

Inspection Order No. : IN-TJ-5602-15051-SFC1503UPD04
 BOSS No. : 1313821
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 Date of issue: Jul. 14, 2015

INSPECTION REPORT
(non-negotiable)

- Description and Quantity of Commodity as per PI: 1) Manhole covers Tranvia proyect D400, covers, as confirmed drawing dated on April 16, 2015: 1080 pcs
2) The frame for 3 covers D400: 290 pcs
- Name & Address Of Buyer: G*****
- Name & Address Of Seller: SHANXI SOLID INDUSTRIAL CO.LTD
Add: ROOM 1501,BUILDING B,DINGYUAN TIMES CENTER,YING ZENANJIE TAIYUAN,SHANXI,CHINA
- Inspection Date & Place: Jul. 6-10, 2015 in Shanxi Province, China
- Proforma Invoice No.: SFC-1503/SFC-1504, dd. April 17, 2015
- Nature Of Inspection:

Item	Comment
Dimension check randomly	Acceptable
Witness load test randomly	Acceptable
Witness lab test including tension test and chemical analysis randomly	Acceptable
- Inspector:

Sunny Yang

- Reviewed by

July Yang

July Yang

This is to report that we, SGS-CSTC Tianjin Branch 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 (Including measuring range and equipment No.)	CALIBRATION STATUS	CERTIFICATE NO. (OPTIONAL)	SGS or External equipment
1	Vernier caliper (IND-TJ-KC-12), (0-	Effectively	-	SGS

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	300mm)			
2	Depth vernier caliper (10065307), (0-150mm)	2015.03.04~2015.09.03	FJJY2015016	External equipment
3	Steel taper (0523643), (0-3m)	2015.03.04~2015.09.03	FJJB2015017	External equipment
4	Magnetic thickness gauge (Model HCC-18), (100604)	2015.03.05~2016.03.04	LJLX20150044	External equipment
5	Electronic balance (Model TD5102B), (2013124)	2015.02.25~2016.02.24	DZTP20150010	External equipment
6	Second timer (0-100), (t240-QC/MT)	2015.03.14~2016.03.13	JCDC2015013	External equipment
7	Oven (temperature part) (Model SRJX4-13), (201210)	2015.02.25~2016.02.24	ECWD20150009	External equipment
8	Load pressure test with pressure gauge (440KN), (pressure gauge no. 1993417153)	2015.03.05~2016.03.04	LJLX20150035	External equipment
9	Multi-element analyzer (Model JB-Q), (130713)	2015.03.05~2016.03.04	LJHX20150183	External equipment
10	Universal load tester (Model WES-300), (14321)	2015.03.05~2016.03.04	LJHX20150066	External equipment

Inspection Finding:

1. Dimension check randomly:

- Sample size: as per client's requirements, 10 sets of covers and frames (10 pcs of frames + 30 pcs of covers) totally.
- Reference documents: EN-124:1994, drawings conformed on April 16, 2015, including XL/HD60-c1 Rev. 2, XL/HD60-c2 Rev. 2, XL/HD60-c3 Rev. 2, XL/HD60-f.

During the inspection, the dimension check of products was performed randomly. There are 10 sets of products were selected randomly for the inspection and the details are as following: (Unit: mm)

No.	Types	Sample size	Inspection item	Required value	Actual value
1	Cover C1 (dwg. XL/HD60-c1 Rev. 2)	10	1	980 +3/-0	980.0-983.0
			2* (as EN124)	624±6	625.0-629.0
			3	49 +2/-3	47.5-50.6
			4	91 +2/-0	90.5-92.0
			5	14 +2/-0	14.3-16.0
			6	422 +2/-0	420.0-422.0
			7	11 +3/-0	11.3-12.8
			8	12 +3/-0	13.0-14.2
			9	6 +3/-0	7.2-8.1
			10	396 +5/-0	400.0-401.0
			11	40 +0/-2	38.0-39.0
			12	8 +2/-0	8.1-9.0
			13	59 +2/-0	60.2-62.0
2	Cover C2 (dwg. XL/HD60-	10	1	980 +3/-0	981.0-983.0
			2* (as EN124)	624±6	623.5-627.0
			3	91 ±2	89.5-91.8
			4	10 ±2	9.1-11.0



