



Report No.:  
Rev No.:

Report Date:

# INSPECTION REPORT

**This is to certify that the components as described hereunder have been inspected.**

<b>Client</b>	
<b>Client's P.O. No./Contract No.</b>	
<b>Supplier</b>	
<b>Manufacturer</b>	
<b>Inspection Place</b>	
<b>Date/Period of Inspection</b>	
<b>Inspector/Surveyor</b>	
<b>Coordinator/Mail/Tel.</b>	

## **1.0 The following Devices were inspected:**

Item	Name	Tag Number	PO Qty	Inspected Qty
1	Extruded Fin tubes A210 Gr. C/ AL1060, 25.4* 3.404*6000mm		283 Pcs	283 Pcs

## **2.0 Attendees:**

Name	Company	Title

## **3.0 Base of Inspection:**

Document No.	Revision	Title	Approval status
	1	Approved Drawing	Approved



Report No.:  
Rev No.:

Report Date:

# INSPECTION REPORT

## 4.0 Scope of Inspection:

- 1: Visual inspection 20% randomly
- 2: Dimensional check 10% randomly
- 3: Sampling process witnessed and laboratory test witnessed
- 4: Documents review

## 5.0 Inspection Summary:

DCICO's inspector performed inspection for fin tubes

The inspection was performed as follows:

- Inspector performed 20% visual inspection for the fin tubes, and the results were acceptable
- Inspector performed 10% dimensional inspection for the fin tubes, and the results were acceptable
- Inspector witnessed sampling process and laboratory test for ASTM A210 Gr. C seamless tube, and the results were acceptable
- Inspector reviewed the related quality documents for the fin tubes, and the results were acceptable

## 6.0 Inspection Details:

Equipment Type	Equipment Identity	Last Calibration Date	Expiry Date
Steel Tape(0~5m)			
Steel Tape(0~15m)			
Vernier caliper(0~200mm)			
Wall thickness micrometer			
Universal test machine			
Hardness test machine			
Spectrometer			

### 6.1 Visual inspection 20% randomly

- Inspector checked the quantity of fin tubes, 283 Pcs were counted, satisfactory as per PO requirement.
- Inspector performed visual inspection for the fin tubes at random, some collapse was found during packing, vendor made a quick rectification and the results were satisfactory.



Report No.:  
Rev No.:

Report Date:

# INSPECTION REPORT

## 6.2 Dimensional check 10% randomly

- 
- Before dimensional inspection, inspector checked calibration status of applied measuring tools and found them to be within valid date, acceptable.
- Inspector performed dimensional inspection for the fin tubes at random, results were satisfactory, details see below table:

Inspection items	Specification(mm)	Tolerances(mm)	Test results(mm)	Conclusion
Overall Length	9000	0~5	9003~9005	Acc.
Finned Length	~8900	/	8901~8903	Acc.
Fin pitch	2.54	±0.2	2.36~2.42	Acc.
End preparation	Plain	/	Plain	Acc.

- Inspector performed dimensional inspection for the seamless tubes at random, results were satisfactory, details see below table:

Description	OD (mm)	Thickness(mm)	Result
	25.4(-0.15, +0.15)	3.404(-0, +20%)	
ASTM A210 Gr.C $\phi$ 25.4*3.404mm	25.46~25.48	3.43~3.8	Acc.

## 6.3 Sampling process

Inspector witnessed sampling process for laboratory test and inspector also signed on sample, for information.

## 6.4 Laboratory test

### 6.4.1 Chemical analysis test witnessed

- Before test, inspector reviewed calibration status of applied device and found to be within valid date, acceptable.
- Inspector witnessed the calibration with standard block prior to testing, the result was acceptable.
- Inspector witnessed the chemical analysis test process for CS material, 1 specimen was inspected for each heat no., and the result was acceptable as per ASTM A210 Gr.C. Details as below:

Sample No.	Material	Heat No.	C%	Si%	Mn%	P%	S%
			≤0.35	≥0.1	0.29~1.06	≤0.035	≤0.035
SL22N1482	ASTM A210 Gr.C	22-BE-2	0.227	0.264	0.758	0.017	0.003



Report No.:  
Rev No.:

Report Date:

