

HIGH CURRENT CLAMP FLEXIBLE

PRODUCT GROUP:

EMS Flexibles at Umicore Balen, Belgium

Umicore is the new name for Union Minière, a company with a century-old tradition in the mining and smelting of non-ferrous metals.

Companies within this group have a global reach with locations in Europe, North America, Asia, Australia and Africa. The international sales network is represented in over 25 countries thereby assuring rapid availability.

The success of this project, which required strong technical know-how, flexibility and rapid delivery, resulted from EMS Elektro Metall Schwanenmühle GmbH's international experience and know-how in the field of power supply for electrolysis.

The Problem

The outgoing terminals of the rectifier units in a zinc electrolysis, located in Belgium, became overheated with operating temperatures of between 115°C and 125°C. The plant's operation's manager needed a solution to reduce the terminal temperature. Implementing the solution would not allow the stopping of production and therefore had to be accomplished during normal production outage times.

EMS made the following analysis:

1. The operating temperature was caused by an inadequate welding seam cross section between the vertical water-cooled aluminum bar and the terminal for the bus bar connection.



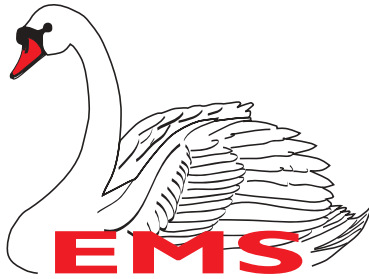
2. Due to the short production shutdown periods additional welding was not possible. It was necessary to make a temporary modification to the existing bus bar system, exercising great care not to damage the water-cooled bar.

3. Due to conductor distances the solution was not allowed to take up much side space between the terminals in order to keep the insulation level.

EMS concluded, after analysis, that the total conductor cross section between the water-cooled rectifier bar and the bus bars was too small.

The Solution

To increase the total conductor cross section additional connectors between the water-cooled rectifier bar and the terminal needed to be installed.



The additional connectors could easily be fixed to the bus bar by exchanging the short bolts for longer ones. To allow for movement between the rectifier and bus bar during installation and operation EMS chose a laminated, press-welded flexible.

Due to water holes inside the profile the connection to the water-cooled rectifier bolting was not possible. EMS designed a special stainless steel clamp to press the flexibles to the rectifier contacts, thereby solving this problem.

The Result

During a regular shut-down in October 2002, EMS installed the flexibles and the clamps on site. After switching on the power the operating temperature came down by approx. 30° which was a major improvement.

EMS was responsible for the design, supply and execution, as well as overall project management.

Project data:

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| Customer : | Umicore Balen, Belgien |
| Project : | High Current Clamp & Flexible |
| Customer Project Manager : | Frank Deboel |
| Sector of Industry : | Zinkelektrolyse |

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| Execution time : | 1. Section October 2002 |
| | 2. Section March 2003 |



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