

General

TUV COORDINATOR: Evan Wen	TUV INSPECTOR: Wu Lianzhong
	APPROVAL #: Yes
WORK ORDER No. (TUV NORD) IND-CUC-C2506023	
TYPE OF VISIT: <input type="checkbox"/> PIM <input type="checkbox"/> INITIAL INSP. <input checked="" type="checkbox"/> 3.2 CERTIFICATE <input type="checkbox"/> FINAL INSP. <input type="checkbox"/> ORDER STATUS	

Client / Project Information

CLIENT: Hebei Abter Steel Pipe Co., Ltd.	
PROJECT: TPI for the SMLS TUBE	WORK ORDER No.: N/A

Equipment / Material Description

PURCHASE ORDER NO.: /	TAG / ID NO.: N/A
DESCRIPTION: Review the document, Quantity check, Visual Inspection and Dimension Checking, Witness mechanical test by every batch number, Witness chemical test by every heat number Witness the NDT,Checking the Marking.	
PRIMARY SUPPLIER: Tianchang Kanghong Oil Pipe Company Limited.	SUB-SUPPLIER: N/A
LOCATION: Tianchang City, Anhui Province,China.	LOCATION: N/A
CONTACT: Mr.Fang	CONTACT: N/A
SHOP ORDER NO.: N/A	SHOP ORDER NO.: N/A

Progress

ENGINEERING:	N/A (% COMPLETE)
MATERIAL:	100% (% COMPLETE)
FABRICATION:	100% (% COMPLETE)
PO DELIVERY DATE:	N/A
SCHEDULED COMPLETION DATE:	N/A

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Summary

DATE OF LAST VISIT: N/A	4 Days
DATE(S) OF THIS VISIT: June 27&28 & July 3&4, 2025	
NEXT SCHEDULED VISIT: N/A	
NON-CONFORMITY REPORT ISSUED DURING THIS VISIT: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES NCR NO.:	
OUTSTANDING NON-CONFORMITY REPORT: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES NCR NO.:	
INSPECTION RELEASE ISSUED DURING THIS VISIT: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES RELEASE NO.:	
ACTION POINTS: (NCR'S, CLARIFICATIONS, PENDING APPROVALS, ETC.) NONE	

INSPECTION ACTIVITIES

1. INSPECTION ACTIVITIES IDENTIFICATION: (PLACE AN X MARK IN EACH OF THE BOXES BELOW THAT CORRESPONDS WITH AN INSPECTION ACTIVITY VERIFIED OR PERFORMED. EACH ACTIVITY MARKED MUST BE FULLY EXPLAINED BELOW AT SECTION 3. "INSPECTION DETAILS". TUV NORD INSPECTOR PERFORMED THE BELOW INSPECTION ACTIVITIES ACCORDING TO THE REQUIREMENT OF THE INSPECTION SERVICE CONTRACT (THE INSPECTION RESULT WILL BE ACCEPTED IF THE INSPECTED PRODUCTS MEET THE REQUIREMENT OF THE SPECIFICATION AND RELATED REGULATIONS; OTHERWISE, THE INSPECTION RESULT WILL BE REJECTED).

<input checked="" type="checkbox"/> CHEMICAL TEST	<input checked="" type="checkbox"/> MECHANICAL TESTING (CHARPY IMPACT, TENSILE, GUIDED BENDS)
<input type="checkbox"/> REVIEW OF WELDING PROCEDURE SPECIFICATION AND PROCEDURE	<input type="checkbox"/> PRESSURE / LEAK TEST (HYDRO-STATIC, AIR, HELIUM, ETC.)
<input type="checkbox"/> QUALIFICATION RECORD	<input type="checkbox"/> BALANCING OF ROTATING PARTS
<input type="checkbox"/> REVIEW OF WELDER/WELDING OPERATOR QUALIFICATION RECORDS	<input type="checkbox"/> SHAFT / ROTOR RUN OUT
<input checked="" type="checkbox"/> VISUAL INSPECTION OF WELD JOINT FIT-UP/BACK GOUGE PREPARATIONS	<input type="checkbox"/> CLEARANCE CHECKS
<input type="checkbox"/> CONTROL OF WELDING CONSUMABLES (FILLER METALS, RODS, WIRE, ETC.)	<input type="checkbox"/> VIBRATION / NOISE TEST
<input type="checkbox"/> IN-PROCESS WELDING INSPECTION (ADHERENCE TO WPS – ESSENTIAL VARIABLES)	<input type="checkbox"/> MECHANICAL RUNNING TESTS
<input checked="" type="checkbox"/> VISUAL INSPECTION OF COMPLETED WELDS FOR DETECTION OF DEFECTS /	<input type="checkbox"/> OVER-SPEED TRIP TEST
<input type="checkbox"/> DISCONTINUITIES	<input type="checkbox"/> CHECK OF TRIP SYSTEMS (LOW / HIGH OIL PRESSURE, VIBRATION, ETC)
<input type="checkbox"/> FULL DIMENSIONAL INSPECTION FOR COMPLIANCE WITH DESIGN DRAWING	<input type="checkbox"/> LOAD / NO LOAD TEST
<input type="checkbox"/> REVIEW OF RADIOGRAPHS	<input type="checkbox"/> OPERATIONAL TEST
<input type="checkbox"/> MAGNETIC PARTICLE / LIQUID PENETRANT TESTS	<input type="checkbox"/> METALLOGRAPHIC / MACROSCOPIC STRUCTURE TEST
<input type="checkbox"/> ULTRASONIC TESTING	<input type="checkbox"/> CLEANING / SANDBLASTING / PAINTING
<input checked="" type="checkbox"/> NDE TEST REPORTS	<input checked="" type="checkbox"/> MARKING AND IDENTIFICATION (NAME PLATE DATA, TAGS, ETC.)
<input type="checkbox"/> INTERNAL INSPECTION	<input type="checkbox"/> VENDOR DATA REVIEW (CMTR, TEST RECORDS, DATA SHEETS,

