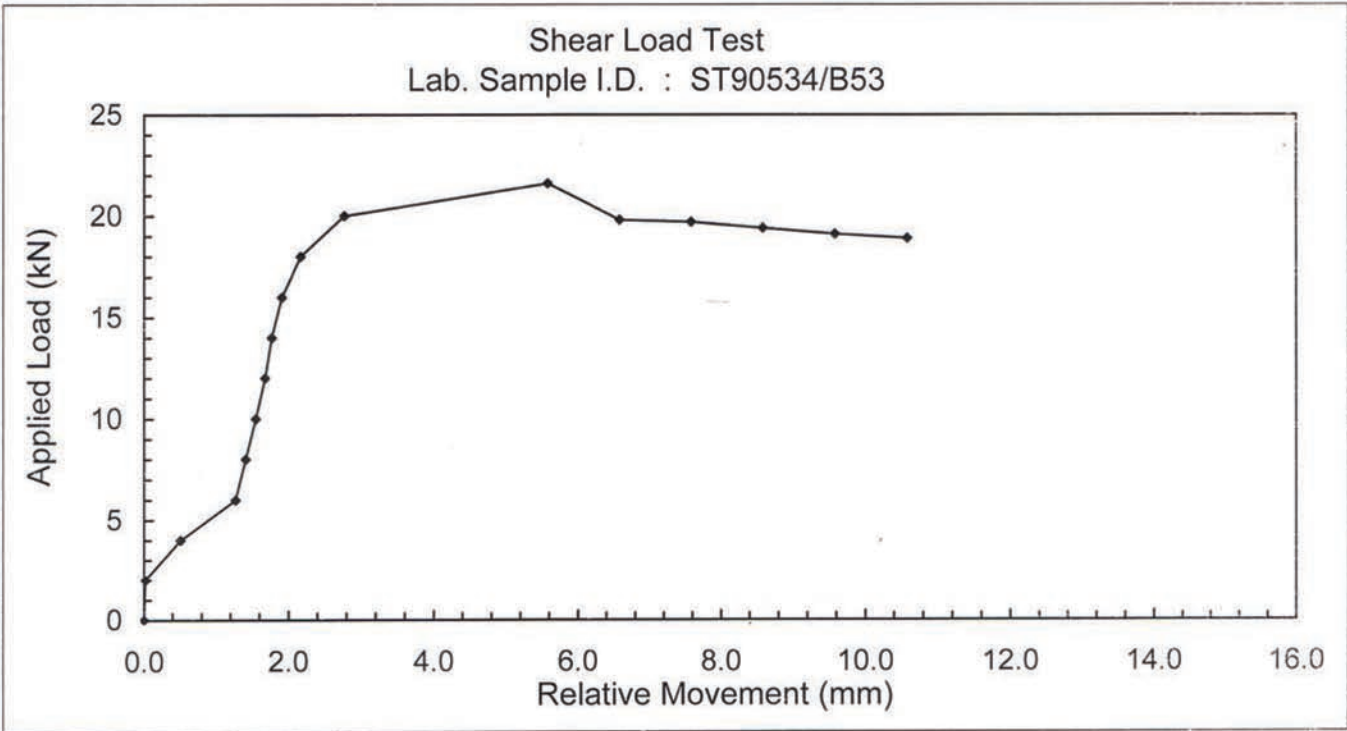


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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B53 Date Tested : 10 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	18.0	2.17
2.0	0.02	20.0	2.77
4.0	0.51	21.6	5.58
6.0	1.27	19.8	6.58
8.0	1.41	19.7	7.58
10.0	1.55	19.4	8.58
12.0	1.68	19.1	9.58
14.0	1.77	18.9	10.58
16.0	1.91		



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 21.6 kN.

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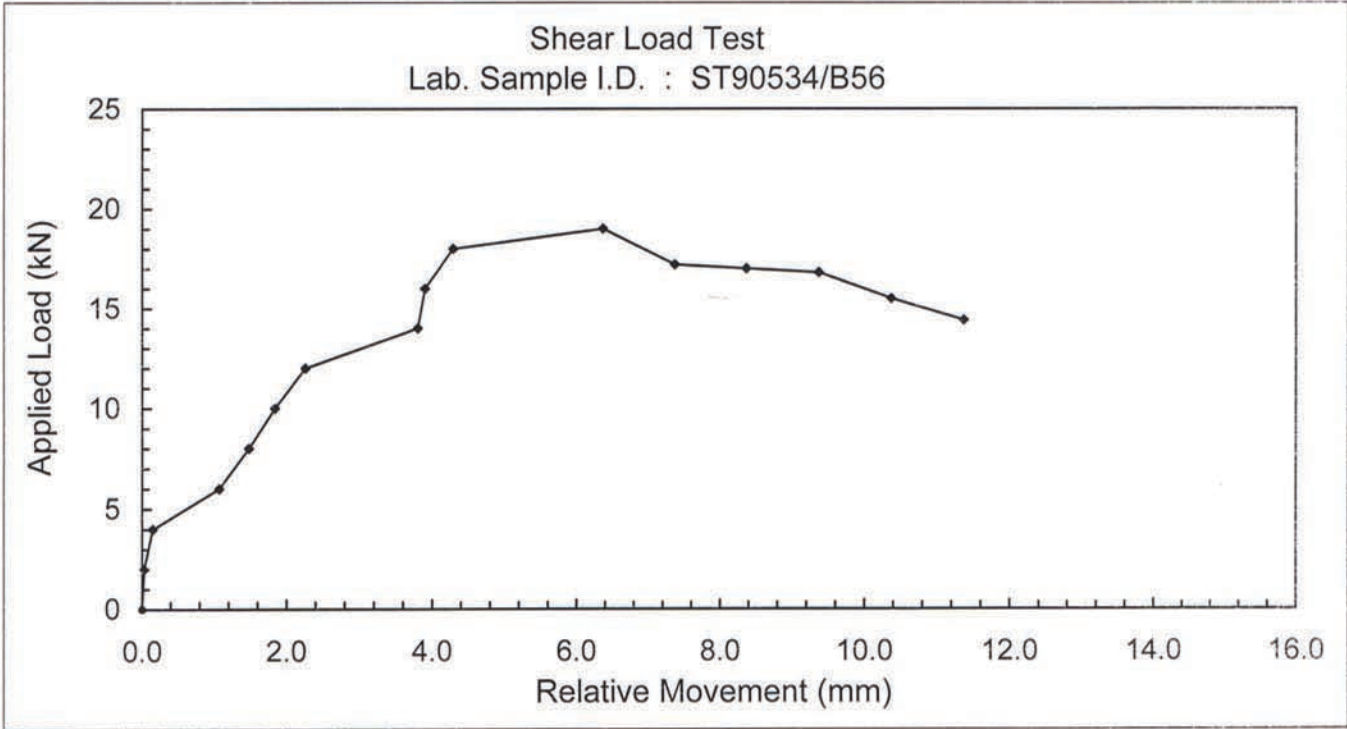
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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B56 Date Tested : 10 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	16.0	3.90
2.0	0.03	18.0	4.29
4.0	0.15	19.0	6.37
6.0	1.07	17.2	7.37
8.0	1.48	17.0	8.37
10.0	1.84	16.8	9.37
12.0	2.26	15.5	10.37
14.0	3.80	14.4	11.37



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 19.0 kN.

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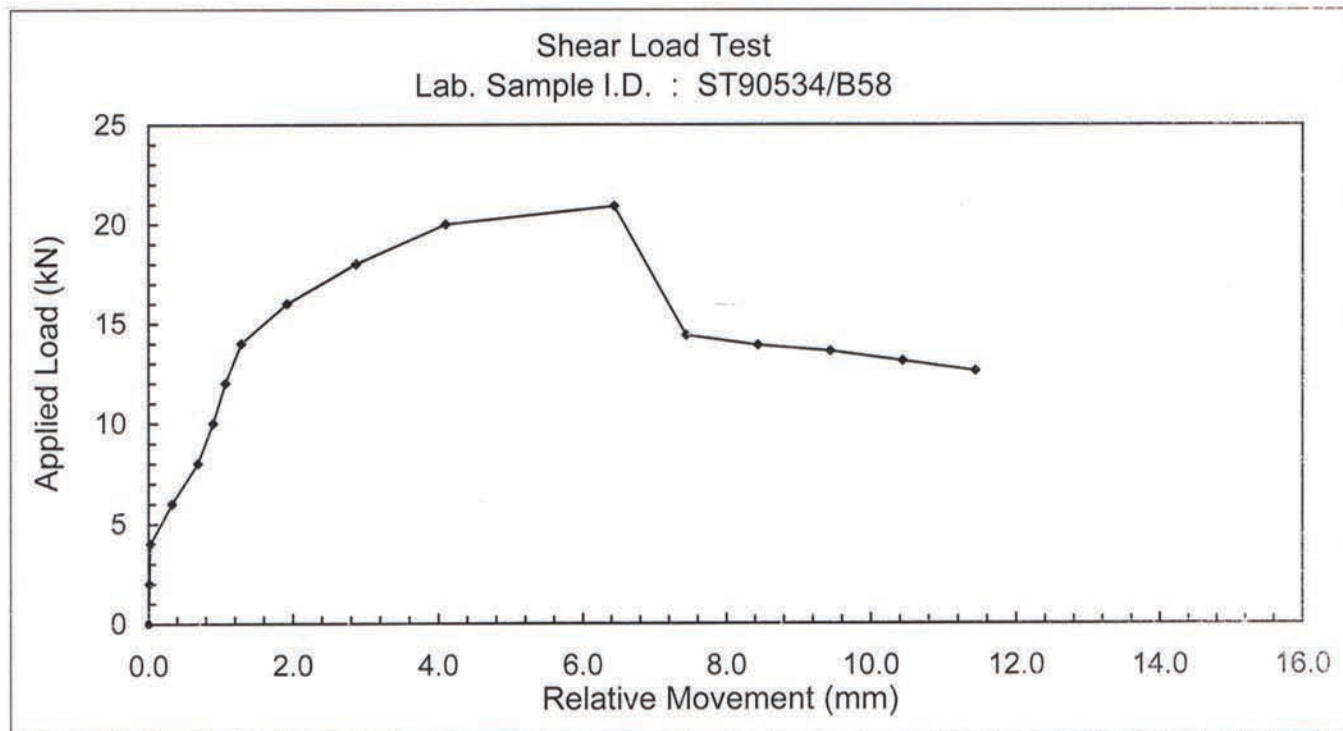
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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B58

Date Tested : 10 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	18.0	2.87
2.0	0.01	20.0	4.10
4.0	0.03	20.9	6.44
6.0	0.33	14.4	7.44
8.0	0.69	13.9	8.44
10.0	0.90	13.6	9.44
12.0	1.07	13.1	10.44
14.0	1.29	12.6	11.44
16.0	1.92		



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 20.9 kN.

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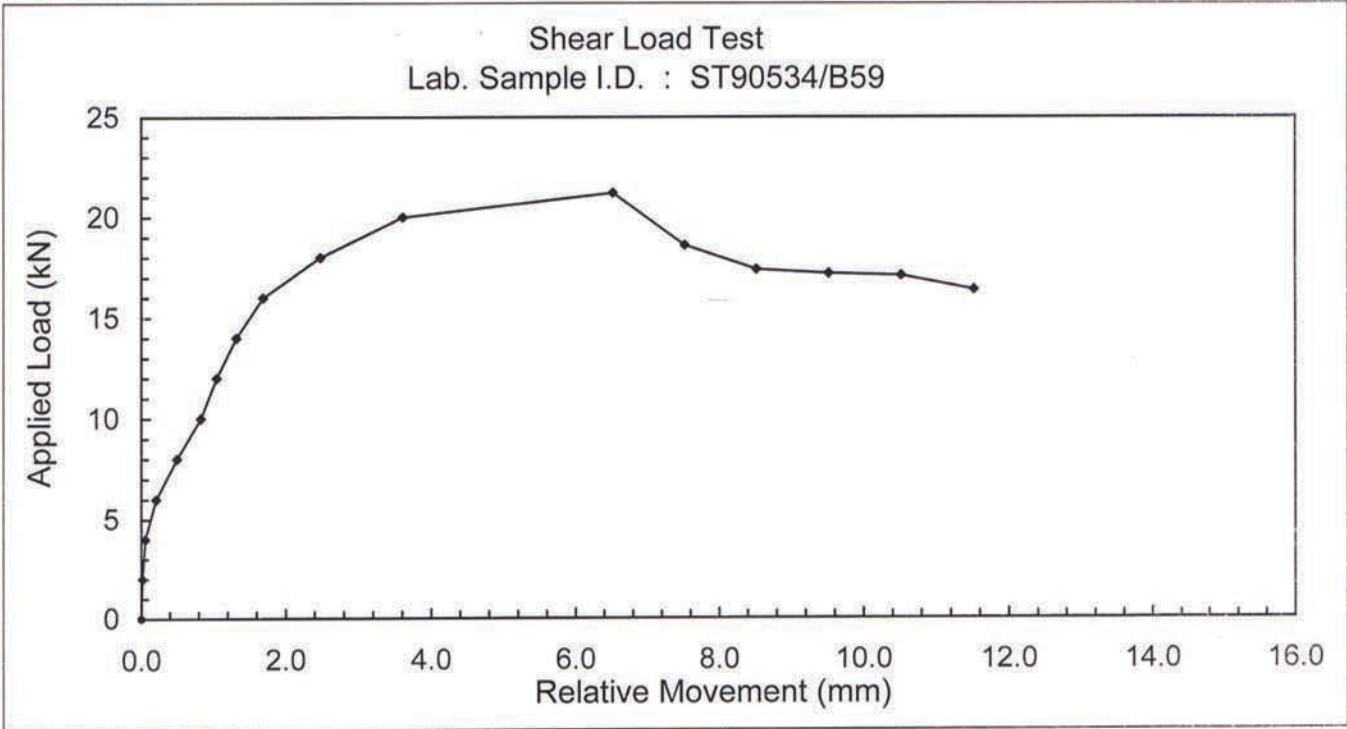


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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B59 Date Tested : 10 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	18.0	2.48
2.0	0.02	20.0	3.61
4.0	0.06	21.2	6.52
6.0	0.21	18.6	7.52
8.0	0.50	17.4	8.52
10.0	0.83	17.2	9.52
12.0	1.05	17.1	10.52
14.0	1.32	16.4	11.52
16.0	1.69		



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 21.2 kN.

