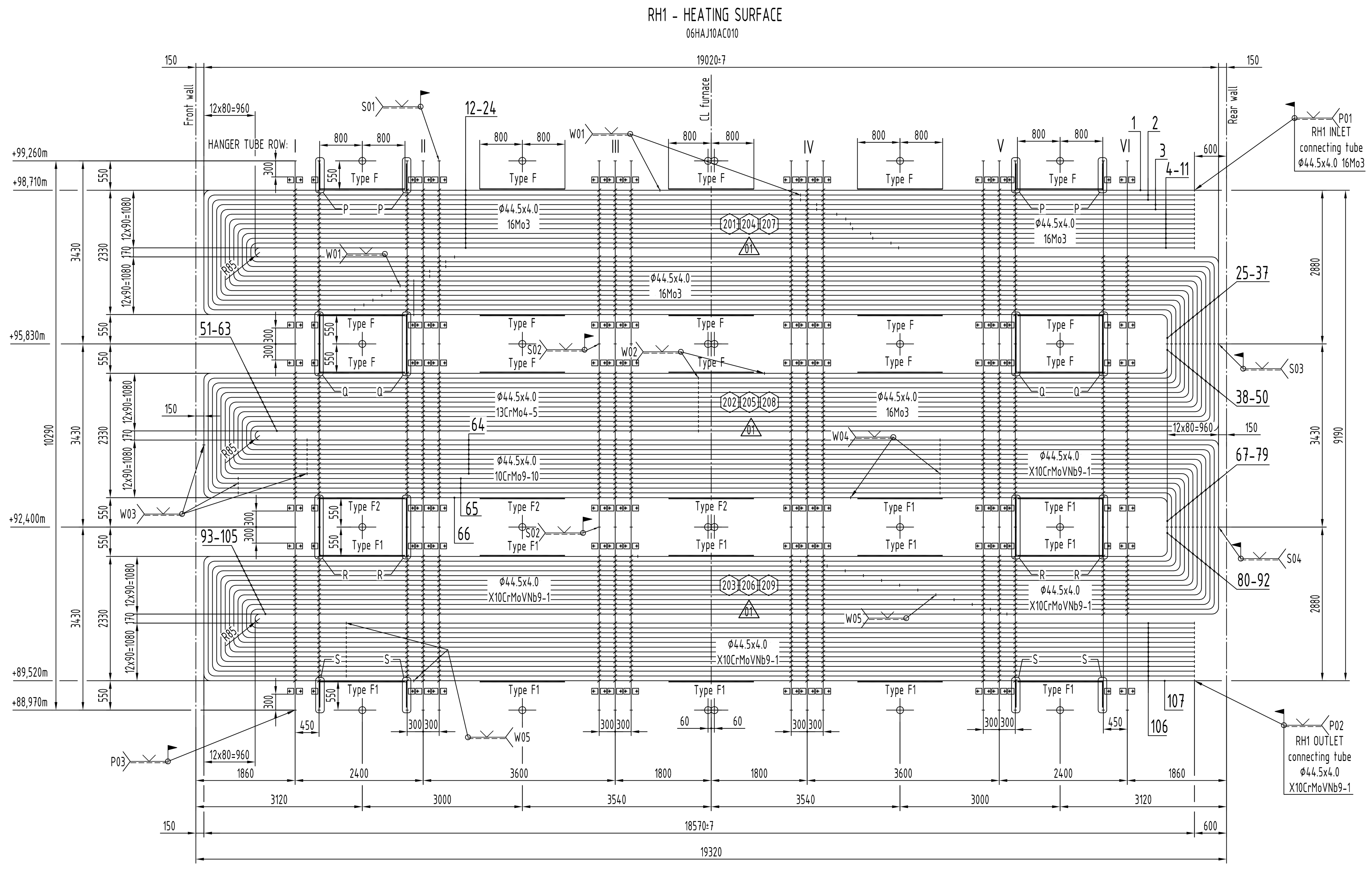