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<input type="checkbox"/> VERIFICATION OF SPECIFIED POST WELD HEAT-TREATMENT	<input type="checkbox"/> QC RECORDS
<input type="checkbox"/> HARDNESS TEST: HV HB HRC	<input type="checkbox"/> MANUFACTURER AUDIT
NOTE: N/A	

2. REFERENCE DRAWINGS/SPECIFICATIONS: (INCLUDE REVISION NO.'S)

TITLE	DOCUMENT NUMBER	REVISION NO	APPROVAL STATUS
Seamless steel tubes for pressure purposes-Technical delivery conditions-Part 2: Non-alloy and alloy steel tubes with specified elevated temperature properties	EN 10216-2	2024	Effective

3. INSPECTION ACTIVITIES:

3.1) Manufacturing progress status:

- When TUV NORD inspector arrives at site, all SMLS Pipes to be inspected have been prepared and ready for inspection. Details are as follows:

No.	Description	PO QTY
1	SMLS TUBE EN10216-2 TC2 16Mo3, 26.9*5.6*6000mm, Heat No.: 25207528	1000pcs
2	SMLS TUBE EN10216-2 TC2 16Mo3, 38*5*6000mm, Heat No.: 24111525	1190 pcs
3	SMLS TUBE EN10216-2 TC2 16Mo3, 42.4*6.3*6000mm, Heat No.: 25207530	249 pcs
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm, Heat No.: 24111525	2166 pcs
5	SMLS TUBE EN10216-2 TC2 16Mo3, 38*6.3*6000mm, Heat No.: 24111525	373 pcs
6	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4.5*6000mm, Heat No.: 24212131	153 pcs
7	SMLS TUBE EN10216-2 TC2 16Mo3, 51*4*6000mm, Heat No.: 25207530	1686 pcs
8	SMLS TUBE EN10216-2 TC2 13CrMo4-5, 31.8*4*6000mm, Heat No.: 25303086	543 pcs

- Before the test, the inspector reviewed the calibration certificate of measure tools, and found that they were within the validity period, and the results were acceptable, all equipment calibration see the table below:

No	Equipment name	Identification No.	Calibration No.	Calibration valid to
1	Ultrasonic flaw detector	ZKCX-ZC-220319	SZGJ56672410080133	2025.10.07
2	Eddy current flaw detector	KH-B2-47	YT-019-2025-0100200	2026.01.21
3	Steel tape (0~10) m	LS-21-033	TJ250212-LS21-033	2026.02.11
4	direct-reading spectrometer	KH-B2-37/4R196	YT-027-2025-0100248	2026.01.21
5	Tensile test machine	KH-B2-10/138	YT-005-2025-0100375	2026.01.21

3.2) The Inspection Activities:

- Quantity check
- Visual Inspection and Dimension Checking 5%
- Witness mechanical test by every batch number
- Witness chemical test by every heat number



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- Witness the NDT 5%
- Checking the Marking 5%
- Review the Document

3.3) The details of inspection activities performed:

3.3.1 Quantity check

The following SMLS Pipes were offered for inspection during this visit.

