

DUBAL and ALUNORTE Trust ABB Technology for Expansion and Upgrade Projects

Both Dubal, which Runs one of the Largest Single Site Aluminium Smelters in the Western World, and Alunorte which is the World's Largest Alumina Refinery, Continue to use ABB as their Partner in Plant Upgrade Programmes



Alunorte expansion

Alumina do Norte do Brasil S.A. (Alunorte)'s alumina refinery is located in Barcarena-PA and owned by CVRD group. Successful collaboration with ABB in the initial development of the Alunorte bauxite processing plant led to subsequent first and second expansion collaborations. In the second of these projects, two completely new lines were built making Alunorte the largest alumina refinery in the world, increasing production from 2.5Mt/y to 4.4Mt/y.

The largest number of fieldbuses in the world

ABB undertook the challenge of the Expansion 2 project which entailed the largest number of fieldbuses in the world. All device interfaces are completely integrated with ABB's Industrial IT Extended Automation System 800xA. All the necessary communication protocols for 35 different device types from several suppliers were developed and tested during the project in close co-operation between Alunorte, ABB and third party suppliers. The result was a significant enhancement to the solutions library which contributed significantly to the fastest commissioning time ever experienced for this kind of plant.

The automation system has a total of 18 000 I/O points using the ABB S800 I/O System, Foundation Fieldbus,

Profibus interfaces and 13 redundant AC800M controllers. All motor control centre interfaces with the system are via Profibus communication and all instrumentation is via Foundation Fieldbus High Speed Ethernet.

Roberto Trindade: With ABB's know-how and our operational technology we build project solutions together

Plant commissioning took five months with 12 days of ramp-up operation (the lowest ramp-up time ever

registered for this kind of industry) and Alunorte has been operating at nominal load since April 2006.

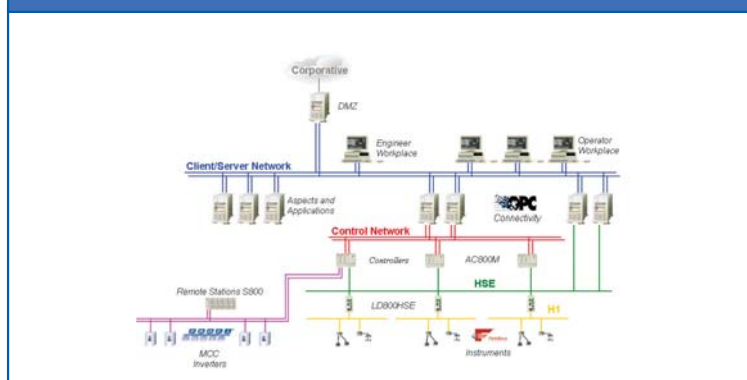
Integration with intelligent devices provides a central database of diagnostic information which opens up a wide range of possibilities for asset optimisation for ABB and Alunorte's next implementation.

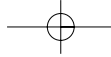
Alunorte has naturally turned to automation specialist ABB for help with its latest expansion project launched in September 2006. Alunorte Maintenance Manager Roberto Trindade comments: "We have had a framework agreement with ABB since the first expansion. We do not buy a package; with ABB's know-how and our operational technology we build project solutions together."

Dubal upgrade

Dubai Aluminium Company Ltd (Dubal), in the Emirate of Dubai, is one of the largest single site aluminium smelters in the Western world with an annual production of approximately 770,000 tons. In September 2006, to optimise operation and to replace obsolete equipment, the company placed an order with ABB for electrification and control equipment.

Figure1: Automation network topology Alunorte

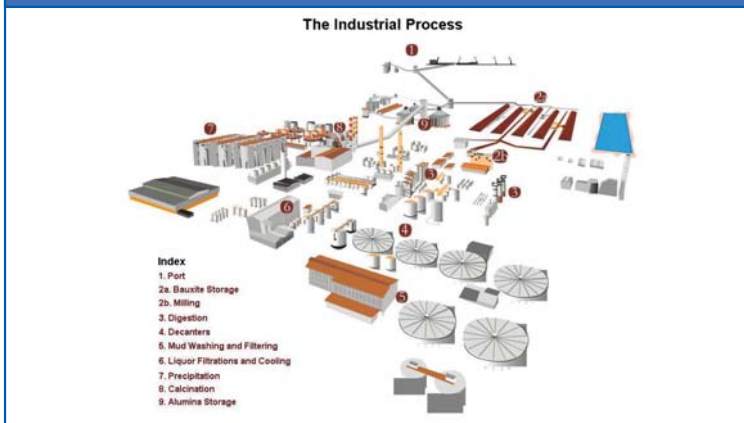




SUB HEADING

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Figure 2



ABB's upgrade contract at Dubai's primary aluminium smelter includes the replacement of five existing rectifier groups by larger ones to combine their No

3 and No 4 potlines. As well as the dismantling old equipment, ABB will be responsible for design, manufacture, supply, installation and commissioning of all new equipment.

Equipment supplied will include five regulating rectifier transformers rated 86 MVA with five diode rectifiers rated 50kA at 1500 Vdc, control and protection equipment, and 250 kA FOCS measuring equipment. Also included in the order is the upgrade of certain existing equipment, as well as miscellaneous materials such as 132kV cables, LV and control cables, fire detection and fire fighting equipment, DC busbar material etc.

The commissioning of the new units will start in July 2007 for completion in March 2008. ■

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Figure 3: Alunorte Plant Barcarena Site

