

**Inspection Certificate (EN 10204-3.2)**

Inspection No.: IN-TJ-5605-15015  
 Certificate No.: IN-TJ-5605-15015-02

Customer: Q\*\*\*\*\*

Order No.: SXS15ET-075  
 Date: 18<sup>TH</sup> June ,2015

Supplier: SHANXI SOLID INDUSTRIAL CO., Works No. N/A  
 LTD.

Article: Ductile Iron Pipes

Technical specification/Requirements: ISO 2531-2009

Material: Ductile Iron According to: ISO 2531 Edition:2009

State of Delivery: Annealed Melting Process: Electric furnace

Typical Marking: N/A Brand of the manufacture: N/A

Inspector's stamp: TJ1871  
 TJ0814

Extent of material delivery:

Item No.	Number	Article	Batch No.	Remarks (Test No.)
1	Declared by supplier:9100M	Ductile Iron Pipes DN700 C25	1~24 A1~A8	1~24 A1~A8
2	Declared by supplier:15827M	Ductile Iron Pipes DN800 C25	92~125 & 150~172	92~125 & 150~172

Additional remarks:

The requirements are fulfilled as per annex:

Certification Body

Location and Date: In Shanxi Province, China On Sep 15~24, 2015

Annex: test results, other annex

Inspector: John Ma & Raymond Wu

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Test results: Acceptable according to ISO 2531-2009

Annex: For IN-TJ-5605-15015

**Mechanical tests**

Test type: Specimen type: Round bar State of delivery: Annealed														
Test No.	Dim. of specimen		Specimen	Test temp.	Yield strength	Tensile strength	Elongation	Red. of area	1 = Energy of impact [ J ] 2 = Impact strength [ J/cm <sup>2</sup> ] 3 = Cryst. Proportion [ % ] 4 = Expansion [ mm.10 <sup>-2</sup> ] 5 = Expansion [ % ] 6 = Hardness [HB]					
	Ø (mm)	Thick (mm)							°C	R <sub>p</sub> (MPa)	R <sub>m</sub> (MPa)	A (%) L <sub>o</sub> =50	Z (%)	Values
									1	2	3	Σ /n		
1	5.00	/		20	/	479	21.5	/	6	165				
2	5.00	/		20	/	461	13.5	/	6	169				
3	5.00	/		20	/	476	17.0	/	6	166				
4	5.00	/		20	/	489	21.5	/	6	169				
5	5.00	/		20	/	472	17.5	/	6	168				
6	5.00	/		20	/	459	14.5	/	6	167				
7	5.00	/		20	/	457	17.0	/	6	165				
8	5.00	/		20	/	464	18.5	/	6	164				
9	5.00	/		20	/	452	13.0	/	6	162				
10	5.00	/		20	/	478	19.5	/	6	168				
11	4.98	/		20	/	444	16.0	/	6	166				
12	5.00	/		20	/	460	15.5	/	6	168				
13	5.00	/		20	/	458	14.5	/	6	165				
14	5.00	/		20	/	451	13.5	/	6	164				
15	4.98	/		20	/	464	14.0	/	6	163				
16	5.00	/		20	/	456	17.0	/	6	165				
17	5.00	/		20	/	471	15.5	/	6	161				
18	5.00	/		20	/	467	16.0	/	6	169				
19	5.00	/		20	/	466	17.0	/	6	165				
20	5.00	/		20	/	450	14.5	/	6	164				
21	4.98	/		20	/	469	14.5	/	6	166				
22	5.00	/		20	/	464	16.5	/	6	160				
23	5.00	/		20	/	448	18.5	/	6	165				
24	5.00	/		20	/	459	15.5	/	6	168				
A1	5.03	/		20	/	444	16.6	/	6	167				
A2	4.98	/		20	/	432	20.6	/	6	168				
A3	5.03	/		20	/	429	13.8	/	6	176				
A4	4.98	/		20	/	445	11.7	/	6	174				
A5	5.00	/		20	/	445	16.2	/	6	170				