No.	Description	Heat No.	Lot No.	QTY(PCS)	QTY(M)
1	SMLS TUBE EN10216-2 TC2 16Mo3, 26.9*5.6*6000mm,	25207528	12260A	127	762
1	SMLS TUBE EN10216-2 TC2 16Mo3, 26.9*5.6*6000mm,	25207528	12261A	127	762
1	SMLS TUBE EN10216-2 TC2 16Mo3, 26.9*5.6*6000mm,	25207528	12262A	127	762
1	SMLS TUBE EN10216-2 TC2 16Mo3, 26.9*5.6*6000mm,	25207528	12263A	127	762
1	SMLS TUBE EN10216-2 TC2 16Mo3, 26.9*5.6*6000mm,	25207528	12264A	127	762
1	SMLS TUBE EN10216-2 TC2 16Mo3, 26.9*5.6*6000mm,	25207528	80730A	127	762
1	SMLS TUBE EN10216-2 TC2 16Mo3, 26.9*5.6*6000mm,	25207528	80731A	127	762
1	SMLS TUBE EN10216-2 TC2 16Mo3, 26.9*5.6*6000mm,	25207528	80732A	111	666
2	SMLS TUBE EN10216-2 TC2 16Mo3, 38*5*6000mm,	24111525	11693A	182	1092
2	SMLS TUBE EN10216-2 TC2 16Mo3, 38*5*6000mm,	24111525	11694A	182	1092
2	SMLS TUBE EN10216-2 TC2 16Mo3, 38*5*6000mm,	24111525	11695A	182	1092
2	SMLS TUBE EN10216-2 TC2 16Mo3, 38*5*6000mm,	24111525	11696A	182	1092
2	SMLS TUBE EN10216-2 TC2 16Mo3, 38*5*6000mm,	24111525	11697A	182	1092
2	SMLS TUBE EN10216-2 TC2 16Mo3, 38*5*6000mm,	24111525	11698A	182	1092
2	SMLS TUBE EN10216-2 TC2 16Mo3, 38*5*6000mm,	24111525	11699A	98	588
3	SMLS TUBE EN10216-2 TC2 16Mo3, 42.4*6.3*6000mm,	25207530	12487A	183	1098
3	SMLS TUBE EN10216-2 TC2 16Mo3, 42.4*6.3*6000mm,	25207530	12488A	66	396
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11447A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11448A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11449A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11450A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11451A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11452A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11453A	127	762



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4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11454A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11455A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11456A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11457A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11408A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11409A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11410A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11411A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11412A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11413A	127	762
4	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4*6000mm,	24111525	11414A	7	42
5	SMLS TUBE EN10216-2 TC2 16Mo3, 38*6.3*6000mm,	24111525	12207A	183	1098
5	SMLS TUBE EN10216-2 TC2 16Mo3, 38*6.3*6000mm,	24111525	12208A	190	1140
6	SMLS TUBE EN10216-2 TC2 16Mo3, 33.7*4.5*6000mm,	24212131	12072A	153	918
7	SMLS TUBE EN10216-2 TC2 16Mo3, 51*4*6000mm,	25207530	12472A	183	1098
7	SMLS TUBE EN10216-2 TC2 16Mo3, 51*4*6000mm,	25207530	12473A	183	1098
7	SMLS TUBE EN10216-2 TC2 16Mo3, 51*4*6000mm,	25207530	12474A	183	1098
7	SMLS TUBE EN10216-2 TC2 16Mo3, 51*4*6000mm,	25207530	12475A	183	1098
7	SMLS TUBE EN10216-2 TC2 16Mo3, 51*4*6000mm,	25207530	12476A	183	1098
7	SMLS TUBE EN10216-2 TC2 16Mo3, 51*4*6000mm,	25207530	12477A	183	1098
7	SMLS TUBE EN10216-2 TC2 16Mo3, 51*4*6000mm,	25207530	12478A	183	1098
7	SMLS TUBE EN10216-2 TC2 16Mo3, 51*4*6000mm,	25207530	12479A	183	1098
7	SMLS TUBE EN10216-2 TC2 16Mo3, 51*4*6000mm,	25207530	12480A	183	1098
7	SMLS TUBE EN10216-2 TC2 16Mo3, 51*4*6000mm,	25207530	12481A	39	234
8	SMLS TUBE EN10216-2 TC2 13CrMo4-5, 31.8*4*6000mm,	25303086	12180A	127	762
8	SMLS TUBE EN10216-2 TC2 13CrMo4-5, 31.8*4*6000mm,	25303086	12181A	127	762
8	SMLS TUBE EN10216-2 TC2 13CrMo4-5, 31.8*4*6000mm,	25303086	12182A	127	762
8	SMLS TUBE EN10216-2 TC2 13CrMo4-5, 31.8*4*6000mm,	25303086	12183A	127	762



8	SMLS TUBE EN10216-2 TC2 13CrMo4-5, 31.8*4*6000mm,	25303086	12184A	35	210
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3.3.2 Visual Inspection and Dimension Checking

➤ **Visual inspection**

According to the inspection requirement and inspector randomly witness 5% visual inspection, no obvious defects, such as crack, pit, deep groove, deformation were found on the surface. The inspection results were accepted.

