



SUNWAY SW-BA Stone Back Anchor Submission Folder

Content:

1. Product basic Information
2. Chemical Test Report
3. Individual stone anchorages test report samples
4. Mill Test Certificate samples
5. Supplier information
6. Flow chart of production and QA/QC system
7. Job Reference

基本資訊 Basic Information

SUNWAY SW-BA M8 Stone Back Anchor 新和不鏽鋼石背螺絲 (SW-BA M8)



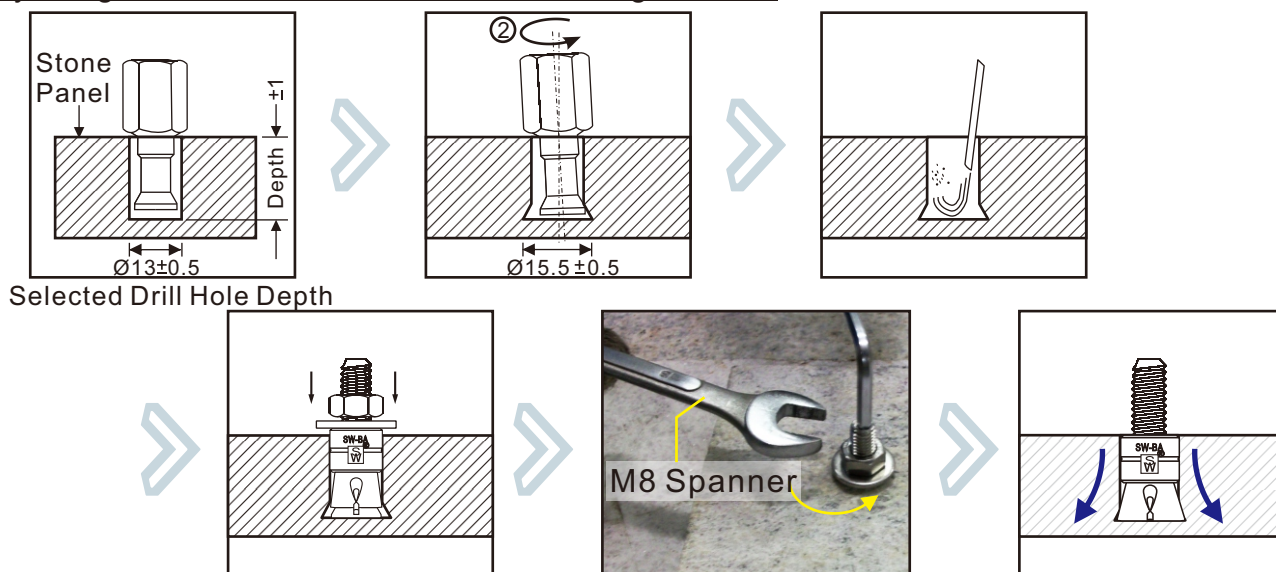
Material:
Stainless steel grade 304/316

Features:

- Effective fixing which can be applied between bracket system and natural stone panel from 0.25mm (e.g. granite, limestone)
- Strengthen the central tenacity of the whole anchorage system
- More stable and safer design comparing with traditional system
- Applicable for Building Department, Architectural Services Department and Housing Department approved projects

安裝程序 Installation Procedure

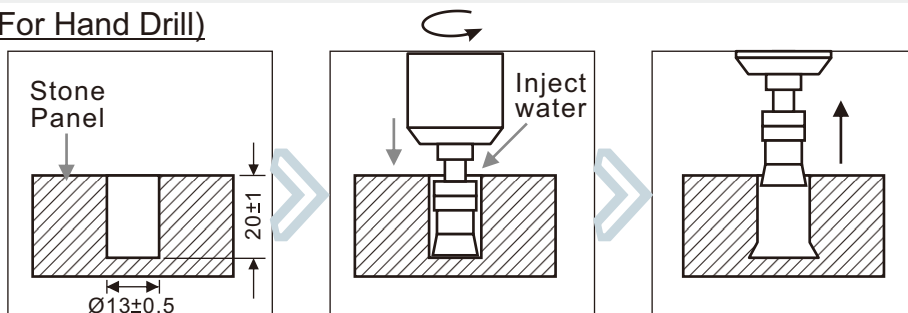
By using SUNWAY Stone Back Anchor Drilling Machine



Stone Back Anchor Drilling Bit (For Hand Drill)



For enlarging the base of drill hole



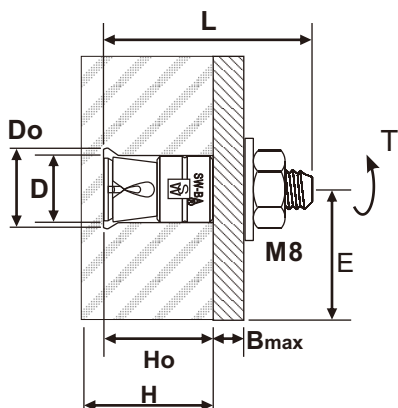
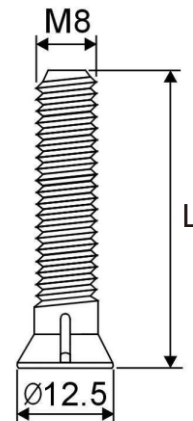
March 2020

安裝資訊 Installation Data

SUNWAY SW-BA M8 Stone Back Anchor 新和不鏽鋼石背螺絲 (SW-BA M8)



Material: Stainless steel grade 304/316



Item	
D Drill hole diameter	13±0.5mm
Do Under-cut diameter	15.5±0.5mm
E Recommended edge distance	50mm
T Recommended torque	11.96Nm

Size Selection

Model	(Ho) – Drill hole depth (mm)	(S)- Sleeve length (mm)	(L)- Total length (mm)	(Bmax)- Max. thickness of fixture (mm)
For (H) – Stone panel thickness = 25mm				
SW-BA M8X16/40	16	7	40	15
For (H) – Stone panel thickness ≥ 30mm				
SW-BA M8X21/40	21	12	40	10
SW-BA M8X21/55	21	12	55	25
SW-BA M8X21/70	21	12	70	40
For (H) – Stone panel thickness ≥ 40mm				
SW-BA M8X28/55	28	20	55	18
SW-BA M8X28/70	28	20	70	33

For other sizes, please contact us and order in advance.

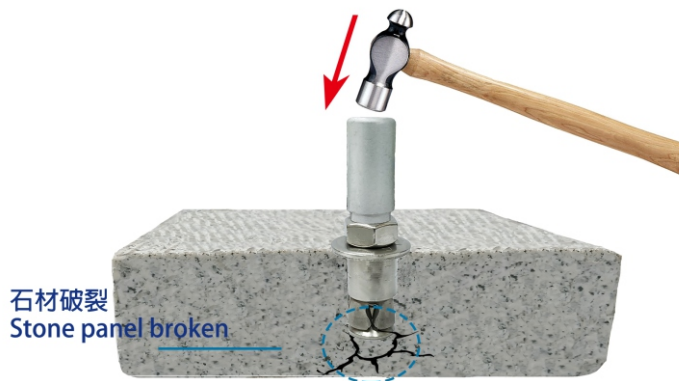
March 2020

Special Features

SUNWAY SW-BA M8 Stone Back Anchor
新和不鏽鋼石背螺絲 (SW-BA M8)

一般石背螺絲缺點

Drawback of general stone back anchor



As the general stone back anchor need to be hammered into stone panel during installation, this possibly damage the stone.

新和石背螺絲

Sunway SW-BA Stone Back Anchor

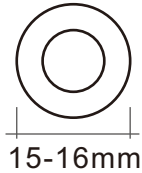


Workmen can install Sunway SW-BA into stone panels by using our special inner hex. head design. The stone can be ensured its completeness during the whole installation process.

Special Features

SUNWAY SW-BA M8 Stone Back Anchor 新和不鏽鋼石背螺絲 (SW-BA M8)

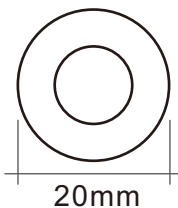
General Washer



Thickness:
1.0 to 1.5mm

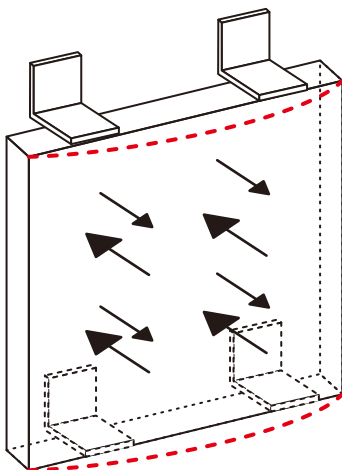
The washer of general stone back anchor usually smaller and thinner.

Sunway Washer

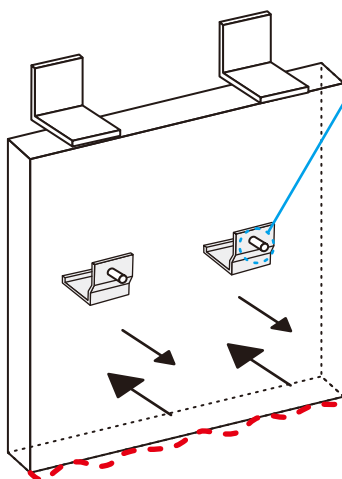


Thickness:
2mm

The washer of SW-BA stone back anchor is bigger and thicker. This provides stronger friction than the general.



The traditional stone facade anchorage system usually install the bracket and anchor bolt on the edge of the panel. The centre of panel may bulge because of the insufficient rigidity and long-term pressure.



SW-BA M8x40

Install the stone back anchor at the back of the panel can efficiently withstand the wind pressure and keep the facade panel being stable.

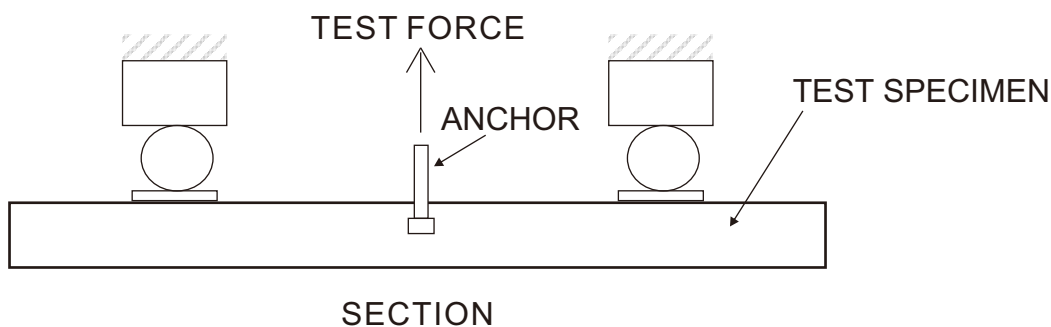
Drawing for reference only

March 2020

測試結果 Test Report

SUNWAY SW-BA M8 Stone Back Anchor 新和不鏽鋼石背螺絲 (SW-BA M8)

Back Anchor Type
Anchor : SW-BA M8 X 40



Tested by: **Facadetech**

Tested standard: ASTM C1354-96(2004)

Stone Type (each types 5 specimens)	Mean Anchorages System Load, KN
Granite St. Nicolas	8.07
Granite White Green	8.67
Granite China Gold	8.01
Granite Black Granite	12.50
Limestone Alexandra Beige	8.86
Limestone Lovely Beige	7.36

Stone Condition:

The tested specimens were soaked in water tank at 22 ± 2 °C for 48 hours.

As stone are natural materials, different type, level or batch of stone panels may have different mechanical, physical and chemical properties. Before installation, customers should complete the required calculation and tests according to PNAP-APP-16 from building department to ensure the safety of design.

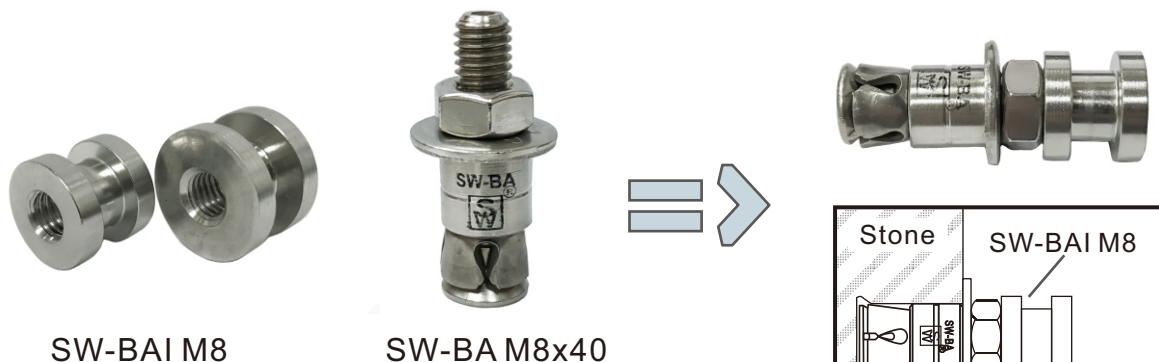
March 2020

基本資訊 Basic Information

SUNWAY Stone Back Anchor Installation Nut 新和不鏽鋼石背螺絲安裝螺帽 (SW-BAI M8)

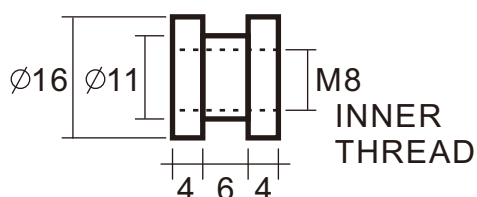
Features:

- Attaching SW-BAI to SW-BA stone back anchor is an effective way to install stone facade.

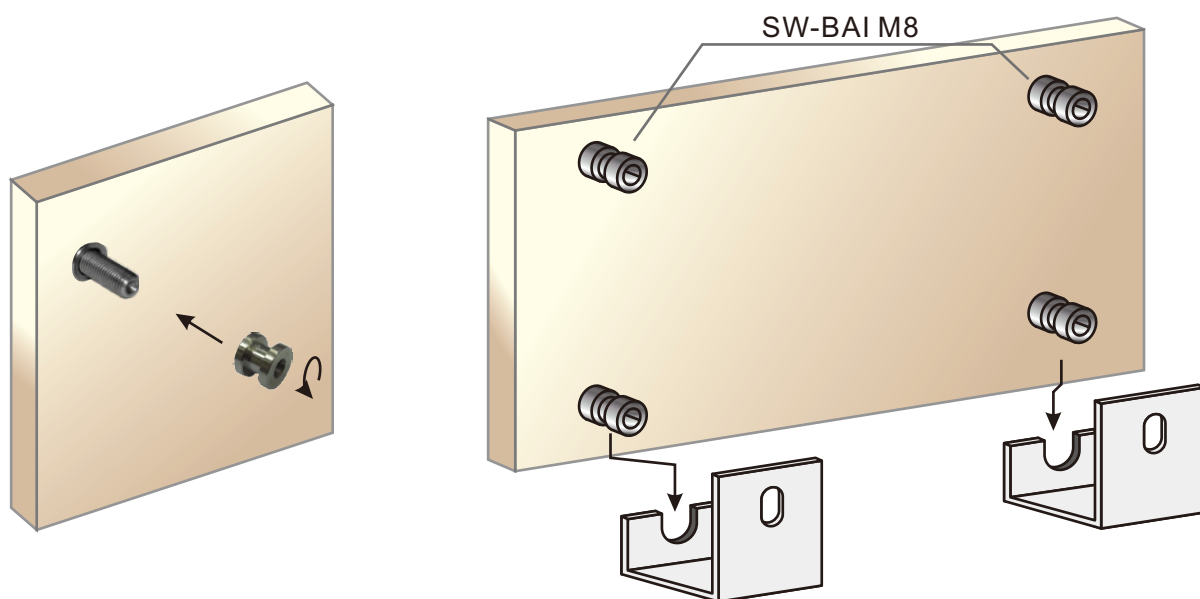


安裝資訊 Installation Data

Standard Dimension



- Material: Stainless steel grade 304/316
- Dimension: Acc. to standard dimension, or tailor-make
- Bracket: Tailor-made



Drawing for reference only

March 2020



Test Report
Chemical Analysis of Steel

Date of issue: 27-11-2018

Page 1 of 2

Castco LRN: MS0181119-3

Details as supplied by customer

Name of Customer : Sunway Metal Manufactory Limited
Address : Unit C, G/F, Hung Cheung Industrial Centre (Phase II), No.10, Tsing Yeung Circuit, Tuen Mun, N.T.
Job Title : --
Contract No. : --
Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --
Date of Sample Received : 19-11-2018
Test Period : 22-11-2018 to 23-11-2018
Sample Description : Sunway SW-BA M8 Stone Back Anchor (Nut)
Specification : BS EN 10088-1:2014, Table 2, Grade 1.4401(316) & BS EN ISO 3506-1:2009, Table 1, Grade A4
Specimen No. : --
Location of Work : --
Sample Identification No. : --

Test Method(s):-

- 1) BS EN ISO 15350 : 2010
- 2) In House Method: ST-Multi-1(ICP-OES)
- 3) BS EN ISO 15351: 2010

Remarks:

- I. Test results only relate to the specimen tested.