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A6	4.99	/			20	/	423	13.4	/	6	184
A7	5.00	/			20	/	448	17.6	/	6	173
A8	4.99	/			20	/	457	13.8	/	6	167
92	5.40	/			20	/	436	11.5	/	6	202
93	5.15	/			20	/	465	16.0	/	6	230
94	5.25	/			20	/	459	18.0	/	6	174
95	5.08	/			20	/	459	15.0	/	6	177
96	5.11	/			20	/	455	14.5	/	6	189
97	5.16	/			20	/	500	10.0	/	6	176
98	5.10	/			20	/	461	12.0	/	6	170
99	4.99	/			20	/	454	16.0	/	6	187
100	5.24	/			20	/	426	15.0	/	6	155
101	5.03	/			20	/	446	16.0	/	6	179
102	4.97	/			20	/	442	12.0	/	6	162
103	5.38	/			20	/	442	15.0	/	6	167
104	5.16	/			20	/	454	15.0	/	6	179
105	5.22	/			20	/	457	14.0	/	6	218
106	5.03	/			20	/	438	16.0	/	6	170
107	5.33	/			20	/	432	10.0	/	6	192
108	5.18	/			20	/	436	14.5	/	6	170
109	5.16	/			20	/	435	16.0	/	6	158
110	5.32	/			20	/	441	15.0	/	6	155
111	5.28	/			20	/	438	17.5	/	6	190
112	5.38	/			20	/	437	17.0	/	6	178
113	5.41	/			20	/	435	17.5	/	6	168
114	5.35	/			20	/	432	13.0	/	6	187
115	5.23	/			20	/	424	13.5	/	6	195
116	5.38	/			20	/	439	18.0	/	6	229
117	5.20	/			20	/	436	21.0	/	6	229
118	5.38	/			20	/	465	13.0	/	6	229
119	5.26	/			20	/	440	13.5	/	6	197
120	5.15	/			20	/	455	19.0	/	6	187
121	5.06	/			20	/	469	14.5	/	6	187
122	5.13	/			20	/	446	15.5	/	6	187
123	5.19	/			20	/	454	15.0	/	6	207
124	5.13	/			20	/	460	10.0	/	6	185
125	5.34	/			20	/	447	14.5	/	6	172
150	5.03	/			20	/	442	11.5	/	6	195
151	5.18	/			20	/	443	14.5	/	6	229
152	5.25	/			20	/	451	13.5	/	6	197
153	5.09	/			20	/	427	19.5	/	6	207
154	5.30	/			20	/	433	15.5	/	6	203
155	5.16	/			20	/	450	20.0	/	6	170
156	5.17	/			20	/	426	16.0	/	6	197
157	5.15	/			20	/	439	15.0	/	6	229
158	5.30	/			20	/	444	17.5	/	6	179

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159	5.13	/			20	/	423	16.0	/	6	179			
160	5.23	/			20	/	448	16.0	/	6	170			
161	5.36	/			20	/	449	15.0	/	6	187			
162	5.13	/			20	/	446	14.0	/	6	171			
163	4.82	/			20	/	457	15.0	/	6	163			
164	5.23	/			20	/	441	15.0	/	6	170			
165	5.09	/			20	/	448	14.0	/	6	159			
166	5.05	/			20	/	457	15.0	/	6	156			
167	5.35	/			20	/	464	17.0	/	6	205			
168	5.31	/			20	/	435	11.0	/	6	229			
169	5.27	/			20	/	427	17.0	/	6	217			
170	5.18	/			20	/	443	19.0	/	6	198			
171	5.15	/			20	/	468	10.0	/	6	167			
172	4.85	/			20	/	443	13.0	/	6	171			
-Blank-														

**Dimension Check randomly**

Size		D5	D3	DE	e	Lu
DN700 C25	Req.	779.3(+3.5/-1)	740.5(+3.5/-1)	738(+1/-4.2)	Min. 6.8	6000(+70/-30)
	Act.	778.5~782.6	739.6~743.7	734.5~738.2	7.10~11.1	5980~6035
DN800 C25	Req.	885.9(+3.8/-1)	844.5(+3.8/-1)	842(+1/-4.5)	Min. 7.5	6000(+70/-30)
	Act.	885.0~887.8	844.9~847.5	838.3~842.1	8.8~13.1	5972~6010

**Mass of zinc coating check randomly**

Size		Mass of zinc coating (g/m <sup>2</sup> )
DN700 C25	Required value	≥130
	Actual value	145~183
DN800 C25	Required value	≥130
	Actual value	150~188

**Witness hydrostatic test randomly**

Size		Test pressure (Mpa)	Duration (s)
DN700 C25	Required value	≥2.5	≥10
	Actual value	2.5	17
DN800 C25	Required value	≥2.5	≥10
	Actual value	2.6	15

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**Witness thickness of cement lining check randomly**

Size		Min. thickness of lining at one point (mm)
DN700 C25	Required value	Min 3.5
	Actual value	3.9-9.4
DN800 C25	Required value	Min 3.5
	Actual value	3.8~12.3

**Witness thickness of bitumen coating check randomly**

Size		Thickness of external coating (µm)
DN700 C25	Required value	≥70
	Actual value	124-218
DN800 C25	Required value	≥70
	Actual value	92~182

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