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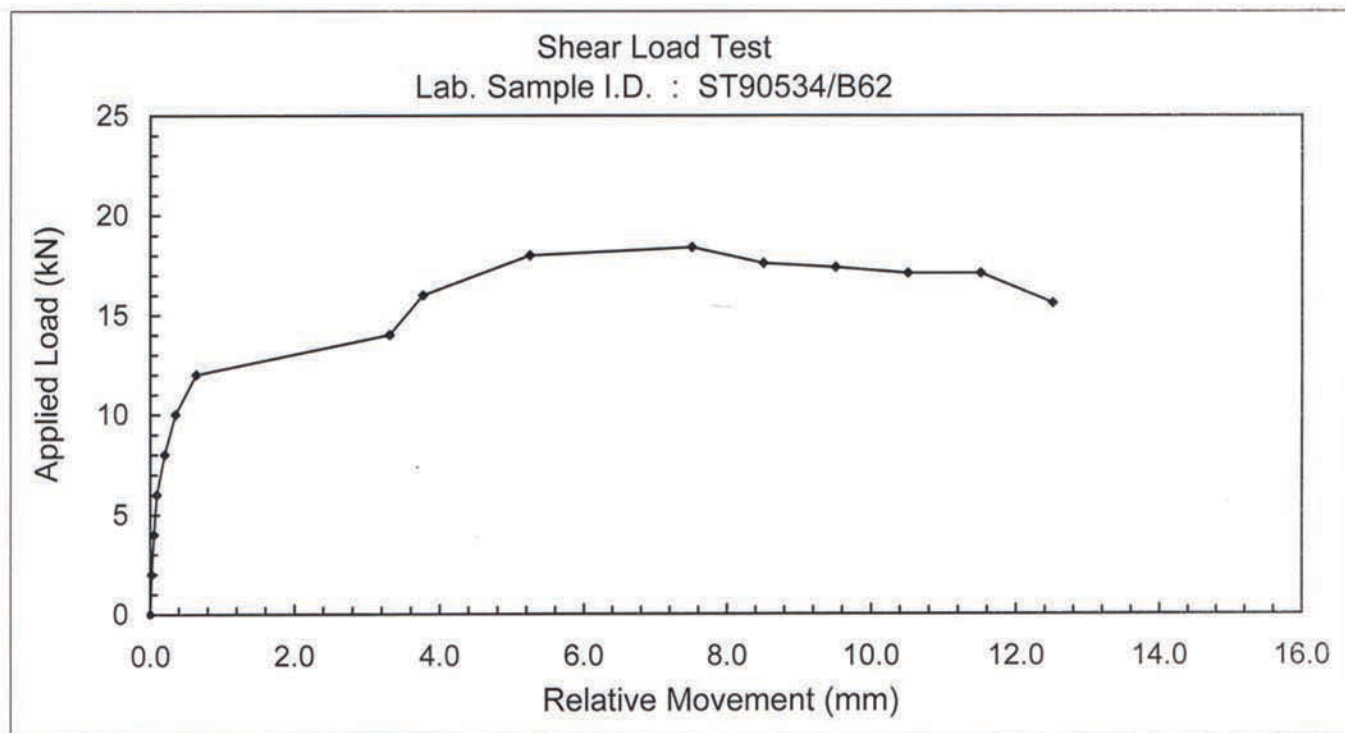
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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B62

Date Tested : 11 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	16.0	3.77
2.0	0.02	18.0	5.25
4.0	0.05	18.4	7.51
6.0	0.09	17.6	8.51
8.0	0.20	17.4	9.51
10.0	0.35	17.1	10.51
12.0	0.64	17.1	11.51
14.0	3.31	15.6	12.51



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 18.4 kN.

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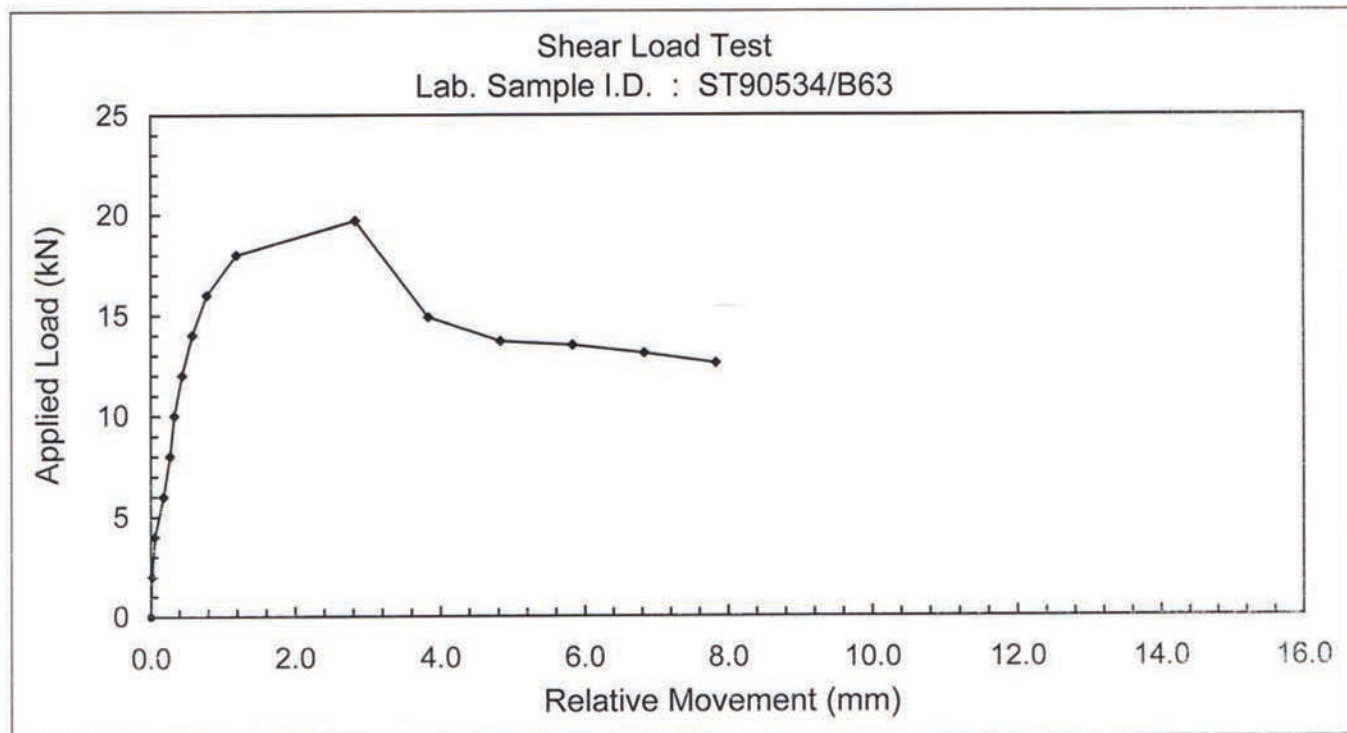
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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B63

Date Tested : 11 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	16.0	0.78
2.0	0.02	18.0	1.19
4.0	0.06	19.7	2.83
6.0	0.18	14.9	3.83
8.0	0.27	13.7	4.83
10.0	0.33	13.5	5.83
12.0	0.44	13.1	6.83
14.0	0.58	12.6	7.83



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 19.7 kN.

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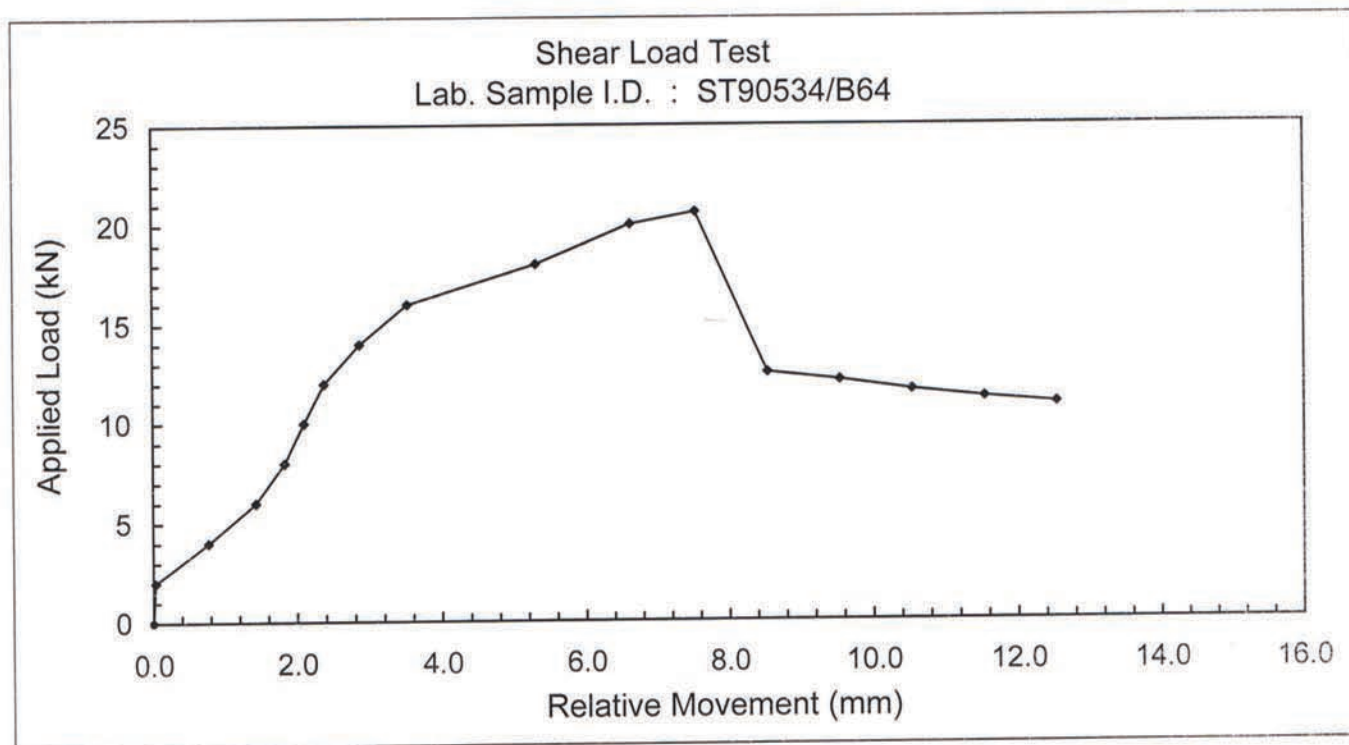
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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B64

Date Tested : 11 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	18.0	5.31
2.0	0.03	20.0	6.63
4.0	0.77	20.6	7.54
6.0	1.43	12.5	8.54
8.0	1.83	12.1	9.54
10.0	2.10	11.6	10.54
12.0	2.38	11.2	11.54
14.0	2.87	10.9	12.54
16.0	3.53		



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 20.6 kN.

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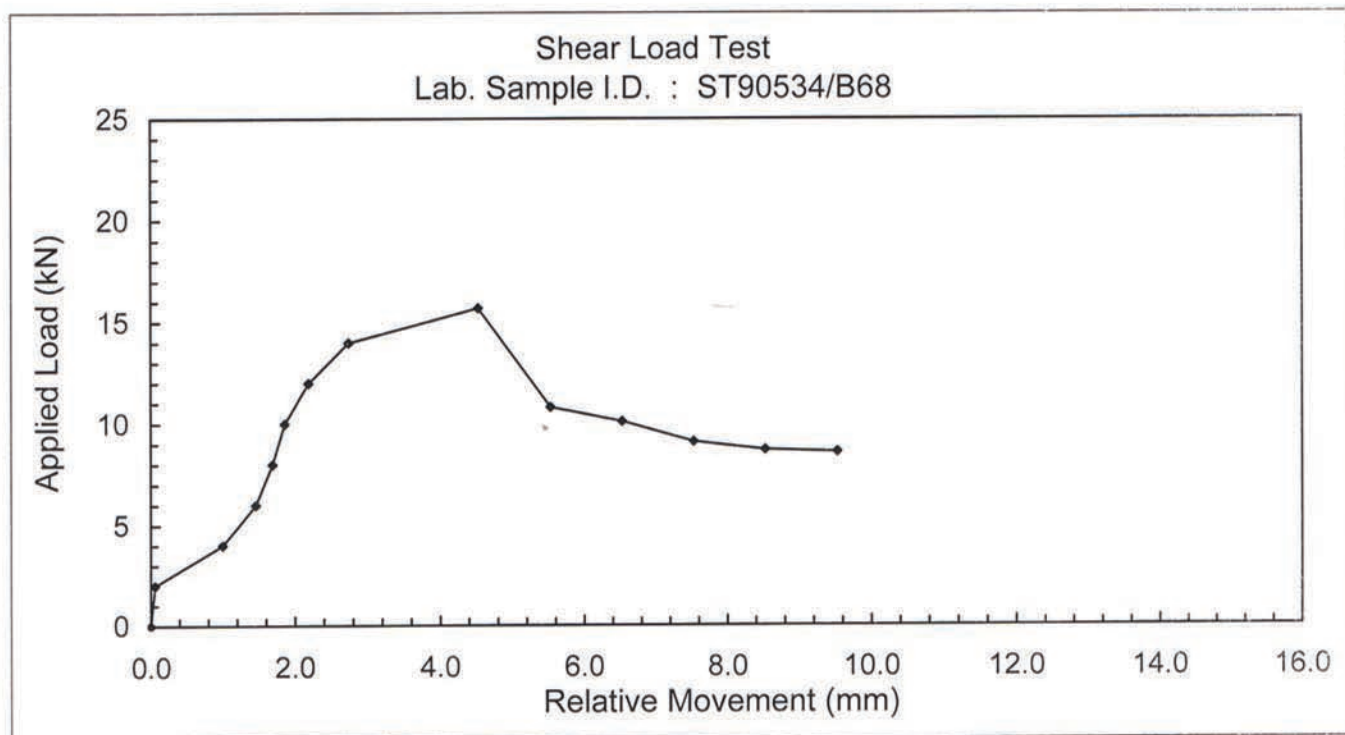
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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B68

Date Tested : 18 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	14.0	2.74
2.0	0.06	15.7	4.53
4.0	1.00	10.8	5.53
6.0	1.46	10.1	6.53
8.0	1.69	9.1	7.53
10.0	1.86	8.7	8.53
12.0	2.19	8.6	9.53



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 15.7 kN.

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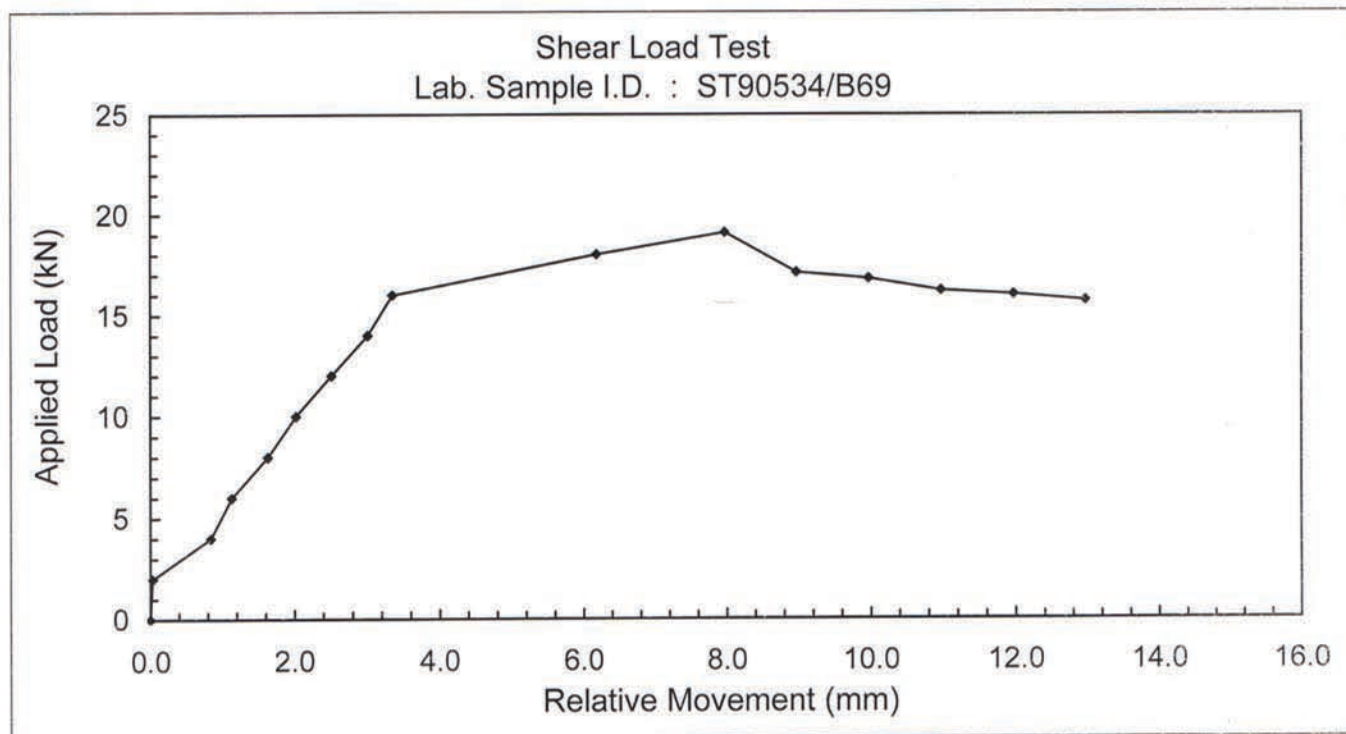
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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B69

Date Tested : 18 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	16.0	3.35
2.0	0.03	18.0	6.18
4.0	0.84	19.1	7.97
6.0	1.13	17.1	8.97
8.0	1.63	16.8	9.97
10.0	2.02	16.2	10.97
12.0	2.51	16.0	11.97
14.0	3.01	15.7	12.97



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 19.1 kN.

