IVM Eeklo

BELGIUM – SUPERHEATER REPLACEMENT AND ON-SITE INCONEL® CLADDING

PROJECT CASE HISTORY

Project description

Babcock & Wilcox Renewable Service (B&W) won the order for replacement of superheaters 1, 2 and 3 and on-site Inconel® cladding in the first boiler pass of IVM's waste-to-energy line 2 in Eeklo, Belgium.

The scope of supply included project management, engineering, design and third-party approval, manufacturing, delivery, dismantling, installation and documentation.

Superheater specifications

The delivery of three new 360° Inconel-cladded superheaters included un-cladded top and bottom headers and surrounding casing, as well as new sectional iron bars and protection shells.

A total of 102 protection shells were fitted on lower and upper superheater tubes exposed to steam from the sootblowers. Each protection shell has five clips for safe attachment to the tubes. The protection shells are manufactured with P265GH TC1 material for tubes measuring 38.5 mm (33.7 x 4 mm with nominal 2 mm Inconel cladding all around). The shell length is 2,000 mm with a thickness of 3 mm.

Item	Tube coils (pcs)	Tube rows (pcs)	Internal diameter (mm)	Tube size OD (mm)	Material	Inconel layer (mm)
SH1 double parallel	25	20	25.7	33.7 x 4	16Mo3	2
SH2 triple parallel	13	18	25.7	33.7 x 4	16Mo3	2
SH3 triple parallel	13	18	25.7	33.7 x 4	16Mo3	2

Client: IVM
Year: 2023

Milestones
Contract: 08-04-2021
Hand over: 27-02-2023

Data
Fuel: Waste
Steam temperature: 400°C
Steam pressure: 35 bar(g)

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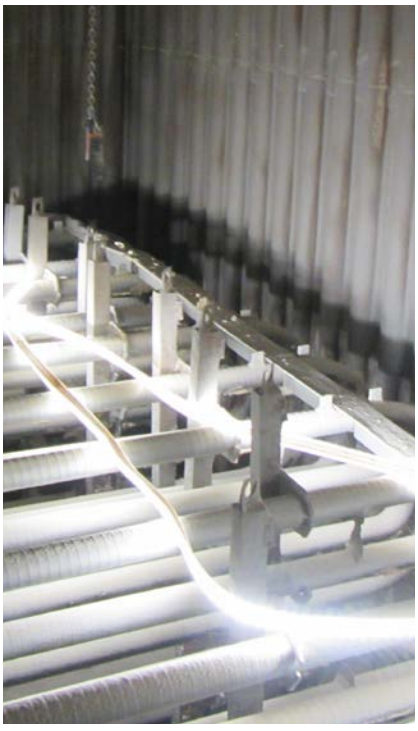
On-site Inconel specifications

The Inconel cladding was carried out in two stages. During the first stage in 2022, 24 m² of boiler wall was cladded in the first pass just above the grate. The second stage occurred during the maintenance shutdown in 2023 and included the cladding of approximately 92 m² of boiler wall further up in the first boiler pass. The area consists of two sidewalls and one front wall with a vertical height of 10.9 m before it bends to the roof. The length of the roof is 2.8 m.

Headers were cladded by means of spiral welding. The total header area cladded was 2.8 m². The Inconel layer thickness is minimum 2 mm, and the iron content is maximum 10%. The Inconel material is Alloy 625.

Results

With this upgrade, IVM can increase capacity from 20 to 24 t/h, raise steam production, and expect the superheater life to reach the end of the plant's permitted operation (through 2036).



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PCH201-151 D23H