➤ **Dimension inspection**

Inspector 5% randomly witnessed dimensional inspection including OD, WT and length according to EN 10216-2 per item, The dimensional inspection was acceptable. Details are as follows:

No.	Size	Heat No.	OD(MM)	WT(MM)	Length(MM)
1	26.9*5.6*6000mm	25207528	26.8-27.2	5.56-5.72	6010-6015
2	38*5*6000mm	24111525	38.1-38.3	5.01-5.23	6009-6016
3	42.4*6.3*6000mm	25207530	42.4-42.6	6.31-6.43	6008-6017
4	33.7*4*6000mm	24111525	33.7-33.9	4.02-4.25	6010-6015
5	38*6.3*6000mm	24111525	38-38.3	6.3-6.4	6009-6016
6	33.7*4.5*6000mm	24212131	33.7-33.8	4.5-4.7	6009-6016
7	51*4*6000mm	25207530	50.9-51.2	4.08-4.23	6010-6015
8	31.8*4*6000mm	25303086	31.8-32.9	4.02-4.20	6009-6016

3.3.3 Mechanical test by every batch number

Inspector witnessed the tensile test, flattening test and flaring test according to EN 10216-2 per heat-lot number; The inspection result was acceptable. Details are as follows:

Lot No.	Description	Material	Heat No.	Yield strength (MPa)	Tensile strength Rm(MPa)	Elongation (%)	Flattening test	Flaring test
12260A	26.9*5.6*6000mm	16Mo3	25207528	350/330	478/498	36/34	ACC	ACC
12261A	26.9*5.6*6000mm	16Mo3	25207528	332/353	502/472	35/31	ACC	ACC
12262A	26.9*5.6*6000mm	16Mo3	25207528	347/349	494/495	33/32	ACC	ACC
12263A	26.9*5.6*6000mm	16Mo3	25207528	348/355	475/495	35/34	ACC	ACC
12264A	26.9*5.6*6000mm	16Mo3	25207528	341/348	482/504	32/33	ACC	ACC
80730A	26.9*5.6*6000mm	16Mo3	25207528	356/337	483/479	32/36	ACC	ACC
80731A	26.9*5.6*6000mm	16Mo3	25207528	344/331	469/485	31/34	ACC	ACC
80732A	26.9*5.6*6000mm	16Mo3	25207528	349/335	497/485	35/31	ACC	ACC
11693A	38*5*6000mm	16Mo3	24111525	345/336	470/471	35/33	ACC	ACC
11694A	38*5*6000mm	16Mo3	24111525	352/341	486/494	32/32	ACC	ACC
11695A	38*5*6000mm	16Mo3	24111525	341/343	489/494	31/34	ACC	ACC
11696A	38*5*6000mm	16Mo3	24111525	354/335	504/501	35/33	ACC	ACC
11697A	38*5*6000mm	16Mo3	24111525	336/340	478/486	32/32	ACC	ACC
11698A	38*5*6000mm	16Mo3	24111525	333/341	491/471	34/31	ACC	ACC
11699A	38*5*6000mm	16Mo3	24111525	337/330	482/491	32/32	ACC	ACC
11447A	33.7*4*6000mm	16Mo3	24111525	336/330	495/491	31/34	ACC	ACC
11448A	33.7*4*6000mm	16Mo3	24111525	353/336	469/468	35/35	ACC	ACC
11449A	33.7*4*6000mm	16Mo3	24111525	346/347	476/492	31/34	ACC	ACC
11450A	33.7*4*6000mm	16Mo3	24111525	334/330	476/497	33/32	ACC	ACC