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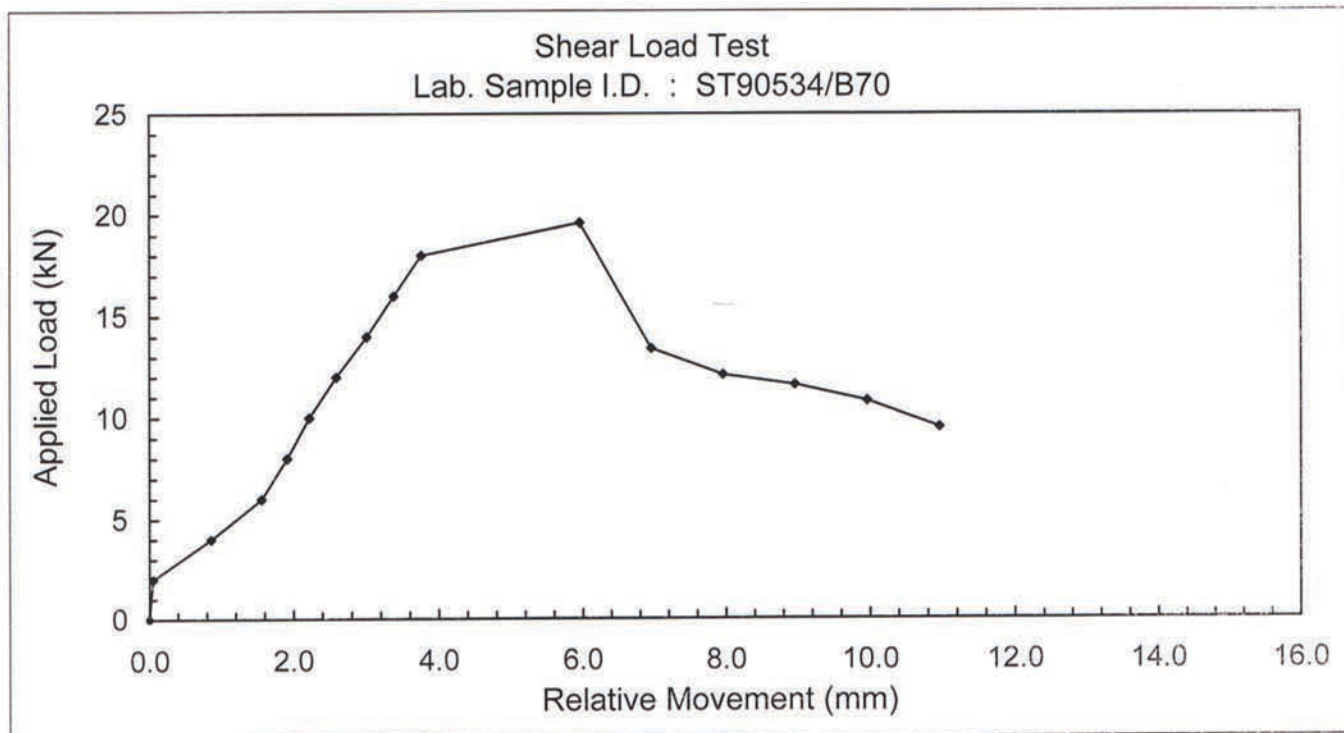
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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B70

Date Tested : 18 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	16.0	3.38
2.0	0.05	18.0	3.76
4.0	0.86	19.6	5.96
6.0	1.56	13.4	6.96
8.0	1.91	12.1	7.96
10.0	2.22	11.6	8.96
12.0	2.59	10.8	9.96
14.0	3.01	9.5	10.96



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 19.6 kN.

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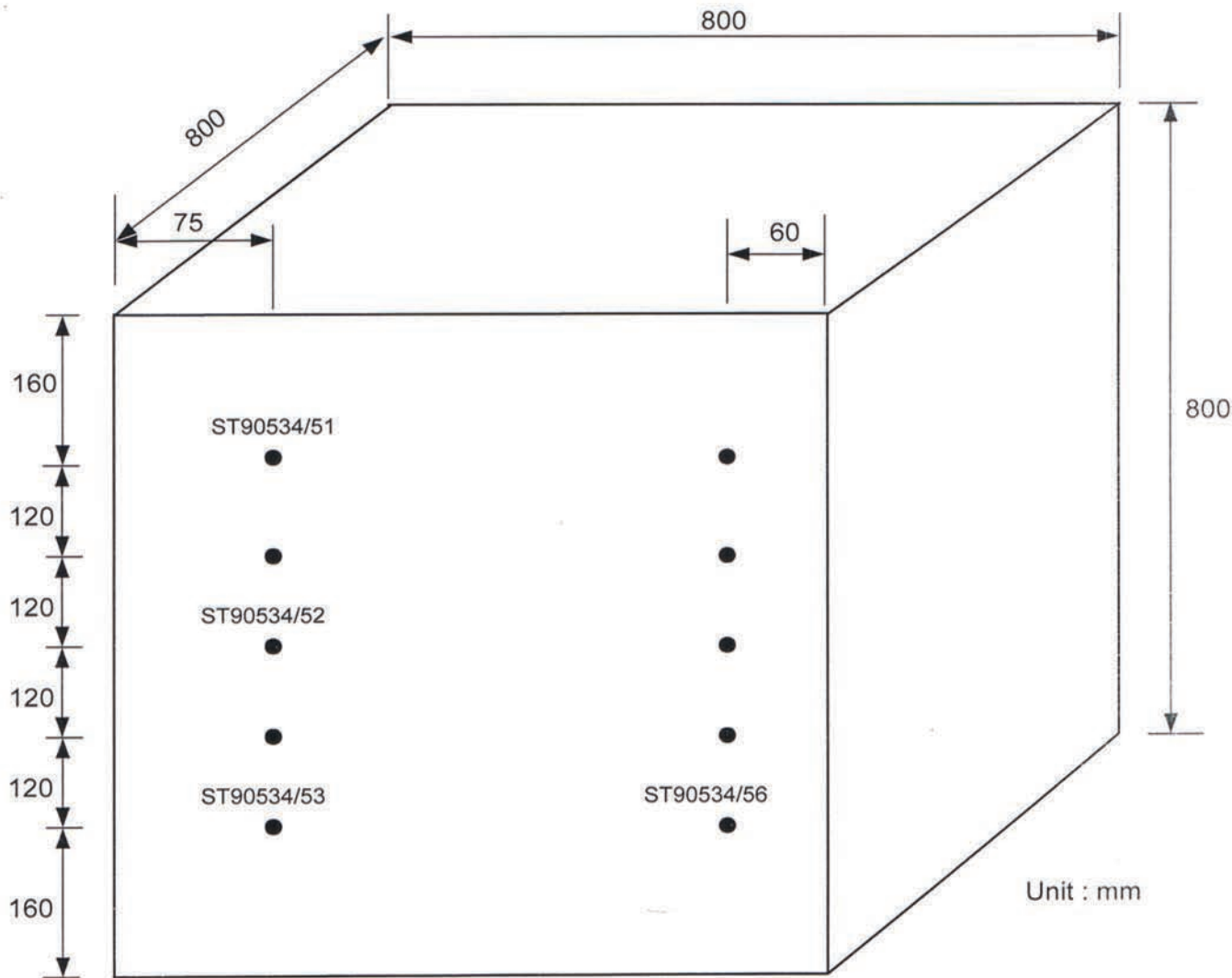
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4.0 Diagram



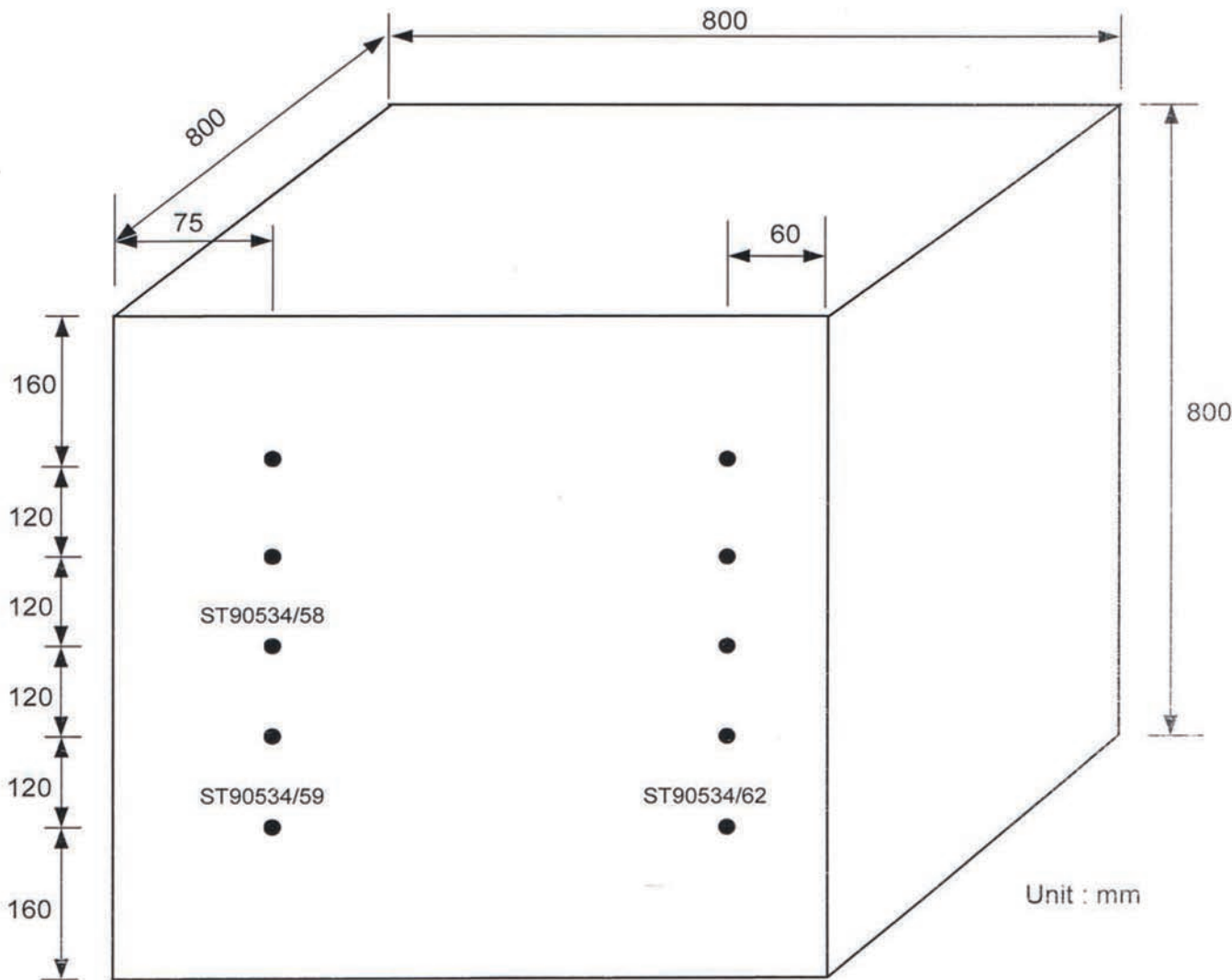
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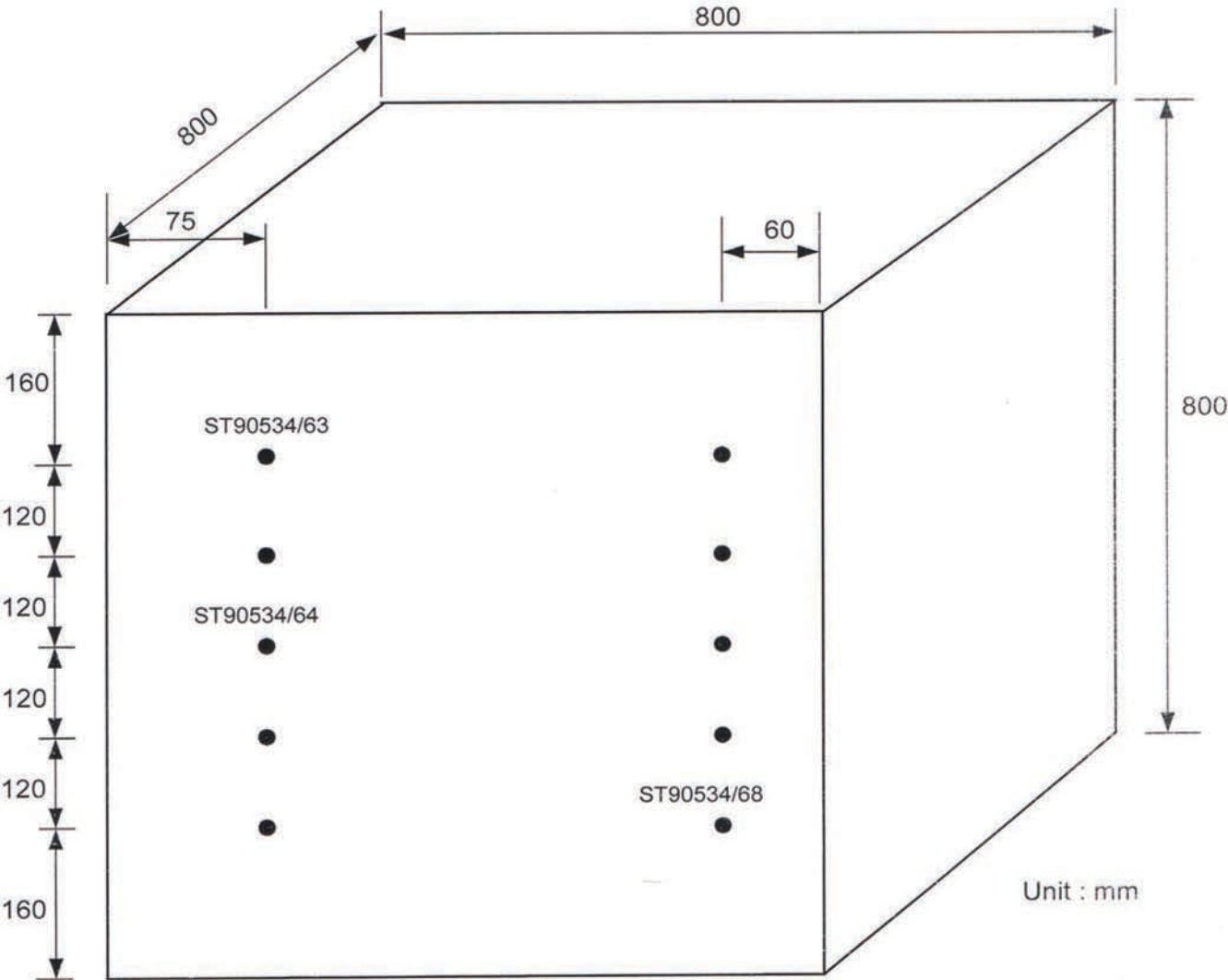
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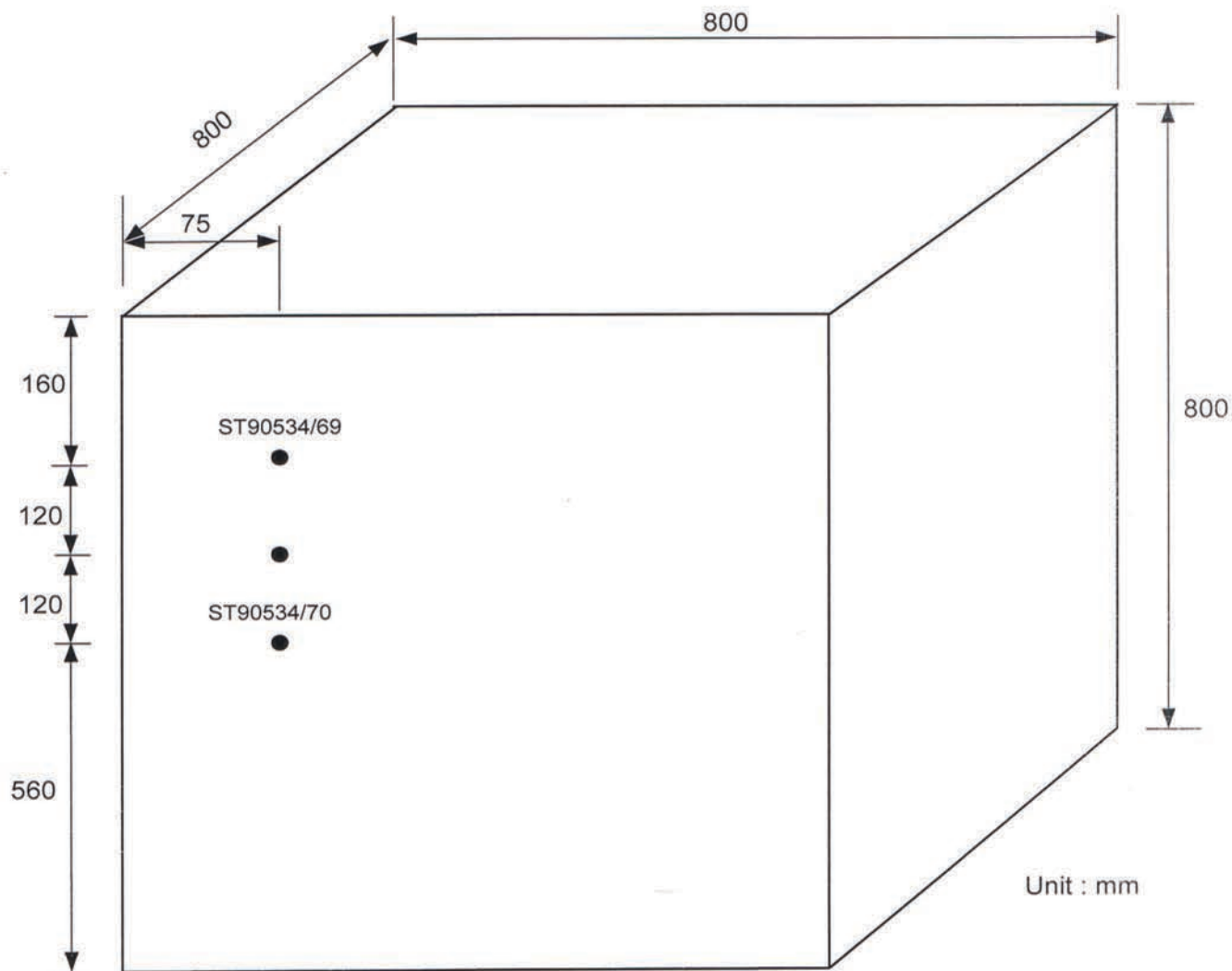
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5.0 Record Photographs



