Inspection Order No.: IN08191QD-A
Boss No.: 11297763

Date of Issue: Sep 28, 2008

INSPECTION REPORT

(non-negotiable)

- Description and Quantity of Commodity:	Ductile iron pipes	260pcs
	Ductile iron fittings	314pcs
- Name & Address Of Buyer:	T*****	
- Name & Address Of Seller:	SHANXI SOLID INDUSTRIAL CO., LTD. 1501,Building B, Dingyuan Times Center, Yingzenanjie, Taiyuan, Shanxi, China	
- Inspection Date & Place:	Sep 21-27, 2008	Zhucheng & Jinan, Shandong, China
- L/C No.:	IMP/424/08	
- PI No.:	STS-0801	Dated: August 18, 2008

- Nature Of Inspection:

1. Visual quality check (Level-II)
2. Quantity check
3. Packing and marking check (Level-II)
4. Dimension check (S-3)
5. Witness test for mechanical properties (1pc per batch)
6. Document review

- Inspector: Mr. Daniel Li & Robin Cui

This is to report that we, SGS-CSTC Qingdao Branch on Sep 21-27, 2008 at the request of SHANXI SOLID INDUSTRIAL CO., LTD conducted the following inspection:

Inspection Finding:

1. Quantity Check:

No.	Description	Model	PN	Order Qty	Inspected Qty
1	DI Pipe	DN150	PN10	200pcs	200pcs

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2	DI Pipe	DN600	PN10	60pcs	60pcs
Total Ductile Iron Pipes				**260pcs**	**260pcs**
3	Socket type connection Elbow ductile	DN600X90°	PN10	40pcs	40pcs
4	Elbow flange ductile	DN600X90°	PN10	25pcs	25pcs
5	Socket type connection Elbow ductile	DN600X45°	PN10	12pcs	12pcs
6	Elbow flange ductile	DN900X90°	PN10	2pcs	2pcs
7	Flange adapter ductile	DN100	PN10	25sets	25sets
8	Flange adapter ductile	DN150	PN10	100sets	100sets
9	Flange adapter ductile	DN600	PN10	90sets	90sets
10	Flange adapter ductile	DN900	PN10	8sets	8sets
11	Flange adapter ductile	DN300	PN10	12sets	12sets
Total Ductile Iron Fittings				**314pcs/sets**	**314pcs/sets (13 wooden cases+31 pallets)**
12	Rubber rings (for pipe)	DN150	T150 ISO4633 SBR WA50/88 WANDA RUBBER	200pcs	200pcs
		DN600	T600 ISO4633 SBR WA50/88 WANDA RUBBER	60pcs	60pcs
13	Rubber ring (for fitting)	DN600	A-600	52pcs	60pcs
14	Bolt & screw	DN100	M16X65	200sets	210sets
15	Bolt & screw	DN150	M20x70	800sets	805sets
16	Bolt & screw	DN300	M20X80	144sets	150sets
17	Bolt & screw	DN600	M27x100	2800sets	2800sets
18	Bolt & screw	DN900	M30X120	336sets	340sets
Total accessories				**4592pcs/sets**	**4625pcs/sets (2 wooden cases)**

2. Packing Check:
For DI Pipe DN150:
- Each 12pcs pipes were bundled together by 3pcs steel bands.

For DI Pipe DN600:
- All cargos with nude packing.

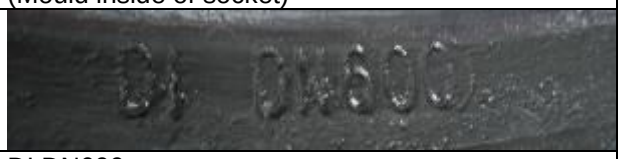
For socket type connection elbow: (Take DN600X90° for example)
- Each 3pcs cargos packed into a wooden frame case, then secured by 6pcs steel bands, then wrapped by shrink film sheet around wooden frame case.

