

FASTUPDATES

Lock-bolts and collars used in world's largest thermosolar plant

The 'Andasol 1' is the largest thermosolar plant in the world. Located in southern Spain it uses parabolic trough collectors, covering 510,000m², generates 50MW, and provides electricity to 50,000 homes. The 7488 collectors (12m long and 6m wide) that have been installed on site comprise prefabricated gal-

vanised steel parts, mirrors, and pipes which are assembled, mounted on pillars, connected to an oil flow circuit, and made operational.

joint coming loose - as could happen if screws were used - can be disregarded thanks to the permanently swaged lock between the collar and the bolt."

In total, about 3.4 million fastening elements were used in the assembly.

Avdel also supplied the equipment that was used to place the



Vibrations - caused by the wind or by temperature changes - presented a challenge, reports Martin Kunz, general manager of Avdel which supplied 8mm-diameter, 13mm-diameter, and 25mm-diameter Avdelok lock-bolts and collars. "During the planning phase it became obvious that lock-bolts and collars provided a better performance than other methods. The clamp load that they provide remains constant throughout the life of the assembly, and the danger of a

bolts - in the case of the 13mm-diameter and 25mm-diameter bolts 16 hydraulic tools driven by electro-hydraulic power units. For the assembly of the collectors hand tools were connected to power units by 10m-long hydraulic hoses. Special nose equipment and machines were developed to access all parts of the joints. The 8mm-diameter bolts were installed by using four hydro-pneumatic units.

Avdel's engineers became involved in the project during the planning stages. "The design of the joints, the development of the fastening equipment, and the training of the assembly staff were part of the technical services offered", explains Martin Kunz. "In addition, Avdel supplied logistics support during the construction phase by scheduling requirements as work progressed. This ensured the continuous assembly of the collectors."

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