Test Configuration
Sample I.D. : ST90534/B51-B70



After Test
Sample I.D. : ST90534/B51

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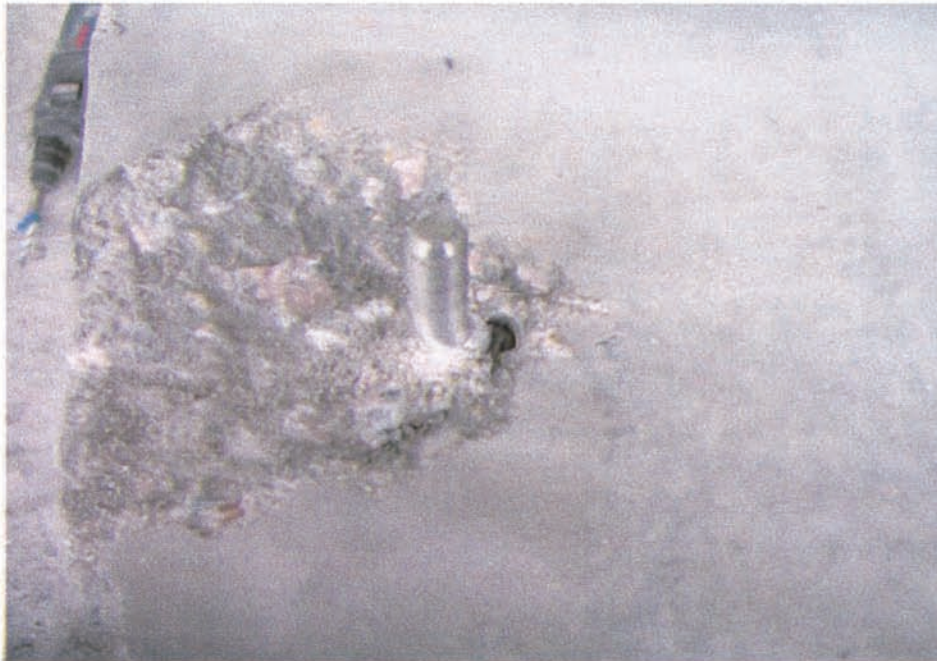
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After Test
Sample I.D. : ST90534/B52



After Test
Sample I.D. : ST90534/B53

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After Test
Sample I.D. : ST90534/B56



After Test
Sample I.D. : ST90534/B58

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After Test
Sample I.D. : ST90534/B59



After Test
Sample I.D. : ST90534/B62

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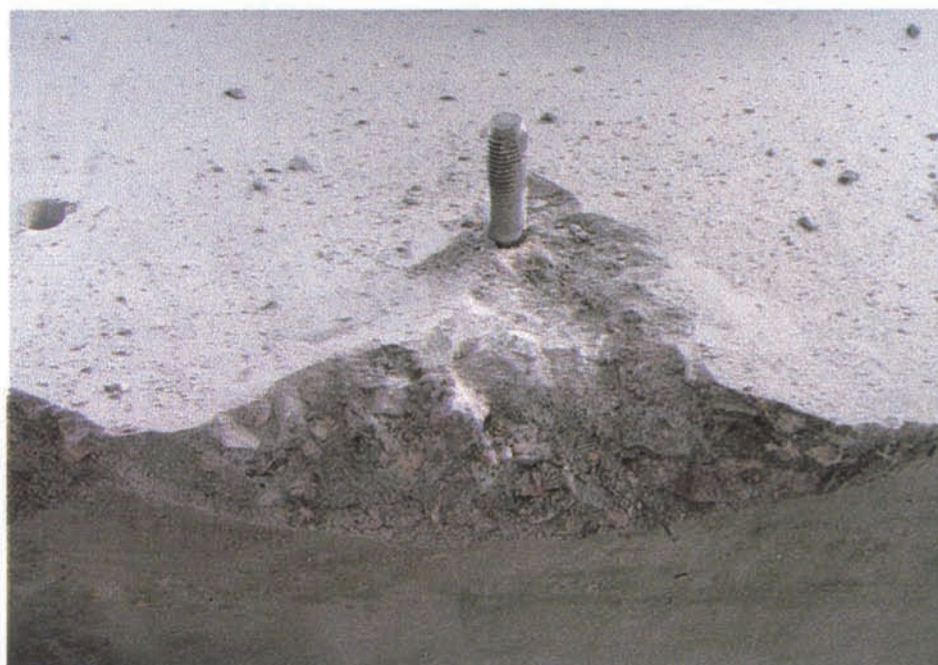
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After Test
Sample I.D. : ST90534/B63



After Test
Sample I.D. : ST90534/B64

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Report No. : 092660ST90534(1)



After Test
Sample I.D. : ST90534/B68



After Test
Sample I.D. : ST90534/B69

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Report No. : 092660ST90534(1)



After Test
Sample I.D. : ST90534/B70

REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Client : Sunway Metal Manufactory Limited

Project : Testing of Anchor Bolt SW-E10

Client Ref. : --

Report No. : 092660ST90534(3)

Date : 26 April 2010

CONTENTS

- 1.0 Sample Description
- 2.0 Summary of Test Results
- 3.0 Individual Results
- 4.0 Diagram
- 5.0 Record Photographs

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Report No. : 092660ST90534(3)

REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

1.0 Sample Description

1.1 Information Supplied by Client

Client : Sunway Metal Manufactory Limited
Project : Testing of Anchor Bolt SW-E10
Sample Description : SW-E10 Anchor Bolt
Client's Sample I.D. : --

For Expanding Anchor

Type of Drilled Employed : Rotary-Percussive
Location of the Fixings in the Base Specimen : (Please refer to the diagrams)
Embedded Length : 50 mm Minimum requirement of BS 5080
Predrilled Hole Diameter : 10 mm for distance of fixing from the edge : 150 mm
Bolt Diameter : 10 mm Minimum requirement of BS 5080
Hole Depth : 60 mm anchor spacing of fixing : 200 mm
Tightening Torque : 35 Nm Concrete Grade : 40 MPa

For Concrete

Mix Proportions : Not Provided
Location of Reinforcement : NIL
Type of reinforcement : NIL
Cast Unit Shape : Cube
Dimensions of Cast Unit : 800 x 800 x 800 mm
Date Cast : 19 October 2010

1.2 Laboratory Information

Location of Test : Kam Tin Laboratory of MaterialLab
Address of Test Location : DD111, Lot 3028, Wang Toi Shan Village, Pat Heung, Kam Tin, N.T.
Lab. Sample I.D. : ST90534/B71 to B90
Date Received : 25 August 2009
Date Test Started : 19 February 2010
Date Test Completed : 21 February 2010
Span of Support : 300 mm
Test Method : BS 5080 : Part 2 : 1986
Loading Method : Increment Increasing

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Client Ref. : --
Report No. : 092660ST90534(3)

REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT**2.0 Summary of Test Results**

Lab. Sample I.D.	Ultimate Force (kN)
ST90333/B71	21.5
ST90333/B72	18.2
ST90333/B73	19.6
ST90333/B77	17.7
ST90333/B78	17.2
ST90333/B81	22.4
ST90333/B83	22.1
ST90333/B84	16.4
ST90333/B85	17.2
ST90333/B87	22.8
ST90333/B88	22.8
ST90333/B89	16.5
Mean	19.5
Standard Deviation	2.6

Remark : The test results relate only to the samples tested.

Checked by :



Date :

26/4/2010

Certified by :



Date : 26.4.2010

Chan Chun Wai Ivan
Manager (Product Testing Laboratory)

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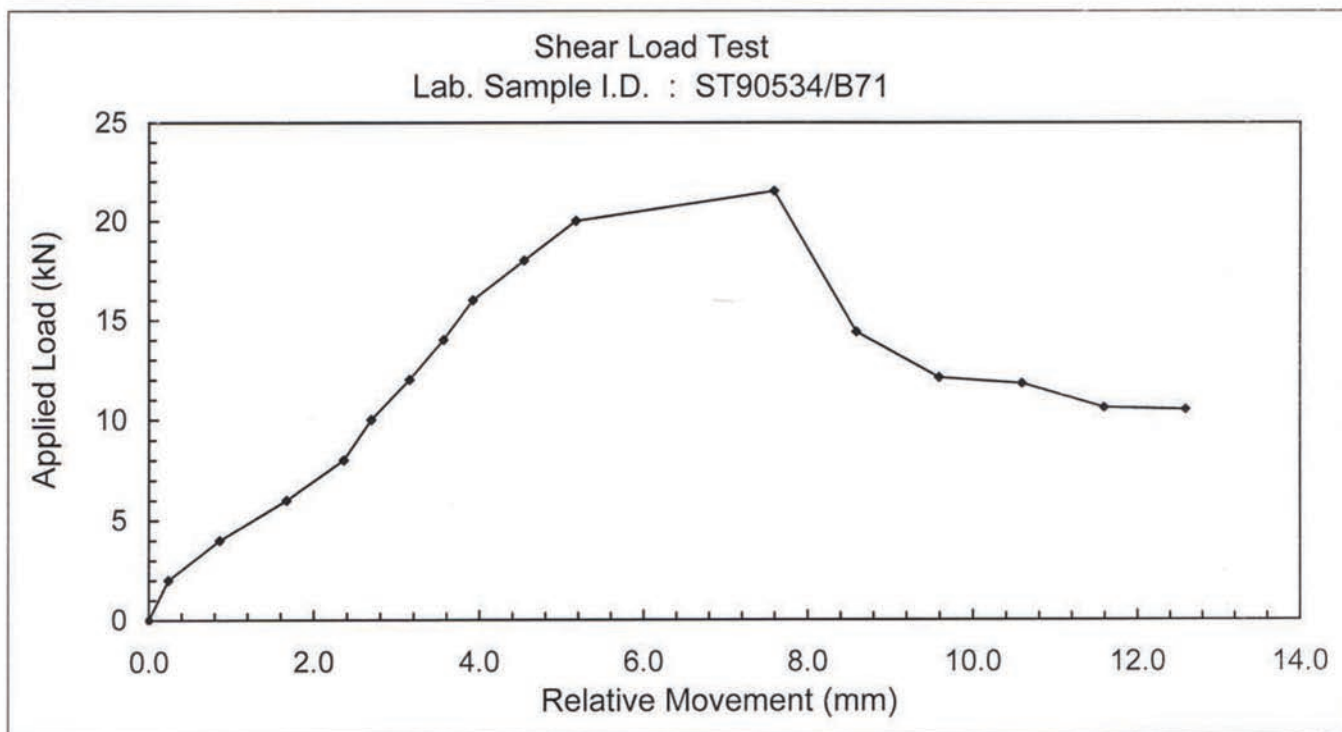
REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

3.0 Test Results

Lab. Sample I.D. : ST90534/B71

Date Tested : 19 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	18.0	4.54
2.0	0.24	20.0	5.17
4.0	0.86	21.5	7.59
6.0	1.67	14.4	8.59
8.0	2.36	12.1	9.59
10.0	2.69	11.8	10.59
12.0	3.15	10.6	11.59
14.0	3.56	10.5	12.59
16.0	3.92		



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 21.5 kN.

