



HYDRA® UNIVERSAL EXPANSION JOINTS FOR THE ISRAELI SUN

Application

In the pipeline network for a solar power plant in Israel

Technical data

- 36 pressure balanced universal expansion joints
- nominal pressure: PN 1, PN 25, PN 40, PN 63
- nominal diameter: from DN 250 to DN 750
- design temperature: 400°C

Special features: High pressure; large nominal diameters and EJMA

The EJMA design allows a maximum of 5 layers for the bellows design. In the case of PN 63 and DN 750, it becomes difficult to guarantee a reliable bellow with only 5 plies. This could only be achieved using material with high strength: in this case Inconel instead of standard austenetic stainless steel material.

Small spring rate; fixed, short overall length:

The spring rates of bellows arranged one behind the other are added. Pressure-balanced expansion joints with lateral movement usually require 4 bellows. This would make the expansion joint too long and the spring rate is too high. Constructive trick: Pressure relief was realized with "only" three bellows.

10 ton bolts

More than 10 tons of bolts were purchased for the entire project.



The bellows and tubular elements are monitored electronically and welded at a speed of 35 cm/min.



A very hot and almost slag-free joint is produced by the submerged-arc welding process while largely excluding oxygen.



Before being packed into wooden boxes, the expansion joints with their protected bellows are standing in front of the painting line.