Checked by :

Cheng Chi Fai
Senior Manager

Approved Signatory :

LEE Stephen Shu Hang
Ph.D.
Technical Director

Test Report
Chemical Analysis of Steel

Date of issue: 27-11-2018

Page 2 of 2

Castco LRN: MS0181119-3

Chemical Analysis		Result
1) Total Carbon Content	C %	0.036
1) Total Sulfur Content	S %	0.0020
2) Chromium	Cr %	16.55
2) Copper	Cu %	0.399
2) Manganese	Mn %	1.12
2) Molybdenum	Mo %	2.10
2) Nickel	Ni %	10.05
2) Phosphorus	P %	0.038
2) Silicon	Si %	0.482
3) Nitrogen	N %	0.040

End of Report

Form No.: CHM Steel-1 T dd 16/12/2015

Appendix A
Summary of Chemical Analysis of Steel

Date of issue: 27-11-2018

Page 1 of 1

Castco LRN: MS0181119-3

Name of Customer: Sunway Metal Manufactory Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 19-11-2018

Testing Period: 22-11-2018 to 23-11-2018

Castco LRN:				MS0181119-3	
Sample Description :				Sunway SW-BA M8 Stone Back Anchor (Nut)	
Specification: BS EN 10088-1:2014, Table 2, Grade 1.4401				Test Results	Within / Exceed limit
Carbon	C	0.07 max.	%	0.036	Within limit
Sulfur	S	0.015 max.	%	0.0020	Within limit
Chromium	Cr	16.5 to 18.5	%	16.55	Within limit
Copper	Cu	--	%	0.399	--
Manganese	Mn	2.00 max.	%	1.12	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.10	Within limit
Nickel	Ni	10.0 to 13.0	%	10.05	Within limit
Phosphorus	P	0.045 max.	%	0.038	Within limit
Silicon	Si	1.00 max.	%	0.482	Within limit
Nitrogen	N	0.10 max.	%	0.040	Within limit
Specification: BS EN ISO 3506-1:2009, Table 1, Grade A4				Test Results	Within / Exceed limit
Carbon	C	0.08 max.	%	0.036	Within limit
Sulfur	S	0.03 max.	%	0.0020	Within limit
Chromium	Cr	16 to 18.5	%	16.55	Within limit
Copper	Cu	4 max.	%	0.399	Within limit
Manganese	Mn	2 max.	%	1.12	Within limit
Molybdenum	Mo	2 to 3	%	2.10	Within limit
Nickel	Ni	10 to 15	%	10.05	Within limit
Phosphorus	P	0.045 max.	%	0.038	Within limit
Silicon	Si	1 max.	%	0.482	Within limit
Nitrogen	N	0.22 max.	%	0.040	Within limit

Remark:

- I. Test results only relate to the specimen tested.
- II. Test results of the specimen are in compliance with the chemical requirements of BS EN 10088-1:2014, Table 2, Grade 1.4301 & BS EN ISO 3506-1:2009, Table 1, Grade A4.

Test Report
Chemical Analysis of Steel

Date of issue: 27-11-2018

Page 1 of 2

Castco LRN: MS0181119-4

Details as supplied by customer

Name of Customer : Sunway Metal Manufactory Limited

Address : Unit C, G/F, Hung Cheung Industrial Centre (Phase II), No.10, Tsing Yeung Circuit, Tuen Mun, N.T

Job Title : --

Contract No. : --

Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --

Date of Sample Received : 19-11-2018

Test Period : 22-11-2018 to 23-11-2018

Sample Description : Sunway SW-BA M8 Stone Back Anchor (Anchor Plug)

Specification : BS EN 10088-1:2014, Table 2, Grade 1.4401(316) & BS EN ISO 3506-1:2009, Table 1, Grade A4

Specimen No. : --

Location of Work : --

Sample Identification No. : --

Test Method(s):-

- 1) BS EN ISO 15350 : 2010
- 2) In House Method: ST-Multi-1(ICP-OES)
- 3) BS EN ISO 15351: 2010

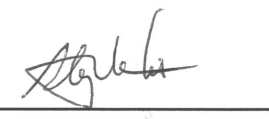
Remarks:

- I. Test results only relate to the specimen tested.

Checked by :


Cheng Chi Fai
Senior Manager

Approved Signatory :


LEE Stephen Shu Hang
Ph.D.
Technical Director

Test Report
Chemical Analysis of Steel

Date of issue: 27-11-2018

Page 2 of 2

Castco LRN: MS0181119-4

Chemical Analysis		Result
¹⁾ Total Carbon Content	C %	0.016
¹⁾ Total Sulfur Content	S %	0.0012
²⁾ Chromium	Cr %	16.99
²⁾ Copper	Cu %	2.19
²⁾ Manganese	Mn %	0.782
²⁾ Molybdenum	Mo %	2.15
²⁾ Nickel	Ni %	10.17
²⁾ Phosphorus	P %	0.044
²⁾ Silicon	Si %	0.254
³⁾ Nitrogen	N %	0.028

End of Report

Form No.: CHM Steel-1 T dd 16/12/2015

Appendix A**Summary of Chemical Analysis of Steel**

Date of issue: 27-11-2018

Page 1 of 1

Castco LRN: MS0181119-4

Name of Customer: Sunway Metal Manufactory Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 19-11-2018

Testing Period: 22-11-2018 to 23-11-2018

Castco LRN:				MS0181119-4	
Sample Description :				Sunway SW-BA M8 Stone Back Anchor (Anchor Plug)	
Specification: BS EN 10088-1:2014, Table 2, Grade 1.4401				Test Results	Within / Exceed limit
Carbon	C	0.07 max.	%	0.016	Within limit
Sulfur	S	0.015 max.	%	0.0012	Within limit
Chromium	Cr	16.5 to 18.5	%	16.99	Within limit
Copper	Cu	--	%	2.19	--
Manganese	Mn	2.00 max.	%	0.782	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.15	Within limit
Nickel	Ni	10.0 to 13.0	%	10.17	Within limit
Phosphorus	P	0.045 max.	%	0.044	Within limit
Silicon	Si	1.00 max.	%	0.254	Within limit
Nitrogen	N	0.10 max.	%	0.028	Within limit
Specification: BS EN ISO 3506-1:2009, Table 1, Grade A4				Test Results	Within / Exceed limit
Carbon	C	0.08 max.	%	0.016	Within limit
Sulfur	S	0.03 max.	%	0.0012	Within limit
Chromium	Cr	16 to 18.5	%	16.99	Within limit
Copper	Cu	4 max.	%	2.19	Within limit
Manganese	Mn	2 max.	%	0.782	Within limit
Molybdenum	Mo	2 to 3	%	2.15	Within limit
Nickel	Ni	10 to 15	%	10.17	Within limit
Phosphorus	P	0.045 max.	%	0.044	Within limit
Silicon	Si	1 max.	%	0.254	Within limit
Nitrogen	N	0.22 max.	%	0.028	Within limit

Remark:

- I. Test results only relate to the specimen tested.
- II. Test results of the specimen are in compliance with the chemical requirements of BS EN 10088-1:2014, Table 2, Grade 1.4301 & BS EN ISO 3506-1:2009, Table 1, Grade A4.

**Test Report
Chemical Analysis of Steel**

Date of issue: 27-11-2018

Page 1 of 2

Castco LRN: MS0181119-5

Details as supplied by customer

Name of Customer : Sunway Metal Manufactory Limited
Address : Unit C, G/F, Hung Cheung Industrial Centre (Phase II), No.10, Tsing Yeung Circuit, Tuen Mun, N.T.
Job Title : --
Contract No. : --
Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --
Date of Sample Received : 19-11-2018
Test Period : 22-11-2018 to 23-11-2018
Sample Description : Sunway SW-BA M8 Stone Back Anchor (Washer)
Specification : BS EN 10088-1:2014, Table 2, Grade 1.4401(316) & BS EN ISO 3506-1:2009, Table 1, Grade A4
Specimen No. : --
Location of Work : --
Sample Identification No. : --

Test Method(s):-

- 1) BS EN ISO 15350 : 2010
- 2) In House Method: ST-Multi-1(ICP-OES)
- 3) BS EN ISO 15351: 2010

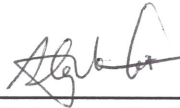
Remarks:

I. Test results only relate to the specimen tested.

Checked by :


Cheng Chi Fai
Senior Manager

Approved Signatory :


LEE Stephen Shu Hang
Ph.D.
Technical Director

Test Report
Chemical Analysis of Steel

Date of issue: 27-11-2018

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Castco LRN: MS0181119-5

Chemical Analysis		Result
¹⁾ Total Carbon Content	C %	0.019
¹⁾ Total Sulfur Content	S %	0.0018
²⁾ Chromium	Cr %	16.58
²⁾ Copper	Cu %	0.200
²⁾ Manganese	Mn %	1.31
²⁾ Molybdenum	Mo %	2.08
²⁾ Nickel	Ni %	10.13
²⁾ Phosphorus	P %	0.037
²⁾ Silicon	Si %	0.507
³⁾ Nitrogen	N %	0.036

End of Report

Form No.: CHM Steel-1 T dd 16/12/2015

Appendix A

Summary of Chemical Analysis of Steel

Date of issue: 27-11-2018

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Castco LRN: MS0181119-5

Name of Customer: Sunway Metal Manufactory Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 19-11-2018

Testing Period: 22-11-2018 to 23-11-2018

Castco LRN:				MS0181119-5	
Sample Description :				Sunway SW-BA M8 Stone Back Anchor (Washer)	
Specification: BS EN 10088-1:2014, Table 2, Grade 1.4401				Test Results	Within / Exceed limit
Carbon	C	0.07 max.	%	0.019	Within limit
Sulfur	S	0.015 max.	%	0.0018	Within limit
Chromium	Cr	16.5 to 18.5	%	16.58	Within limit
Copper	Cu	--	%	0.200	--
Manganese	Mn	2.00 max.	%	1.31	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.08	Within limit
Nickel	Ni	10.0 to 13.0	%	10.13	Within limit
Phosphorus	P	0.045 max.	%	0.037	Within limit
Silicon	Si	1.00 max.	%	0.507	Within limit
Nitrogen	N	0.10 max.	%	0.036	Within limit
Specification: BS EN ISO 3506-1:2009, Table 1, Grade A4				Test Results	Within / Exceed limit
Carbon	C	0.08 max.	%	0.019	Within limit
Sulfur	S	0.03 max.	%	0.0018	Within limit
Chromium	Cr	16 to 18.5	%	16.58	Within limit
Copper	Cu	4 max.	%	0.200	Within limit
Manganese	Mn	2 max.	%	1.31	Within limit
Molybdenum	Mo	2 to 3	%	2.08	Within limit
Nickel	Ni	10 to 15	%	10.13	Within limit
Phosphorus	P	0.045 max.	%	0.037	Within limit
Silicon	Si	1 max.	%	0.507	Within limit
Nitrogen	N	0.22 max.	%	0.036	Within limit

Remark:

I. Test results only relate to the specimen tested.

II. Test results of the specimen are in compliance with the chemical requirements of BS EN 10088-1:2014, Table 2, Grade 1.4301 & BS EN ISO 3506-1:2009, Table 1, Grade A4.

**Test Report
Chemical Analysis of Steel**

Date of issue: 27-11-2018

Page 1 of 2

Castco LRN: MS0181119-6

Details as supplied by customer

Name of Customer : Sunway Metal Manufactory Limited
Address : Unit C, G/F, Hung Cheung Industrial Centre (Phase II), No.10, Tsing Yeung Circuit, Tuen Mun, N.T
Job Title : --
Contract No. : --
Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --
Date of Sample Received : 19-11-2018
Test Period : 22-11-2018 to 23-11-2018
Sample Description : Sunway SW-BA M8 Stone Back Anchor (Steel tube)
Specification : BS EN 10088-1:2014, Table 2, Grade 1.4401(316) & BS EN ISO 3506-1:2009, Table 1, Grade A4
Specimen No. : --
Location of Work : --
Sample Identification No. : --

Test Method(s):-

- 1) BS EN ISO 15350 : 2010
- 2) In House Method: ST-Multi-1(ICP-OES)
- 3) BS EN ISO 15351: 2010

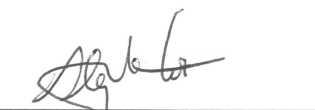
Remarks:

- I. Test results only relate to the specimen tested.

Checked by :


Cheng Chi Fai
Senior Manager

Approved Signatory :


LEE Stephen Shu Hang
Ph.D.
Technical Director

Test Report
Chemical Analysis of Steel

Date of issue: 27-11-2018

Page 2 of 2

Castco LRN: MS0181119-6

Chemical Analysis		Result
1) Total Carbon Content	C %	0.024
1) Total Sulfur Content	S %	0.0040
2) Chromium	Cr %	16.95
2) Copper	Cu %	0.135
2) Manganese	Mn %	1.46
2) Molybdenum	Mo %	2.16
2) Nickel	Ni %	10.06
2) Phosphorus	P %	0.029
2) Silicon	Si %	0.343
3) Nitrogen	N %	0.032

End of Report

Form No.: CHM Steel-1 T dd 16/12/2015

Appendix A

Summary of Chemical Analysis of Steel

Date of issue: 27-11-2018

Page 1 of 1

Castco LRN: MS0181119-6

Name of Customer: Sunway Metal Manufactory Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 19-11-2018

Testing Period: 22-11-2018 to 23-11-2018

Castco LRN:				MS0181119-6	
Sample Description :				Sunway SW-BA M8 Stone Back Anchor (Steel tube)	
Specification: BS EN 10088-1:2014, Table 2, Grade 1.4401				Test Results	Within / Exceed limit
Carbon	C	0.07 max.	%	0.024	Within limit
Sulfur	S	0.015 max.	%	0.0040	Within limit
Chromium	Cr	16.5 to 18.5	%	16.95	Within limit
Copper	Cu	--	%	0.135	--
Manganese	Mn	2.00 max.	%	1.46	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.16	Within limit
Nickel	Ni	10.0 to 13.0	%	10.06	Within limit
Phosphorus	P	0.045 max.	%	0.029	Within limit
Silicon	Si	1.00 max.	%	0.343	Within limit
Nitrogen	N	0.10 max.	%	0.032	Within limit
Specification: BS EN ISO 3506-1:2009, Table 1, Grade A4				Test Results	Within / Exceed limit
Carbon	C	0.08 max.	%	0.024	Within limit
Sulfur	S	0.03 max.	%	0.0040	Within limit
Chromium	Cr	16 to 18.5	%	16.95	Within limit
Copper	Cu	4 max.	%	0.135	Within limit
Manganese	Mn	2 max.	%	1.46	Within limit
Molybdenum	Mo	2 to 3	%	2.16	Within limit
Nickel	Ni	10 to 15	%	10.06	Within limit
Phosphorus	P	0.045 max.	%	0.029	Within limit
Silicon	Si	1 max.	%	0.343	Within limit
Nitrogen	N	0.22 max.	%	0.032	Within limit

Remark:

- I. Test results only relate to the specimen tested.
- II. Test results of the specimen are in compliance with the chemical requirements of BS EN 10088-1:2014, Table 2, Grade 1.4301 & BS EN ISO 3506-1:2009, Table 1, Grade A4.

Test Report
Chemical Analysis of Steel

Date of issue: 27-11-2018

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Castco LRN: MS0181119-7

Details as supplied by customer

Name of Customer : Sunway Metal Manufactory Limited

Address : Unit C, G/F, Hung Cheung Industrial Centre (Phase II), No.10, Tsing Yeung Circuit, Tuen Mun, N.T

Job Title : --

Contract No. : --

Customer's Ref. No. : --

Sample details as supplied by customer

Date Sampled : --

Date of Sample Received : 19-11-2018

Test Period : 22-11-2018 to 23-11-2018

Sample Description : Sunway SW-BA M8 Stone Back Anchor (Sleeve)

Specification : BS EN 10088-1:2014, Table 2, Grade 1.4401(316) & BS EN ISO 3506-1:2009, Table 1, Grade A4

Specimen No. : --

Location of Work : --

Sample Identification No. : --

Test Method(s):-

- 1) BS EN ISO 15350 : 2010
- 2) In House Method: ST-Multi-1(ICP-OES)
- 3) BS EN ISO 15351: 2010

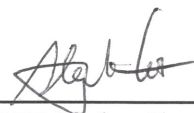
Remarks:

- I. Test results only relate to the specimen tested.