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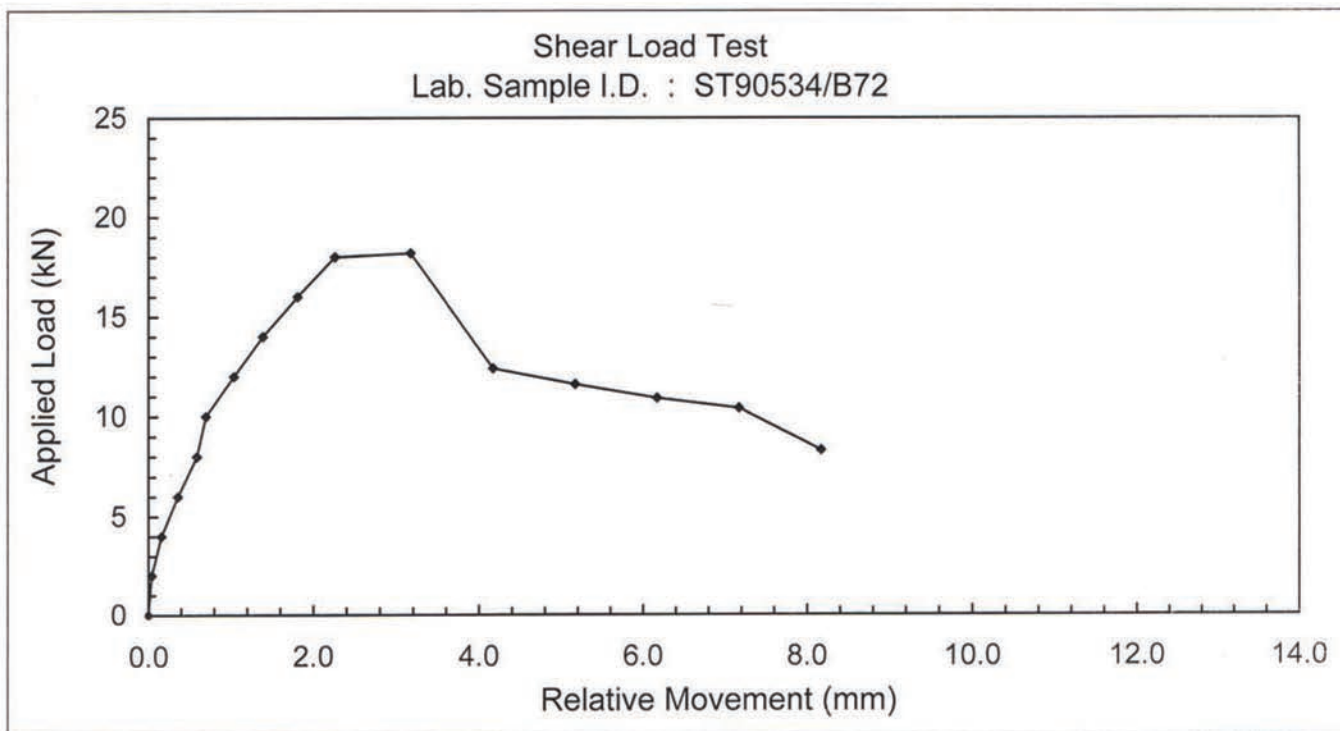
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Report No. : 092660ST90534(3)

REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B72

Date Tested : 19 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	16.0	1.81
2.0	0.04	18.0	2.26
4.0	0.16	18.2	3.17
6.0	0.36	12.4	4.17
8.0	0.59	11.6	5.17
10.0	0.70	10.9	6.17
12.0	1.04	10.4	7.17
14.0	1.39	8.3	8.17



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 18.2 kN.

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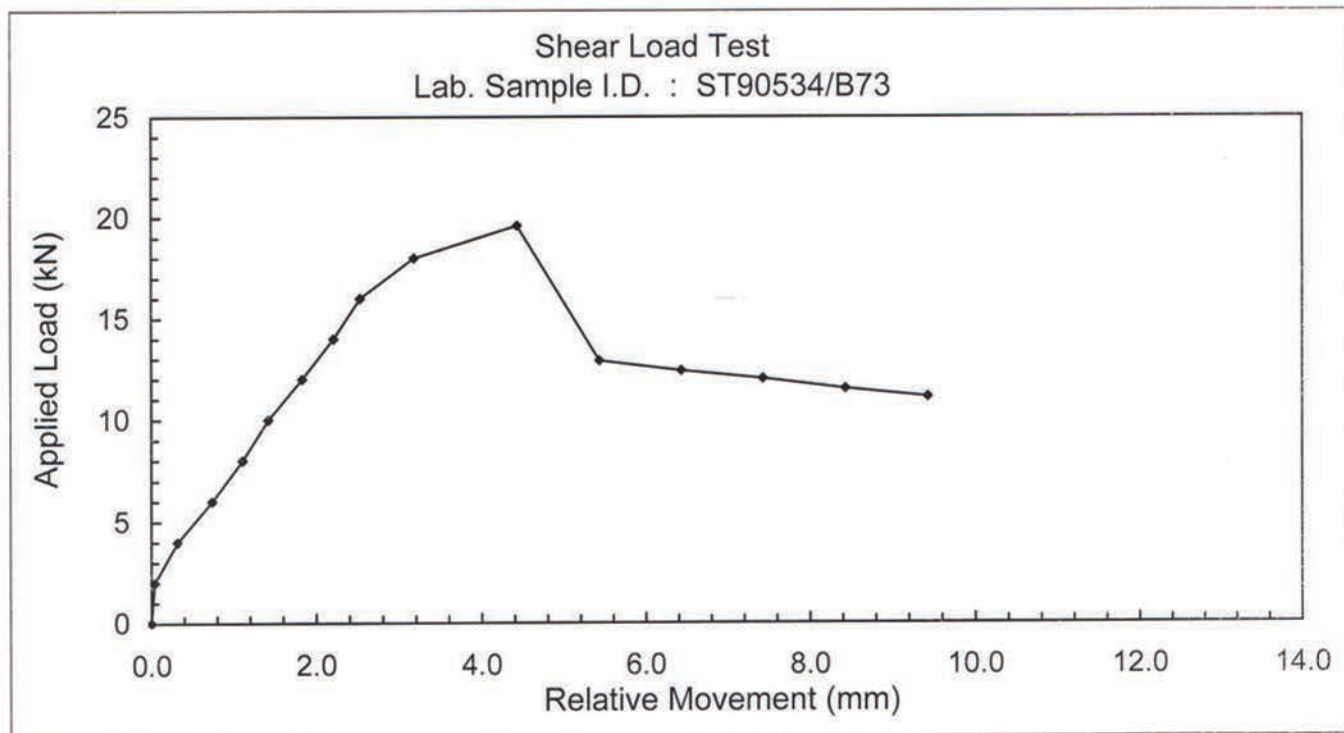
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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B73

Date Tested : 19 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	16.0	2.53
2.0	0.04	18.0	3.18
4.0	0.32	19.6	4.43
6.0	0.74	12.9	5.43
8.0	1.11	12.4	6.43
10.0	1.42	12.0	7.43
12.0	1.83	11.5	8.43
14.0	2.21	11.1	9.43



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 19.6 kN.

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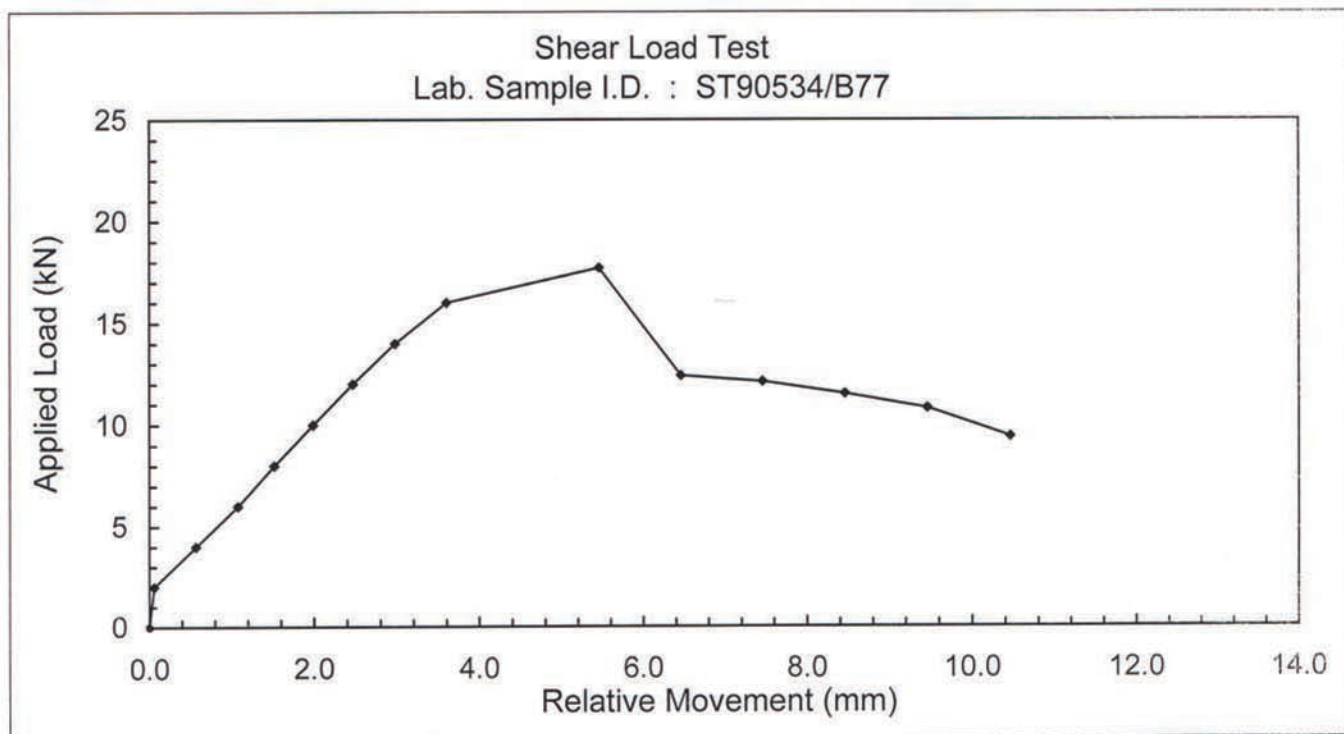
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Report No. : 092660ST90534(3)

REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B77

Date Tested : 19 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	16.0	3.60
2.0	0.06	17.7	5.46
4.0	0.57	12.4	6.46
6.0	1.08	12.1	7.46
8.0	1.52	11.5	8.46
10.0	1.99	10.8	9.46
12.0	2.47	9.4	10.46
14.0	2.98		



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 17.7 kN.

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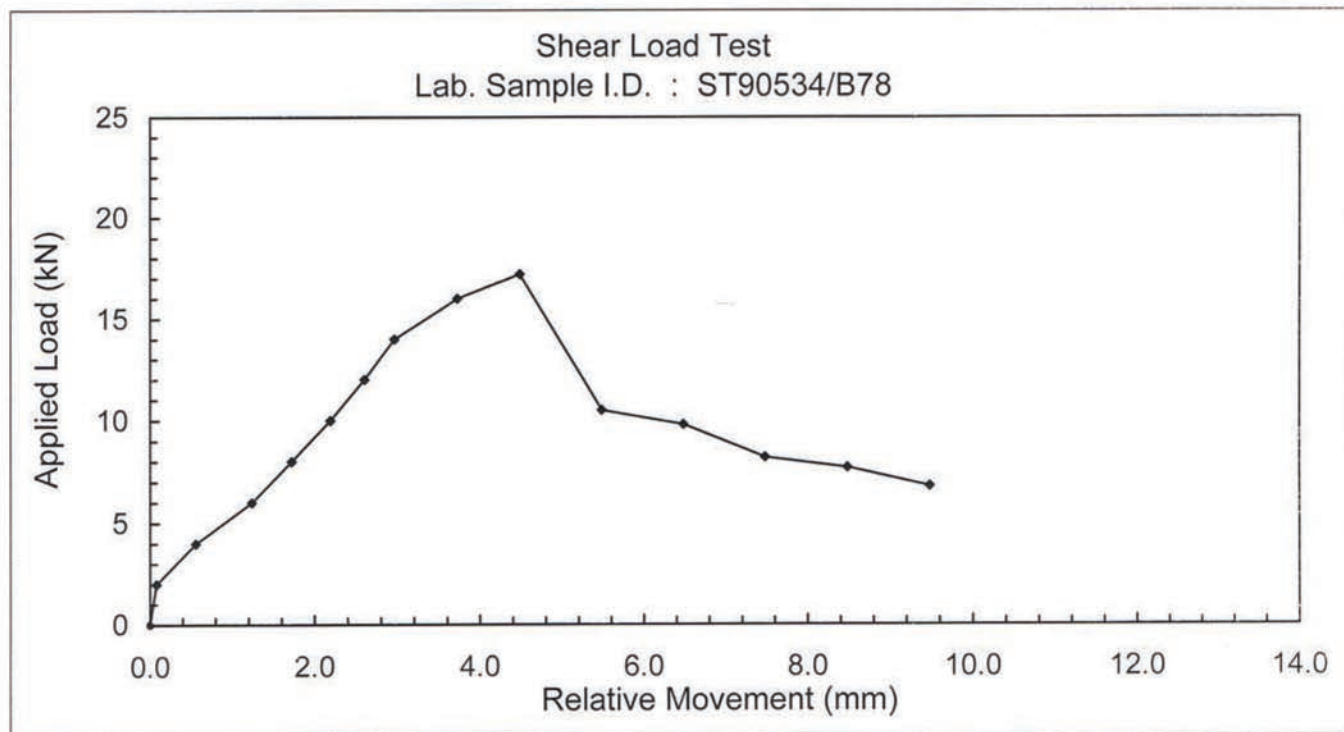
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Report No. : 092660ST90534(3)

REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B78

Date Tested : 19 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	16.0	3.72
2.0	0.08	17.2	4.48
4.0	0.56	10.5	5.48
6.0	1.24	9.8	6.48
8.0	1.72	8.2	7.48
10.0	2.19	7.7	8.48
12.0	2.60	6.8	9.48
14.0	2.96		



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 17.2 kN.

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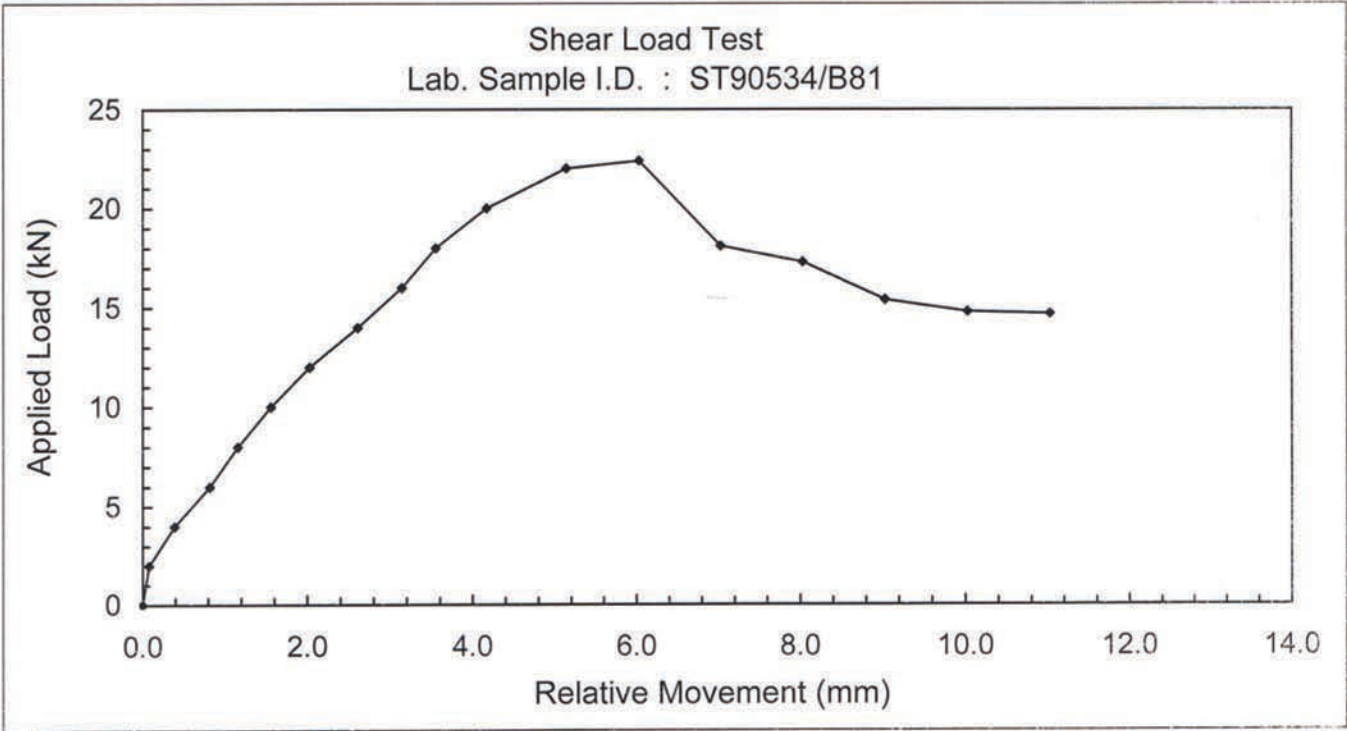


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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B81 Date Tested : 20 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	18.0	3.55
2.0	0.08	20.0	4.17
4.0	0.39	22.0	5.14
6.0	0.82	22.4	6.03
8.0	1.16	18.1	7.03
10.0	1.56	17.3	8.03
12.0	2.03	15.4	9.03
14.0	2.61	14.8	10.03
16.0	3.14	14.7	11.03



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 22.4 kN.

