Inspection Order No. : IN-TJ-5301-12116
BOSS No: 1126376

Date of issue: Aug 31 2012

INSPECTION REPORT

(non-negotiable)

- Description and Quantity of Commodity: Ductile pipe DN450

- Name & Address Of Buyer: L*****

- Name & Address Of Seller: SHANXI SOLID INDUSTRIAL CO.,LTD

- Inspection Date & Place: Aug 16~18 2012 Shanxi province, China.

- L/C No.: N/A

- P/I No.: SFC-1205A

- Nature Of Inspection:

Item	Comment
Visual quality check	Acceptable
Marking and packing check	Acceptable
Dimension check	Acceptable
Take photo during the goods production	Subject to buyer's evaluation
Sampling test at SGS lab	Acceptable

- Inspector: Steven Hui

- Reviewed by Anderson Liu

This is to report that we, SGS-CSTC (Tianjin) Co., Ltd. at the request of [SHANXI SOLID INDUSTRIAL CO.,LTD] conducted the following inspection:

Instrument checklist

During the inspection, the following instrument calibration status has been checked for inspection:

No.	MEASURING INSTRUMENT DESCRIPTION	CALIBRATION STATUS	CERTIFICATE NO. (OPTIONAL)
1	Ultrasonic thickness gauge TT-100	N/a	N/a

2	Coating thickness gauge TT210	N/a	N/a
3	Vernier caliper 0-1000mm	2012.01.11~2013.01.10	JC201220021
4	π ruler 300-600 （circumferential tape）	N/a	N/a
5	Taper mearsure (0~10M)	N/a	N/a

Inspection Finding:

1. Visual Quality Check:

- Sample size: [sample size: ANSI/ASQ Z1.4-2008, L-II 20pcs]

During inspection, the pipes were selected randomly for visual quality inspection. The pipes were found painted with black paint on external surface and lined with gray lining in internal surface, the socket of the pipe was found painted with red paint on internal surface. Except the 3pcs pipe coating scratched, no obvious defect on the visual quality of the pipes was found on site.

Remark:

- The manufacturer declares that they will re-coat scratch area.

2. Packing and marking check

- Sample size: [sample size: ANSI/ASQ Z1.4-2008, L-II 20pcs]

Packing check

The pipes were in bulk.

Marking check

Marking painted near the socket of pipe:

ISO2531-2009**(pipe batch no.)-****(pipe no.)
C30. ZINC 200 GR/M2
MANCOMUNIDAD CENTRO NORTE
MANABI-ECUADOR

Marking cast on internal surface of socket:

DN450 DI
SX 12

- White printed marking was found near the spigot of pipe:
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3. Dimension Check:

- Sample size: [ANSI/ASQ Z1.4-2008, S-4 8pcs]
- Reference document: : ISO2531: 2009 for L and e,
  GB/T 13295:2008 for D3, D5, DE, T1
  ISO 4179:2005 for internal lining thickness

External coating thickness as client requirement]

Item	Uint	Required value	Actual value
D3	mm	482.5 +2.2/-1.0	482.0~484.4
D5	mm	509+2.2/-1.0	508.91~510.7
DE(the outer diameter of spigot)	mm	480 +1.0/-3.6	477.2~478.4
E(Wall thickness)	mm	Min 6.9	7.3~11.0
L(working length)	mm	6000 +30/-70	5988~6003
T1(Socket depth)	mm	120	116~118
External coating thickness	μm	Min 70	80~235
Internal lining thickness	mm	Min 3	3.23~8.09

Remark:
- The above wall thickness and external coating thickness was determined at 4 different places in the length direction of each selected pipe.
- The above diameter (D3 and D5) was determined at 2 different places at end of each selected pipe.
- The above internal thickness was determined at 2 different places at the both end.
- Due to no calibration certificates available to the measurement of dimension "DE, e" check, the checked values were for reference only

Remark: Except the no tolerance for T1, other dimension was in according with required value.

4. Take photos during the goods production;

During the inspection, the SGS inspector witness the process from the zinc coating to the pipe put in storage for DN450, and found the process in normal condition, the SGS take the photo for process. The photo was under.