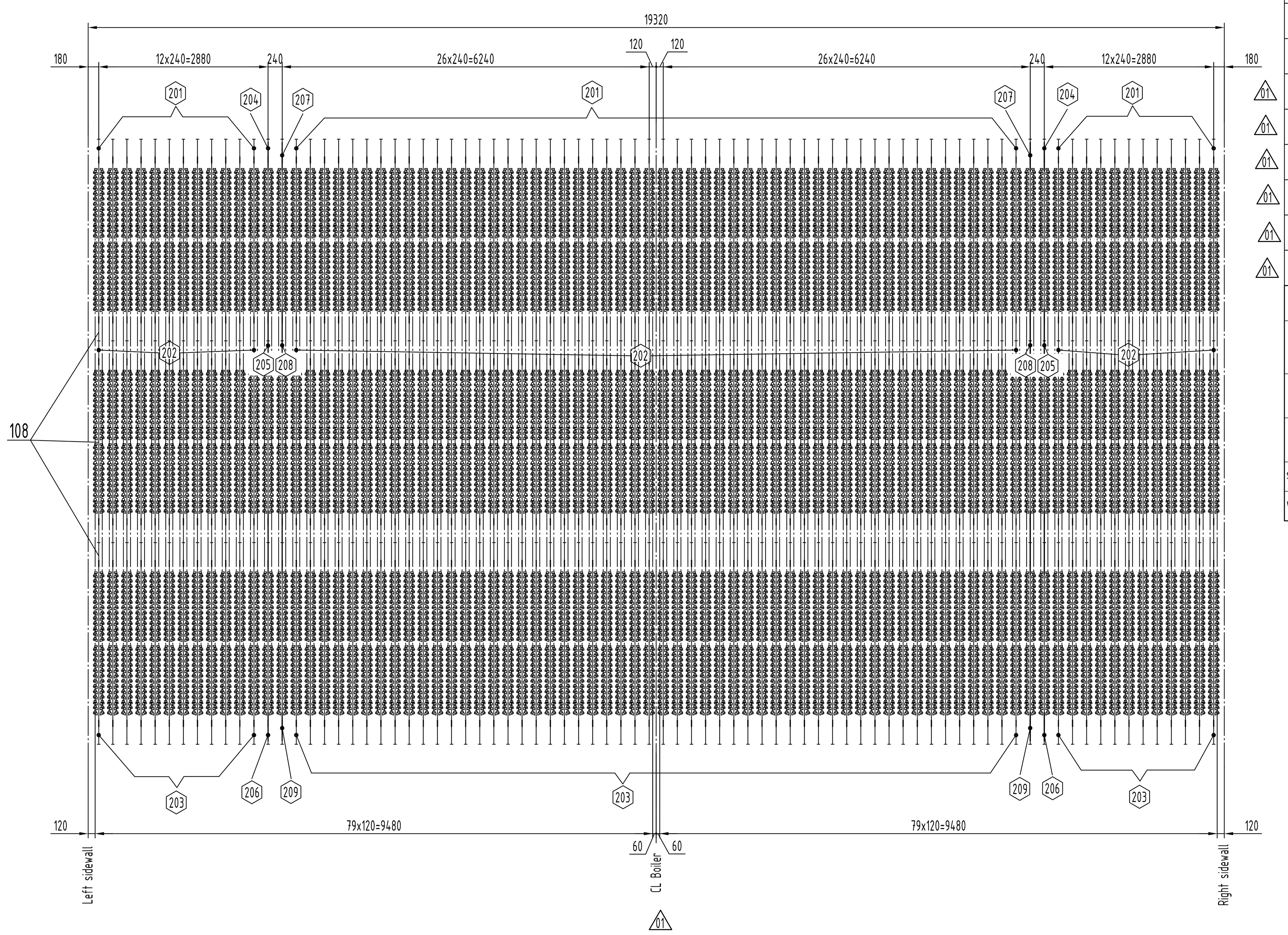