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	c2 Rev. 2)		5	14 +2/-0	15.1-15.5			
			6	605 +6/-0	607.0-611.0			
			7	12 +3/-0	12.6-14.5			
			8	11 +2/-0	11.5-12.0			
			9	6 +2/-0	7.3-7.9			
			10	8 +2/-0	7.98-9.00			
			11	40 +0/-2	38.0-39.4			
			12	59 +3/-0	59.5-61.2			
			13	396 +5/-0	400.0-401.0			
			3	Cover C3 (dwg. XL/HD60- c3 Rev. 2)	10	1	980 +3/-0	982.0-985.0
						2* (as EN124)	624±6	625.0-627.0
						3	14 +2/-0	14.2-15.1
						4	10 +2/-1	9.4-10.0
5	422 +2/-0	420.0-422.0						
6	12 +2/-0	12.5-13.0						
7	11 +2/-1	10.9-11.9						
8	396 +5/-0	400.0-401.0						
9	8 +2/-0	8.2-9.7						
10	91 ± 3	88.5-93.0						
11	40 +2/-3	37.0-41.0						
12	59 +4/-2	57.5-61.3						
13	6 +2/-0	6.1-7.0						
4	Frame (dwg. XL/HD60- f)	10	1	1884 +4/-2	1882.0-1888.0			
			2	313 +2/-0	313.0-315.0			
			3	69 +2/-0	70.2-72.0			
			4* (as EN124)	Min. 6	6.8-7.3			
			5	987 ± 2	985.0-988.0			
			6	59 +2/-0	60.0-60.8			
			7	1941 +2/-0	1940.0-1943.0			
			8	1816 +4/-2	1814.0-1820.0			
			9	918 +4/-2	916.0-920.0			
			10	1043 +6/-0	1043.0-1049.0			
5	Total clearance	10	A* (as EN124)	Max. 15	5.50-12.00			

Remarks:

- 1) All the dimensions are referred from relevant drawings;
- 2) The tolerances or limited values required are specified in standard EN-124:1994 and drawings;
- 3) The dimensions to be checked is referred attached drawings which had been marked inspected dimension No. as mentioned in above table;
- 4) The products which had been selected for the inspection were marked no. 1# to 10# in white colour for identification of inspection.

Result: The result of dimension check was acceptable.

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2. Witness load test randomly:

- Sample size: as per client's requirements, 10 sets of covers and frames (10 pcs of frames + 30 pcs of covers) totally.
- Reference documents: EN-124:1994

During the inspection, the load test of products had been performed randomly in accordance with standard EN-124: 1994. The details are as following:

Product	Permanent set after 2/3 of the load test				
FRAME & COVER C1,C2, C3	Test pressure	Test frequency	Required value	Actual value	
	266.67KN (9.5MPa)	5 times	Max. 2.08mm	0.10-1.26mm	
Product	Load test				
FRAME & COVER C1, C2, C3	Test pressure		Test duration		result
	Required	Actual	Required	Actual	
	400KN	400KN (13.7MPa)	30~32second	30~32second	No broken and result is sat.

Remark:

- 1) The test pressure is converted to MPa from KN based on test equipment's size of hydrostatic cylinder;
- 2) The products which had been selected for the inspection were marked no. 1# to 10# in white colour for identification of inspection.

Result: 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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3. Witness lab test including tension test and chemical analysis randomly:

- Sample size: as per client's requirements, 2 pcs of test specimens totally.
- Reference documents: ASTM A536-84 M:2003 for tension test, client's requirement for chemical analysis.

a) Tension test:

According to the client's requirement, the material grade is 70-50-05 and the test was performed depending this grade. The details are as following:

Batch no. of specimen	Tensile strength (MPa)		Yield strength (MPa)		Elongation (%)	
	Required	Actual	Required	Actual	Required	Actual
290615 (B) for cover	Min. 485	551.51	Min. 345	456.09	Min. 5	14.0
290615 for set of cover and frame	Min. 485	537.12	Min. 345	401.34	Min. 5	12.5

Result: Acceptable

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- b) According to the client's requirement, the material chemical composition had been given from the client and the test was performed depending this client's requirement. The details are as following:

Batch no. of specimen	Composition	C (%)	Si (%)	Mn (%)	P (%)	S (%)
	Required	3.3 - 4.0	2.5 - 3.0	≤ 0.6	< 0.07	≤ 0.03
290615 (B) for cover	Actual	3.62	2.95	0.42	0.057	0.017
290615 for set of cover and frame	Actual	3.71	2.79	0.21	0.051	0.023

Result: Acceptable to client's requirement.