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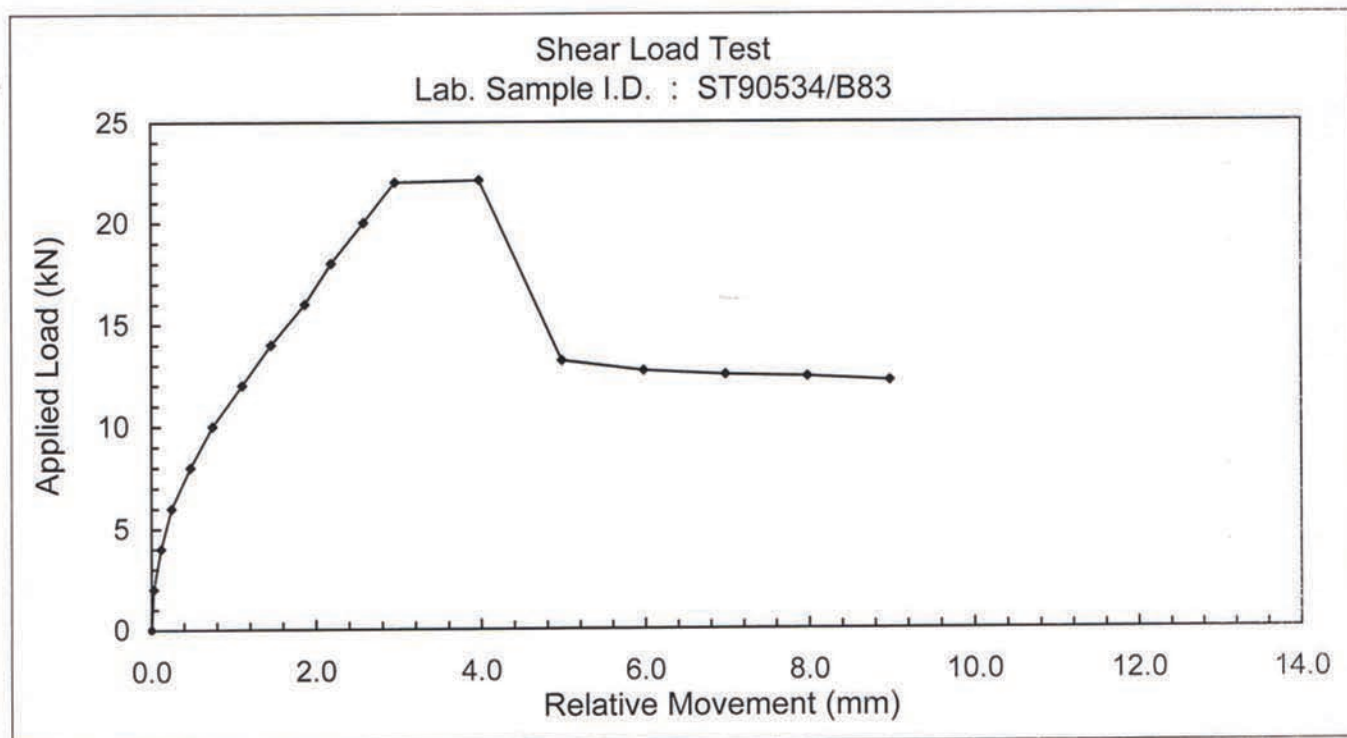
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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B83

Date Tested : 20 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	18.0	2.19
2.0	0.03	20.0	2.58
4.0	0.12	22.0	2.96
6.0	0.25	22.1	3.98
8.0	0.48	13.2	4.98
10.0	0.75	12.7	5.98
12.0	1.11	12.5	6.98
14.0	1.46	12.4	7.98
16.0	1.87	12.2	8.98



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 22.1 kN.

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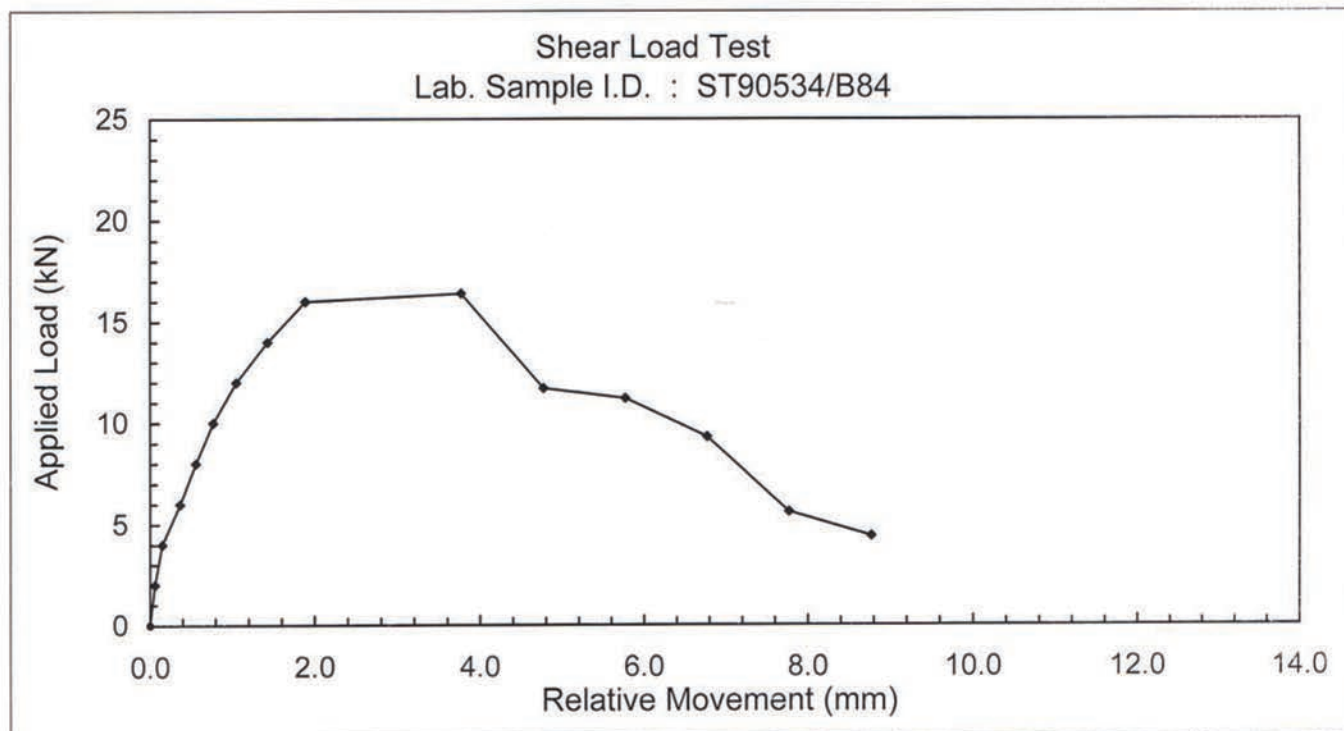
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REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B84

Date Tested : 20 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	16.0	1.89
2.0	0.06	16.4	3.77
4.0	0.15	11.7	4.77
6.0	0.37	11.2	5.77
8.0	0.56	9.3	6.77
10.0	0.77	5.6	7.77
12.0	1.05	4.4	8.77
14.0	1.43		



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 16.4 kN.

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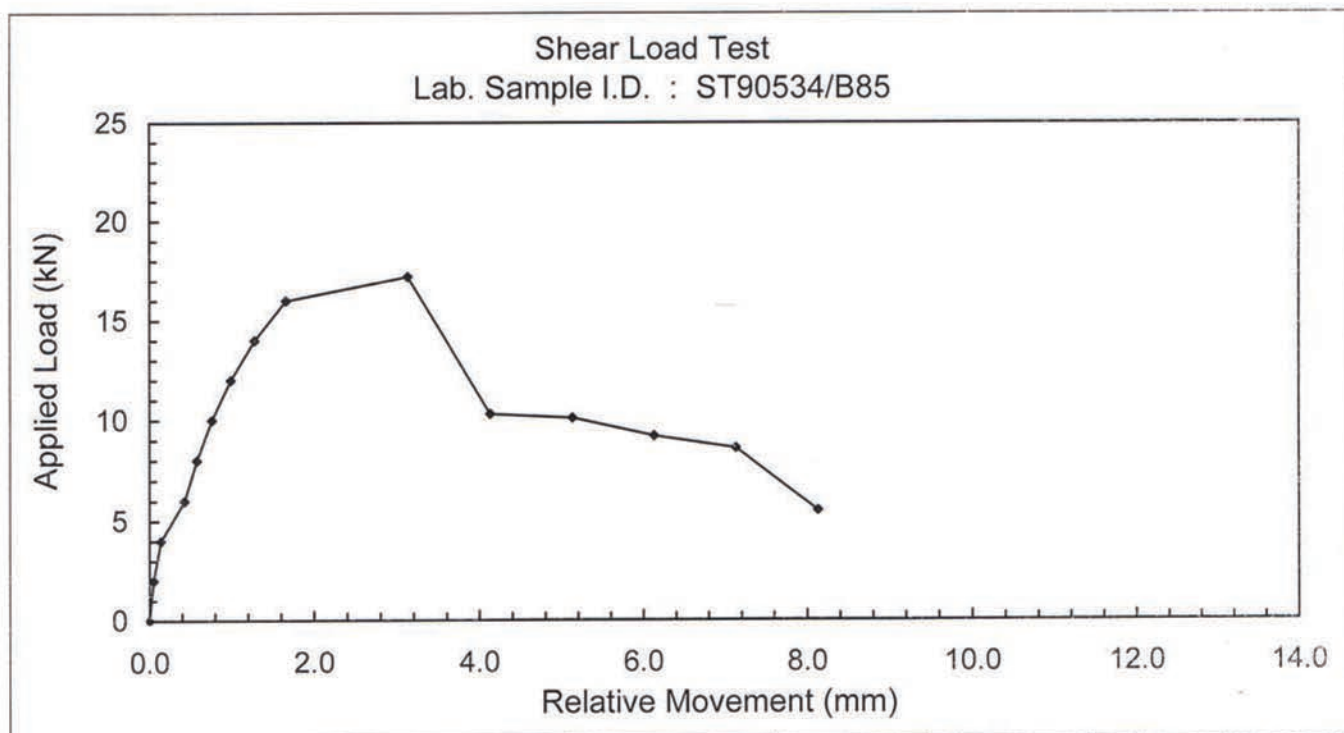
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Report No. : 092660ST90534(3)

REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B85

Date Tested : 20 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	16.0	1.66
2.0	0.05	17.2	3.13
4.0	0.14	10.3	4.13
6.0	0.43	10.1	5.13
8.0	0.58	9.2	6.13
10.0	0.76	8.6	7.13
12.0	0.99	5.5	8.13
14.0	1.28		



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 17.2 kN.

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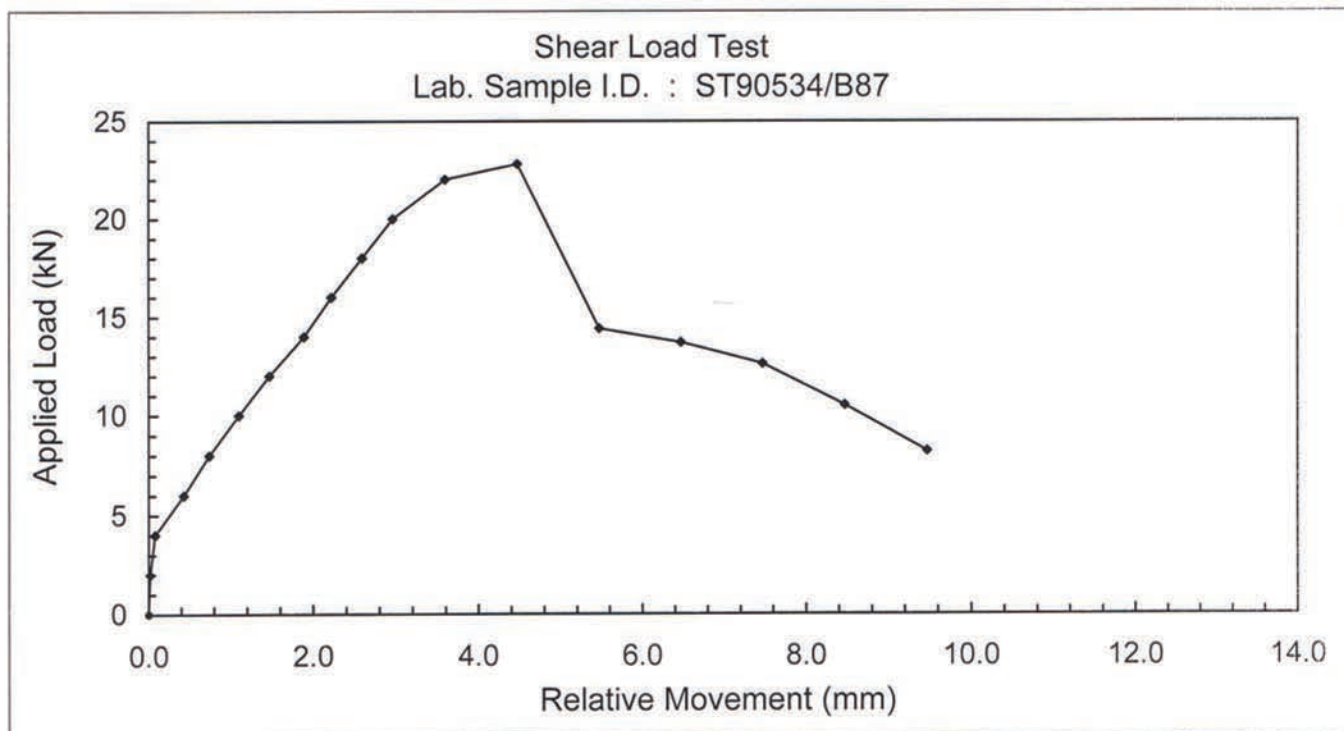
Client Ref. : --
Report No. : 092660ST90534(3)

REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B87

Date Tested : 21 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	18.0	2.59
2.0	0.02	20.0	2.96
4.0	0.08	22.0	3.59
6.0	0.43	22.8	4.47
8.0	0.74	14.4	5.47
10.0	1.10	13.7	6.47
12.0	1.47	12.6	7.47
14.0	1.89	10.5	8.47
16.0	2.22	8.2	9.47



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 22.8 kN.