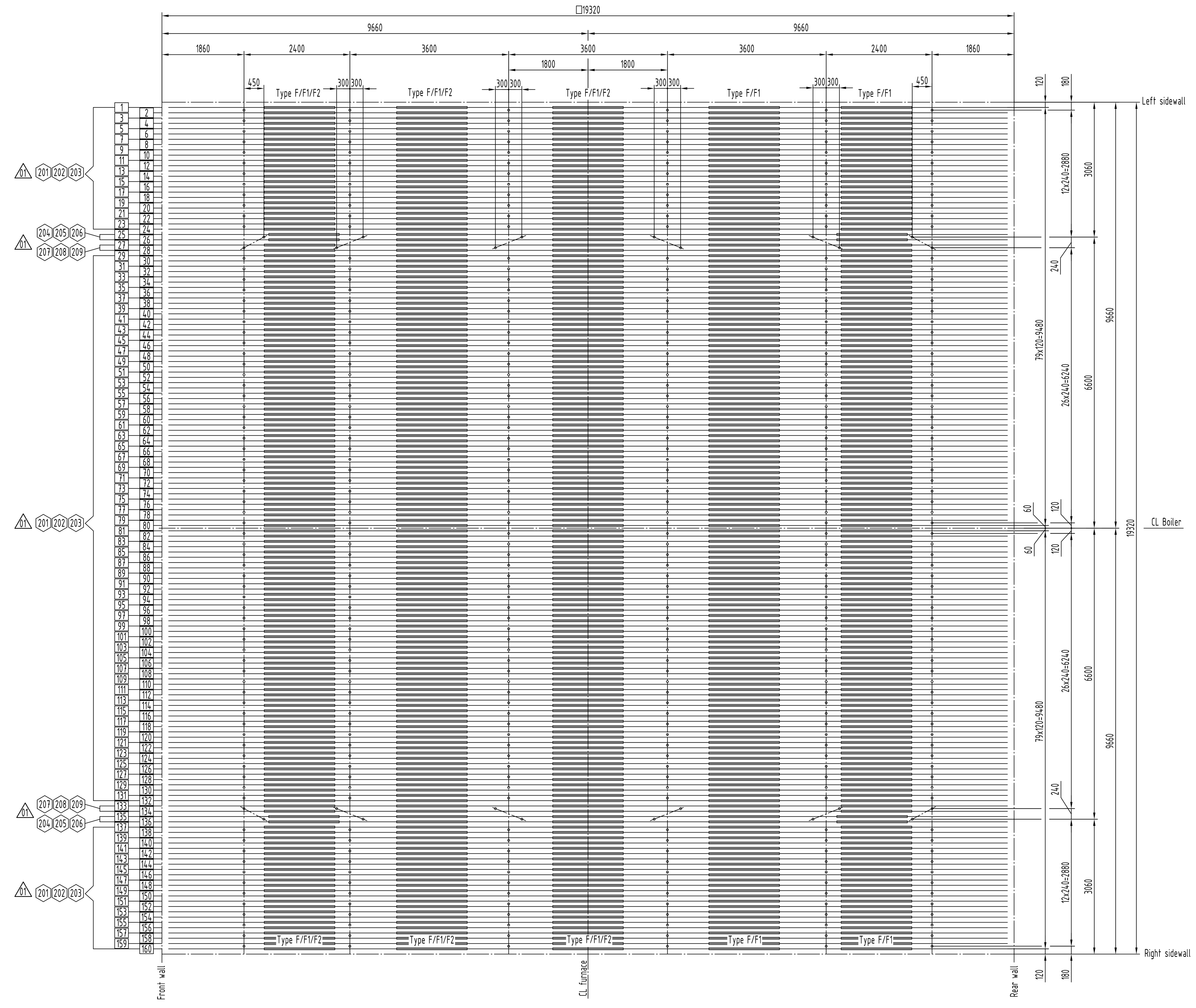