Checked by :


Cheng Chi Fai
Senior Manager

Approved Signatory :


LEE Stephen Shu Hang
Ph.D.
Technical Director

Test Report
Chemical Analysis of Steel

Date of issue: 27-11-2018

Page 2 of 2

Castco LRN: MS0181119-7

Chemical Analysis		Result
1) Total Carbon Content	C %	0.019
1) Total Sulfur Content	S %	0.0021
2) Chromium	Cr %	16.56
2) Copper	Cu %	0.288
2) Manganese	Mn %	0.676
2) Molybdenum	Mo %	2.20
2) Nickel	Ni %	11.85
2) Phosphorus	P %	0.036
2) Silicon	Si %	0.383
3) Nitrogen	N %	0.035

End of Report

Form No.: CHM Steel-1 T dd 16/12/2015

Appendix A
Summary of Chemical Analysis of Steel

Date of issue: 27-11-2018

Page 1 of 1

Castco LRN: MS0181119-7

Name of Customer: Sunway Metal Manufactory Limited

Job Title: --

Contract No.: --

Customer's Ref. No.: --

Date of Received by Lab.: 19-11-2018

Testing Period: 22-11-2018 to 23-11-2018

Castco LRN:				MS0181119-7	
Sample Description :				Sunway SW-BA M8 Stone Back Anchor (Sleeve)	
Specification: BS EN 10088-1:2014, Table 2, Grade 1.4401				Test Results	Within / Exceed limit
Carbon	C	0.07 max.	%	0.019	Within limit
Sulfur	S	0.015 max.	%	0.0021	Within limit
Chromium	Cr	16.5 to 18.5	%	16.56	Within limit
Copper	Cu	--	%	0.288	--
Manganese	Mn	2.00 max.	%	0.676	Within limit
Molybdenum	Mo	2.00 to 2.50	%	2.20	Within limit
Nickel	Ni	10.0 to 13.0	%	11.85	Within limit
Phosphorus	P	0.045 max.	%	0.036	Within limit
Silicon	Si	1.00 max.	%	0.383	Within limit
Nitrogen	N	0.10 max.	%	0.035	Within limit
Specification: BS EN ISO 3506-1:2009, Table 1, Grade A4				Test Results	Within / Exceed limit
Carbon	C	0.08 max.	%	0.019	Within limit
Sulfur	S	0.03 max.	%	0.0021	Within limit
Chromium	Cr	16 to 18.5	%	16.56	Within limit
Copper	Cu	4 max.	%	0.288	Within limit
Manganese	Mn	2 max.	%	0.676	Within limit
Molybdenum	Mo	2 to 3	%	2.20	Within limit
Nickel	Ni	10 to 15	%	11.85	Within limit
Phosphorus	P	0.045 max.	%	0.036	Within limit
Silicon	Si	1 max.	%	0.383	Within limit
Nitrogen	N	0.22 max.	%	0.035	Within limit

Remark:

I. Test results only relate to the specimen tested.

II. Test results of the specimen are in compliance with the chemical requirements of BS EN 10088-1:2014, Table 2, Grade 1.4301 & BS EN ISO 3506-1:2009, Table 1, Grade A4.

检测报告

TEST REPORT

第 1 页，共 3 页

报 告 编 号 : 1704-8-238
Report No.
委 托 单 位 : 新和金属制品厂有限公司
Applicant
检 测 类 别 : 送检
Check categories

实验室地址：佛山市南海区大沥体育路20号（大沥交警中队旁）
Laboratory Add：NO.20,Tiyu Road , Dali,Nanhai District,
Foshan, Guangdong,China

电话Tel：0757-85559898（业务受理）Business Acceptance

0757-85553987（报告查询）Report Query

传真Fax：0757-85553177

网 址：http://www.ldjm.net

E-mail：jmliding@126.com



佛山市南海区精美检测技术服务有限公司

Foshan Nanhai Jingmei Testing Services Co.,Ltd.



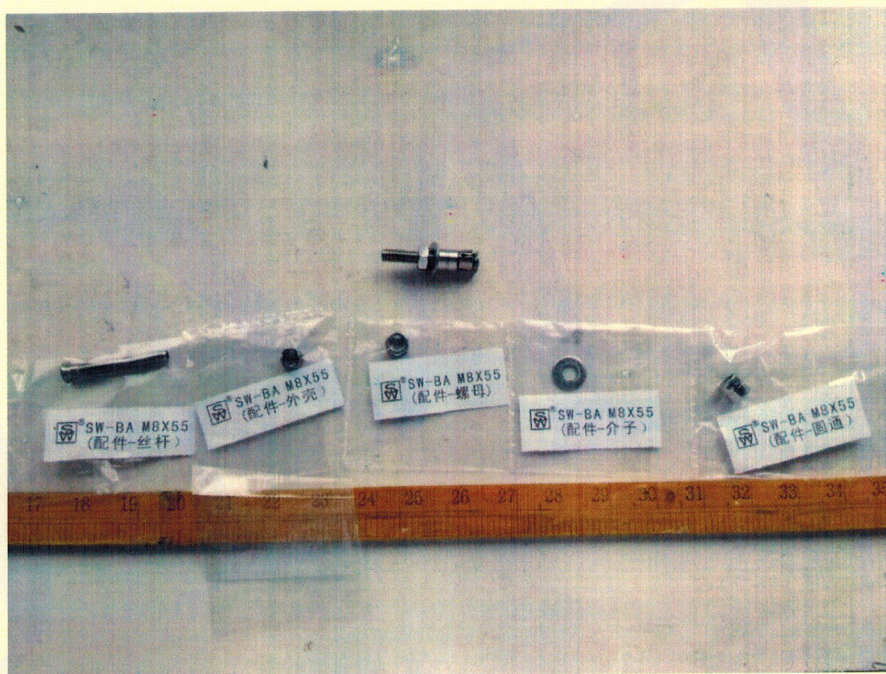
检测报告

TEST REPORT

第 2 页, 共 3 页

报告编号 : 1704-8-238
委托单位(个人) : 新和金属制品厂有限公司
委托单位地址 : \

样品接收日期 : 2017.04.08
检验日期 : 2017.04.09
报告日期 : 2017.04.13
测试要求 : 对样品做材质化学成分分析
检验结果 : 见下一页
试样照片 :



- 1: 检测结果仅对来样负责, 样品保留至收样后 30 天。
- 2: 检测报告盖章有效, 报告部分复印无效。
- 3: 若对检测结果有异议, 请于收到结果之日起 15 天内向本公司提出。

声明:

单位盖章:



批准:

审核:

测试:

吴昊

检测报告

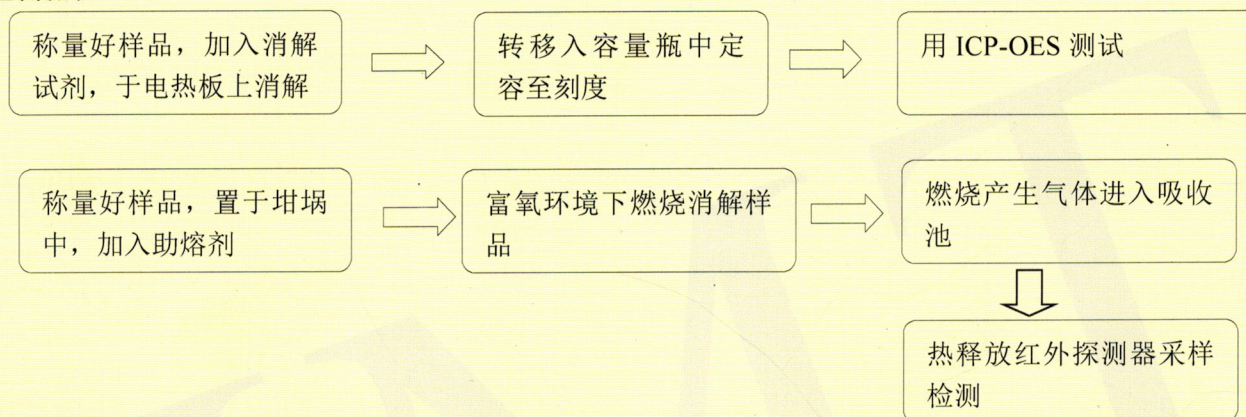
TEST REPORT



报告编号(Report No.): 1704-8-238

样品描述 : SW-BA M8*55 配件
检测标准 : SN/T 2718-2010 GB/T20123-2006
检测仪器 : ICP-OES 碳硫分析仪
检测流程 : 见下方流程示意图
样品测试结果 : 见于下方表格

检测流程:



测试结果:

序号	元素	结果 (%)				
		螺母	介子	外壳	丝杆	圆通
1	碳 C	0.030	0.018	0.058	0.025	0.044
2	硫 S	0.005	0.005	0.005	0.005	0.004
3	磷 P	0.045	0.040	0.040	0.045	0.041
4	硅 Si	0.56	0.57	0.58	0.41	0.47
5	锰 Mn	0.86	1.21	1.39	0.66	1.11
6	镍 Ni	10.46	10.17	10.10	11.11	10.60
7	铬 Cr	17.23	16.52	16.47	17.05	17.61
8	钼 Mo	2.07	2.03	2.00	2.06	2.04

对应的标准要求 : 见下方表格

序号	标准牌号	元素要求 (%)							
		C	S	P	Si	Mn	Ni	Cr	Mo
1	316	≤0.080	≤0.030	≤0.045	≤0.75	≤2.00	10.00-14.00	16.00-18.00	2.00-3.00

检测结论: 从以上测试结果分析, 该以上五个样品化学成分均符合 316 不锈钢的成分要求。

报告结束

科学的眼睛

The Eyes Of Science

严谨 科学

Rigorous Science

质量的标尺

The Scale Of Quality

客观 公正

Objective Justice

检测报告

TEST REPORT

第 1 页, 共 3 页

报告编号 : 1807-12-532

Report No.

委托单位 : 新和金属制品厂有限公司

Applicant

检测类别 : 送检

Check categories

实验室地址 : 佛山市南海区大沥体育路20号 (大沥意交警中队旁)

Laboratory Add:NO.20,Tiyu Road ,Dali,Nanhai District,

Foshan, Guangdong, China

电话Tel: 0757-85559898(业务受理)Business Acceptance

0757-85553987(报告查询)Report Query

传真Fax:0757-85553177

网址 : www.jmtlab.com

E-mail:jmt@jmtlab.com



佛山市精美检测技术有限公司
Foshan Jingmei Testing Technology CO., Ltd

检测 报告

TEST REPORT

第 2 页, 共 3 页

报告编号 : 1807-12-532
委托单位(个人) : 新和金属制品厂有限公司
委托单位地址 : \

样品接收日期 : 2018.07.12
检验日期 : 2018.07.12-2018.07.18
报告日期 : 2018.07.18
测试要求 : 对样品做材质化学成分分析
检验结果 : 见下一页
试样照片 :



声明:

- 1: 检测结果仅对来样负责, 样品保留至收样后 30 天。
- 2: 检测报告盖章有效, 报告部分复印无效。
- 3: 若对检测结果有异议, 请于收到结果之日起 15 天内向本公司提出。

单位盖章:

检测专用章

批准:

刘高华

审核:

刘高华

测试:

吴昊

检测报告

TEST REPORT

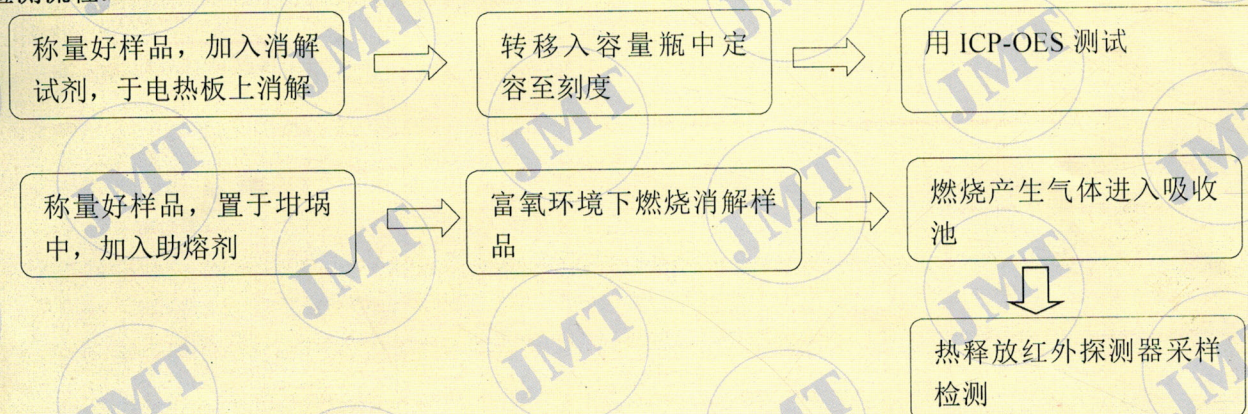


第3页 共3页

报告编号(Report No.): 1807-12-532

样品描述 : SW-BA M8X40 石背螺丝 (组件)
检测标准 : SN/T 2718-2010 GB/T20123-2006
检测仪器 : ICP-OES 碳硫分析仪
检测流程 : 见下方流程示意图
样品测试结果 : 见于下方表格

检测流程:



测试结果:

序号	元素	结果 (%)				
		螺母	介子	外壳	丝杆	圆通
1	碳 C	0.030	0.016	0.026	0.024	0.030
2	硫 S	0.006	0.008	0.007	0.007	0.007
3	磷 P	0.038	0.035	0.035	0.035	0.032
4	硅 Si	0.33	0.44	0.61	0.68	0.51
5	锰 Mn	1.49	1.35	1.45	0.73	0.99
6	镍 Ni	10.57	10.19	10.34	10.12	10.57
7	铬 Cr	16.97	16.61	17.20	17.35	17.12
8	钼 Mo	2.11	2.08	2.19	2.12	2.18

对应的标准要求 : 见下方表格

序号	标准牌号	元素要求 (%)							
		C	S	P	Si	Mn	Ni	Cr	Mo
1	316	≤0.080	≤0.030	≤0.045	≤0.75	≤2.00	10.00-14.00	16.00-18.00	2.00-3.00

检测结论: 从以上测试结果分析, 该以上五个样品化学成分均符合 316 不锈钢的成分要求。

报告结束

REPORT No : GTL0812-451

DATE : DECEMBER 30, 2008

PAGE 1 OF 6

TEST REPORT

STRENGTH OF INDIVIDUAL STONE ANCHORAGES IN DIMENSION STONE

Customer's Information

Customer and Address : Sunway Metal Manufactory Limited
Flat C, G/F., Hung Cheung Ind. Centre, Phase 2, 10 Tsing Yeung Circuit,
Tuen Mun, N.T., Hong Kong.

Project and Address : ---

Stone information : Stone type and name : Granite – St. Nicolas
Quarry source : Italy
Finish : Not provided
Supplier : Zui Loong Company Limited
Nominal specimen size : 300 mm x 300 mm x 30 mm

Anchorage information : Type of anchorage : Back anchorage
(Test load perpendicular to surface/outward)
Manufacturer/Supplier : Sunway Metal Manufactory Limited
Nominal anchorage size : S.S. Stone Back Anchor [SW-BA M8 x 40]
Material and finish : Stainless steel
Infil material : No infil

Test information

Test Performed : Strength of Individual Stone Anchorages in Dimension Stone to ASTM C1354-96(2004).

Test Procedure : As described in Technical Manual : TM9 of Facadetech Laboratory Limited that is complied with Strength of Individual Stone Anchorages in Dimension Stone to ASTM C1354-96(2004).

Sample Received on : December 23, 2008

Equipment I.D. : Loading Machine S/N – FTL/PT/162

Date of Test : December 29, 2008

Tested by : Dr. Peter Chui

TESTED BY :

APPROVED SIGNATORY :


Dr. Chui Pui-Tak, Peter


Mr. H.H. Yu

REPORT NO : GTL0812-451

DATE : DECEMBER 30, 2008

PAGE 2 OF 6

TEST RESULTS

Conditioning of specimen

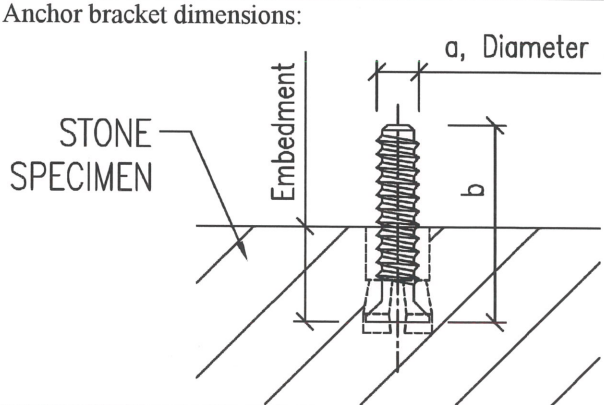
Sample

(GTL0812-451/01 : Wet conditioning - the tested specimens were soaked in water tank at $22 \pm 2^\circ\text{C}$ for
to GTL0812-451/05) 48 hours.