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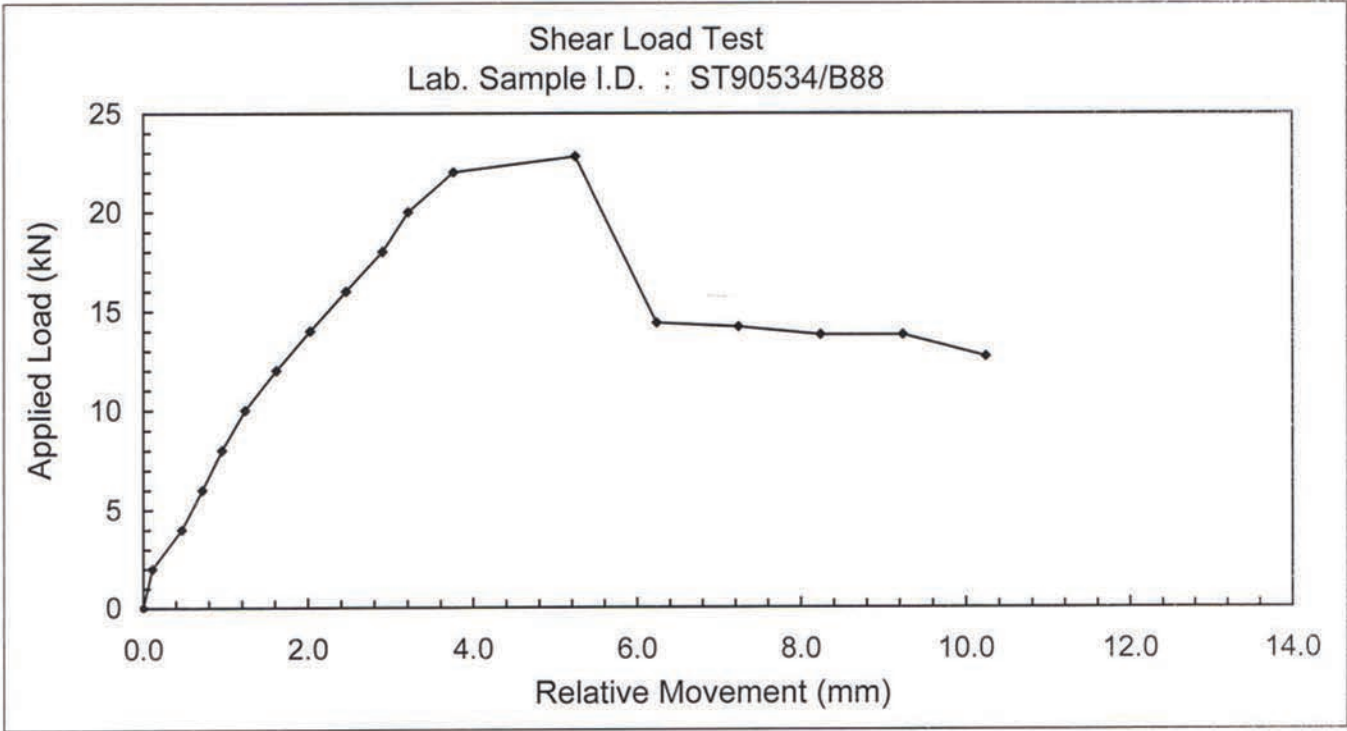


Client Ref. : --
Report No. : 092660ST90534(3)

REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B88 Date Tested : 21 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	18.0	2.90
2.0	0.11	20.0	3.21
4.0	0.47	22.0	3.76
6.0	0.72	22.8	5.24
8.0	0.96	14.4	6.24
10.0	1.24	14.2	7.24
12.0	1.62	13.8	8.24
14.0	2.03	13.8	9.24
16.0	2.46	12.7	10.24



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 22.8 kN.

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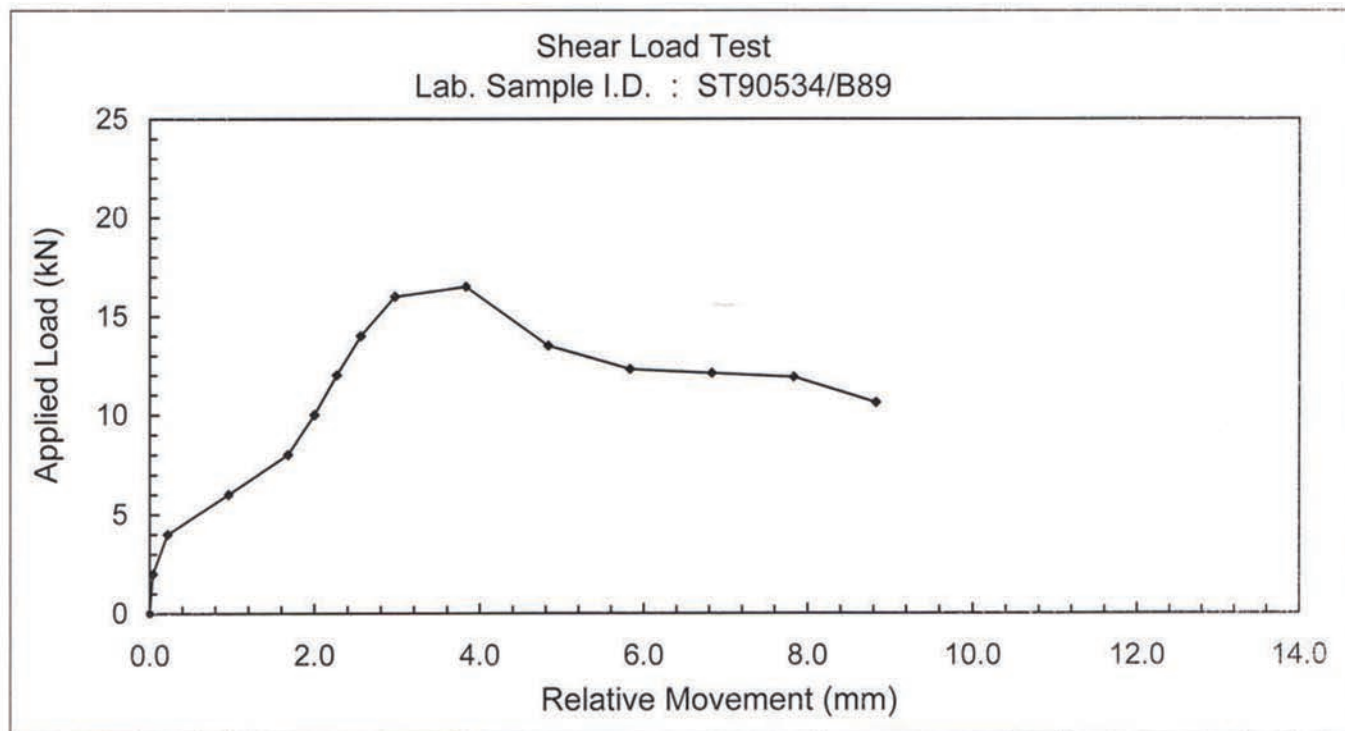
Client Ref. : --
Report No. : 092660ST90534(3)

REPORT ON THE SHEAR LOAD TEST OF ANCHOR BOLT

Lab. Sample I.D. : ST90534/B89

Date Tested : 21 February 2010

Applied Load (kN)	Relative Movement (mm)	Applied Load (kN)	Relative Movement (mm)
0	0	16.0	2.97
2.0	0.04	16.5	3.83
4.0	0.22	13.5	4.83
6.0	0.96	12.3	5.83
8.0	1.68	12.1	6.83
10.0	2.00	11.9	7.83
12.0	2.27	10.6	8.83
14.0	2.56		



Observation: Failure of concrete & deformation of anchor bolt was noted at the applied load of 16.5 kN.

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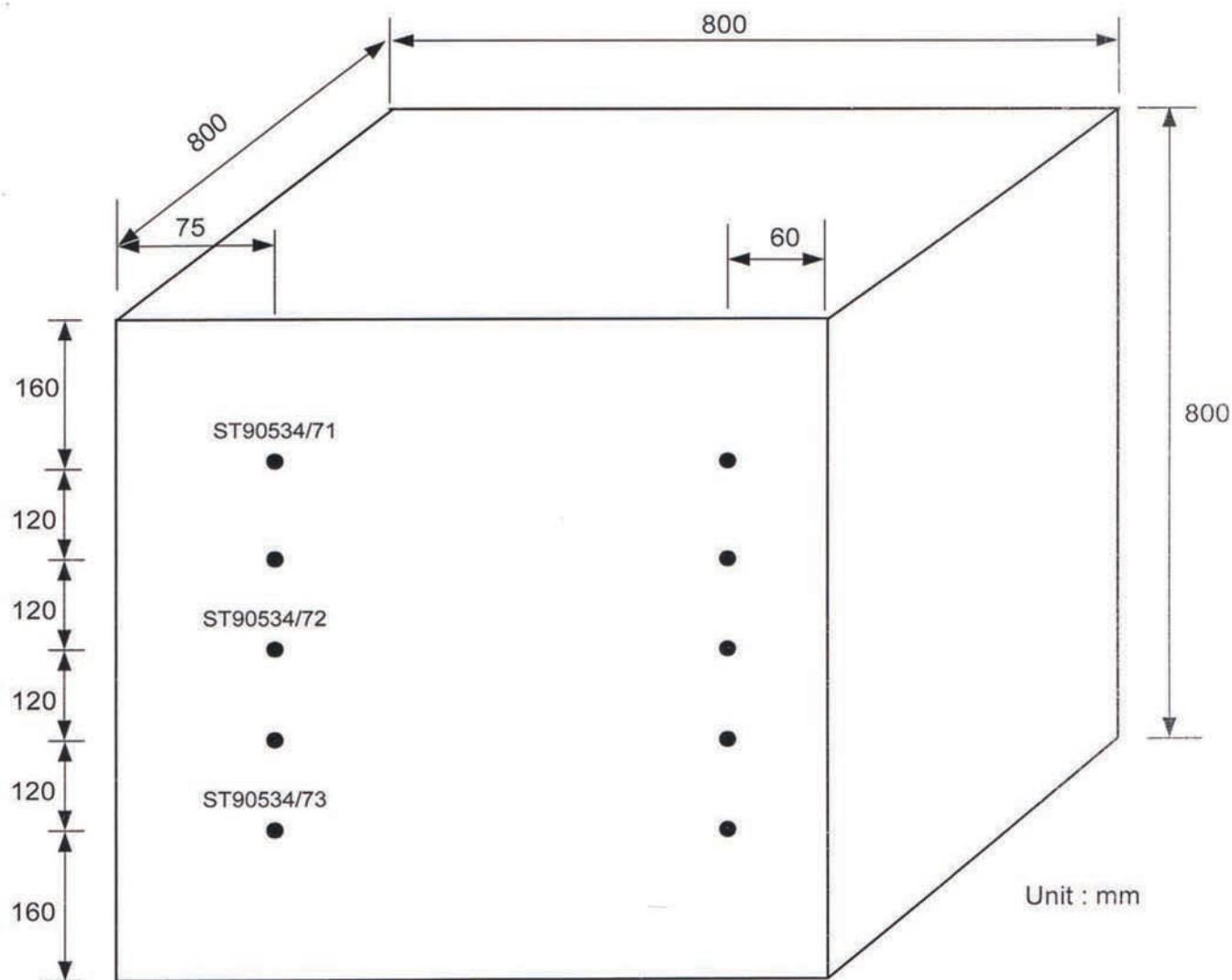
MaterialLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
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E-mail : matlab@fugro.com.hk
Website : www.materiallab.com.hk

MaterialLab

Client Ref. : --
Report No. : 092660ST90534(3)