Zugehörige Zeichnungen / Relevant Drawings

Nr. No.	Zeichnungs Nummer Drawing Number	Benennung Description	Bemerkung Remark
1	1.48315/00 242-0112	RH1-tube coils armouring details	
2	1.48315/00 242-0113	RH1-tube coils supporting parts	
3	1.48315/00 242-0114	RH1-tube coils shipping parts sheet1 (201,204)	
4	1.48315/00 242-0115	RH1-tube coils shipping parts sheet2 (207)	
5	1.48315/00 242-0116	RH1-tube coils shipping parts sheet3 (202,205)	
6	1.48315/00 242-0117	RH1-tube coils shipping parts sheet4 (208)	
7	1.48315/00 242-0118	RH1-tube coils shipping parts sheet5 (203,206)	
8	1.48315/00 242-0119	RH1-tube coils shipping parts sheet6 (209)	

Universal tolerances (welded structures) for measurements without tolerances: Iso 13920 B-F

Tolerance class	over / up to	30	30 / 120	120 / 400	400 / 1000	1000 / 2000	2000 / 4000	4000 / 8000	8000 / 12000	12000 / 16000	16000 / 20000	20000	length of shortest side: 400	400 / 1000	1000
B (For linear dimensions / For angular measurement)		±1	±2	±2	±3	±4	±6	±8	±10	±12	±14	±16	±45′	±30′	±20′
F (For straightness, even surface and parallelism tolerance)		-	1	1.5	3	4.5	6	8	10	12	14	16	Permissible variances for registered angular measurements and for non-registered angles of 90° or angles of regular polygons.		

Dimensions in mm and/or degree for nominal size range in mm

Surface details according to: ISO 1302

Welded details according to: ISO 2553

Für Schweißnähte gilt Bewertungsgruppe "B" nach DIN EN ISO 5817
For weld seams evaluation group "B" according to DIN EN ISO 5817

Legend / Legende:

1 — Versandteil Nummer / Shipment part Number

1 — Rohrbrett Nummer / Tube panel Number

1, 2 — Bauteilposition / Part / Item number

W... — Werkstattschweißung, Pos. im Schweißplan / Shop weld, Position in weld list

S... — Baustellenschweißung, Pos. im Schweißplan / Site weld, Position in weld list

P... — Schweißangabe in Anschlusszeichnung / Weld reference on relevant drawing

Fertigung der Rohrbögen nach EN12952-5 / VGB-R501H
Manufacturing of the tube bends acc. to EN12952-5 / VGB-R501H

Auslegung im Zeitstandsbereich.
Calculation with Creep rupture strength.

Pos.	Abmessung dimension	Werkstoff material	Betriebs- operating überdruck (gauge) pressure bar (g)	temperatur temperature °C	Berechnungs- calculation überdruck (gauge) pressure bar (g)	temperatur temperature °C	Prüfüberdruck test (gauge) pressure Werkstatt in workshop bar (g)	Baustelle on site bar (g)	Maximal zulässiger Prüfüberdruck des Einzelbauteils / maximum allowable test (gauge) pressure of the single component bar (g)

108	Ø48.3x11.0	7CrMoVTiB10-10	305.3	490	323.3	525	-	1)	2131.8
67-107	Ø44.5x4.0	X10CrMoVNb9-1	60.9	585	77.3	620	-	1)	526.8
64-66	Ø44.5x4.0	10CrMo9-10	61.2	515	77.6	550	-	1)	526.8
51-63	Ø44.5x4.0	13CrMo4-5	61.2	496	77.6	531	-	1)	526.8
1-50	Ø44.5x4.0	16Mo3	61.3	478	77.7	513	-	1)	526.8

1) Hinweis: Der Prüf (Über-) druck des Gesamtsystems wird in einem separaten Dokument festgelegt.
Note: The test (gauge) pressure of the whole system is defined in a separate document.

TECHNISCHE ANFORDERUNGEN / TECHNICAL REQUIREMENTS

Ausführung / Realization: Pressure Equipment Directive
Konformitätsbewertungsverfahren / Conformity assessement procedure: Module G
Technische Spezifikation / Technical specification: DIN EN 12952
Qualitätsanforderungen nach IPP / Quality requirements according to ITP: 1.48315/00 196-7001; -7002; 1.48315/00 196-7101; 1.48315/00 198-7010; 1.48315/00 198-7011; 1.48315/00 198-7013
Bauüberwachung am Aufstellungsort durch / Erection supervision by: ....
Bauüberwachung im Herstellwerk durch / Manufacturing supervision by: ....
Bauprüfung im Herstellwerk durch / Final shop inspection by: ....
Bauprüfung am Aufstellugnsort durch / Final on site inspection by: ....