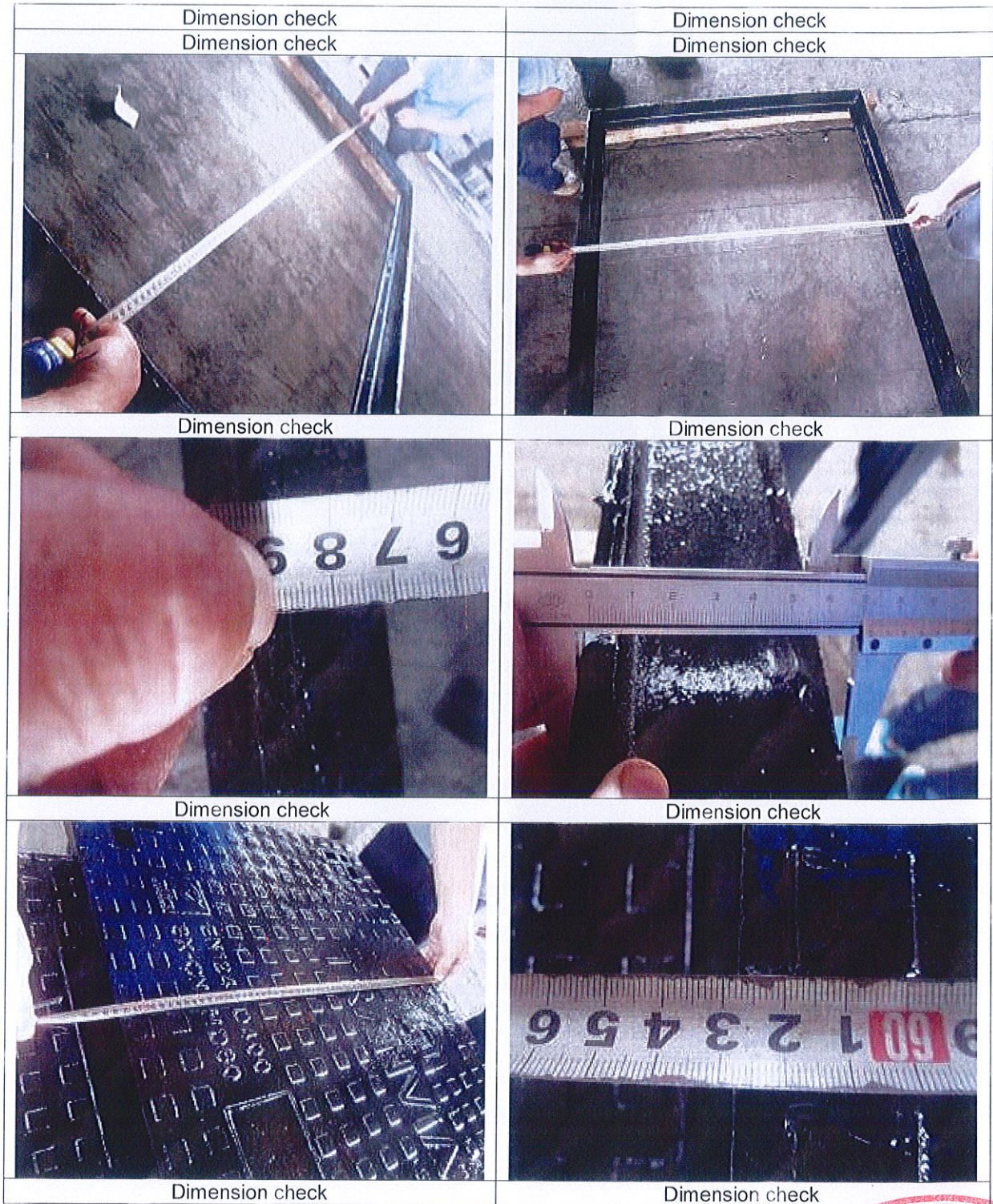
Standard witnessing/observing disclaimer (voluntary witnessing)

