



Inspection Order No. : IN-TJ-5602-14161-02rev1

BOSS No: 1225671

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Date of issue: June 05, 2014

INSPECTION REPORT

(non-negotiable)

- Description and Quantity of Commodity: (As per packing list no.: SXS14EL-014 MAY.19,2014) Ductile Iron Pipe DN900 C30 / 1241pcs

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

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

- Inspection Date & Place: On May 26~27 2014 at Shanxi Province China

- Proforma Invoice: SFC-1402A Date: April 9, 2014

- Nature Of Inspection:	Item		Comment
	Visual quality check	Acceptable	
	Packing check	Acceptable	
	Marking check	Acceptable	
	Dimension check	Acceptable	
	Witness test	Acceptable	
	Sampling	Acceptable	

- Inspector:  Kobi Lu

- Reviewed by  Joanne Zhang

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:

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[V: 02 June. 1st 2012]

Member of the SGS Group (Société Générale de Surveillance)

No.	MEASURING INSTRUMENT DESCRIPTION	CALIBRATION STATUS	CERTIFICATE NO.
1	Coating thickness gauge (TT220/--)	2014.04.04~2015.04.03	02014011127
2	Ultrasonic thickness gauge (TT340/TSTU32)	2014.04.04~2015.04.03	02014011115
3	Lining thickness gauge (Positector6000/147940)	2014.04.04~2015.04.03	Q2014011125
4	Inside caliper (100~1000MM/0801120118)	2014.04.10~2015.04.09	长字第 14041016 号
5	π ruler (900-1200mm/370121)	2014.04.10~2015.04.09	02014011359
6	Universal testing machine (WDW-50)	2014.04.03~2015.04.02	力字第 20141346 号
7	Brinell Hardness tester (HB-3000B)	2014.04.17~2015.04.16	0201401115
8	Pressure gauge (0~10MPa/EDS44-3)	2014.04.04~2014.10.03	Y 字第2014014 号
9	Electric balance (YB3000)	2014.04.03~2015.04.02	力字第 20141349 号
10	Tape 0-15m IND-TJ-JC15m-17	Effectively	--

Quantity of order:

Description	Quantity
Ductile Iron Pipe 900 mm x 6m C30 ISO 2531:2009	1241pcs

Declaration

The SGS inspector arrived at the manufacturer on May 26 2014 and notified the pipes of DN900 were in production. Before SGS inspector left the manufactory, about **438pcs** of pipes was finished production.

Inspection Finding:

 1. Visual Quality Check:

Sample size: as per client's requirement, 10% of total number, 60pcs

During the inspection, 60pcs pipes were selected randomly for visual quality inspection. The pipes were found painted with black coating on external surface and lined with gray lining on internal surface, the socket of the pipe was painted with red coating on internal surface. Surface condition of coating and lining was generally smooth. No obvious defects on the visual quality of the pipes were found.

Result: The result of visual quality was acceptable.

 2. Packing check

Sample size: as per client's requirement, 10% of total number, 60pcs

The pipes were in bulk, the crossed wooden block was found in pipe's spigot end.

Result: The result of packing check was acceptable according to sales contract (No.: proforma invoice No.: SFC-1402A Date: April 9, 2014)

 3. Marking check

Sample size: as per client's requirement, 10% of total number, 60pcs

During the inspection, the marking check was performed randomly and found:

- Below marking was painted near the socket:
ISO2531 DN900 C30
2014-***(Batch No.)-**(pipe No.)

- Below marking was painted on the pipe body

CONDUCCION TIXAN-MIRAFLORES
ETAPA EP

- Below marking was painted near the spigot:

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- Below marking was cast on the socket in D6 section for each pipe:

SX C30
14DN900DI

Result: The actual marking was conformed to proforma invoice provided by client, the result of marking check was acceptable.

4. Dimension Check:

Sample size: as per client's requirement, 10% of total number, 60pcs

During the inspection, physical dimension check was performed by SGS inspector. D3 and D5 was measured on 2 points in cross direction, DE was calculated from actual measured value of circumference on the spigot end, e was measured on 3 random selected points along the pipe body, details were as following:

(Unit: mm)

Size		D3	D5	DE	e	Lu
DN900mm 6m C30	Req.	947.5 +4.1/-1	991.3 +4.1/-1	945 +1/-4.8	Min.10.1	6000(+70/-30)
	Act.	948.3~950.2	992.1~994.6	942.5~944.7	10.5-12.9	5980~6010

Applied standard: ISO 2531: 2009 for DE, e & Lu; GB/T 13295-2008 for D3 & D5

Result: The result of dimension check was acceptable.