Test Results

Sample Mark (GTL0812-451)	/01	/02	/03	/04	/05
Sample Size					
Length, mm	300	301	300	301	301
Width, mm	300	300	300	300	300
Thickness, mm	31.2	31.2	31.1	30.8	31.7
Anchor bracket dimensions:					
Dim a, mm	7.8	7.8	7.8	7.8	7.8
Dim b, mm	41	41	41	41	40
Embedment, mm	21	20	20	20	21

Diagram for slot, notch, hole and anchor bracket dimensions:

Slot , notch or hole dimensions:	Anchor bracket dimensions:
N/A	

TEST RESULTS

Test Condition

Ambient temperature : 22 °C
Load rate : 60 N/s

Sample Mark (GTL0812-451)	/01	/02	/03	/04	/05
Conditioning of Sample	Wet				
Cut Orientation ^{Note (1)}	---				
Load Direction	Perpendicular to specimen surface / outward				
Maximum Failure Load F_T , kN	8.14	8.94	7.69	6.60	8.96
Failure Mode ^{Note (2)}	Pb	Pb	Pb	Pb	An pull
Stone dimensions for stone failure mode, mm	Length	---	---	---	---
	Width	---	---	---	---
	Depth	---	---	---	---
Anchorage System Load, kN ^{Note (3)}	8.14	8.94	7.69	6.60	8.96
Mean Anchorage System Load, kN	8.07				
Standard Deviation	0.98				

Note (1) : Cut orientation of the tested specimen was informed and marked in the specimens by the customer.

Note (2) : Failure mode:

Gr represents stone failure.

An represents anchor material failure.

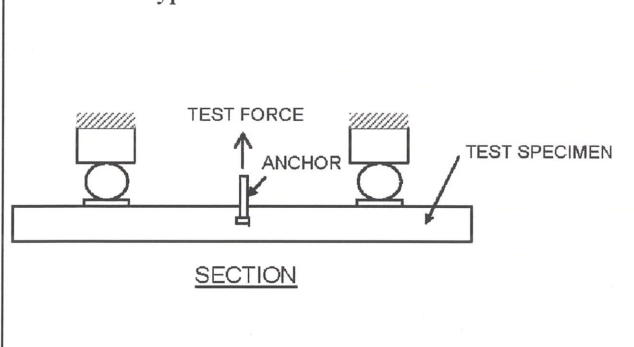
An push/pull represents anchor push/pull out from slot.

Pb represents test specimen broke.

Note (3) : Anchorage System Load, $N = F_T$

Set-up :

Back anchor type



Remark:

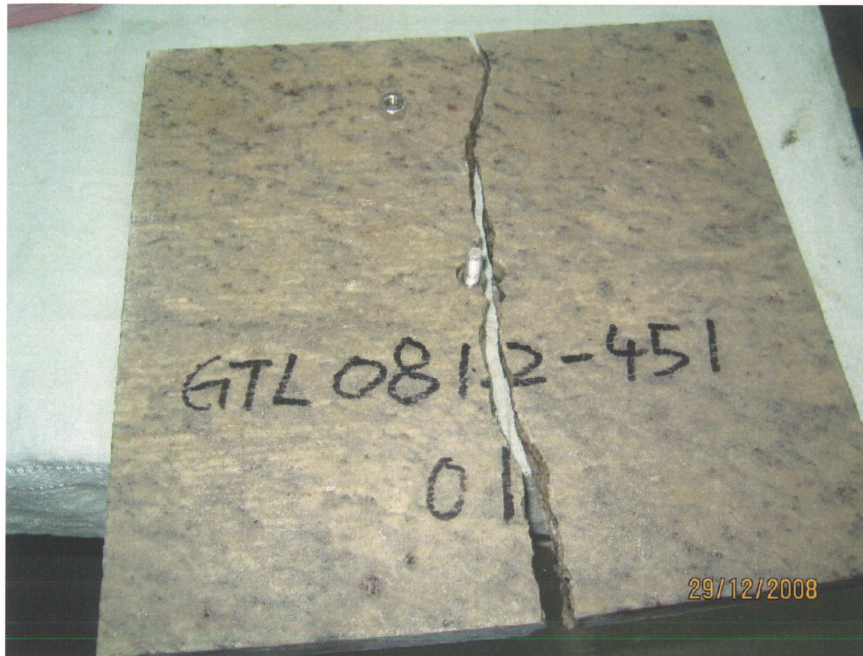
- The maximum expanded uncertainty of the measured anchorage system load is +/- 179 N.
- The expanded uncertainty is based on a standard uncertainty by a coverage factor of $K=2$, providing a level of confidence of approximately 95%.
- The results given in this report only relate to the sample tested at the time of the test.

REPORT No : GTL0812-451

DATE : DECEMBER 30, 2008

PAGE 4 OF 6

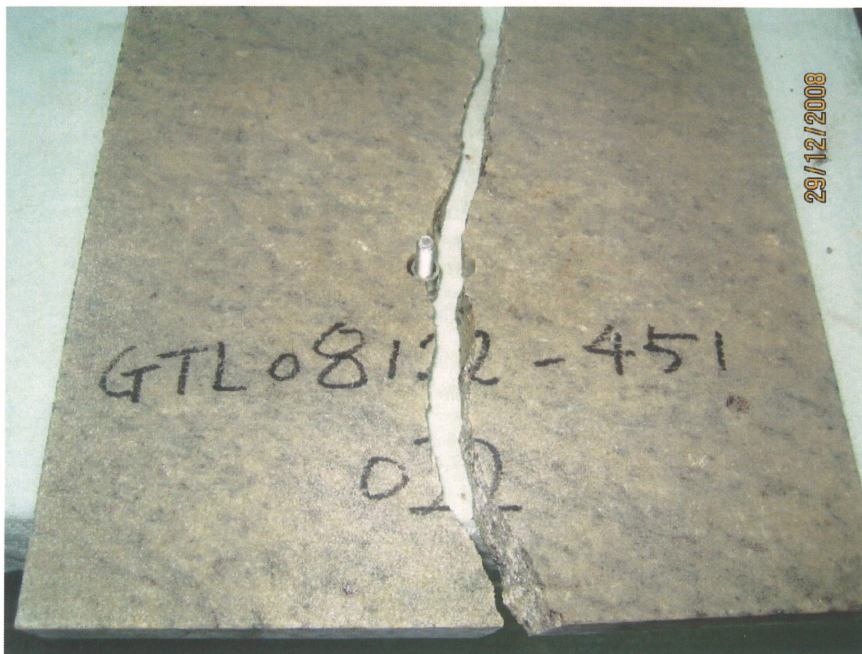
Photo Record



Title : Anchor Test
Sample : 01
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward



Title : Anchor Test
Sample : 02
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

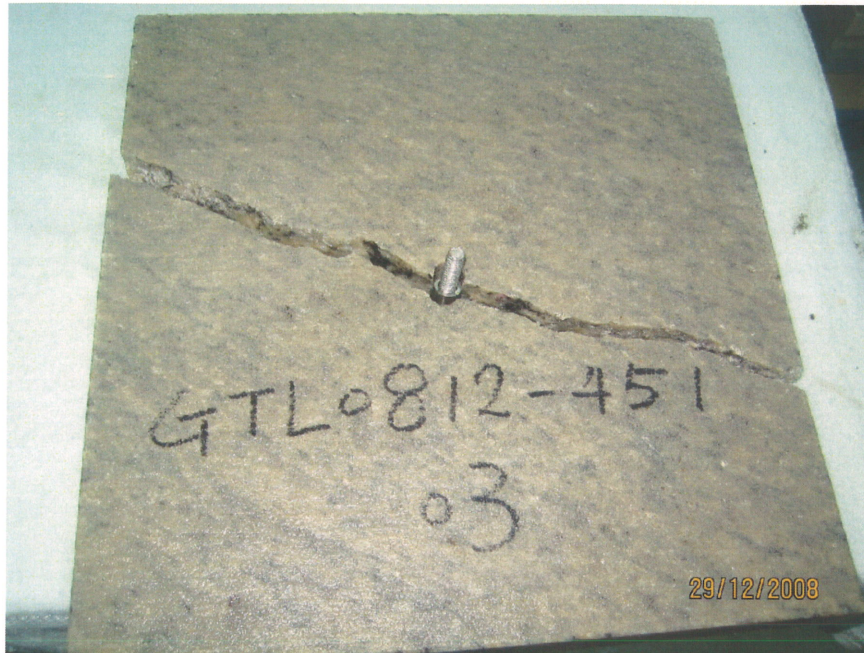
Test load direction : Outward

REPORT No : GTL0812-451

DATE : DECEMBER 30, 2008

PAGE 5 OF 6

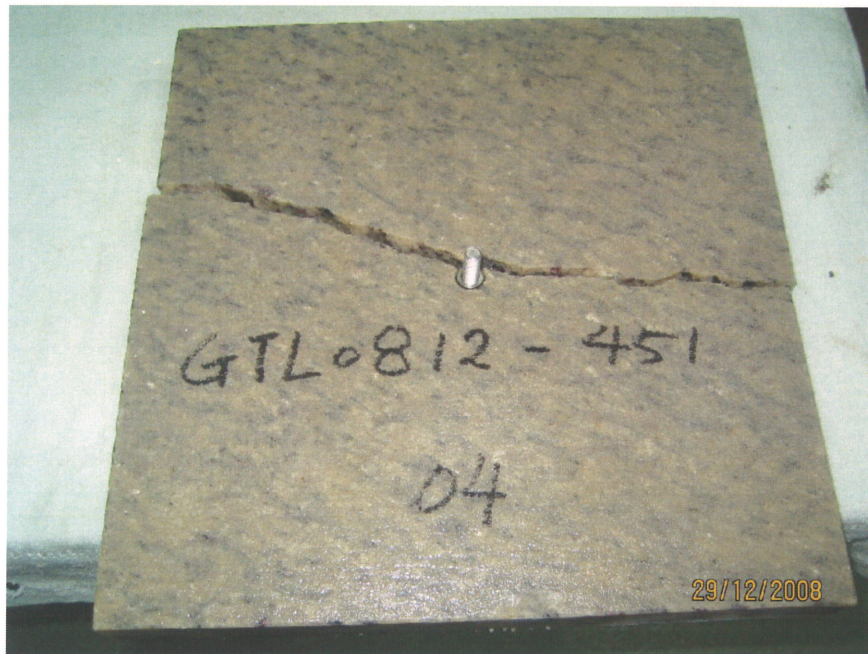
Photo Record



Title : Anchor Test
Sample : 03
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward



Title : Anchor Test
Sample : 04
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

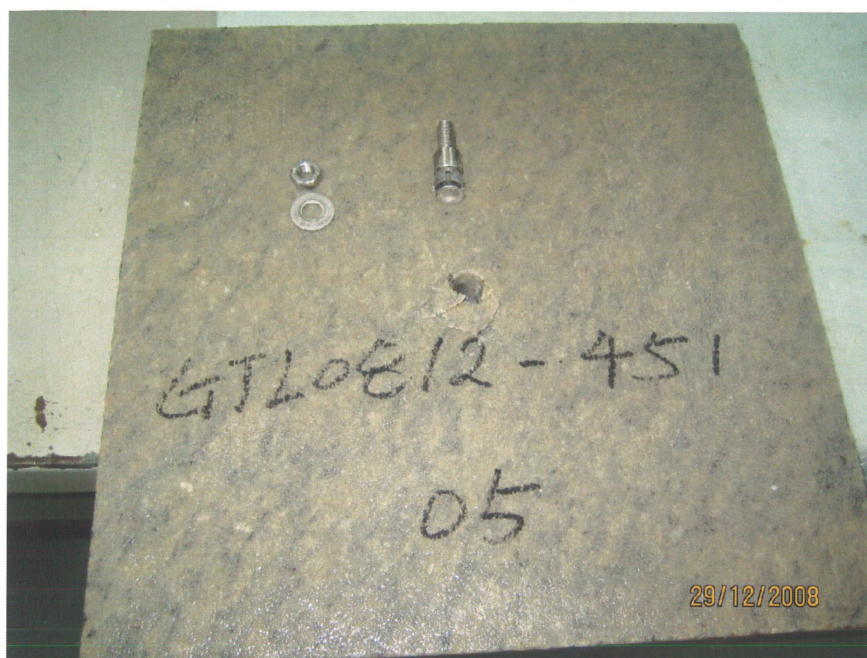
Test load direction : Outward

REPORT No : GTL0812-451

DATE : DECEMBER 30, 2008

PAGE 6 OF 6

Photo Record



Title : Anchor Test
Sample : 05
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward

- The End -

REPORT NO : GTL0812-456

DATE : DECEMBER 31, 2008

PAGE 1 OF 6

TEST REPORT

STRENGTH OF INDIVIDUAL STONE ANCHORAGES IN DIMENSION STONE

Customer's Information

Customer and Address : Sunway Metal Manufactory Limited
Flat C, G/F., Hung Cheung Ind. Centre, Phase 2, 10 Tsing Yeung Circuit,
Tuen Mun, N.T., Hong Kong.

Project and Address : ---

Stone information : Stone type and name : Limestone – Lovely Beige
Quarry source : portugal
Finish : Not provided
Supplier : Zui Loong Company Limited
Nominal specimen size : 300 mm x 300 mm x 40 mm

Anchorage information : Type of anchorage : Back anchorage
(Test load perpendicular to surface/outward)
Manufacturer/Supplier : Sunway Metal Manufactory Limited
Nominal anchorage size : S.S. Stone Back Anchor [SW-BA M8 x 40]
Material and finish : Stainless steel
Infil material : No infil

Test information

Test Performed : Strength of Individual Stone Anchorages in Dimension Stone to ASTM C1354-96(2004).

Test Procedure : As described in Technical Manual : TM9 of Facadetech Laboratory Limited that is complied with Strength of Individual Stone Anchorages in Dimension Stone to ASTM C1354-96(2004).

Sample Received on : December 23, 2008

Equipment I.D. : Loading Machine S/N – FTL/PT/162

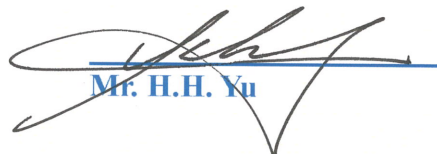
Date of Test : December 29, 2008

Tested by : Dr. Peter Chui

TESTED BY :

APPROVED SIGNATORY :


Dr. Chui Pui-Tak, Peter


Mr. H.H. Yu

REPORT NO : GTL0812-456

DATE : DECEMBER 31, 2008

PAGE 2 OF 6

TEST RESULTS

Conditioning of specimen

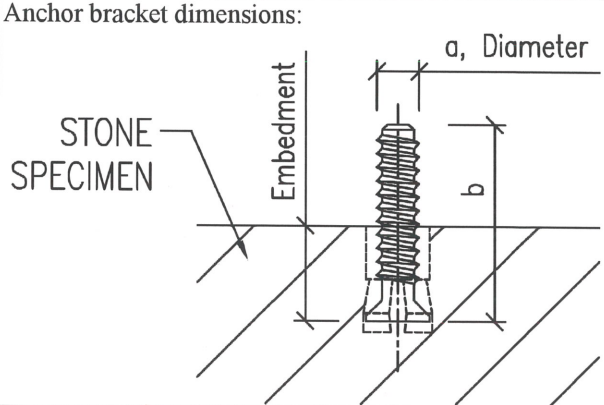
Sample

(GTL0812-456/01 : Wet conditioning - the tested specimens were soaked in water tank at $22 \pm 2^\circ\text{C}$ for
to GTL0812-456/05) 48 hours.

Test Results

Sample Mark (GTL0812-456)	/01	/02	/03	/04	/05
Sample Size					
Length, mm	300	301	300	301	300
Width, mm	301	300	300	300	300
Thickness, mm	40.5	40.6	40.5	40.6	40.5
Anchor bracket dimensions:					
Dim a, mm	7.8	7.8	7.8	7.8	7.8
Dim b, mm	40	41	41	40	41
Embedment, mm	20	21	20	20	21

Diagram for slot, notch, hole and anchor bracket dimensions:

Slot , notch or hole dimensions:	Anchor bracket dimensions:
N/A	

TEST RESULTS

Test Condition

Ambient temperature : 22 °C
Load rate : 60 N/s

Sample Mark (GTL0812-456)		/01	/02	/03	/04	/05
Conditioning of Sample		Wet				
Cut Orientation ^{Note (1)}		---				
Load Direction		Perpendicular to specimen surface / outward				
Maximum Failure Load F_T , kN		5.47	6.32	8.65	7.68	8.69
Failure Mode ^{Note (2)}		Gr	Gr	Gr	Gr	Gr
Stone dimensions for stone failure mode, mm	Length	63	59	66	39	115
	Width	32	57	72	28	83
	Depth	7	8	9	8	10
Anchorage System Load, kN ^{Note (3)}		5.47	6.32	8.65	7.68	8.69
Mean Anchorage System Load, kN		7.36				
Standard Deviation		1.43				

Note (1) : Cut orientation of the tested specimen was informed and marked in the specimens by the customer.