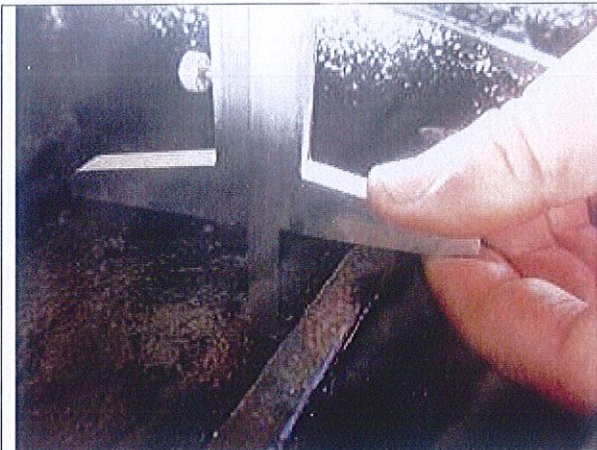
In accordance with Client's instructions, the Company's involvement has been limited to witnessing/observing a third party's intervention(s) at the third party's laboratory/test house or other facilities and installations used for the intervention(s). The Company's sole responsibility was to be present 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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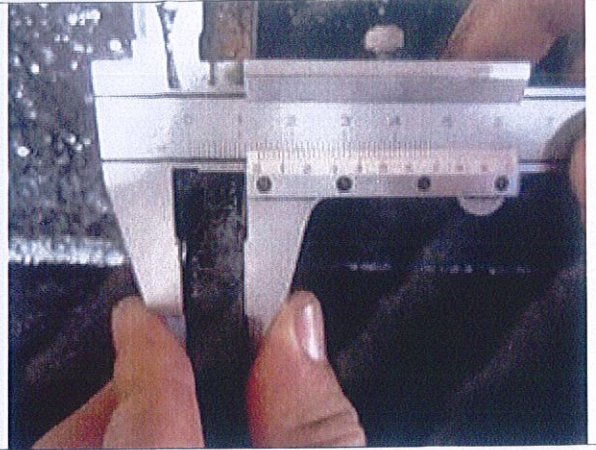
Attachment: Photos during inspection