5. Witness testing randomly:

Thickness of lining check:

Sample size: as per client's requirement, 10% of total number, 60pcs

During the inspection, 60pcs pipe were selected randomly for thickness of cement lining check, thickness of cement lining check was applied at the section from both pipe ends at least 200mm, measurements were taken at four points spaced at 90° intervals, details were as follows:

Size		Min. thickness of cement lining at one point (mm)
DN900mm 6m C30	Required value	Min 3.5
	Actual value	4.21~9.35

Applied standard: ISO 4179:2005

Thickness of external coating checks:

- Sample size: as per client's requirement, 10% of total number, 60pcs

During the inspection, 60pcs pipe were selected randomly for thickness of bitumen coating check; thickness of bitumen coating check was applied on three different points in each random selected pipe, details were as following:

Size	Thickness of external coating	
DN900mm 6m C30	Required value	$\geq 70\mu\text{m}$
	Actual value	88~231 μm

Applied standard: ISO 8179: 1995 and sales contract (No.: proforma invoice No.: SFC-1402A Date: April 9, 2014)

Remark: Above actual value, which was checked by coating thickness detector, covered total external coating thickness: Zinc coating + Bitumen coating.

Witness hydrostatic test randomly:

- Sample size: as per client's requirement, 10% of total number, 60pcs

During inspection, 60pcs pipes were selected randomly for hydrostatic test online under witness of SGS-CSTC inspector, details were as follows.

Size	Test pressure (Mpa)		Duration (s)
DN900mm 6m C30	Required value	≥ 3.0	≥ 10
	Actual value	3.2	16s

Applied standard: ISO 2531: 2009

Result: During the test, no visible leakage, sweating or any other sign of failure was found, the result of witness hydrostatic test was acceptable.

Witness mass of zinc coating check randomly:

- Sample size: as per client's requirement, 10% of total number, 60pcs

During inspection, 60pcs pipes were selected randomly for mass of zinc coating check under witness of SGS-CSTC inspector, details were as follows:

Size	Mass of zinc coating	
DN900mm 6m C30	Required value	$\geq 200\text{g/m}^2$
	Actual value	202~220

Applied standard: ISO 8179-1:2004 and sales contract (No.: proforma invoice No.: SFC-1401 dated April 14 2014)

Witness mechanical property test in manufacturer's lab:

- Sample size: 2pcs totally

During the inspection, mechanical property test on offered samples was performed by manufacturer under the witness of SGS inspector, details were as follows:

Size	Batch No.	Req. value	Tensile Strength(MPa) Min.420	Elongation (%) Min.10	Hardness(HB) Max.230

DN900mm	021-5	Act.Value	469	13.1	172
6m C30	029-3	Act.Value	480	16.1	170

Applied standard: ISO2531: 2009

Result: The result of witness testing was acceptable.

• Standard witnessing/observing disclaimer (voluntary witnessing)

In accordance with Client's instructions, the Company's involvement has been limited to witnessing/observing a third party's intervention(s) at the third party's laboratory/test house or other facilities and installations used for the intervention(s). The Company's sole responsibility was to be present at the time of the third party's intervention(s) to forward the results, or confirm the occurrence, of the intervention(s). The Company is not responsible for the condition or calibration of apparatus, instruments and measuring devices used, the analysis methods applied the qualifications, actions or omissions of the third party's personnel or the analysis results.

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6. Sampling:

Sample size: according to the client's requirement, 2pcs totally;

During the inspection, the sampling pipes were selected randomly and cut the sample, totally 2pcs sample was cut and sent to the SGS lab. The sampling pipe No. was as following:

Batch No. & Pipe No.: 025-024 & 021-00

Lab test for Tensile test and Hardness test as per ISO 2531-2009(E) was performed at SGS lab, the description of test was referred to the SGS lab test report (report number: TM1405437 Dated: Jun.05, 2014).

Result: The result was 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





Witness zinc mass test



Witness hydraulic test



Test pressure



Lining process



Lining process



Curing process



Painting process



Painting process



Witness tensile test



Witness tensile test



Witness hardness test



Sampling

	
<p>Marking near socket end</p>	<p>Marking on pipe body</p>
	
<p>Marking near spigot end</p>	<p>Marking in socket end</p>
	
<p>Marking in socket end</p>	<p>Dimension check</p>



Dimension check



Thickness of Lining cement



Thickness of bitumen coating



Wall thickness check



Length check



Packing check



Packing check



Visual quality check



Sampling



2 Samples

End of report

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

AUTHORIZED SIGNATURE