Note (2) : Failure mode:

Gr represents stone failure.

An represents anchor material failure.

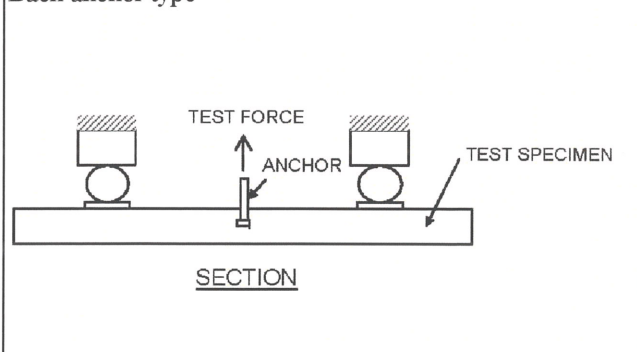
An push/pull represents anchor push/pull out from slot.

Pb represents test specimen broke.

Note (3) : Anchorage System Load, $N = F_T$

Set-up :

Back anchor type



Remark:

- The maximum expanded uncertainty of the measured anchorage system load is +/- 174 N.
- The expanded uncertainty is based on a standard uncertainty by a coverage factor of $K=2$, providing a level of confidence of approximately 95%.
- The results given in this report only relate to the sample tested at the time of the test.

REPORT NO : GTL0812-456

DATE : DECEMBER 31, 2008

PAGE 4 OF 6

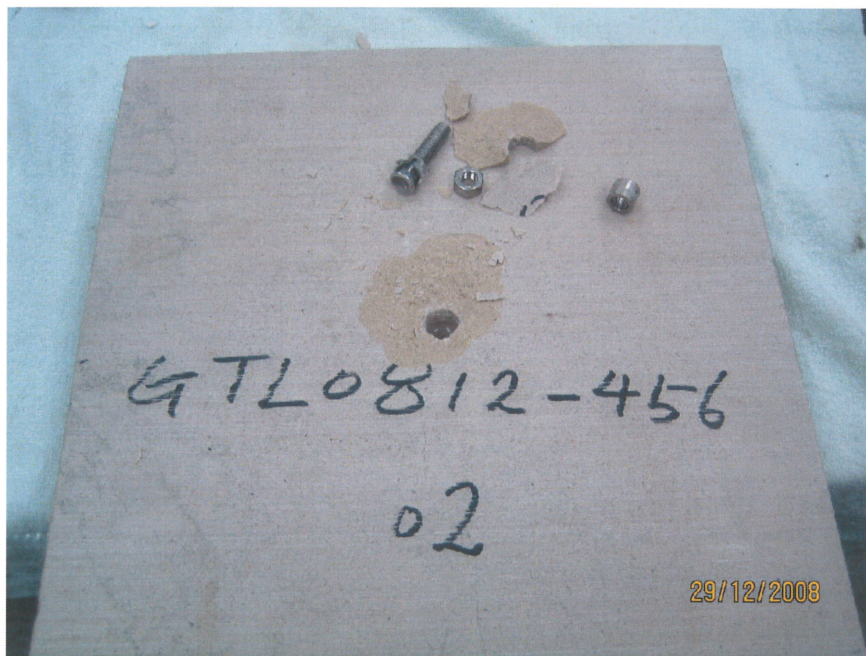
Photo Record



Title : Anchor Test
Sample : 01
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward



Title : Anchor Test
Sample : 02
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

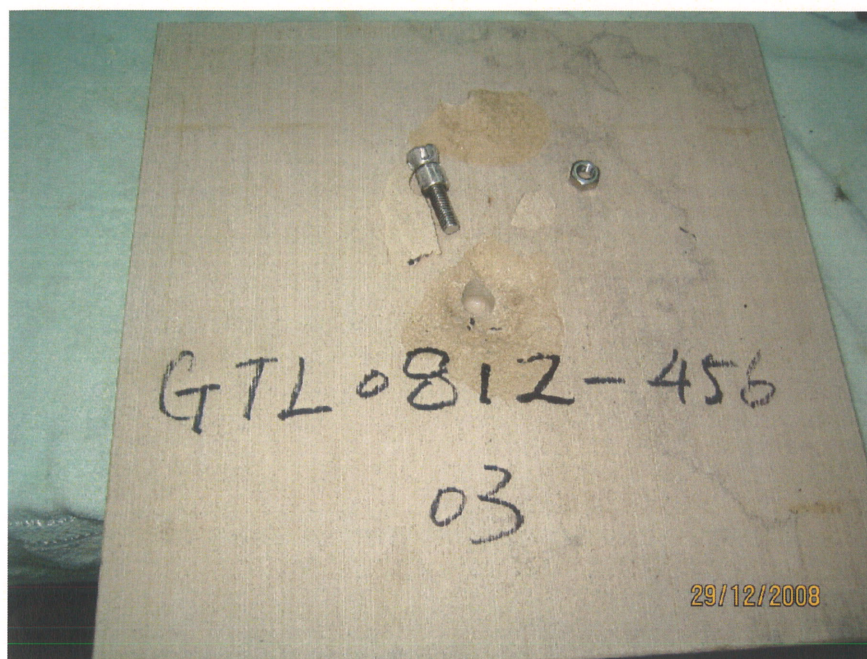
Test load direction : Outward

REPORT NO : GTL0812-456

DATE : DECEMBER 31, 2008

PAGE 5 OF 6

Photo Record



Title : Anchor Test
Sample : 03
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward



Title : Anchor Test
Sample : 04
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward

REPORT NO : GTL0812-456

DATE : DECEMBER 31, 2008

PAGE 6 OF 6

Photo Record



Title : Anchor Test
Sample : 05
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward

- The End -

REPORT No : GTL0812-453

DATE : DECEMBER 30, 2008

PAGE 1 OF 6

TEST REPORT

STRENGTH OF INDIVIDUAL STONE ANCHORAGES IN DIMENSION STONE

Customer's Information

Customer and Address : Sunway Metal Manufactory Limited
Flat C, G/F., Hung Cheung Ind. Centre, Phase 2, 10 Tsing Yeung Circuit,
Tuen Mun, N.T., Hong Kong.

Project and Address : ---

Stone information : Stone type and name : Granite – China Gold
Quarry source : China
Finish : Not provided
Supplier : Zui Loong Company Limited
Nominal specimen size : 300 mm x 300 mm x 30 mm

Anchorage information : Type of anchorage : Back anchorage
(Test load perpendicular to surface/outward)
Manufacturer/Supplier : Sunway Metal Manufactory Limited
Nominal anchorage size : S.S. Stone Back Anchor [SW-BA M8 x 40]
Material and finish : Stainless steel
Infil material : No infil

Test information

Test Performed : Strength of Individual Stone Anchorages in Dimension Stone to ASTM C1354-96(2004).

Test Procedure : As described in Technical Manual : TM9 of Facadetech Laboratory Limited that is complied with Strength of Individual Stone Anchorages in Dimension Stone to ASTM C1354-96(2004).

Sample Received on : December 23, 2008

Equipment I.D. : Loading Machine S/N – FTL/PT/162

Date of Test : December 29, 2008

Tested by : Dr. Peter Chui

TESTED BY :

APPROVED SIGNATORY :


Dr. Chui Pui-Tak, Peter


Mr. H.H. Yu

REPORT NO : GTL0812-453

DATE : DECEMBER 30, 2008

PAGE 2 OF 6

TEST RESULTS

Conditioning of specimen

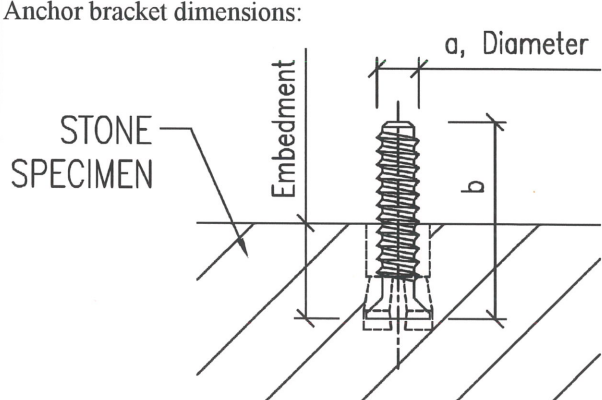
Sample

(GTL0812-453/01 : Wet conditioning - the tested specimens were soaked in water tank at $22\pm 2^{\circ}\text{C}$ for
to GTL0812-453/05) 48 hours.

Test Results

Sample Mark (GTL0812-453)	/01	/02	/03	/04	/05
Sample Size					
Length, mm	301	301	300	300	300
Width, mm	300	300	300	301	301
Thickness, mm	30.1	31.3	30.0	30.9	30.8
Anchor bracket dimensions:					
Dim a, mm	7.8	7.8	7.8	7.8	7.8
Dim b, mm	41	41	41	41	41
Embedment, mm	20	20	20	20	20

Diagram for slot, notch, hole and anchor bracket dimensions:

Slot , notch or hole dimensions:	Anchor bracket dimensions:
N/A	

REPORT No : GTL0812-453

DATE : DECEMBER 30, 2008

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TEST RESULTS

Test Condition

Ambient temperature : 22 °C
Load rate : 60 N/s

Sample Mark (GTL0812-453)		/01	/02	/03	/04	/05
Conditioning of Sample		Wet				
Cut Orientation ^{Note (1)}		---				
Load Direction		Perpendicular to specimen surface / outward				
Maximum Failure Load F_T , kN		9.75	5.32	5.98	7.52	11.50
Failure Mode ^{Note (2)}		Pb	Gr	Gr	Pb	Pb
Stone dimensions for stone failure mode, mm	Length	---	114	136	---	---
	Width	---	71	71	---	---
	Depth	---	10	12	---	---
Anchorage System Load, kN ^{Note (3)}		9.75	5.32	5.98	7.52	11.50
Mean Anchorage System Load, kN		8.01				
Standard Deviation		2.59				

Note (1) : Cut orientation of the tested specimen was informed and marked in the specimens by the customer.

Note (2) : Failure mode:

Gr represents stone failure.

An represents anchor material failure.

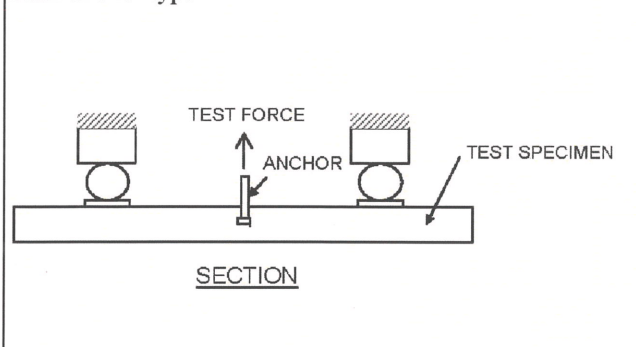
An push/pull represents anchor push/pull out from slot.

Pb represents test specimen broke.

Note (3) : Anchorage System Load, $N = F_T$

Set-up :

Back anchor type



Remark:

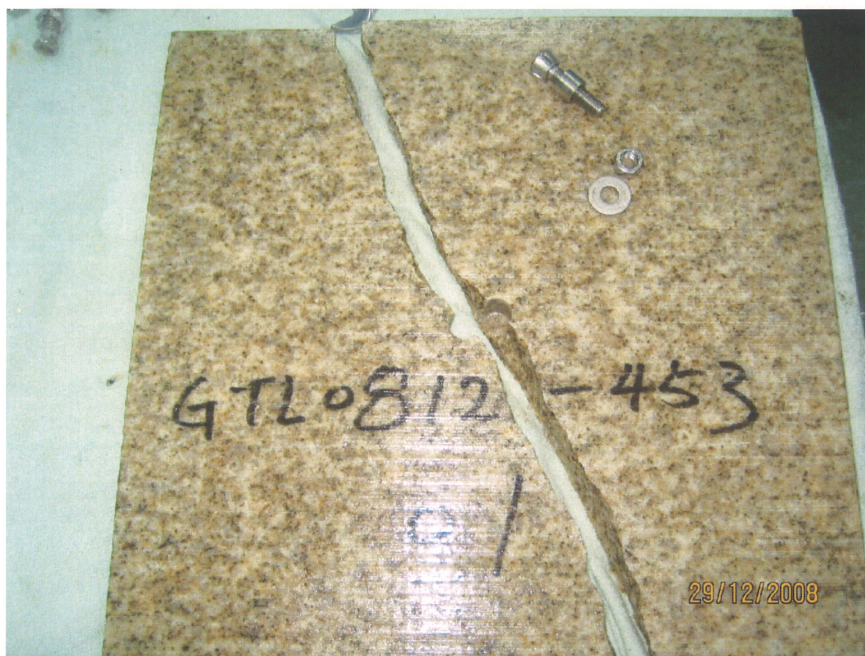
- The maximum expanded uncertainty of the measured anchorage system load is +/- 230 N.
- The expanded uncertainty is based on a standard uncertainty by a coverage factor of $K=2$, providing a level of confidence of approximately 95%.
- The results given in this report only relate to the sample tested at the time of the test.

REPORT NO : GTL0812-453

DATE : DECEMBER 30, 2008

PAGE 4 OF 6

Photo Record



Title : Anchor Test
Sample : 01
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward



Title : Anchor Test
Sample : 02
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward

REPORT No : GTL0812-453

DATE : DECEMBER 30, 2008

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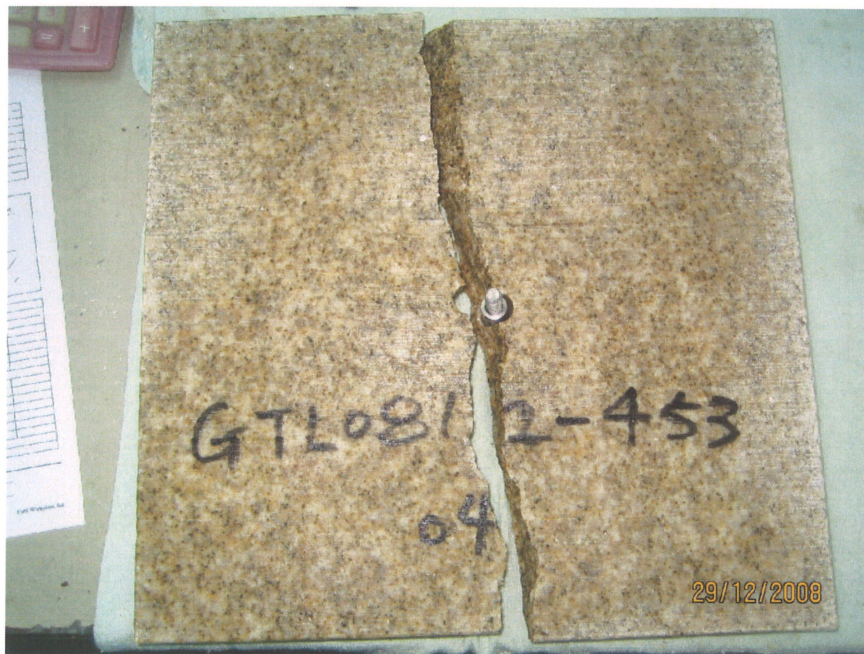
Photo Record



Title : Anchor Test
Sample : 03
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward



Title : Anchor Test
Sample : 04
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward

REPORT No : GTL0812-453

DATE : DECEMBER 30, 2008

PAGE 6 OF 6

Photo Record



Title : Anchor Test
Sample : 05
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward

- The End -

REPORT NO : GTL0812-452

DATE : DECEMBER 30, 2008

PAGE 1 OF 6

TEST REPORT

STRENGTH OF INDIVIDUAL STONE ANCHORAGES IN DIMENSION STONE

Customer's Information

Customer and Address : Sunway Metal Manufactory Limited
Flat C, G/F., Hung Cheung Ind. Centre, Phase 2, 10 Tsing Yeung Circuit,
Tuen Mun, N.T., Hong Kong.

Project and Address : ---

Stone information : Stone type and name : Granite – White Granite
Quarry source : China
Finish : Not provided
Supplier : Zui Loong Company Limited
Nominal specimen size : 300 mm x 300 mm x 30 mm

Anchorage information : Type of anchorage : Back anchorage
(Test load perpendicular to surface/outward)
Manufacturer/Supplier : Sunway Metal Manufactory Limited
Nominal anchorage size : S.S. Stone Back Anchor [SW-BA M8 x 40]
Material and finish : Stainless steel
Infil material : No infil

Test information

Test Performed : Strength of Individual Stone Anchorages in Dimension Stone to ASTM C1354-96(2004).

Test Procedure : As described in Technical Manual : TM9 of Facadetech Laboratory Limited that is complied with Strength of Individual Stone Anchorages in Dimension Stone to ASTM C1354-96(2004).