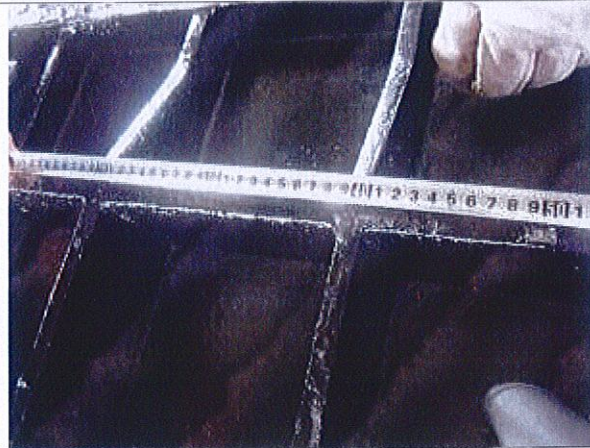




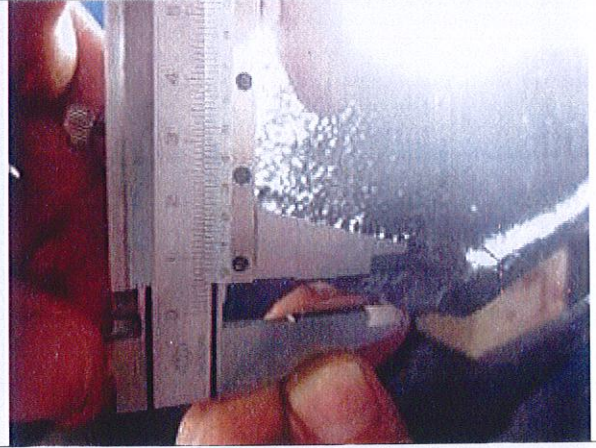
Dimension check



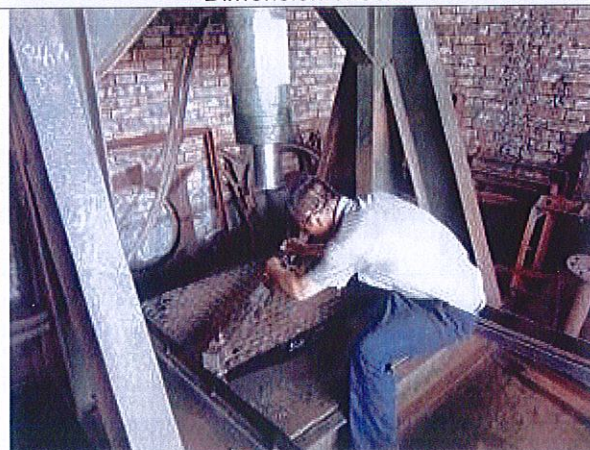
Dimension check



Dimension check



Dimension check



2/3 load test for permanent set



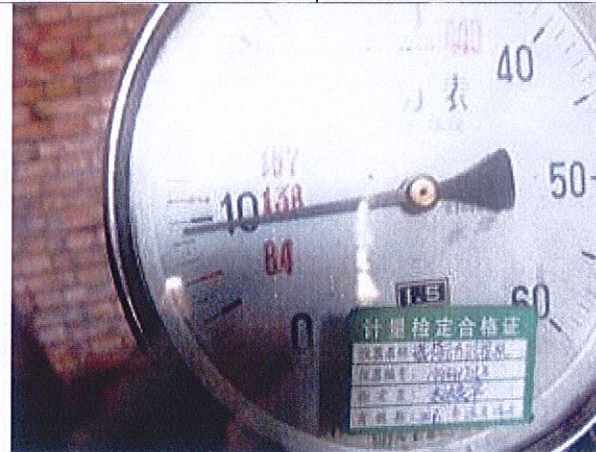
2/3 load test for permanent set – measuring value before taking pressure



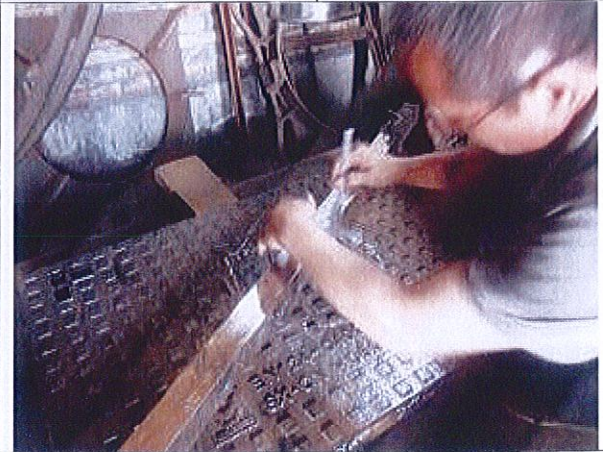
2/3 load test for permanent set



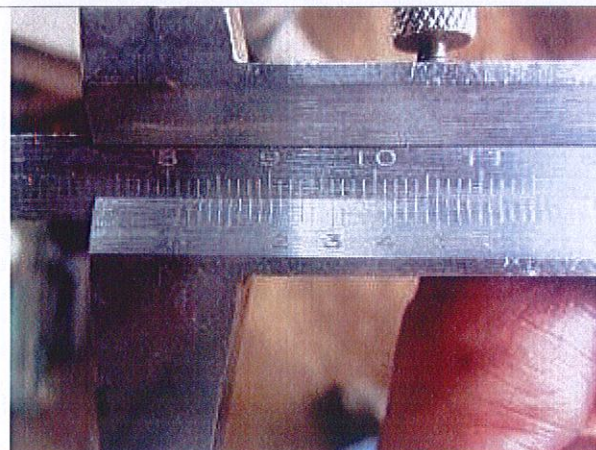
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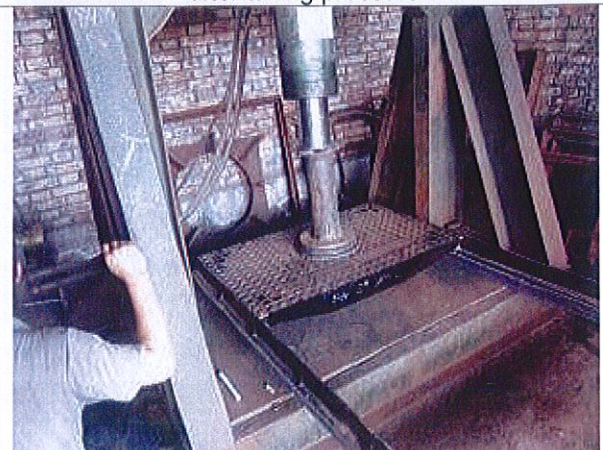
2/3 load test for permanent set