11451A	33.7*4*6000mm	16Mo3	24111525	335/356	489/494	31/36	ACC	ACC
11452A	33.7*4*6000mm	16Mo3	24111525	344/340	477/488	33/34	ACC	ACC
11453A	33.7*4*6000mm	16Mo3	24111525	356/339	490/492	36/35	ACC	ACC
11454A	33.7*4*6000mm	16Mo3	24111525	344/352	482/486	32/32	ACC	ACC
11455A	33.7*4*6000mm	16Mo3	24111525	356/354	475/495	33/36	ACC	ACC
11456A	33.7*4*6000mm	16Mo3	24111525	355/351	502/502	32/33	ACC	ACC
11457A	33.7*4*6000mm	16Mo3	24111525	346/354	482/478	33/31	ACC	ACC
11408A	33.7*4*6000mm	16Mo3	24111525	341/353	493/479	34/34	ACC	ACC
11409A	33.7*4*6000mm	16Mo3	24111525	334/339	496/477	31/34	ACC	ACC
11410A	33.7*4*6000mm	16Mo3	24111525	355/345	480/492	35/32	ACC	ACC
11411A	33.7*4*6000mm	16Mo3	24111525	335/347	471/489	32/32	ACC	ACC
11412A	33.7*4*6000mm	16Mo3	24111525	338/341	473/496	34/33	ACC	ACC
11413A	33.7*4*6000mm	16Mo3	24111525	347/341	470/478	32/32	ACC	ACC
11414A	33.7*4*6000mm	16Mo3	24111525	334/344	472/482	31/33	ACC	ACC
12207A	38*6.3*6000mm	16Mo3	24111525	356/333	485/482	33/31	ACC	ACC
12208A	38*6.3*6000mm	16Mo3	24111525	354/354	504/483	31/31	ACC	ACC
12487A	42.4*6.3*6000mm	16Mo3	25207530	337/342	474/487	32/35	ACC	ACC
12488A	42.4*6.3*6000mm	16Mo3	25207530	341/336	491/473	35/31	ACC	ACC
12472A	51*4*6000mm	16Mo3	25207530	352/349	490/474	32/31	ACC	ACC
12473A	51*4*6000mm	16Mo3	25207530	332/335	491/487	31/36	ACC	ACC
12474A	51*4*6000mm	16Mo3	25207530	350/351	501/486	34/36	ACC	ACC
12475A	51*4*6000mm	16Mo3	25207530	356/335	480/479	34/36	ACC	ACC
12476A	51*4*6000mm	16Mo3	25207530	351/339	473/483	32/36	ACC	ACC
12477A	51*4*6000mm	16Mo3	25207530	356/350	481/492	36/33	ACC	ACC
12478A	51*4*6000mm	16Mo3	25207530	353/349	5017471	31/33	ACC	ACC
12479A	51*4*6000mm	16Mo3	25207530	336/344	481/493	31/35	ACC	ACC
12480A	51*4*6000mm	16Mo3	25207530	353/346	469/501	34/33	ACC	ACC
12481A	51*4*6000mm	16Mo3	25207530	353/330	470/503	31/36	ACC	ACC
12072A	33.7*4.5*6000mm	16Mo3	24212131	335/350	497/474	36/36	ACC	ACC
12180A	31.8*4*6000mm	13CrMo4-5	25303086	372/375	500/501	35/35	ACC	ACC
12181A	31.8*4*6000mm	13CrMo4-5	25303086	380/370	499/496	32/32	ACC	ACC
12182A	31.8*4*6000mm	13CrMo4-5	25303086	378/382	503/489	35/33	ACC	ACC
12183A	31.8*4*6000mm	13CrMo4-5	25303086	377/378	493/488	32/32	ACC	ACC
12184A	31.8*4*6000mm	13CrMo4-5	25303086	373/376	499/501	33/34	ACC	ACC

3.3.4 Witness chemical test by every heat number

Inspector witnessed the product chemical analysis according to EN 10216-2 per heat number, the inspection result was acceptable. Details are as follows: Unit:%

Specimen No.	Material	Heat No.	C	Si	Mn	P	S	Cr	Ni	Cu	Mo	Al lot
			0.12-0.20	≤0.35	0.40-0.90	≤0.025	≤0.010	≤0.30	≤0.30	≤0.30	0.25-0.35	≤0.040
25207528-1	16CrMo3	25207528	0.17	0.24	0.62	0.016	0.005	0.06	0.02	0.04	0.28	0.011



24111525-1	16CrMo3	24111525	0.17	0.24	0.64	0.012	0.002	0.04	0.02	0.03	0.28	0.011
25207530-1	16CrMo3	25207530	0.17	0.24	0.63	0.014	0.005	0.04	0.02	0.03	0.28	0.012
24212131-1	16CrMo3	24212131	0.18	0.25	0.62	0.017	0.004	0.03	0.02	0.03	0.27	0.016
Specimen No.	Material	Heat No.	C	Si	Mn	S	P	Cr	Ni	Cu	Mo	Al lot
			0.10-0.17	≤0.35	0.40-0.70	≤0.025	≤0.010	0.70-1.15	≤0.30	≤0.30	0.40-0.60	≤0.040
25303086-1	13CrMo4-5	25303086	0.15	0.2	0.47	0.010	0.003	0.89	0.02	0.03	0.42	0.012

3.3.5 Witness the NDT

Inspector randomly 5% witnessed UT and ET inspection according to EN 10216-2, the inspector witnessed the calibration process of UT and ET test and checked the NDT personal certification, no error was found.

Before test verified the artificial defects on reference pipe, and the equipment was calibrated 3 times using reference pipe at beginning and every 4 hours, the calibration result was acceptable.

During the testing process, no defects were found, the result was acceptable.