Sample Received on : December 23, 2008

Equipment I.D. : Loading Machine S/N – FTL/PT/162


Date of Test : December 29, 2008

Tested by : Dr. Peter Chui

TESTED BY :

APPROVED SIGNATORY :


Dr. Chui Pui-Tak, Peter


Mr. H.H. Yu

REPORT NO : GTL0812-452

DATE : DECEMBER 30, 2008

PAGE 2 OF 6

TEST RESULTS

Conditioning of specimen

Sample

(GTL0812-452/01 : Wet conditioning - the tested specimens were soaked in water tank at $22\pm 2^{\circ}\text{C}$ for
to GTL0812-452/05) 48 hours.

Test Results

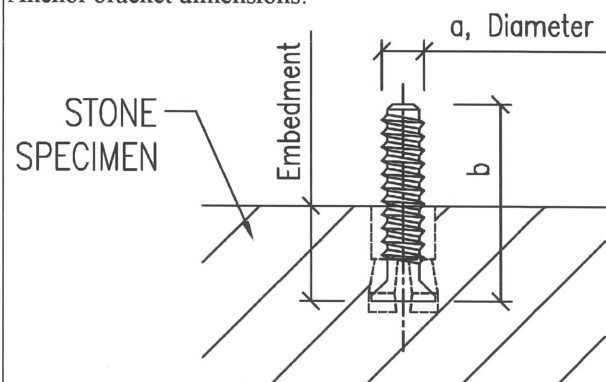
Sample Mark (GTL0812-452)	/01	/02	/03	/04	/05
Sample Size					
Length, mm	301	301	300	301	301
Width, mm	300	300	300	300	300
Thickness, mm	30.4	30.2	30.1	30.4	30.5
Anchor bracket dimensions:					
Dim a, mm	7.8	7.8	7.8	7.8	7.8
Dim b, mm	40	41	41	40	41
Embedment, mm	19	20	20	19	20

Diagram for slot, notch, hole and anchor bracket dimensions:

Slot , notch or hole dimensions:

N/A

Anchor bracket dimensions:



TEST RESULTS

Test Condition

Ambient temperature : 23 °C
Load rate : 70 N/s

Sample Mark (GTL0812-452)	/01	/02	/03	/04	/05
Conditioning of Sample	Wet				
Cut Orientation ^{Note (1)}	---				
Load Direction	Perpendicular to specimen surface / outward				
Maximum Failure Load F_T , kN	9.39	9.86	8.44	7.33	8.34
Failure Mode ^{Note (2)}	Pb	Pb	Pb	Pb	Pb
Stone dimensions for stone failure mode, mm	Length	---	---	---	---
	Width	---	---	---	---
	Depth	---	---	---	---
Anchorage System Load, kN ^{Note (3)}	9.39	9.86	8.44	7.33	8.34
Mean Anchorage System Load, kN	8.67				
Standard Deviation	0.99				

Note (1) : Cut orientation of the tested specimen was informed and marked in the specimens by the customer.

Note (2) : Failure mode:

Gr represents stone failure.

An represents anchor material failure.

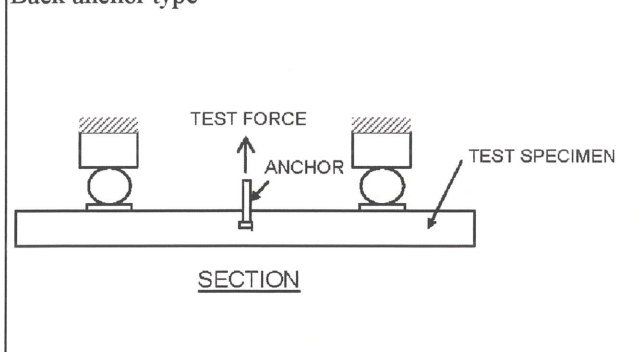
An push/pull represents anchor push/pull out from slot.

Pb represents test specimen broke.

Note (3) : Anchorage System Load, $N = F_T$

Set-up :

Back anchor type



Remark:

- The maximum expanded uncertainty of the measured anchorage system load is +/- 197 N.
- The expanded uncertainty is based on a standard uncertainty by a coverage factor of $K=2$, providing a level of confidence of approximately 95%.
- The results given in this report only relate to the sample tested at the time of the test.

REPORT NO : GTL0812-452

DATE : DECEMBER 30, 2008

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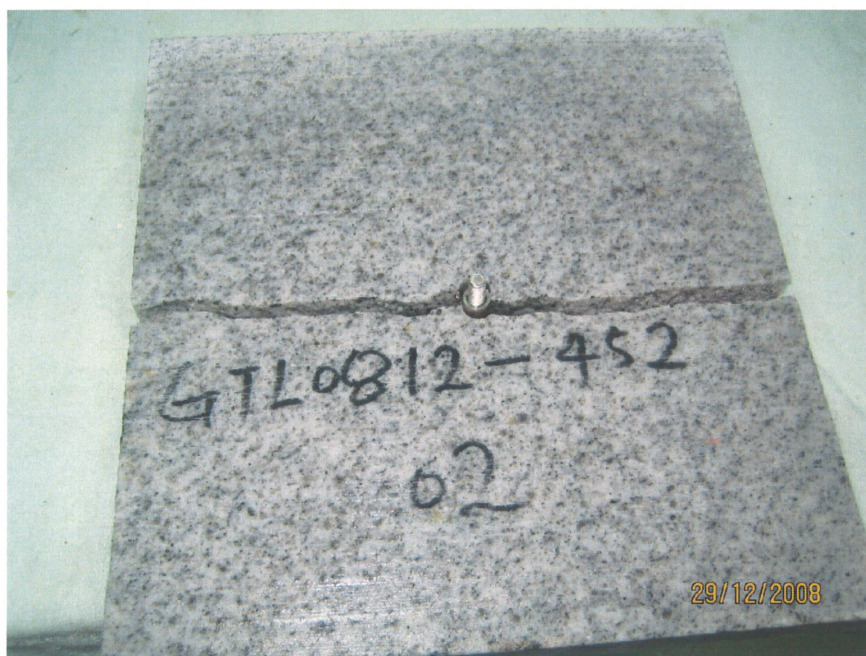
Photo Record



Title : Anchor Test
Sample : 01
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward



Title : Anchor Test
Sample : 02
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

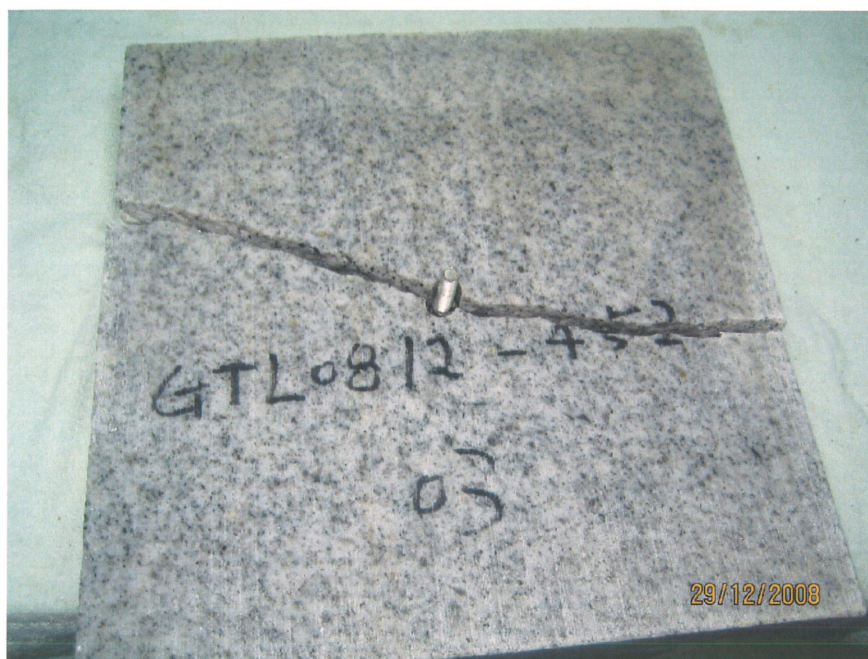
Test load direction : Outward

REPORT No : GTL0812-452

DATE : DECEMBER 30, 2008

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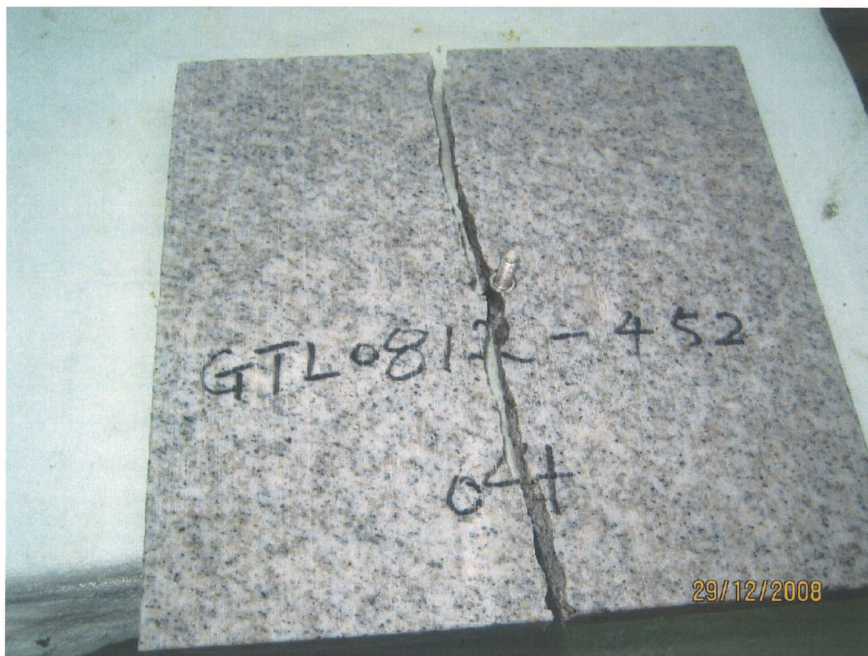
Photo Record



Title : Anchor Test
Sample : 03
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward



Title : Anchor Test
Sample : 04
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

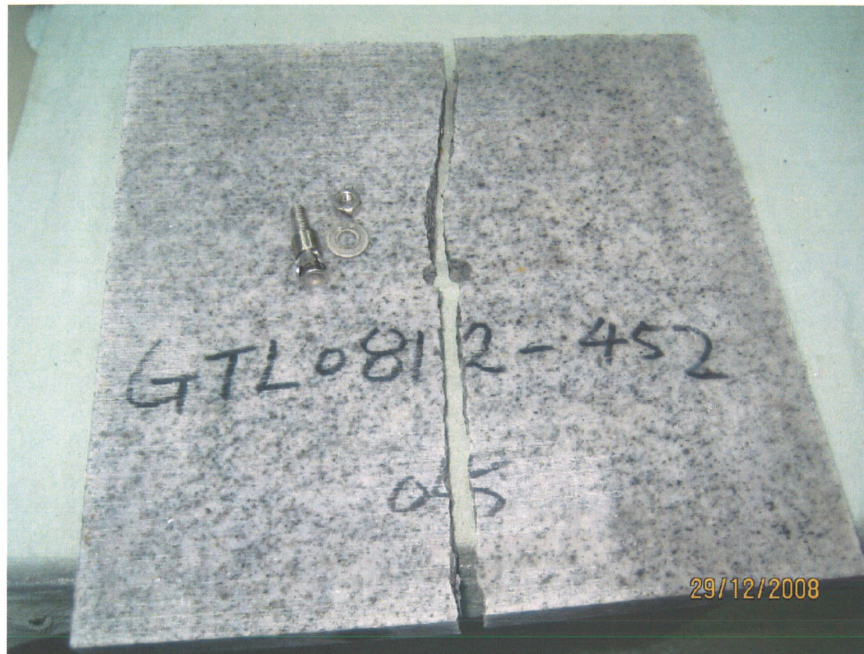
Test load direction : Outward

REPORT No : GTL0812-452

DATE : DECEMBER 30, 2008

PAGE 6 OF 6

Photo Record



Title : Anchor Test
Sample : 05
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward

- The End -

REPORT No : GTL0812-454

DATE : DECEMBER 31, 2008

PAGE 1 OF 6

TEST REPORT

STRENGTH OF INDIVIDUAL STONE ANCHORAGES IN DIMENSION STONE

Customer's Information

Customer and Address : Sunway Metal Manufactory Limited
Flat C, G/F., Hung Cheung Ind. Centre, Phase 2, 10 Tsing Yeung Circuit,
Tuen Mun, N.T., Hong Kong.

Project and Address : ---

Stone information : Stone type and name : Granite – Black Granite
Quarry source : China
Finish : Not provided
Supplier : Zui Loong Company Limited
Nominal specimen size : 300 mm x 300 mm x 30 mm

Anchorage information : Type of anchorage : Back anchorage
(Test load perpendicular to surface/outward)
Manufacturer/Supplier : Sunway Metal Manufactory Limited
Nominal anchorage size : S.S. Stone Back Anchor [SW-BA M8 x 40]
Material and finish : Stainless steel
Infil material : No infil

Test information

Test Performed : Strength of Individual Stone Anchorages in Dimension Stone to ASTM C1354-96(2004).

Test Procedure : As described in Technical Manual : TM9 of Facadetech Laboratory Limited that is complied with Strength of Individual Stone Anchorages in Dimension Stone to ASTM C1354-96(2004).

Sample Received on : December 23, 2008

Equipment I.D. : Loading Machine S/N – FTL/PT/162

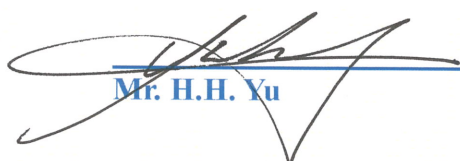
Date of Test : December 29, 2008

Tested by : Dr. Peter Chui

TESTED BY :

APPROVED SIGNATORY :


Dr. Chui Pui-Tak, Peter


Mr. H.H. Yu

REPORT NO : GTL0812-454

DATE : DECEMBER 31, 2008

PAGE 2 OF 6

TEST RESULTS

Conditioning of specimen

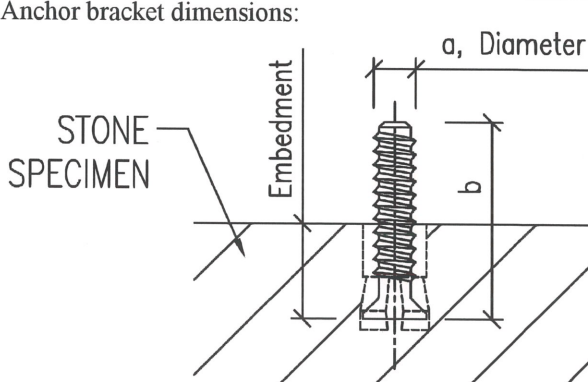
Sample

(GTL0812-454/01 : Wet conditioning - the tested specimens were soaked in water tank at $22\pm 2^{\circ}\text{C}$ for
to GTL0812-454/05) 48 hours.

Test Results

Sample Mark (GTL0812-454)	/01	/02	/03	/04	/05
Sample Size					
Length, mm	300	300	300	300	299
Width, mm	300	300	300	300	301
Thickness, mm	30.7	30.7	30.7	30.4	30.6
Anchor bracket dimensions:					
Dim a, mm	7.8	7.8	7.8	7.8	7.8
Dim b, mm	41	41	41	41	41
Embedment, mm	19	20	20	21	20

Diagram for slot, notch, hole and anchor bracket dimensions:

Slot , notch or hole dimensions:	Anchor bracket dimensions:
N/A	

REPORT NO : GTL0812-454

DATE : DECEMBER 31, 2008

PAGE 3 OF 6

TEST RESULTS

Test Condition

Ambient temperature : 22 °C
Load rate : 100 N/s

Sample Mark (GTL0812-454)	/01	/02	/03	/04	/05
Conditioning of Sample	Wet				
Cut Orientation ^{Note (1)}	---				
Load Direction	Perpendicular to specimen surface / outward				
Maximum Failure Load F_T , kN	14.13	12.18	13.32	12.92	9.97
Failure Mode ^{Note (2)}	Pb	Pb	Pb	Pb	An pull
Stone dimensions for stone failure mode, mm	Length	---	---	---	---
	Width	---	---	---	---
	Depth	---	---	---	---
Anchorage System Load, kN ^{Note (3)}	14.13	12.18	13.32	12.92	9.97
Mean Anchorage System Load, kN	12.50				
Standard Deviation	1.58				

Note (1) : Cut orientation of the tested specimen was informed and marked in the specimens by the customer.

Note (2) : Failure mode:

Gr represents stone failure.

An represents anchor material failure.