# INSPECTION REPORT

## 6.4.2 Hardness test witnessed

- Before inspection, inspector verified the calibration status of applied devices and found they were within valid date, the result was acceptable.
- Inspector witnessed the calibration with standard block prior to testing, the result was acceptable.
- Inspector witnessed the hardness test process for ASTM A210 Gr.C, 2 specimens were inspected for the selected pipe, the results were acceptable. Details as below:

Test No.	Material	Heat No.	Hardness test: HRB		
			≤89		
			Hardness 1	Hardness 2	Hardness 3
SL22N1482-1	ASTM A210 Gr.C	22-BE-2	71.5	74	73
SL22N1482-2	ASTM A210 Gr.C	22-BE-2	73.5	74	74

## 6.4.3

## 6.4.4 Flattening test witnessed

Test No.	Material	Heat No.	H value(mm)	Visual judgement after completely flatten
SL22N1482-1	ASTM A210 Gr.C	22-BE-2	14.5	No crack or other defect were found, acceptable
SL22N1482-2	ASTM A210 Gr.C	22-BE-2	15	No crack or other defect were found, acceptable

## 6.5 Document review

Inspector reviewed EN10204 3.1 MTC for seamless tube, EN10204 3.1 fin tube inspection and guarantee certificates and certificate of fin, results were acceptable as per related requirements.

## 7.0 Inspection Result:

<b>Situation of Products</b>	<input type="checkbox"/>	Not complete	<input type="checkbox"/>	Complete but without packaged
	<input checked="" type="checkbox"/>	Complete and Packaged	<input type="checkbox"/>	Ready for shipment
<b>Result of Inspection</b>	<input checked="" type="checkbox"/>	No objection	<input type="checkbox"/>	With objection, see remarks

## 8.0 Nonconformities were found:

N/A

# INSPECTION REPORT

## 9.0 Associated Documents

- Quality documents



Fin tubes offered for inspection



Visual Check



Visual Check



Visual Check



Report No.:  
Rev No.:

Report Date:

# INSPECTION REPORT



Visual Check



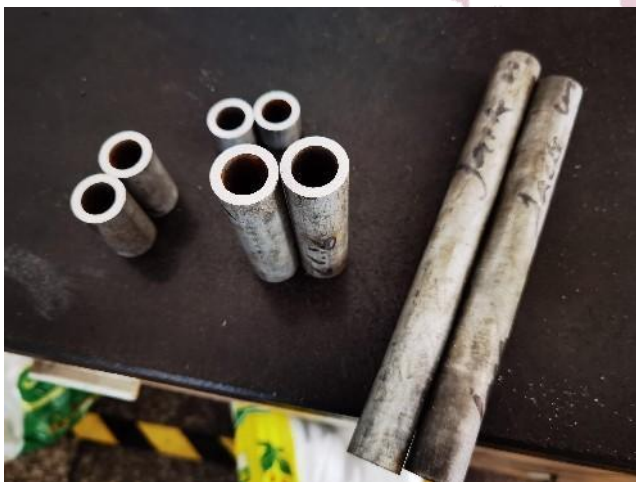
Fins repair



Dimensional inspection



Dimensional inspection



Samples after cutting



Witness tensile test



Report No.:  
Rev No.:

Report Date:

# INSPECTION REPORT



Witness tensile test



Dimension inspection after tensile test



Witness flattening test



Witness flattening test





Report No.:  
Rev No.:

Report Date:

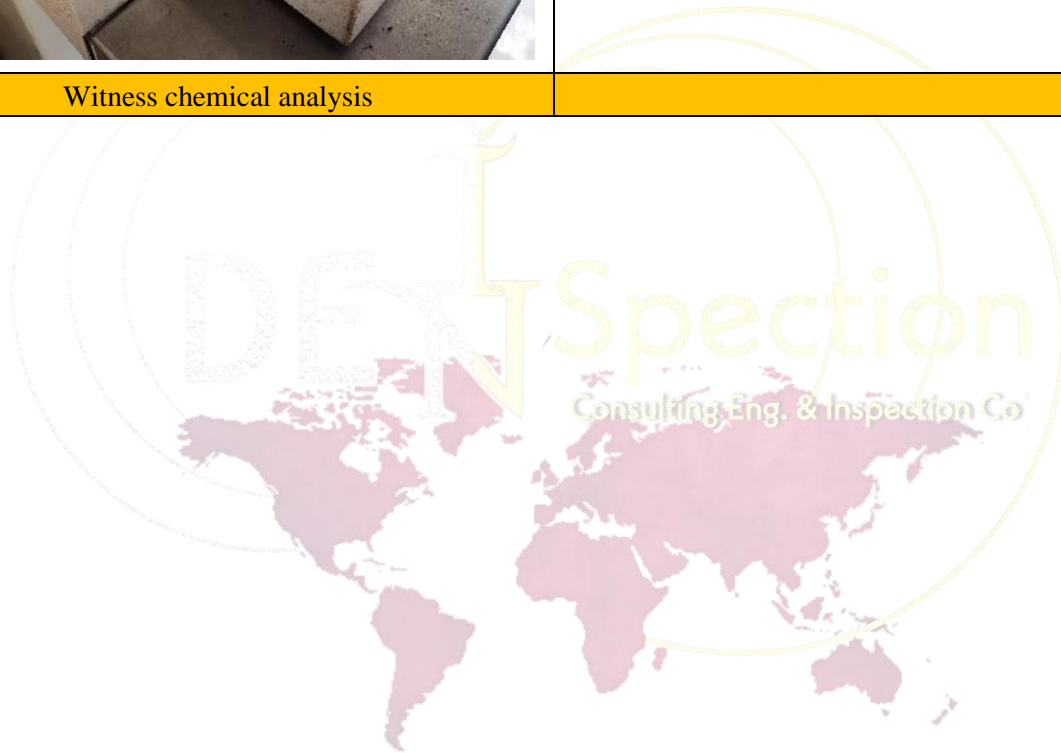
# INSPECTION REPORT

Witness flaring test



Witness flaring test

Witness chemical analysis







Report No.:  
Rev No.:

Report Date:

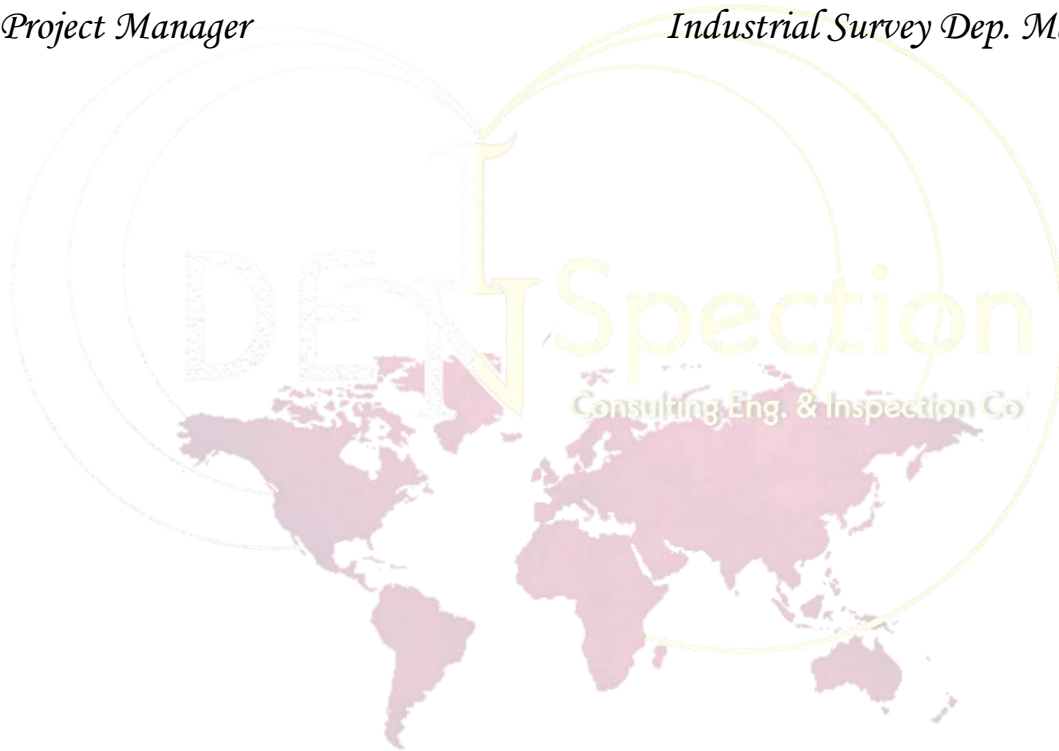
# INSPECTION REPORT

**Signature & Date**

*Inspector*

*Project Manager*

*Industrial Survey Dep. Manager*



**Issue date:**

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