

Duresca® busbars in renewable energy: Solar power station



The Solar Millennium, one of the largest solar thermal power plants in the world, has begun the development on the 50 MW Andasol 3 plant in southern Spain for completion in 2011. Situated on the Plateau of Guadix in the province of Granada, Andasol 3 is the third of the Andasol projects using parabolic trough technology and also the first in Europe. The Name of Andasol is a combination of Andalusia and Sol (sun in Spanish).

Andasol 1 is grid connected, having been officially inaugurated, while Andasol 2 is in the test phase. Each of the 3 plants will feature a collector surface of 51 hectares and will reach an output of approximately 170 GWh per annum. Each plant has a gross electricity output of 50 megawatts. Because of the high altitude (1100 m) and the semi-arid climate, the site has exceptionally high annual direct insolation.

Andasol has a thermal storage system which absorbs part of the heat produced in the solar field during the day. Each heat reservoir consists of 2 tanks measuring 14 m in height and 36 m in diameter and containing molten salt. This allows the plant to generate electricity for almost twice the amount of hours as a solar plant without the storage system.

UTE Andasol placed an order with MGC for the Duresca® fully insulated busbars and the corresponding fitting. MGC has the experience and expertise to carry out successfully such important projects.





The use of the Duresca® in this solar power plant corresponds to a typical application of fully insulated busbars system:

- to connect the generator to a power transformer and that via a switchgear
- to feed the auxiliary transformer from the switchgear

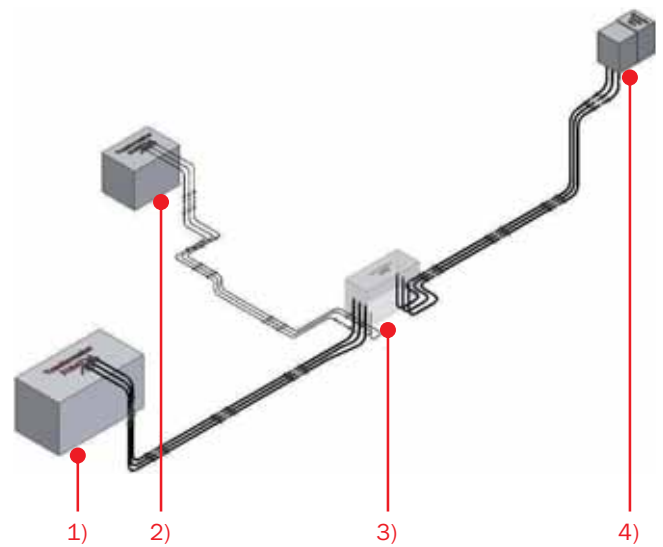
Also the electrical data justify the use of Duresca® busbars:

- main link from generator to the power transformer: 17,5 kV, a rated current of 3500 A and a short circuit capability of 63 kA 1 sec.
- link to the auxiliary transformer: 17,5 kV, a rated current of 800 A and the same short circuit capability of 63 kA 1 sec.

The scope of this order incorporates:

- approx. 300 m busbars system length for the main link of 3500 A rating
- 100 m for the connection of the auxiliary transformer
- as usual all the fixation hardware, fire wall plates, earthing cables
- and the complete assembling

A distinctive advantage of the Duresca® busbar system is certainly the fact that no additional protection is needed in case of an outdoor installation and for this project the major part of the busbars are installed outside.



- 1) Generator connection
- 2) Auxiliary transformer
- 3) Circuit breaker
- 4) Power transformer