Details are as follows:

Type of Equipment	SST-60	N notch , Acceptance class	U2, Subclass CShape and Grade of Flaw	Testing Medium	Water
Type of Instrument	PUMT	Repeating Frequency	4KHz	Distance of Blind Area	200mm
Type of probe	Straight and angle probe	Working Frequency	5MKZ	Testing Method	Shear-wave overflow

Type of Equipment	钢研 8Type	Testing Sensitivity	38dB	Distance of Blind Area	200mm
Shape and Grade of Contrast Sample	Bore Hole	Warning Sensitivity	30%	Frequency of Wave Filtering	4
Type of Detector	Through type	Magnetic Saturation Current and Voltage	0.8A/70V	Speed	45m/min
ET Standard	ISO10893-1	Encourage Frequency	5MKZ	Phase Position	110°

3.3.6 Checking the Marking

Each pipe external surface was painted with mill black painting, no rusty was found, the white stencilling marking was readability along the pipe length direction; The format as following:

-Manufacture log SMLS TUBE EN10216-2 TC2 13CrMo4-5 31.8MM*4.0MM*6000MM HEATING NUMBER TUV

3.3.7 Review the Document

➤ The factory submitted the following documents for the inspector review. All the reports have traceability information, the values are in line with the standard requirements shown in the documents, and the results are acceptable.

-MTC

-Physical and chemical test report

-NDT report

-Heat treatment report

3.4) Pictures taken during visit:

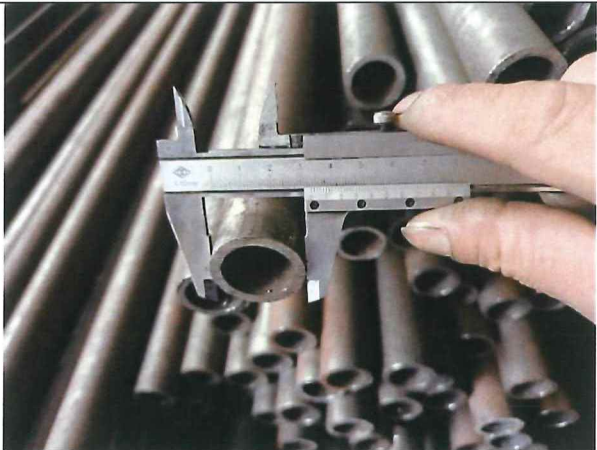




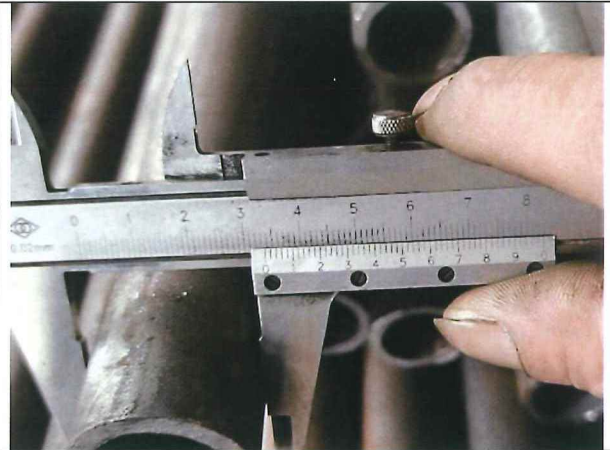
Sampling check



Specimen check



Outsider diameter check



Outsider diameter check



Wall thickness check



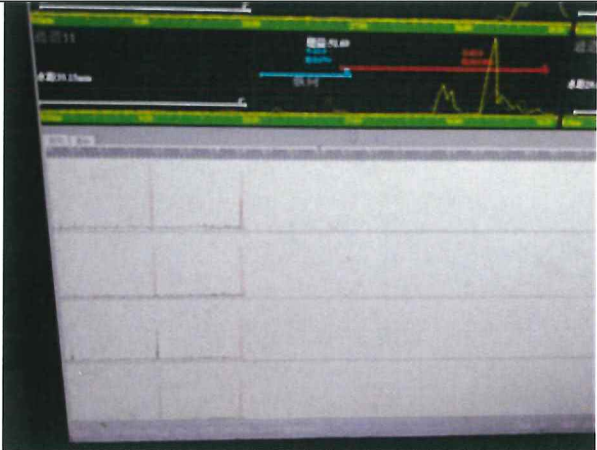
Wall thickness check



Length check



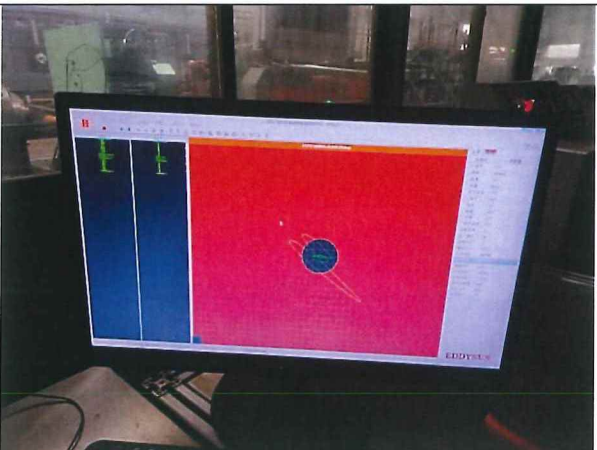
UT calibration check



UT calibration check



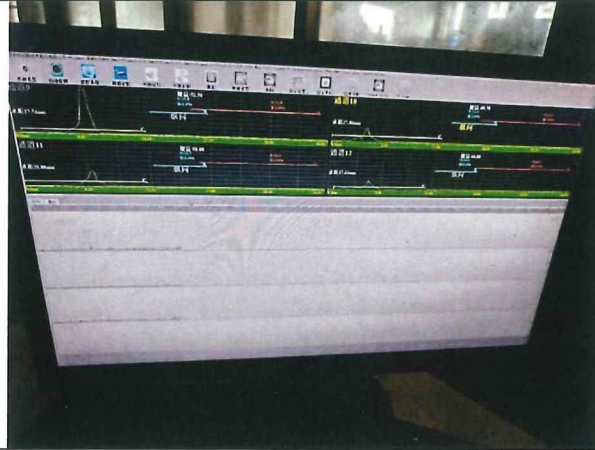
ET calibration



ET calibration



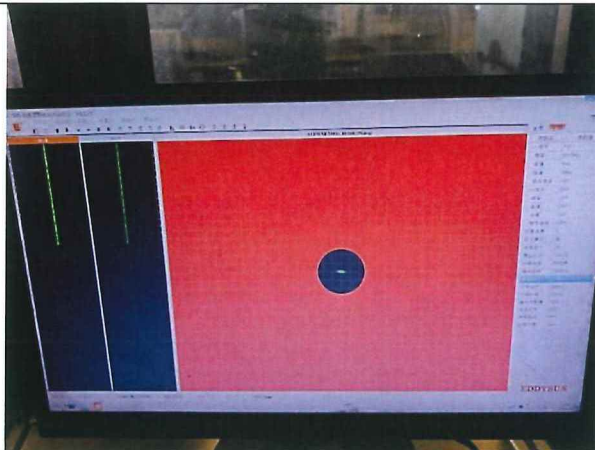
UT inspection



UT inspection



ET inspection



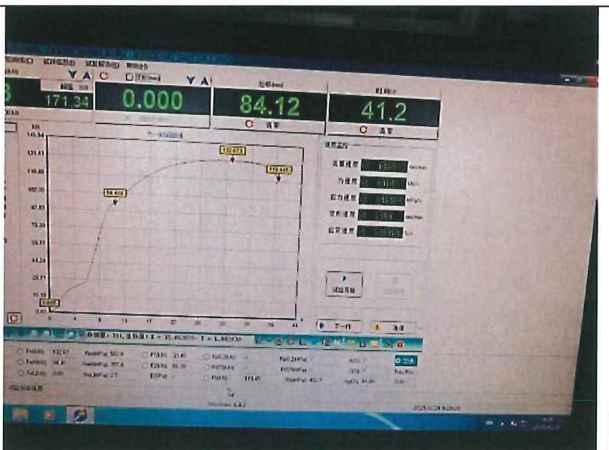
ET inspection



Tensile test



Tensile test

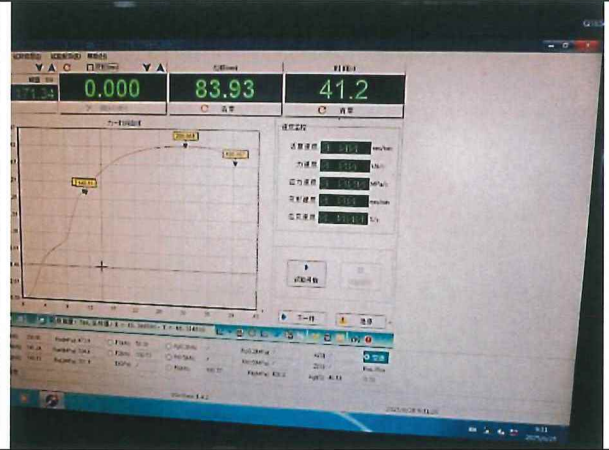


Tensile test

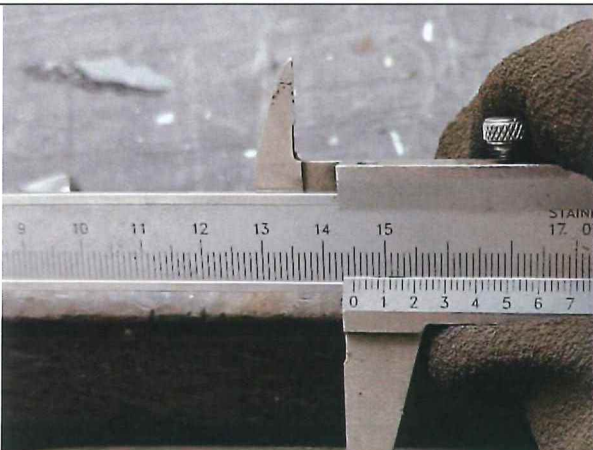




Tensile test



Tensile test



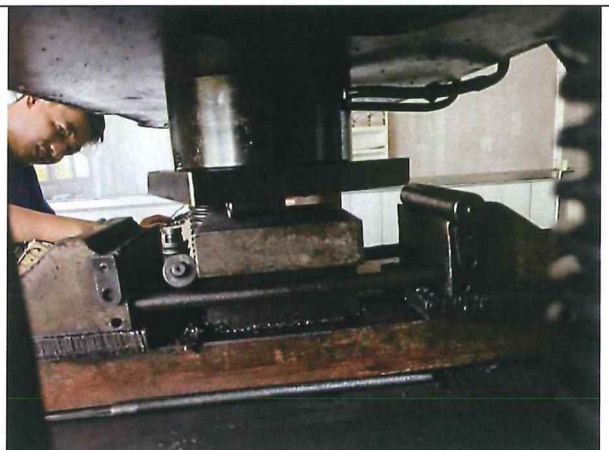
Tensile test



Flattening test



Flattening test



Flattening test



Flattening test



Flattening test



Flaring test



Flaring test



Flaring test



Flaring test



Flaring test



Flaring test



Chemical analysis calibration

Element	Unit	Value	Min	Max	Unit	Value	Min	Max
C	%	0.119	0.100	0.100	P	%	0.020	0.020
Si	%	0.210	0.100	0.100	S	%	0.010	0.010
Mn	%	0.400	0.020	0.020	Cr	%	0.040	0.040
Ni	%	0.020	0.020	0.020	Mo	%	0.020	0.020
Al	%	0.020	0.020	0.020	Cu	%	0.020	0.020
Ca	%	0.020	0.020	0.020	B	%	0.020	0.020
Fe	%	0.020	0.020	0.020	Co	%	0.020	0.020
Ti	%	0.020	0.020	0.020	Nb	%	0.020	0.020