4.0 Diagram



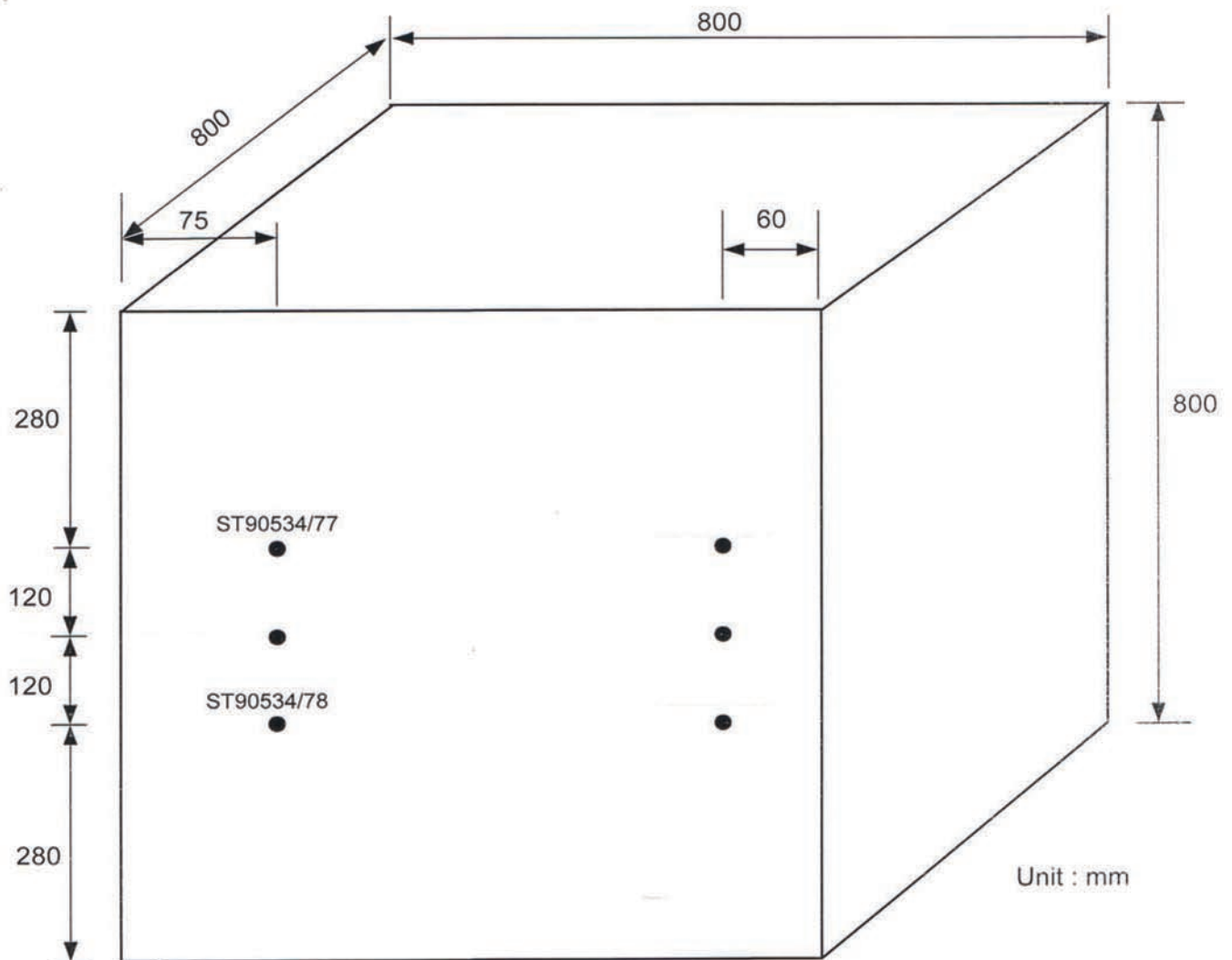
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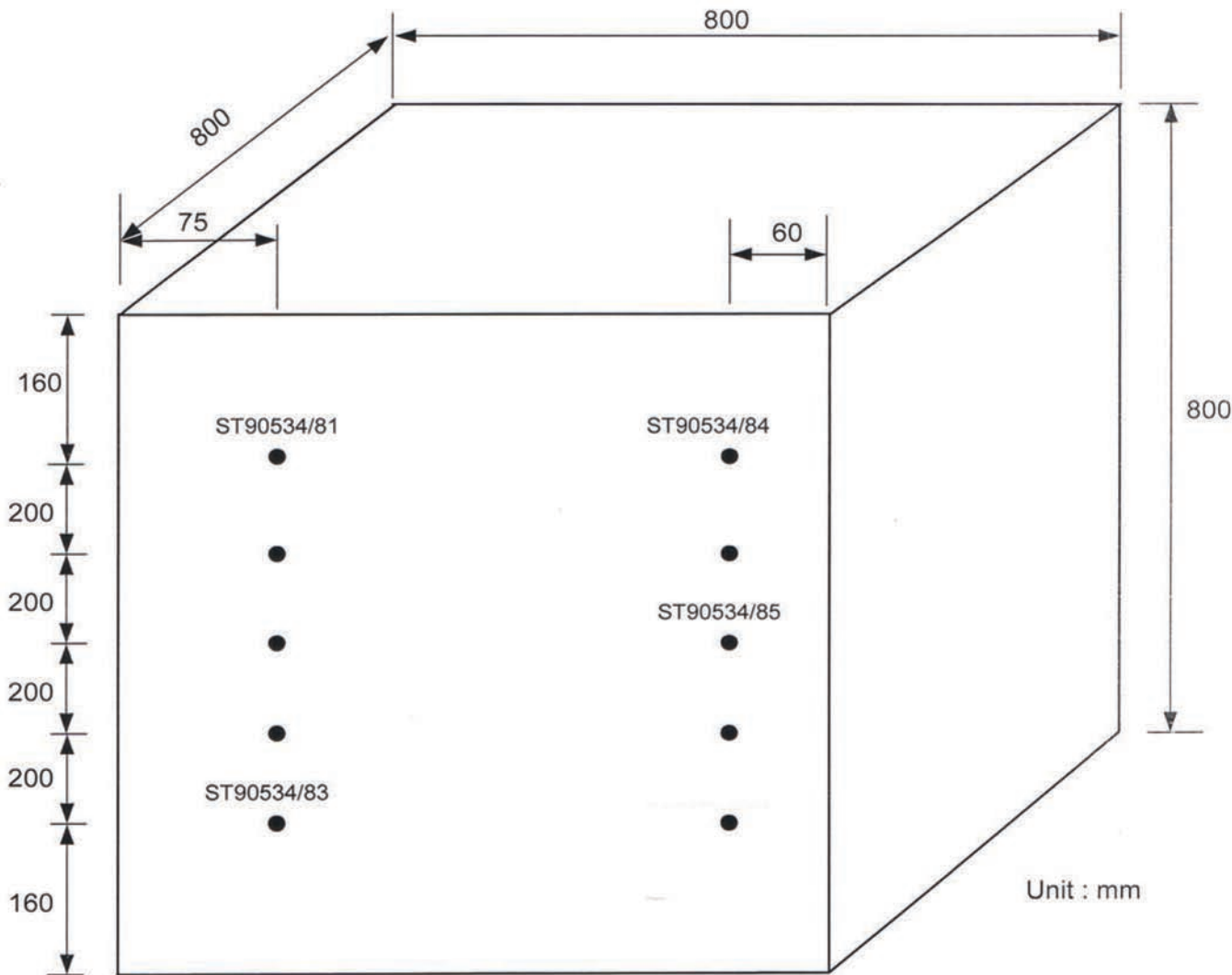
MateriaLab Division,
Fugro Development Centre,
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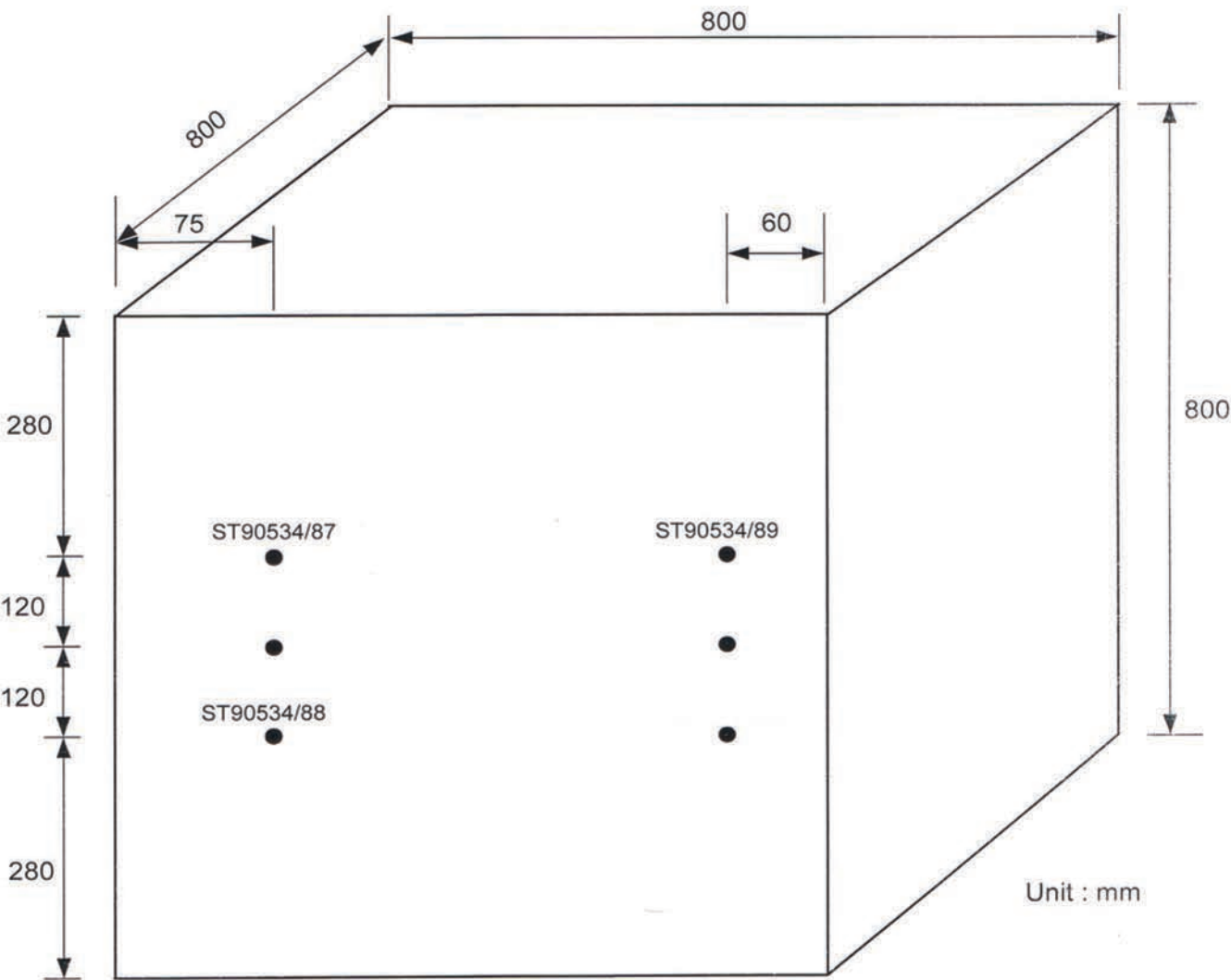
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5.0 Record Photographs



After Test
Sample I.D. : ST90534/B71



After Test
Sample I.D. : ST90534/B72

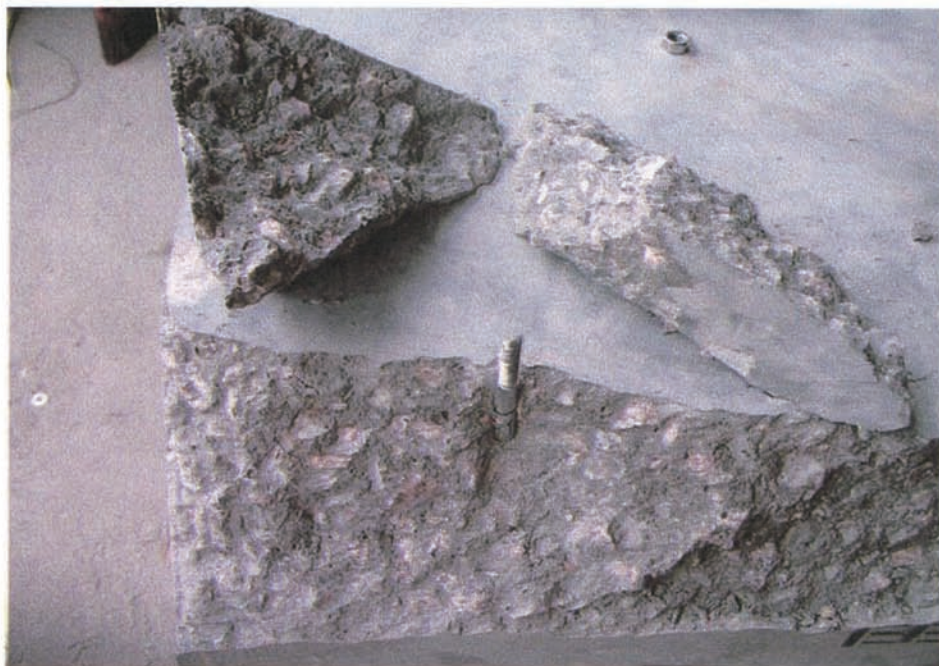
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After Test
Sample I.D. : ST90534/B73



After Test
Sample I.D. : ST90534/B77

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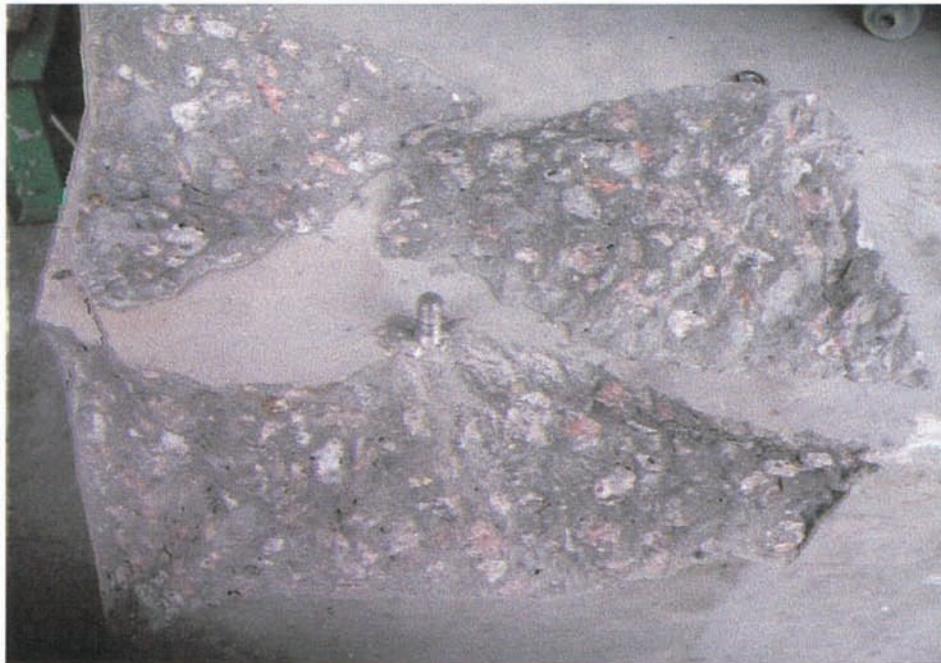
Tel : +852-2450 8233
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Client Ref. : --
Report No. : 092660ST90534(3)



After Test
Sample I.D. : ST90534/B78



After Test
Sample I.D. : ST90534/B81

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After Test
Sample I.D. : ST90534/B83



After Test
Sample I.D. : ST90534/B84

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MaterialLab Division,
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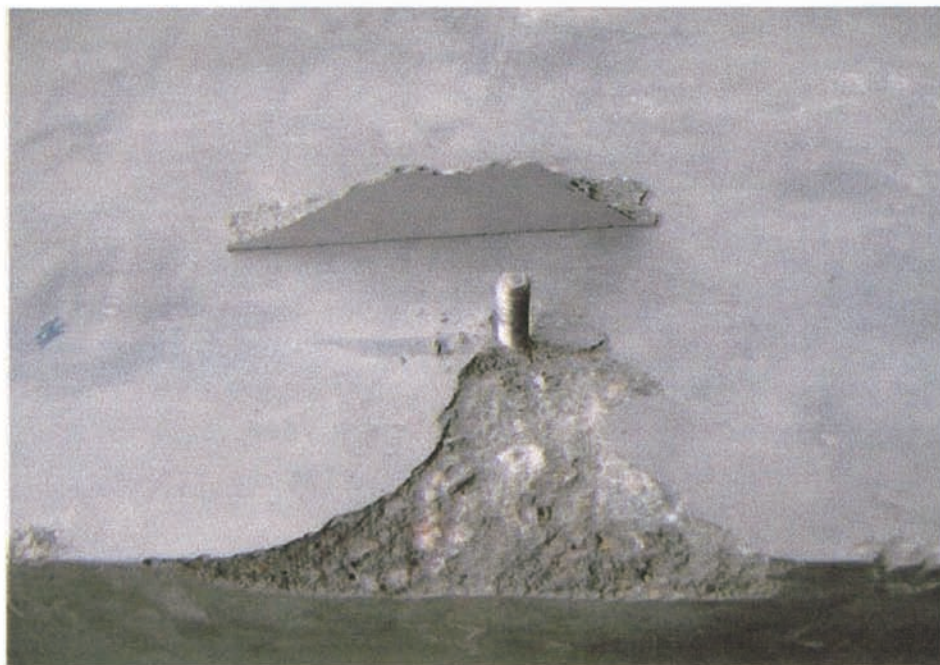
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After Test
Sample I.D. : ST90534/B85



After Test
Sample I.D. : ST90534/B87

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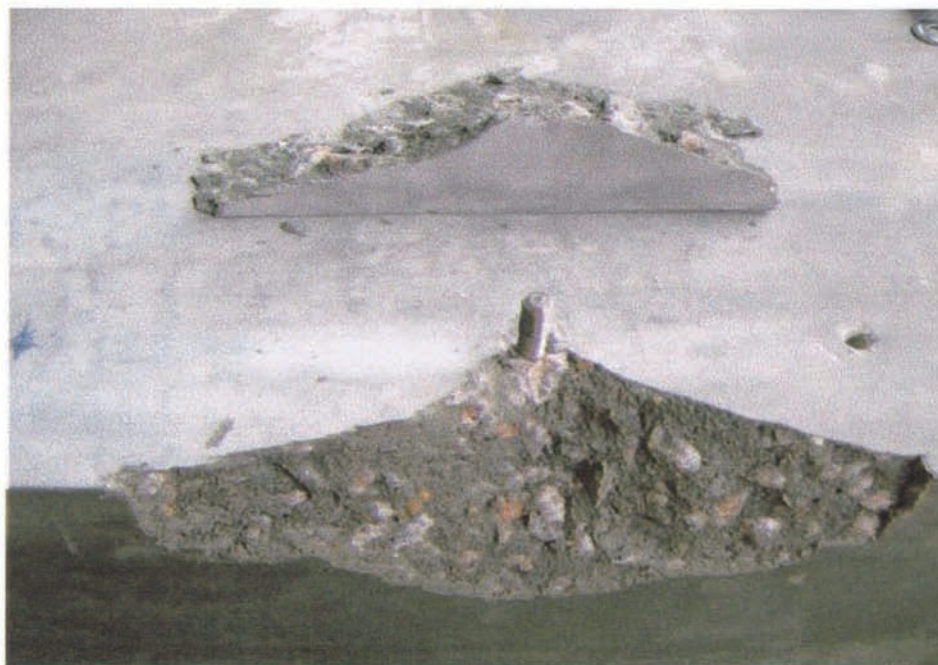
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Client Ref. : --
Report No. : 092660ST90534(3)



After Test
Sample I.D. : ST90534/B88



After Test
Sample I.D. : ST90534/B89