SPEZIFIKATIONEN / SPECIFICATIONS

Vor Versand sind: / Before shipment:

1. Die Versandteile mit der ALSTOM-Produkt-Nr. (Stücklisten- und Pos.-Nr.) in blauer Farbe deutlich zu kennzeichnen. The parts are to be marked legibly in blue ink with ALSTOM-Product-No. (parts list No. and Pos. No.)
2. ~~Alle Druckteile sind mit einem Innenkorrosionsschutz nach N208-050 zu versehen. 3*) All Pressurepart items to be coated with a internal corrosion preventative acc. to N208-050. 3*)~~
3. Alle Teile sind mit einem Reiseanstrich nach 1.48315/00 780-7001. zu versehen. 3*) All parts are to be provided with a protective transport coating acc. to 1.48315/00 780-7001. 3*)
4. Die Abnahmestempel sind mit weißer Farbe zu umranden. The acceptance stamps are to be ringed with white paint.
5. Sämtliche Öffnungen sind zu verschließen (Kappen oder Deckel). 4*) Es ist darauf zu achten, dass sich keine Fremdkörper in den Rohren bzw. Sammlern befinden. All openings are to be sealed (caps or covers) 4*) Attention is to be paid that no foreign matter is present in the tubes and headers respectively.

3*) bei nichtzutreffen streichen / delete if not applicable
4*) Für Verluste bei Transport und Lagerung sind zusätzlich Kappen für Rohre lose mitzuliefern: 10% bei d < 44,5 mm und 3% bei d > 44,5 mm. For compensation of losses during transport and storage, additional caps are to be supplied separately packed: 10% if < 44,5 mm and 3% if d > 44,5 mm.

FESTIGKEITSBERECHNUNG / DESIGN CALCULATION

Ermittlung des Verschwächungsbeiwertes nach EN 12952-3 / 5
Determination of the ligament efficiency according to EN 12952-3 / 5
Gleichung: / Equation:
Festigkeitsbelange geprüft: / Stress aspects checked:
Abt.: / Dept: EB-TDS Datum: / Date: 25.05.2011 Unterschrift: / Signature: Tadic

BESTANDTEIL DER ZEICHNUNG / PART OF DRAWING

Stückliste / Part List:	1.48315/00 242-2111	Schweißplan / Welding List:	1.48315/00 242-3111
Montageschweißplan / Erection welding List:	1.48315/00 242-5111	Andere / Other:	1.48315/00 242-9111

Employer's and Contractor's Information / Project Name

TERMOELEKTRARNA ŠOŠTANJ

ALSTOM POWER

ŠOŠTANJ Unit 6
1 x 600 MW - Power Island
Slovenia

Space for Stamping (Review and Validation status - if needed)

SA = Rz160   BA = Rz100/Rmax160

Attention Workshop!

1. Permissible-Variances tolerances for machining and coiled tubes and stay (hanger) tubes according to ALSTOM standards N173-005 part 1 and 2.
2. Positions of weld seams in accordance to drawing: 1.48315/00 012-0020.
3. All bending Radii = 120mm unless otherwise stated.
4. "W1", "W2", "W3", "W4" and "W5" are workshop circumferential welds.

Attention Site!

1. Position of Anti-vibration plates according to drawing: 1.48315/00 276-0161

Specification for material X10CrMoVNb9-1 (P91), X10CrWMoVNb9-2 (P92) or X12CrCoWMoVNb12-2-2 (VM12-SHC):

For welded joints with material X10CrMoVNb9-1 (P91), X10CrWMoVNb9-2 (P92) or X12CrCoWMoVNb12-2-2 (VM12-SHC) including mixing joints, an intermediate cooling to 60 °C < T < 100°C is required prior to the necessary post weld heat treatment.