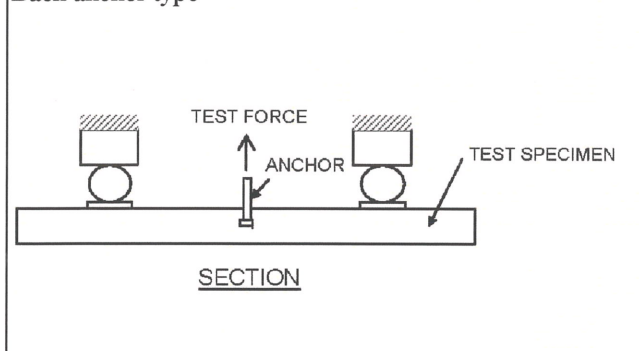
An push/pull represents anchor push/pull out from slot.

Pb represents test specimen broke.

Note (3) : Anchorage System Load, $N = F_T$

Set-up :

Back anchor type



Remark:

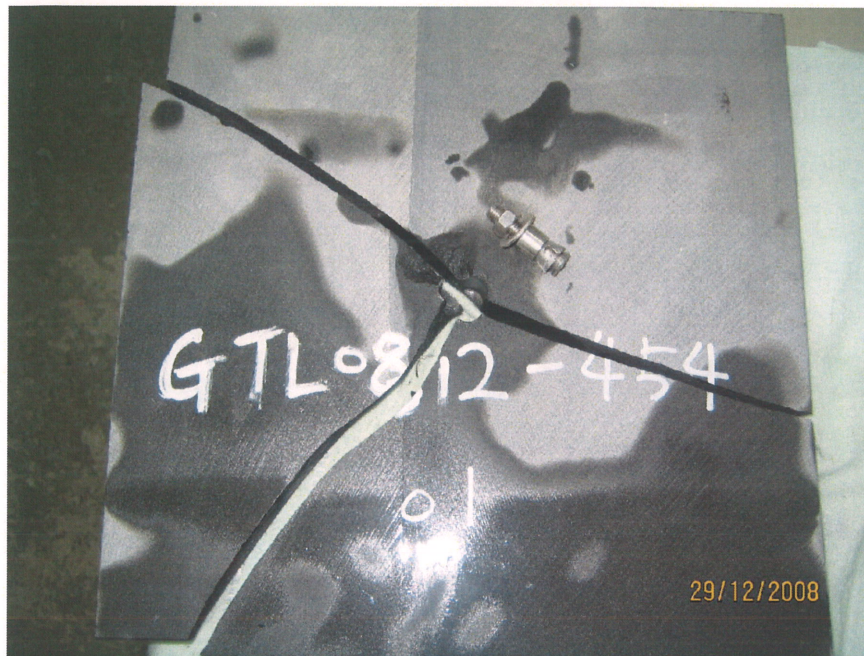
- The maximum expanded uncertainty of the measured anchorage system load is +/- 283 N.
- The expanded uncertainty is based on a standard uncertainty by a coverage factor of $K=2$, providing a level of confidence of approximately 95%.
- The results given in this report only relate to the sample tested at the time of the test.

REPORT No : GTL0812-454

DATE : DECEMBER 31, 2008

PAGE 4 OF 6

Photo Record



Title : Anchor Test
Sample : 01
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward



Title : Anchor Test
Sample : 02
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

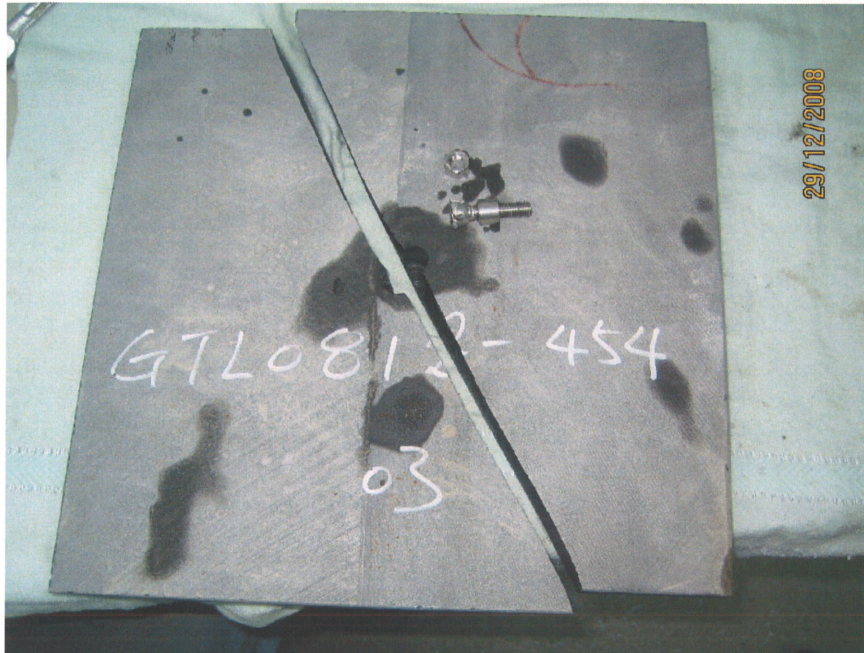
Test load direction : Outward

REPORT No : GTL0812-454

DATE : DECEMBER 31, 2008

PAGE 5 OF 6

Photo Record



Title : Anchor Test
Sample : 03
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward



Title : Anchor Test
Sample : 04
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

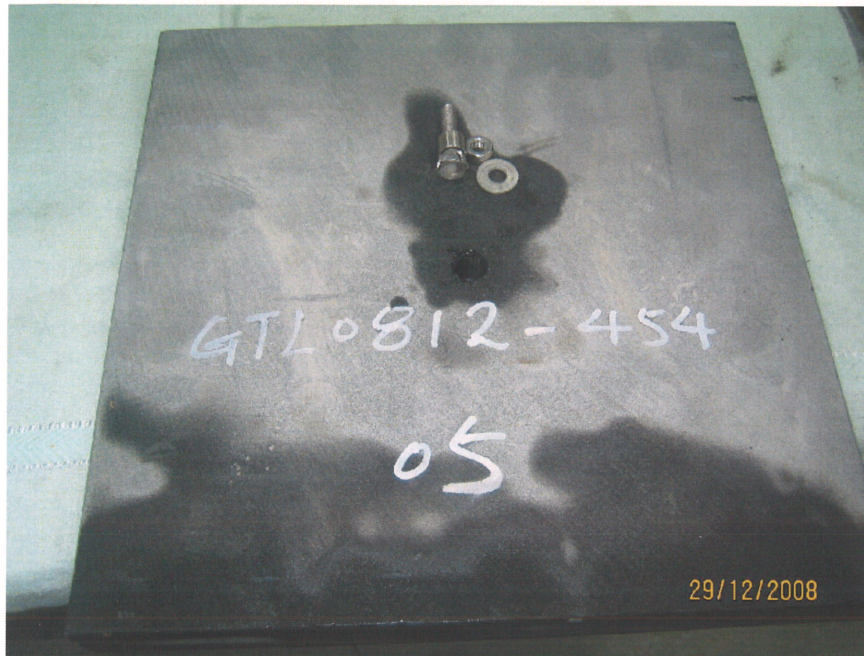
Test load direction : Outward

REPORT NO : GTL0812-454

DATE : DECEMBER 31, 2008

PAGE 6 OF 6

Photo Record



Title : Anchor Test
Sample : 05
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward

- The End -

REPORT NO : GTL0812-455

DATE : DECEMBER 31, 2008

PAGE 1 OF 6

TEST REPORT

STRENGTH OF INDIVIDUAL STONE ANCHORAGES IN DIMENSION STONE

Customer's Information

Customer and Address : Sunway Metal Manufactory Limited
Flat C, G/F., Hung Cheung Ind. Centre, Phase 2, 10 Tsing Yeung Circuit,
Tuen Mun, N.T., Hong Kong.

Project and Address : ---

Stone information : Stone type and name : Limestone – Alexandra Beige
Quarry source : Portugal
Finish : Not provided
Supplier : Zui Loong Company Limited
Nominal specimen size : 300 mm x 300 mm x 40 mm

Anchorage information : Type of anchorage : Back anchorage
(Test load perpendicular to surface/outward)
Manufacturer/Supplier : Sunway Metal Manufactory Limited
Nominal anchorage size : S.S. Stone Back Anchor [SW-BA M8 x 40]
Material and finish : Stainless steel
Infil material : No infil

Test information

Test Performed : Strength of Individual Stone Anchorages in Dimension Stone to ASTM C1354-96(2004).

Test Procedure : As described in Technical Manual : TM9 of Facadetech Laboratory Limited that is complied with Strength of Individual Stone Anchorages in Dimension Stone to ASTM C1354-96(2004).

Sample Received on : December 23, 2008

Equipment I.D. : Loading Machine S/N – FTL/PT/162

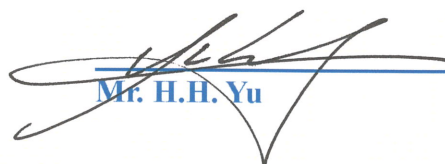
Date of Test : December 29, 2008

Tested by : Dr. Peter Chui

TESTED BY :

APPROVED SIGNATORY :


Dr. Chui Pui-Tak, Peter


Mr. H.H. Yu

REPORT No : GTL0812-455

DATE : DECEMBER 31, 2008

PAGE 2 OF 6

TEST RESULTS

Conditioning of specimen

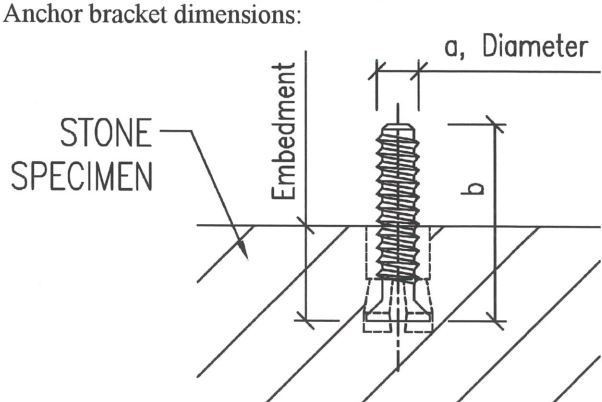
Sample

(GTL0812-455/01 : Wet conditioning - the tested specimens were soaked in water tank at $22 \pm 2^\circ\text{C}$ for
to GTL0812-455/05) 48 hours.

Test Results

Sample Mark (GTL0812-455)	/01	/02	/03	/04	/05
Sample Size					
Length, mm	300	301	300	300	300
Width, mm	300	300	300	300	300
Thickness, mm	40.4	40.6	40.4	40.7	41.3
Anchor bracket dimensions:					
Dim a, mm	7.8	7.8	7.8	7.8	7.8
Dim b, mm	40	40	41	41	40
Embedment, mm	19	21	20	20	20

Diagram for slot, notch, hole and anchor bracket dimensions:

Slot , notch or hole dimensions:	Anchor bracket dimensions:
N/A	

TEST RESULTS

Test Condition

Ambient temperature : 22 °C
Load rate : 60 N/s

Sample Mark (GTL0812-455)		/01	/02	/03	/04	/05
Conditioning of Sample		Wet				
Cut Orientation ^{Note (1)}		---				
Load Direction		Perpendicular to specimen surface / outward				
Maximum Failure Load F_T , kN		10.42	9.60	8.62	7.86	7.80
Failure Mode ^{Note (2)}		An pull	Gr	Gr	Gr	Gr
Stone dimensions for stone failure mode, mm	Length	---	51	93	73	92
	Width	---	47	69	57	68
	Depth	---	12	12	12	12
Anchorage System Load, kN ^{Note (3)}		10.42	9.60	8.62	7.86	7.80
Mean Anchorage System Load, kN		8.86				
Standard Deviation		1.14				

Note (1) : Cut orientation of the tested specimen was informed and marked in the specimens by the customer.

Note (2) : Failure mode:

Gr represents stone failure.

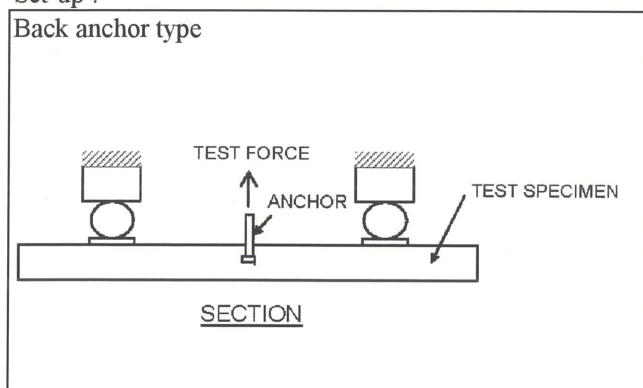
An represents anchor material failure.

An push/pull represents anchor push/pull out from slot.

Pb represents test specimen broke.

Note (3) : Anchorage System Load, $N = F_T$

Set-up :



Remark:

- The maximum expanded uncertainty of the measured anchorage system load is +/- 208 N.
- The expanded uncertainty is based on a standard uncertainty by a coverage factor of $K=2$, providing a level of confidence of approximately 95%.
- The results given in this report only relate to the sample tested at the time of the test.

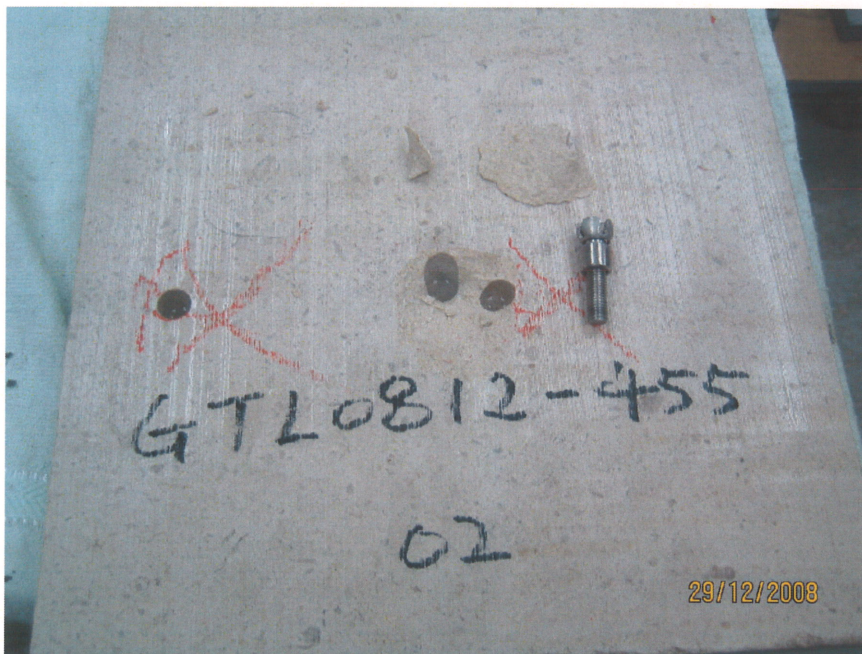
Photo Record



Title : Anchor Test
Sample : 01
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward



Title : Anchor Test
Sample : 02
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward

REPORT No : GTL0812-455

DATE : DECEMBER 31, 2008

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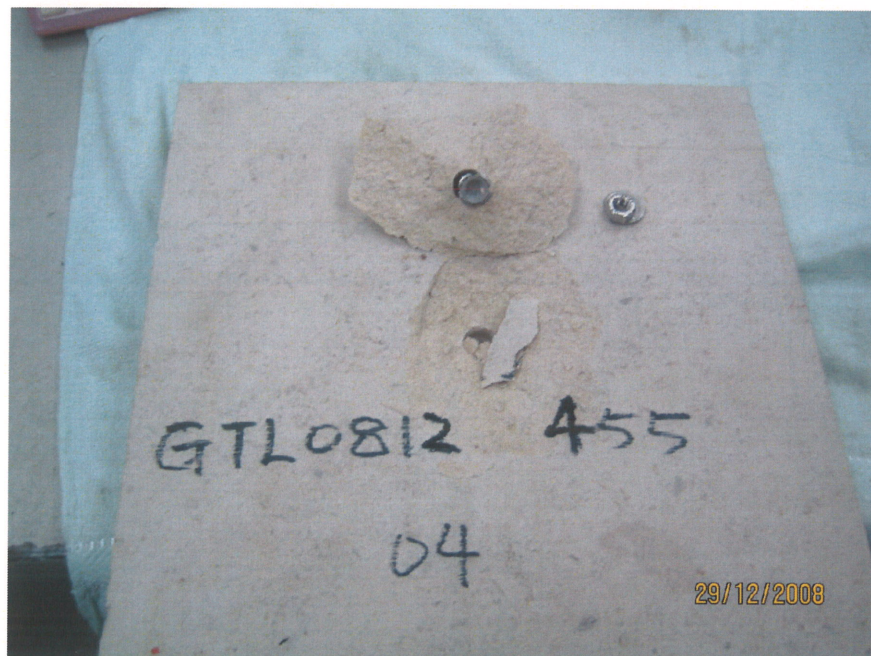
Photo Record



