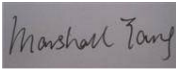



Inspection Order No. : IN-TJ-5802-13036  
BOSS No: TBA  
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Date of issue: Feb.6, 2013

## INSPECTION REPORT

(non-negotiable)

- Description and Quantity of Commodity (as per P/I): Ductile iron pipe:  
DN250X5.7M C40: 482pcs  
Rubber ring: 7bags
- Name & Address Of Buyer: V\*\*\*\*\*
- Name & Address Of Seller: SHANXI SOLID INDUSTRIAL CO.,LTD.  
1501 , Building B , Dingyuan Times Center , Yingzenanjie , Taiyuan ,  
Shanxi , China
- Inspection Date & Place: On Jan. 28~29, 2013, In Hebei Province, China
- L/C No.: To be advised
- C/I No.: SXS13ET-022 Date: JAN.23,2013
- Nature Of Inspection:
- | Item                 | Comment                          |
|----------------------|----------------------------------|
| Quantity check       | Acceptable with comments         |
| Visual quality check | Acceptable                       |
| Packing check        | Acceptable                       |
| Marking check        | Subjected to client's evaluation |
| Dimension check      | Subjected to client's evaluation |
| Document review      | Acceptable                       |
| SGS lab test         | Acceptable                       |
- Inspector:  Marshall Yang
- Reviewed by  Grace Chen

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:

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SGS-CSTC Standards Technical Services  
(Tianjin) Co., Ltd.

SGS Mansion, No. 41, The 5th Avenue, TEDA, Tianjin, China, 300457  
t: +86(0)22-65288000 f +86(0)22- 25293805 [www.cn.sgs.com](http://www.cn.sgs.com)

[V: 02 June. 1<sup>st</sup>, 2012]

Member of the SGS Group (Société Générale de Surveillance)

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

No.	Measuring instrument description (Including measuring range and equipment No.)	Calibration status	Certificate No. (optional)
1	Coating thickness gauge (TT220/1492940)	2012.12.25	L 字第 2012122521 号
2	Ultrasonic thickness gauge(TT340/506905010)	2012.12.25	L 字第 2012122523 号
3	Vernier caliper (0-300mm/6100)	2012.05.02-2013.05.01	长字 12041017 号
4	Truler (200-375mm/070278)	2012.12.25-2013.12.24	长字 2012122515 号
5	Lining thickness gauge(Positerotor6000/----)	2012.12.25	L 字第 2012122522 号
6	Steel tape (7.5m/1204006)	2012.04.13-2013.04.12	长字第 051204236 号

**Applied standard:**

- ISO 2531 :2009 -- Ductile iron pipes, fittings, accessories and their joints for water or gas applications
- GB/T 13295:2008 -- Ductile iron pipes, fittings and accessories for water or gas applications
- ISO 4179-1: 2004-- Ductile iron pipes for pressure and non-pressure pipelines-Centrifugal cement mortar lining General requirements
- ISO 8179-1:2004 -- Ductile iron pipes, External zinc-based coating-Part 1: Metallic zinc with finishing layer

**Inspection Finding:**

**1. Quantity Check:**

- Sample size: according to ANSI/ASQ Z1.4 2008 L-II, 2packages totally
- Reference documents:
  - Packing list for Commercial invoice No.:SXS13ET-022 Date: JAN.23,2013
- Method of quantity check
  - Quantity of pipe check by pieces was performed by SGS-CSTC inspector, details were as follows:

Description	Size	Req. quantity	Act. quantity
Ductile iron pipe	DN250X5.7M C40	482pcs	482pcs

Remark: The result of quantity of pipe check was acceptable.

- Quantity of rubber ring check by packages and inner pieces check of packages was performed by SGS-CSTC inspector, details were as follows:

Description	Size	Req. quantity	Act. quantity	Inner pieces of packages
Rubber ring	DN250	492pcs/7packages	7packages	80, 80

Comments: Total 7 packages of rubber ring were found on site. 2 packages were selected randomly for inner piece check, quantity of both packages was 80pcs. As manufacturer declared, per 80pcs rubber ring was put into one package, total 560pcs rubber ring in 7packages, they will delivery 492pcs rubber ring according to requirement of client.

Result: The quantity check result was acceptable.

**2. Packing check randomly:**

- ♦ Sample size: according to ANSI/ASQ Z1.4 2008 L-II, 50pcs totally

The pipes were in bulk.

Result: The result of packing check was acceptable.