5. Sampling for test at SGS lab including tensile test and HB Test according to ISO 2531-2009.
- sample size: according to the client requirement ,2 pcs totally;

The SGS inspector witness the manufacturer takes 2 samples, and the detail testing result as follow:

Sample Name	:	Ductile iron pipe
Spec	:	DN 450mm
Quantity	:	2
SGS Ref No.	:	IN-TJ-5301-12116-01
Date of Receipt	:	Aug.31, 2012
Test Period	:	Aug.31, 2012 to Sep.05, 2012

1. Test item：Tension test
   Test method：EN 10002-1:2001

Test item	result				Requirement*	Conclusion
	1	2	----------	----------		
Yield strength, $R_{p0.2}$ MPa	326	328	----------	----------	≧300	Pass
Tensile strength, MPa	471	490	----------	----------	≧420	Pass
Elongation after fracture, (A) %	22.0	19.0	----------	----------	≧10	Pass
Spec	DN450	DN450	----------	----------	----------	----------

Note: * Specified in ISO 2531-2009(E) (Table 8)

2.Test item：Brinell hardness
Test standard: ISO 6506-：2005

Sample No.	Scale	Result			Average	Requirement*	Conclusion
1#	HBW5/750	191	191	191	191	Max. 230	Pass
2#		184	184	182	183		Pass

Note: * Specified in ISO 2531-2009 4.3.2

Result: Acceptable.

THIS REPORT ONLY REFLECTED OUR ACTUAL FINDINGS. THE INSPECTION WAS DONE TO THE BEST OF OUR KNOWLEDGE AND ABILITY AND WITH DUE CARE. THE FINDINGS ARE VALID AS FOR TIME AND PLACE OF INSPECTION.

Attachment: Photos during inspection

Pipe in the open yard

Visual quality inspection

	
Coating scratched	Coating scratched
	
Visual quality inspection	Marking inspection
	
Marking inspection	Marking inspection

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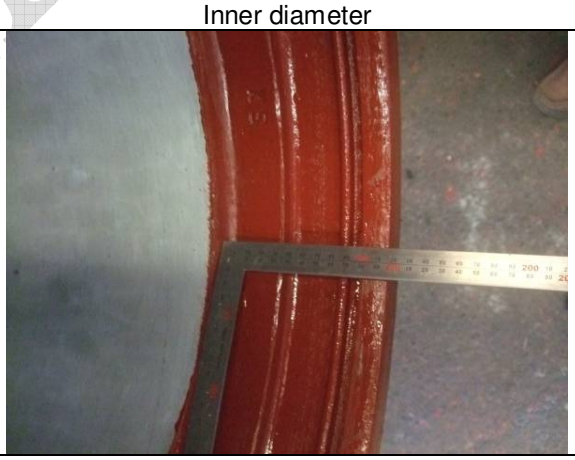
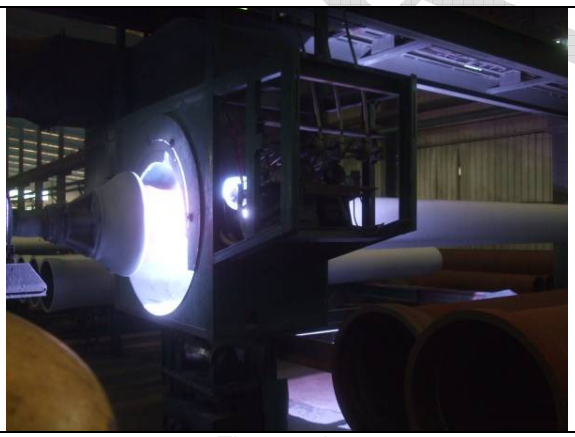
Marking inspection	Wall thickness
	
Bitumen coating thickness	Inner diameter
	
Inner diameter	Socket depth

	
Cement lining thickness	Length
	
Out diameter	Zinc coating(250×100)
	
Zinc coating	Zinc coating

	
Zinc coating	Socket check and adjusting
	
Socket check and adjusting	Spigot check and adjusting
	
Sample	Hydraulic test

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Hydraulic test	Grinding the socket
	
Cement lining	Cement lining
	
Cement lining check and repair	Cement lining preserve

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Socket check and slag pocket repair	Polish the cement lining
	
Spigot re-check before coating	Re-Grinding the spigot before coating
	
Re-Grinding the socket before coating	Visual inspection before coating

SGS

	
Coating the socket use the zinc rich paint	Bitumen coating
	
Coating the socket	Marking

	
Sampling	sample

End of report

FOR AND ON BEHALF OF
SGS-CSTC STANDARDS
TECHNICAL SERVICES CO., LTD.

AUTHORIZED SIGNATURE