Title : Anchor Test
Sample : 03
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward



Title : Anchor Test
Sample : 04
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

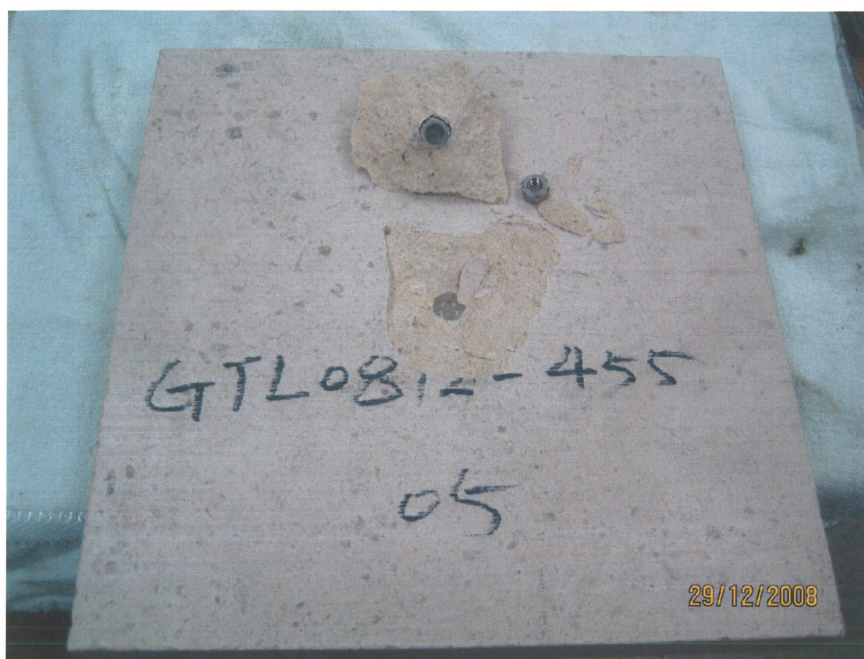
Test load direction : Outward

REPORT NO : GTL0812-455

DATE : DECEMBER 31, 2008

PAGE 6 OF 6

Photo Record



Title : Anchor Test
Sample : 05
Photo by : P. Chui
Date : 2008/12/29

Sample tested after wet
conditioning

Test load direction : Outward

- The End -



浙江腾龙精线有限公司

质量证明书

CERTIFICATE OF QUALITY

ZHEJIANG TENG LONG STAINLESS STEEL PRODUCTS CO., LTD

地址:宁波市北仑区小港街道陈山东路69号

Add: No. 67-69, East Chen Shan Road, Beilun District,

Ningbo, China. P. C 315803

Fax: 0574-86227999 Email: nbtltl@nbtltl.com.cn

Tel: 0574-86228228 Url: www.tenglonggroup.com

编号: ZM18011542

产品名称: 不锈钢丝/紧固件

客户名称: 新和行(佛山)金属制品有限公司

出货单号: Z020218011871

(Product) Stainless steel wire

(Messers)

Delivery No.

(No)

序号 No	订单号 (OrderNo)	材质 Grade	种类 Sort	炉号 HeatNo	线径 Dia (mm)	重量 N.W. (kg)	件数 Pcs	机械性能 (Mechanical properties)				
								屈服强度 YS (MPa)	抗拉强度 TS (MPa)	延伸率 EL (%)	断面收缩率 Z (%)	HRB
1	ZB18010530	316CU	BN1	171212B02	7.05	1344.6	8	350	551	56		
2	ZB18010530	316CU	BN1	171212B03	7.05	681.4	4	350	550	54		
3												
4												
5												
6												
7												

序号 No	炉号 HeatNo	化学成分 (%) Chemical Composition (%)										
		C	Si	Mn	P	S	Cr	Ni	Mo	Cu	N	Ti
1	171212B02	0.017	0.3	0.75	0.032	0.001	17.24	10.07	2.08	2.31		
2	171212B03	0.028	0.32	0.81	0.034	0.001	17.27	10.1	2.06	2.35		
3												
4												
5												
6												
7												

备注:

Remarks:

签字人:

name

Quality Assurance Dept.

签字日期: 2018.01.27

Date:





Mill Test Certificate/检查证明书

Certificate No./证明书号码: 161215-ZRNC-070-001

Date of Issue/发行日期: Jan., 05, 2017

Surface Finish/表面整理: NO.2B



Order No./合同号码: SRK612109

Supplier/订户: 佛山市利迅达不锈钢有限公司

Customer/客户: 佛山市利迅达不锈钢有限公司

PO No./采购号码:

Commodity/品名: STS CR Coil

Spec & Type/规格: ASTM-A240-316L

Size/尺寸	Product No 产品号码	Qua- nity 数量	Weight 重量 (kg)	Heat No. 制钢号码	P O S T I O N	Tensile/拉伸试验 YS 0.2% TS EL (MPa) (%) ≥ 170 ≥ 485 ≥ 40	Hard- ness /硬度 ≤ 95 HRB		D I V I S I O N	Chemical Composition/									
										C (%) 0-0.03	Si (%) 0-0.75	Mn (%) 0-2	P (%) 0-0.043	S (%) 0-0.03	Cr (%) 16-18	Ni (%) 10-14	Mo (%) 2-3	N (%) 0-0.1	
1.88x1219xC	QJ0901C	1	10.897	S664071	T	274 609 52	81		L	0.0138	0.555	1.343	0.0263	0.003	16.67	10.11	2.04	0.0106	
... Sub Total (010) ...		1	10.897 (kg)		B	272 605 53	81												
2.00x1219xC	QW1309B	1	23.271	S664071	T	277 608 53	82		L	0.0138	0.555	1.343	0.0263	0.003	16.67	10.11	2.04	0.0106	
... Sub Total (020) ...		1	23.271 (kg)		B	270 600 53	81												
... Grade Total ...		2	34.168 (kg)																
... Grand Total ...		2	34.168 (kg)																
							==== Last Item =====												

We hereby certify that the material herein has been made in accordance with the order and specification.

* Position - T: Top, M: Middle, B: Bottom

* Tensile Test Direction: Transversal. Gauge Length: 50mm (Rectangular).

YP Method: 0.2% off-set

- Division - L: Ladle Analysis * Tr(Trace)



* This Mill Test Certificate cannot be copied for any purpose.

Surveyor To:

Zhang Jian Chun

Zhangjiagang Pohang Stainless Steel Co., Ltd. No.1 Jinfeng Riverside Road, Zhangjiagang City, Jiangsu Province, PRC.

Chief of material testing section Zhang Jian Chun

shenyj, 2017-01-05 12:40:43

No distribution is allowed without permission.

Supplier Information



SUNWAY

新和金屬製品廠有限公司
Sunway Metal Manufactory Ltd.

Sunway was founded in 1984 and has about 30 years working experience specialized in the production of stainless steel stone panel bracket, anchor bolt, stone back anchor, tactile system and other accessories related to stone facade construction projects. The products are approved by Building Department (BD), Architecture Service Department (ASD), Housing Department, and have been widely applied in different kinds of projects in Hong Kong, such as Cyberport, Hong Kong International Airport, Disney HK, and etc.

Sunway has workshops in both Hong Kong and mainland China. HK workshop has modest facility, mainly for new product design and urgent work; Mass production is usually carried out in mainland factory located in Zhong Shan City. The production of stainless steel brackets and anchor bolt have been already accredited the standard of ISO 9001:2015.

To ensure our products quality, products samples will be regularly sent to HOKLAS, Mainland China and Germany Laboratories for physical and chemical composition tests. Sunway also established our own research and testing center in China workshop.



Hong Kong Workshop

Address: Unit C, Ground Floor,
Hung Cheung Industrial
Centre (Phase II),
No. 10 Tsing Yeung Circuit,
Tuen Mun, N.T., Hong Kong



Zhong Shan workshop

Address: No.20, Xinhui Road,
Shunde Science and Technology
Industrial Park,
Shunde District, Foshan City,
Guangdong Province, P.R. China



QUALITY MANAGEMENT SYSTEM CERTIFICATE

Certificate No.: 04617Q14277R1S

We hereby certify that the organization:
**SUNWAYHANG (FOSHAN) METAL
MANUFACTORY LTD.**

Unified social credit code: 91440606664985690J

is in conformity with Quality Management System Standard:
GB/T19001-2016 / ISO9001:2015

The certificate is valid to the following product(s)/service:
Production of Expansion Bolt

Registration Address/ Physical Address: No. 20, Xinhui Road, Shunde Science and
Technology Industrial Park, Shunde District, Foshan City, Guangdong Province,
P. R. China

Date of Issue: 2017-11-12

Date of Expiry: 2020-11-11

Date of Initial Issue: 2014-11-13

Issued By



中国认可
国际互认
管理体系
MANAGEMENT SYSTEM
CNAS C046-M



The effectiveness of the Certificate is subject to QR Code in the lower left corner.
Meanwhile, you can search the website of certification body: www.hicchina.com.cn,
or search the CNCA website: www.cnca.gov.cn.

Beijing Head International Certification Co., Ltd.

Address: 1601 Room, Building 5, No. 19 Beiyuan East Rd, Chaoyang District, Beijing, P.R. China (100012)

ISO 9001

Flow chart of production and QA/QC system



Different size of SUNWAY SW-BA Stone Back Anchor

Production Procedure

SUNWAY SW-BA Stone Back Anchor consists of several components/ accessories. Those components/ accessories need to be produced first and assembled in the end.

The components include:

1. Nut (manufacture from another factory)
2. Anchor Plug
3. Washer
4. Steel Tube
5. Sleeve

Anchor Plug production procedure

1. Purchase the raw material (round stainless steel bars) from supplier
2. Cut the round bars into small pieces
3. Cutting, Drilling and knurling by lathe machine



Round Stainless Steel Bars



Lathe machine

Washer production procedure

1. Purchase the raw material (stainless steel plates) from supplier
2. Stamping out the washers



Stamping machine for production of washers

Steel Tube production procedure

1. Purchase the raw material (stainless steel plates) from supplier
2. Stamping out a tube piece



Stamping machine for production of steel tubes

Sleeve production procedure

1. Purchase the raw material (round stainless steel bars) from supplier
2. Cut the round bars into small pieces
3. Stamping out a sleeve



Finished product of sleeve

QA/QC Procedure

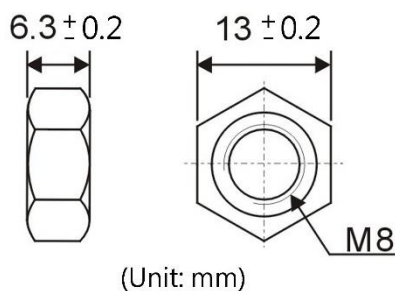
Every time when the raw materials come to SUNWAY workshop, mill test certificates need to be checked to ensure the material's chemical and physical properties, and the compliance material standard. In addition, during every steps of production, intermediate products will be randomly inspected to ensure their quality.

For the final products of every components, certain amount will be inspected.

Details are in the following:

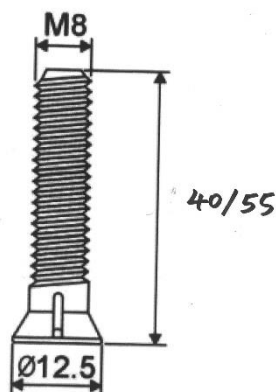
Nut Inspection Control

1. Inspect 12 pieces among 2000 pieces per original box.
2. Use thread gauge to check thread.
3. Check the dimension as shown below.
4. Record in rough sheet.



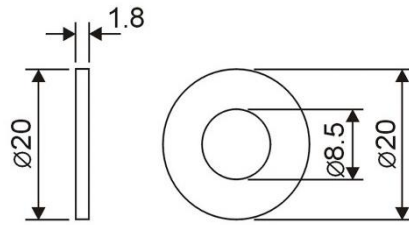
Anchor Plug Inspection Control

1. Sample inspect 4 pieces per original carton box. Content 800 pieces per box.
2. Use thread gauge to check thread.
3. Check the dimension as shown below.
4. Record in rough sheet.



Washer Inspection Control

1. Inspect 1 piece among 2000 pieces.
2. check the dimension as show below.
3. Record in rough sheet.



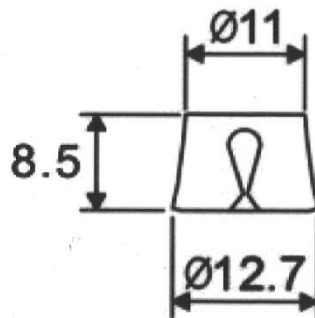
TOLERANCE ± 0.2

E8 Washer

(Unit: mm)

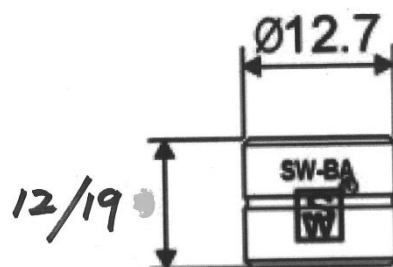
Steel Tube Inspection Control

1. Inspect 1 piece among 2000 pieces.
2. check the dimension as show below.
3. Record in rough sheet.



Sleeve Inspection Control

1. Inspect 1 piece among 1000 pieces.
2. check the dimension as show below.
3. Record in rough sheet.



Assembly (SW-BA finished product) Inspection Control

1. Inspect 20 pieces of SW-BA in every 300 pieces/ carton before packing
2. Inspect the finished appearance
3. Check the thread.
4. Check if expansion portion is in good condition by vision.
5. Record in rough sheet.
6. Check 2 pieces among 3000 pieces with Stainless Steel Material Tester



Stainless Steel Material Tester



Check the finished products with Stainless Steel Material Tester

In addition, products of SW-BA will be regularly sent to accredited laboratories to conduct the Foundry Master Test, chemical tests and Individual stone anchorages tests.
(Please refer to Jingmei Testing and Facadetech test reports)

Foundry Master is a reliable, precise laboratory spectrometer for the qualitative and quantitative element analysis of metallic samples. The instrument is designed for stationary use as bench top unit.

The instrument is well established with hundreds of customers worldwide opting for its high performance qualities and practical features.

[illegible]

Job Reference

SUNWAY SW-BA Stone Back anchor has been widely applied in various project, which includes government's buildings, residential and commercial buildings, shopping malls, houses and so on.

Projects list is in the following :

<u>Date</u>	<u>Project Name</u>
2018	Happy Valley Clubhouse
2018	NKIL6525, Kai Tak Area 11, Site 1
2018	5 Goldsmith Road
2018	Everbright Centre
2018	18 Stubbs Road
2018	New World 5020
2018	New World Centre H2 Podium Façade/W.T.3&4
2018	Hong Kong Children's Hospital
2018	NKIL 6526 External
2018	35 Barker Road
2017	Louis Vuitton SEOUL CHEONGDAM-DONG
2017	Lisboa Palace, Macau
2017	Gucci, Canton Road
2017	Nam Cheong Station
2017	1&2, 8-12 Deep Water Bay Drive
2017	TKO 118
2017	Wellesley, 23 Robinson Road
2017	HENDERSON ROAD
2017	TPTL 186-188, Pak Shek Kok, Tai Po
2017	Sing Tao News Corporation Building
2017	77 Peak Road
2017	20 Peak Road
2016	Kerry Hotel Hong Kong
2016	New World 7010
2016	Valentino Hong Kong Lee Gardens One
2016	Louis Vuitton, Canton Road
2016	3 Deep Water Bay Road
2016	11 Plantation Road
2016	TKO 66A
2016	New World Millennium Hong Kong Hotel
2016	Alassio, 100 Caine Road
2016	127 Repulse Bay Road

2016	31 Conduit Road
2016	13 Big Wave Bay Road
2016	1 Castle Road
2016	Grand Hyatt Hong Kong
2015	TKO 66C1
2015	Cotal Parcel 6&6, Macau
2015	25 La Salle Road
2015	13 Big Wave Bay Road
2015	Zhongshan Agile
2015	48-50 Stanley Village Road
2014	Salvatore Ferragamo- Zhengzhou David Plaza
2014	Valentino HK, Canton Road
2014	Austin Station site D
2014	Austin Station site C
2014	Ralph Lauren, Causeway Bay
2014	Tiffany Adelaide Central Plaza
2013	63 Seymour Road
2013	HKIC- Kwai Chung Campus
2012	Cartier Macau One Central
2012	Discovery Bay, Area N3
2012	DFS Hong Kong Lippo Sun Plaza
2012	Polo Ralph Lauren SH PARK PLACE
2012	Chanel Nanjing Deji Plaza
2011	60-62 Chung Hom Kok Road
2010	One Central, Podium, Macau
2009	Tao Fong Shan, Sha Tin
2008	Middle Gap Road
2008	One Island East – Turn Around Water Feature
2007	MGM, Macau
2005	Perkins Road



Providence Bay



Hong Kong Children's Hospital