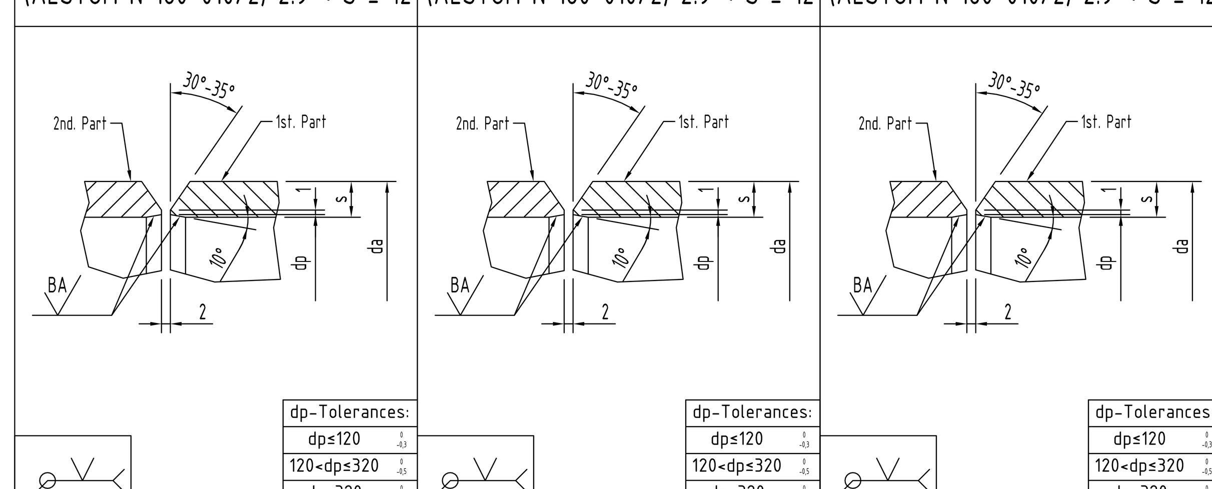
Min. holding times for the intermediate cooling: $s \le 8$ mm = 30 min *; $8 < s \le 30$ mm = 60 min; $s > 30$ mm = 120 min

(* = If the cooling temperature does not fall below T = 80 °C, the minimum holding time is 60 min) After that, the post weld heat treatment is performed subsequent to the intermediate cooling.

Exception:
- Butt-welded joints (circumferential welds, ...) with $s \le 10$mm may cool down to room temperature.
- Site Butt-welded joints (circumferential welds, ...) with $s > 10$mm may not cool down below T = 60°C.
- Shop welds with $s > 10$ mm may cool down to room temperature.

The areas with increased hardness due to welding must be strictly protected against moisture and vibrations, prior to the post weld heat treatment. The post weld heat treatment should be carried out directly after the intermediate cooling, if possible.

(ALSTOM N 180-010/2) 2.9 < S ≤ 12 | (ALSTOM N 180-010/2) 2.9 < S ≤ 12 | (ALSTOM N 180-010/2) 2.9 < S ≤ 12



dp-Tolerances: dp≤120 (0/-0,3); 120<dp≤320 (0/-0,5); dp>320 (0/-1,0)

Weld No	W01	W02	W03	W04	W05	---
1st Part	12-24	38-50	51-63	64-66	93-105	
2nd Part	1-11,25-37	51-63	64-66	67-79	80-92,106,107	
da	44.5	44.5	44.5	44.5	44.5	
dp	37.0	37.0	37.0	37.0	37.0	
s	4.0	4.0	4.0	4.0	4.0	

Weld No	P01	P02	P03	---	---	---
1st Part	conn. tube	conn. tube	hanger tube			
2nd Part	1-11	106,107	108			
da	44.5	44.5	48.3			
dp	37.0	37.0	28.5			
s	4.0	4.0	11.0			

Weld No	S01	S02	S03	S04	---	---
1st Part	hanger tube	108	25-37	67-79		
2nd Part	108	108	38-50	80-92		
da	48.3	48.3	44.5	44.5		
dp	28.5	28.5	37.0	37.0		
s	11.0	11.0	4.0	4.0		

Revision History

Rev.	Revision Date	Created by	Checked by	Approved by	Description
00	27.05.2011	Liu Xiaoli	Xu Hongbin	Bentsch	First issue
01	30.06.2011	Liu Xiaoli	Xu Hongbin	Bentsch	Add bending list & change the shipping No.
02	06.07.2011	Pelkey	Bentsch	Bering	formal reasons

Participant

Scale: 1:50	Created by: Pelkey	Checked by: Bentsch	Other Document Code (If any)
Responsible dept.: ED-PPC			Approved by: Bering — Format: A0
Originator: ALSTOM POWER THERMAL PRODUCTS	Document Type: Equipment Detail Drawing		Project Document Code: STJ/06/B/HAJ1000242/DD/111
	Title, Subtitle: RH1-tube coils assembly		Document Status: Released
			Identification number: 1.48315/00 242-0111
			Rev. 02 — Date 06.07.2011 — Lang. EN — Sheet 1/1

© ALSTOM 2010. All rights reserved.
Please consider the environment before printing this document

freigegeben / released