

# Tekniska Verken i Linköping AB

GÄRSTAD, SWEDEN – PANEL WALL REPLACEMENT, LINE 4

PROJECT CASE HISTORY



## Project description

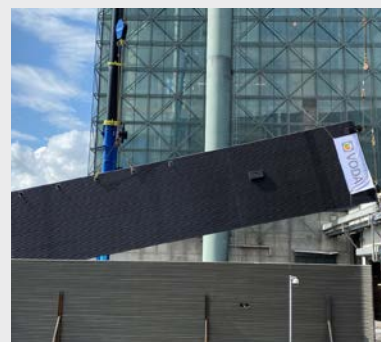
In 2020, Babcock & Wilcox Renewable Service won the order to replace the panel walls at Gärsåderverket P4, Sweden.

Scope of delivery included project management, engineering, design, purchasing, manufacturing, delivery, disassembly, assembly/installation, testing, commissioning, trial run and documentation.

The scope of work was a comprehensive replacement of the boiler panel walls. The new panel walls have a tube pitch of 80 mm. The existing panels had a tube pitch of 100 mm. The total projected area for the new Inconel®-cladded panel walls was about 745 m<sup>2</sup>, cladded with Inconel 625.

## Inconel quality

- Panel wall and screen tube materials with Inconel 625, 2 to 3 mm thickness
- Fe content  $\leq$  3% on the surface of the welded layer for mechanized (automatic) welding
- Fe content  $\leq$  8% on the surface of the welded-on layer for manual welding
- All Inconel 625 welding strings are overlapped by about 30 to 40% of the previously laid welding string width.
- The additive material used for the cold metal transfer (CMT) welding method was comparable to the current standard.



Client: Tekniska Verken i Linköping AB  
Year: 2021

### Milestones

Contact: 15-12-2020  
Start of installation: 26-07-2021  
Commissioning: 23-09-2021

### Data

Fuel: Waste  
Steam temp: 475°C  
Steam pressure: 56 bar

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## Project Scope

### Front wall

The delivery limit is the entire furnace roof, first pass front wall and first pass roof.

### Partition wall

The delivery limit is from the bottom header of the partition wall up to and including the outlet tubes from the top header. In addition, it was delivered with an intermediate header with nozzles that form the transition between pitch 80 and pitch 100. Fourteen new support frames were delivered in a durable design that will compensate for the changed pitch in the partition wall.

### Side wall

The delivery limit was from the bottom header up to and including the top header.

### Technical specifications for front wall, partition wall and side wall

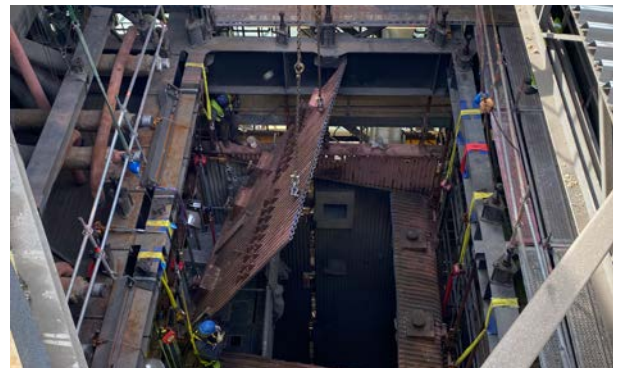
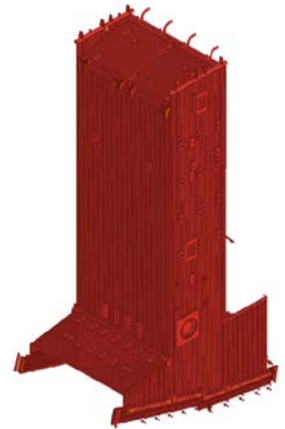
- Tube pitch: 80 mm
- Inconel 625 in layers of at least 2 mm thickness.
- Panel tubes and nozzles: Ø60.3 x 4.5 mm in P235GH TC2, EN10216-2
- Top header: Ø219.1 x 20 mm in 16Mo3, EN10216-2
- Bottom header: Ø219.1 x 20 mm in 16Mo3, EN10216-2
- Riser: Ø168.3x8 mm in 16Mo3, EN10216-2
- Intermediate box Ø114.3 x 12.5 mm in 16Mo3, EN10216-2
- Fin and casing: 6 and 10 mm in S235JR
- All pressure parts were delivered with 3.1 certificate

### Boiler suspension adjustment

Since the weight of the boiler in the replacement area was reduced by approx. 25,000 kg, an adjustment was made to the boiler suspension in the replacement area.

### Refractory work

The refractory work consisted of removing the existing and installing new refractory on the furnace roof and all openings (e.g., SNCR nozzles, instruments nozzles, inspection doors, slag chute, and the sealings between the boiler walls and towards the slag chute, etc.)



### The project scope of supply

- Engineering and 3rd party approval
- Calculation of the boiler suspension
- Calculation of boiler circulation
- New Inconel clad membrane walls
- Dismantling of old panel walls and installation of new membrane walls
- Thermal insulation and cladding
- NDT inspection
- Pressure test
- 3rd party workshop inspections
- Refractory work, including dismantling, installation and dry out
- Documentation

## Babcock & Wilcox

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