**3. Marking check randomly:**

- ♦ Sample size: according to ANSI/ASQ Z1.4 2008 L-II, 50pcs totally

Below marking was painted near the socket end of pipe:

**ISO2531-2009 C40 5.7M**

**2013-1-\*\* (date)\*\*(pipe Number)\*\*(manufacture shift number)**

Below marking was cast on the socket:

**DN250**

Below marking was painted on the body of pipe:

**SOLID  
DUCTILE IRON PIPE DN2500MM**

Below spigot line was painted near the spigot end of pipe:

**==**

Result: According to the requirement of ISO2531, the manufacturer's name or the identification of the year of manufacture and the identification as ductile iron should be casted-on or cold stamped on the pipe. In actually, above markings were painted on the pipe. The result was subjected to client's evaluation.

**4. Visual quality check randomly:**

- ♦ Sample size: according to ANSI/ASQ Z1.4 2008 L-II, 50pcs totally

During the inspection, 50pcs pipe 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 were painted with red coating on internal surface. No obvious defects on the visual quality of the pipes were found.

Result: The result of visual quality check was acceptable.

**5. Dimension check randomly:**

- ♦ Sample size: according to ANSI/ASQ Z1.4 2008 S-4, 13pcs totally

Dimension check was performed randomly and the details were as following:

(Unit: mm)

Size		D3	D5	DE
DN250 5.7M C40	Req. value	276.5 +1.5/-1	296.9 +1.5/-1	274 +1/-3.1
	Act. value	275.5-276.8	296-296.8	270.9-273.8
		E	L	T

	Req. value	Min 3.9	5700 +70/-30	105
	Act. value	5.0-9.1	5695-5745	99-101

Applied standard: ISO2531:2009 for e, L; GB 13295-2008 for D3, D5, DE and T

Remark: no tolerance of T (depth of socket) was available in GB 13295-2008 and calibrated certificate of steel tape used for L and T check was not provided by manufacturer, actual value of T and L was subjected to client's reference, actual value of other dimension was in according with standard requirement.

Result: The result of dimension check was subjected to client's evaluation.

#### 6. **Thickness of coating and lining check randomly:**

- Sample size: according to ANSI/ASQ Z1.4 2008 S-4, 13pcs totally

6.1 Thickness of lining check:

Specification		Minimum thickness of cement lining at one point
DN250	Required value	≥2
	Actual value	3.12-5.54

Applied standard: ISO 4179-1: 2004

Result: The result of lining thickness check was acceptable.

6.2 Thickness of external coating check:

Specification		Thickness of external coating (μm)
DN250	Required value	≥89
	Actual value	89-171

Applied standard: ISO 8179-1: 2004

Note: Thickness of external coating=thickness of zinc coating (130g/m<sup>2</sup> convert into thickness≈19 μm)+ thickness of painting (Min 70 μm)

Result: The result of coating thickness check was acceptable.

#### 7. **Document review:**

Material & test certificate was provided by supplier and reviewed by SGS-CSTC inspector, it indicated that thickness of cement lining and barrel, zinc layer, bitumen layer, tensile strength, elongation, hardness and hydro test was in according with requirement of ISO2531-2009.

#### 8. **Sampling and test in SGS lab:**

- Sample size: according to client requirement, 1pc totally.

1pc of sample was provided by manufacturer for test in SGS lab. The test result was specified in lab test report (ref. no.: TM1301380 Date: Feb.6, 2013). The details were as following:

Sample Name : Push On Joint Ductile Iron Pipe  
 Quantity : 1

8.1. Test item: Tension test  
 Test method: BS EN ISO6892-1:2009

Test item	result				Requirement*	Conclusion
	1	-----	-----	-----		
Yield strength, R <sub>p0.2</sub> , MPa	282	-----	-----	-----	≥ 270	Pass
Tensile strength, R <sub>m</sub> , Mpa	436	-----	-----	-----	≥ 420	Pass
Elongation after fracture, A %	22.5	-----	-----	-----	≥ 10	Pass
Spec	DN250	-----	-----	-----	-----	-----

Note: \* Specified in ISO2531-2009 (Table 8)

8.2. Test item: Brinell Hardness  
 Test standard: ISO6506-1:2005  
 Scale: HBW5/750

Spec.	1	2	3	Average	Requirement*	Conclusion
DN250	163	163	161	162	not exceed 230 HBW	Pass

Note:\* As per the ISO 2531:2009(4.3.2)

**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





Marking near the socket



Marking on the pipe body



Marking near the spigot



Dimension check



Dimension check



Dimension check



Coating thickness check



Lining thickness check



Dimension check



Dimension check



Quantity of rubber ring package check



Inner piece check

End of report

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

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AUTHORIZED SIGNATURE