2/3 load test for permanent set – measuring value after taking pressure



2/3 load test for permanent set – reading after taking pressure



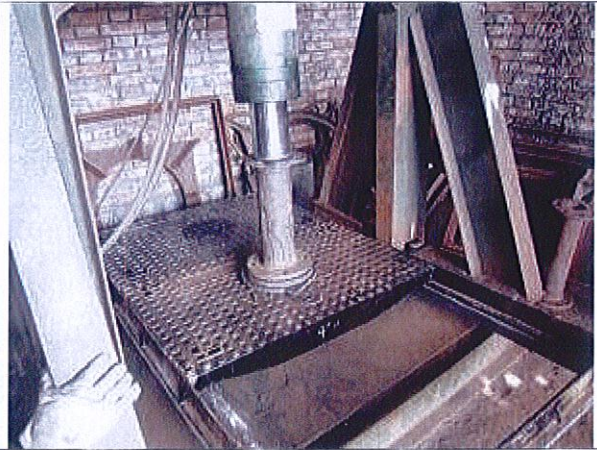
Load test



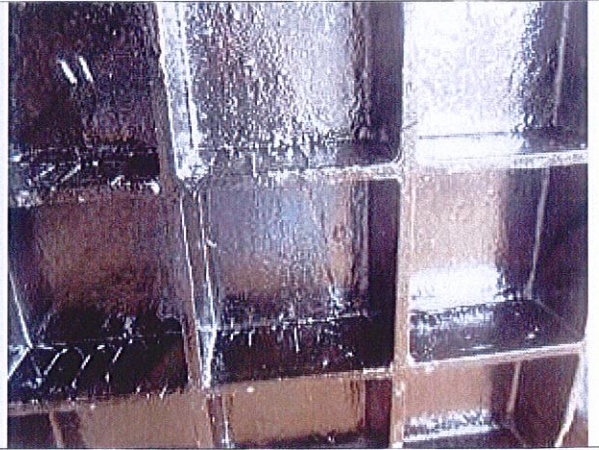
Load test



Load test



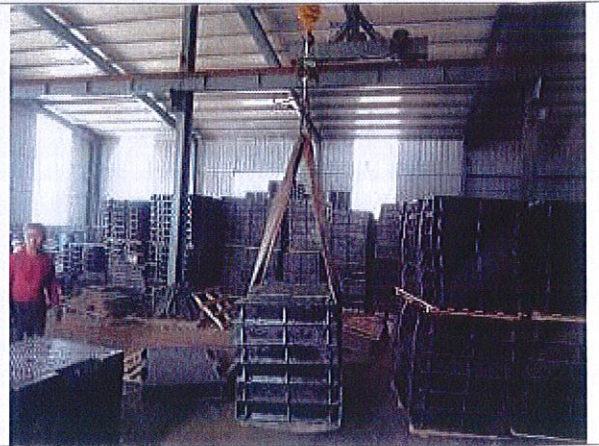
Load test



Product check after load test



Measurement-Weight check



Measurement-Weight check



Taking sample for chemical analysis



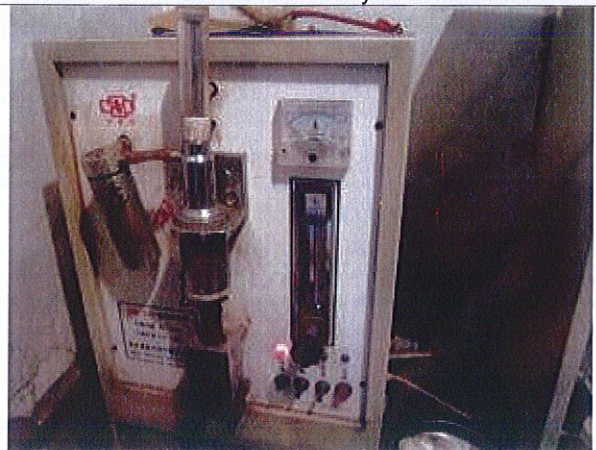
Test sample for chemical analysis



