



**CHECK SHEET ON STEEL MILL APPROVAL
PLANT SURVEY**

REPORT NUMBER: GB3640035_____ CUSTOMER NO.: 454830_____

PORT: Gothenburg, Sweden_____ DATE OF SURVEY: 14 March 2019_____

STEEL MILL NAME: Outokumpu Stainless AB_____

ADDRESS: PO BOX 74_____

BERGNÄSGATAN 11, SE-774 22_____

SWEDEN_____

TELEPHONE: +46 226 810 00_____ FAX: -_____

MMdb Contact Information – For sending Annual Endorsement and Renewal email notifications

CLIENT CONTACT: Jesper Janis_____ EMAIL: jesper.janis@outokumpu.com_____

TELEPHONE: +46 226 81292_____ EMAIL: -_____

STEEL PRODUCTS MANUFACTURED/PROCESSED AT THIS FACILITY:

Stainless Steel Slabs for rolling of plates at Outokumpu Stainless AB, Degerfors, Sweden_____

PERSONNEL CONTACTED:

JESPER JANIS_____

Tommy Eriksson_____

PLANT SURVEY RESULTS: SATISFACTORY:

CORRECTIVE ACTION REQUIRED:

AUDIT BY: Sebastian Vocke_____

REMARKS: Second contact for MMdb: Jerker Sterneland, email jerker.sterneland@outokumpu.com_____

Tel. +46 226 81240_____

Sebastian Vocke Surveyor_____

14 March 2019_____ Date

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List Grades of ABS hull structural steel produced and maximum thickness:

Austenitic Stainless Steel grades 304, 304L, 316 and 316L

Duplex Stainless Steel grades UNS S31803, UNS S32205 and UNS S32304

	YES	NO	N/A
1. The following steel making equipment was verified to be in accordance with the submitted process description:			
1.1 Blast Furnace	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2 Primary steel making process and number of furnaces: One (1) Electric Arc			
1. Basic Oxygen Furnace (BOF)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Electric Furnace (EF) (mostly scrap charge)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Open Hearth Furnace (OH)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Other type of primary steel making equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.3 Secondary Steel Making and Refining and number of units: _____			
1. Ladle Addition Stations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Vacuum Degassing Units	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Argon Blowing Units	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The following steel casting and steel conditioning equipment was verified to be in accordance with the submitted process description:			
2.1 Continuous Caster and number: _____			
1. Electromagnetic Stirring Unit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Soft Reduction Unit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Pouring Shroud or Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2 Ingot Casting	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1. Bottom Poured	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Top Poured	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Cropping of Piped Ingot	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.3 Ingot Soaking Pits	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.4 Slab Dehydrogenation Soaking Furnace	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.5 Ingot Surface Conditioning	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.6 Slab Surface Conditioning	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The following primary rolling equipment was verified to be in accordance with the process description:			
3.1 Rough Rolling Stands and Number: One (1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1. Slabbing Mill	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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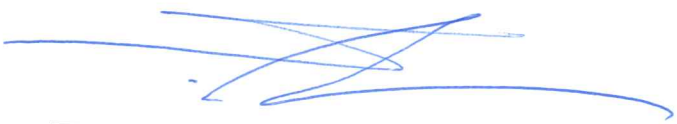
	YES	NO	N/A
2. Dehydrogenation Deep Draft Rolling Mill	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Bloom Mill	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Billet Mill	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.2 Final Rolling Stands and Number:			
1. Plate Rolling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Gauging Control and Monitoring	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Advanced Rolling and Temperature Monitoring	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Shape Mills	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Coiling Stands	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. The following steel product heat treating furnaces and equipment were verified to be in accordance with the process description:			
4.1 Heat treatment <input type="checkbox"/> In-house OR <input type="checkbox"/> Sub-contracted <i>(Note: In case heat treatment is sub-contracted, please complete a separate check sheet on Heat treatment facility Approval – Plant Survey -CLS-SFM-00170, for each sub-contracted heat treatment facility)</i>			
4.2 Furnace Type:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.3 Heating Process	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.4 Position of Burners	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.5 Quench Tank Capacity and Number:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.6 Types of quench media:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.7 Quench Fixture cradles, Separation of products controlled	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.8 Agitation of the quench media	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.9 Temperature control and monitoring (furnace, quench bath etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.10 Recording equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.11 Temperature display equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.12 Furnace Loading and spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.13 Control and monitoring of heating and cooling rates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.14 Monitoring of transfer times (from furnace to quench)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.15 Normalizing Furnaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.16 Annealing Furnaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.17 Austenizing Furnaces and Quench Tanks	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.18 Uniformity of Temperature for Furnaces	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.19 Furnace Temperature Monitoring Devices	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Proper identification was verified for the following:			
5.1 Ingots/Slabs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.2 Finished Steel Product	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.3 Test Specimens	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. The following testing equipment / process measuring devices were verified to be in accordance with submitted process description and verified calibration records:			
6.1 Tension Testing Machines	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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	YES	NO	N/A
6.2 Charpy Impact Testers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.3 Hardness Testers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.4 Drop Weight Tester	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6.5 Dynamic Tear Tester	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6.6 Fracture Toughness Testers (CTOD, K _{ic} , etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6.7 Thickness Gauges including UT Thickness Gauges	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. It was verified a system is in place to produce steel mill certificates in accordance with the Rules including the following:			
7.1 Control of data from material testing through generation of mill certificates (including restricted access for editing or overwriting data) and documented evidence of appropriate level of approval for any modified data	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.2 Steel Making and Testing Statement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.3 Number of Copies and Distribution	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7.4 Availability of Certificates for Semi-finished Products from another Source	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. It was verified a system is in place to produce steel with one or more of the following enhanced properties:			
8.1 Through Thickness Properties	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8.2 Strain Aged Properties	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8.3 Detailed Fracture Data (CTOD, K _{ic} Drop Weight Tear)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8.4 Superior Weldability	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8.5 High Heat Input Weldability	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8.6 Internal Quality – Ultrasonic Inspection	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9. It was verified that the Steel Mill has a quality system in place	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

REMARKS:

The Steel Mill produces Slabs to Outokumpu Stainless AB in Degerfors who is rolling the finished steel plates.


 Sebastian Vocke Surveyor

14 March 2019
 Date