V	%	0.020	0.020	0.020	Sn	%	0.020	0.020
W	%	0.020	0.020	0.020	As	%	0.020	0.020
Pb	%	0.020	0.020	0.020	Bi	%	0.020	0.020
Sb	%	0.020	0.020	0.020	B	%	0.020	0.020
Li	%	0.020	0.020	0.020	La	%	0.020	0.020
Fe	%	0.020	0.020	0.020	Pr	%	0.020	0.020

Chemical analysis calibration



Chemical analysis

Element	Unit	Value	Min	Max	Unit	Value	Min	Max
C	%	0.172	0.100	0.100	P	%	0.040	0.020
Si	%	0.100	0.100	0.100	S	%	0.020	0.020
Mn	%	0.020	0.020	0.020	Cr	%	0.020	0.020
Ni	%	0.020	0.020	0.020	Mo	%	0.020	0.020
Al	%	0.020	0.020	0.020	Cu	%	0.020	0.020
Ca	%	0.020	0.020	0.020	B	%	0.020	0.020
Fe	%	0.020	0.020	0.020	Co	%	0.020	0.020
Ti	%	0.020	0.020	0.020	Nb	%	0.020	0.020
V	%	0.020	0.020	0.020	Sn	%	0.020	0.020
W	%	0.020	0.020	0.020	As	%	0.020	0.020
Pb	%	0.020	0.020	0.020	Bi	%	0.020	0.020
Sb	%	0.020	0.020	0.020	B	%	0.020	0.020
Li	%	0.020	0.020	0.020	La	%	0.020	0.020
Fe	%	0.020	0.020	0.020	Pr	%	0.020	0.020

Chemical analysis





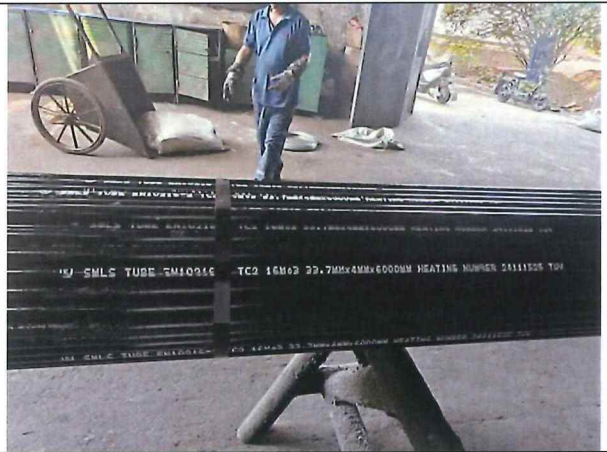
Painting and marking check



Painting and marking check



Painting and marking check



Painting and marking check

4. ATTACHMENTS: (EACH ATTACHMENT MUST REFERENCE THE CORRESPONDING ATTACHMENT NO., TUV ASSIGNMENT NO., AND CLIENT'S PO NO.)

1. MTC	2. Test Reports	
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Inspected by: Wu Lianzhong

Reviewed by: Wen Xue



Date: July 5, 2025

Date: July 5, 2025