For elbow flange ductile: (Take DN600X90° for example)
- Each 2pcs cargos placed onto a wooden pallet, then secured onto pallet by 3pcs steel bands.

For flange adapter DN600 & DN900: (Take DN600 for example)
- Each piece wrapped by bubble sheet, then 9pcs placed onto a wooden pallet and secured by 4pcs steel bands, then wrapped by shrink film sheet.

For flange adapter DN100-DN300: (Take DN100 & DN150 for example)
- Each piece wrapped by bubble sheet.
- 65pcs DN150 flange adapters + 25pcs DN100 flange adapters packed into wooden frame case secured by 4pcs steel bands, then wrapped by shrink film sheet.

3. Marking Check:
- For DI Pipe: (Take DN600 for example)

(Painted in white painting on body surface)	(Mould inside of socket)
	
SOLID DI PIPE DN600 ISO2531 K9 MADE IN CHINA 2008 09-06-065	
	SDIP 2008

- For Socket type connection Elbow ductile & Elbow flange ductile:

(Take Elbow flange ductile DN600X90° PN10 for example) - Mold on the outer surface of each fitting	(Take socket type connection Elbow DN600X45° PN10 for example) - Mold on the outer surface of each fitting
SOLID ISO2531 PN10 DN600X90° DI 2008 MADE IN CHINA	SOLID ISO2531 PN10 DN600X45° DI 2008 MADE IN CHINA

- For flange adapters: (Take flange adapter DN150 & DN300 for example)

- For flange adapter DN150: (Mold on the surface of gland bush of each cargo)	- For flange adapter DN300 (Mold on the surface of gland bush of each cargo)

SOLID ISO2531 PN10 DN150 DI 2008 MADE IN CHINA	SOLID ISO2531 PN10 DN300 DI 2008 MADE IN CHINA

4. Visual Quality Inspection:
According to the ANSI/ASQ Z1.4-2003 single planning for normal inspection Level II, total 36pcs DI pipes and 44pcs DI fittings were selected randomly for visual quality inspection, found inside of pipes were cement mortar lined and outer side with based Zinc-rich coating & bitumen coating; found inside & outer side of all fittings were with red epoxy coating; found flanged adaptor were painted with red epoxy coating, and the visual quality of pipes and fittings and flange adapters we inspected is in normal condition.

5. Dimension Check:
Total 8pcs (S-3) DI Pipes & 9pcs (1pc per item) DI Fittings were selected at randomly for dimension check according to ISO2531-1998, and the actual finding as following: (unit: mm)

- For DI Pipe DN150 K9:

Check point	DE	D3	P	L	e	t (um)
Standard	170	172.5	94	6000	6.0	≥70
Tolerance	+1/-2.9	±1	/	±30	-1.3	/
Actual finding	169.0	172.0	94.0	6012	9.8	142
	169.0	172.5	94.0	6013	9.0	166
	169.0	172.0	94.5	6015	9.2	173
	168.5	173.0	94.0	6005	8.4	165
	169.0	172.0	94.0	6002	9.9	142
	168.5	172.0	94.0	6010	10.0	128

- For DI Pipe DN600 K9:

Check point	DE	D3	P	L	e	t (um)
Standard	635	637.5	120	6000	9.9	≥70
Tolerance	+1/-4.0	+2.7/-1	/	±30	-1.9	/
Actual finding	634.8	639.0	120.0	5978	14.0	84.6
	635.0	640.0	120.0	5988	12.3	131

- For socket type connection Elbow DN600X90° PN10:

Check point	D3	P	e	t (um)
Standard	637.5	120	9.9	≥70um
Tolerance	+2.7/-1	/	-1.9	/
Actual findings	638.3	120	13.98	141/267/308

- For socket type connection Elbow DN600X45° PN10:

Check point	D3	P	e	t (um)
Standard	637.5	120	9.9	≥70um
Tolerance	+2.7/-1	/	-1.9	/
Actual findings	638.5	120	10.64	109/130/181

- For Elbow flange ductile DN600X90° PN10:

Check point	D	K	n-d	C7	d1	f1	e	t (um)
Standard	780	725	20-31	30	682	5	9.9	≥70um
Tolerance	/	±2	d: +1/-0	±4	+6.5/-5	+2.5/-4	-1.9	/
Actual findings	780	726	20-31	26.8	686	3.3	10.80	181/156/257

- For Elbow flange ductile DN900X90° PN10:

Check point	D	K	n-d	C7	d1	f1	e	t (um)
Standard	1115	1050	28-34	37.5	1001	5	12.6	≥70um
Tolerance	/	±2	d: +1/-0	±4.5	+8.5/-5.5	+2.5/-4	-2.2	/
Actual findings	1120	1052	28-34	34	1000	2.8	17.87	143/233/196

- For flange adapter ductile DN100 PN10:

Check point	D	K	n-d	C7	d1	f1	e	t (um)
Standard	220	180	8-19	19	156	3	6.0	≥70um
Tolerance	/	±1.5	d: +0.5/-0	±4	+4.5/-4	+1.5/-2	-1.3	/
Actual findings	220	180	8-19	17.8	155	1.5	7.8	223/144/156

- For flange adapter ductile DN150 PN10:

Check point	D	K	n-d	C7	d1	f1	e	t (um)
Standard	285	240	8-23	19	211	3	6.0	≥70um
Tolerance	/	±1.5	d: +1/-0	±4	+5.5/ -4.5	+1.5/-2	-1.3	/
Actual findings	284	241	8-23	17.9	210	2.5	9.0	242/163/168

- For flange adapter ductile DN600 PN10:

Check point	D	K	n-d	C7	d1	f1	e	t (um)
Standard	780	725	20-31	30	682	5	9.9	≥70um
Tolerance	/	±2	d: +1/-0	±4	+6.5/-5	+2.5/-4	-1.9	/
Actual findings	780	725	20-31	26.2	686	3.6	15.0	228/300/159

- For flange adapter ductile DN900 PN10:

Check point	D	K	n-d	C7	d1	f1	e	t (um)
Standard	1115	1050	28-34	37.5	1001	5	12.6	≥70um
Tolerance	/	±2	d: +1/-0	±4.5	+8.5/-5.5	+2.5/-4	-2.2	/

Actual findings	1119	1050	28-34	33.3	1008	2.3	15.6	105/178/103

- For flange adapter ductile DN300 PN10:

Check point	D	K	n-d	C7	d1	f1	e	t (um)
Standard	450	400	12-23	24.5	370	4	7.2	≥70um
Tolerance	/	±1.5	d: +1/-0	±4	+5.5/ -4.5	+2/-3	-1.6	/
Actual findings	456	400	12-23.4	21.6	369	1.5	10.0	183/249/143

Result: passed.

DE:	External diameter	D3:	Smallest diameter of socket end
L:	Total length	P:	Socket depth
D:	Outside diameter of flange	K:	Diameter of bolt circle
n-d:	Number of bolt holes-Diameter of bolt holes	C7:	Flange thickness
d1:	Facing diameter	e:	Wall thickness
f1:	Facing height	t:	External coating thickness

6. Witness Testing:

6.1 Mechanical properties test:

- For pipes: 5pcs (1pc/batch) pipes were selected randomly for mechanical properties test according to ISO2531-1998, they were done by the manufacture and witnessed by SGS inspector, and actual finding as following:

Description	Batch No.	Actual tested data		
		Tensile strength (Mpa)	Elongation (%)	Hardness (HB)
Requirement of –ISO2531-1998		⩾420	⩾10	⩽230
DN150 pipe	08-02-99	520	13	170-172
	08-03-100	505	14	168-170
	08-04-110	480	19	156-157
DN600 pipe	09-05-37	495	18	165-167
	09-06-49	545	12	179-180

Result: Passed

- For DI Fittings, total 4pcs (1pc/batch) fittings were selected randomly for mechanical properties test according to ISO2531-1998, they were done by the manufacture and witnessed by SGS inspector, and actual finding as following:

Batch No.	Actual tested data		
	Tensile strength (Mpa)	Elongation (%)	Hardness (HB)
Requirement of ISO2531-1998	⩾420	⩾5	⩽250
0814-12	565	13	187
0903-02	557	16	181
0822-03	604	12.4	190
0915-20	526	13.4	174

Result: Passed

7. Documentation Review:

The factory inspection reports were submitted to SGS inspector for reviewing, and it shows it is confirmed to the requirement of BS ISO2531-1998, we quote the date as following:

---Quoted---

- For DI pipes:	
- Performed standard: ISO2531-1998	Requirement of ISO2531-1998
- Hydrostatic test: 4.0-5.0Mpa x 10 Sec. Passed	4.0-5.0Mpa x 10 Sec
- Mechanical properties testing:	
Tensile Str.: 470~545Mpa	>=420Mpa
Elongation: 13~20 %	>=10%
Hardness: 149~179HB	<=230 HB
- Thickness of Zinc: ≥130 g/m²	≥18.2 um(≥130 g/m²)
- Thickness of Bitumen: ≥70um	≥70um
- Internal cement thickness: ≥3mm	Min.2.0 for DN=150
- Internal cement thickness: ≥5mm	Min.3.0 for DN=600
- For DI fittings:	
- Performed standard: ISO2531:1998	
- Hydrostatic test: 1.0-2.5Mpa x 60 Sec. Passed	(ISO2531 Standard: 1.0-2.5Mpa x 10 Sec)
- Mechanical properties testing:	
Tensile Str.: 484-521Mpa	(ISO2531 standard: >=420 Mpa)
Elongation: 10-14%	(ISO2531 standard: >=5%)
Hardness: 163-195HB	(ISO2531 standard: <=250 HB)
- Thickness of Zinc-rich: 150-163 g/m²	(ISO2531 standard: ≥150 g/m²)
- Thickness of Bitumen: 208-338um	(ISO2531 standard: ≥70um)
- Internal cement thickness: 11-13mm	(ISO2531 standard: ≥3mm)

---Unquoted---

8. Conclusion:

According to requirement, the cargos were inspected for quantity of pipe, fittings, rubber ring and accessories; packing; marking; visual quality; dimension check; witness mechanical test; & document review , and found the cargo we inspected were met requirement of ISO2531-1998 except for the packing and marking were subject to client's evaluation.

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.

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Socket type connection elbow DN600X45˚	**Elbow flange ductile DN600X90˚**
Elbow flange ductile DN900X90˚	**Flange adapter DN100**
Rubber ring DN150 & DN600	**Packing of elbow flange ductile DN900X90˚**

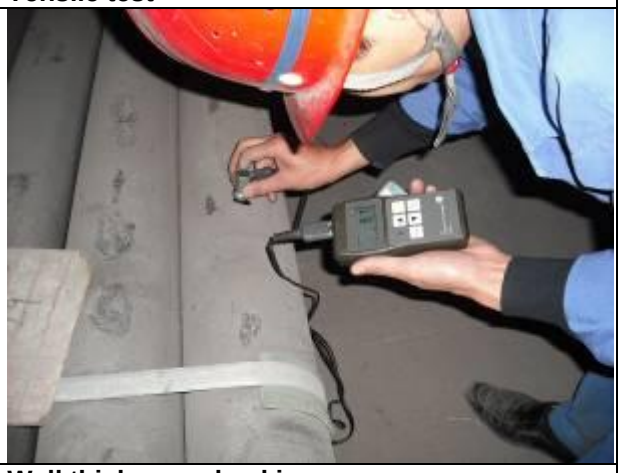
Packing of Flange adapter DN600

Packing of Flange adapter DN100 & DN150

Packing of socket type connection elbow DN600X90°

Packing of DI pipe DN150

DI pipe DN600

Hardness test	**Tensile test**
	
Bitumen layer thickness checking	**Wall thickness checking**