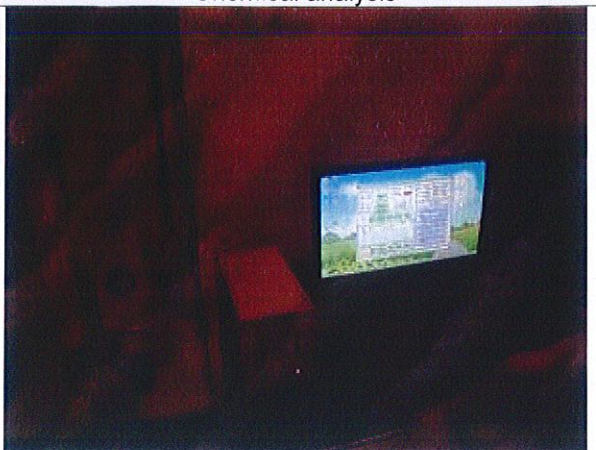
Chemical analysis



Chemical analysis



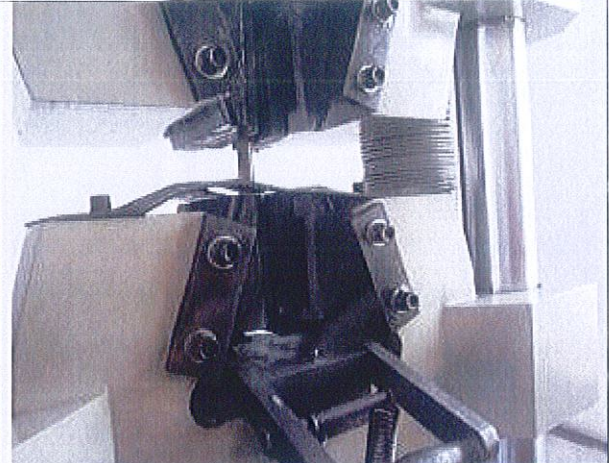
Chemical analysis



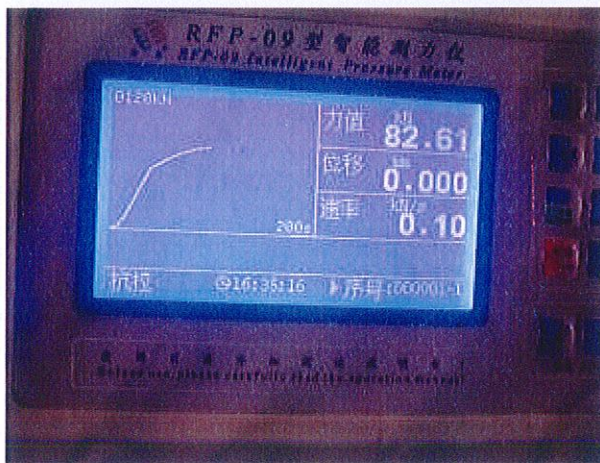
Chemical analysis



Mechanical properties test specimen



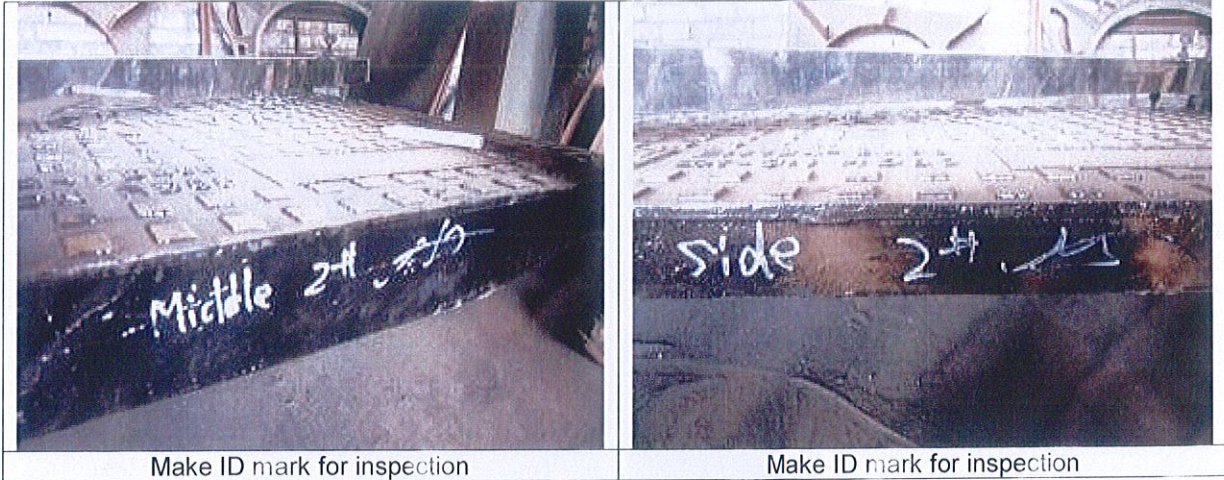
Mechanical properties test



Mechanical properties test



Mechanical properties test



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End of report

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



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