

# Test cases of cooling towers designed and built for the **chemical industry**



Even in the roughest conditions  
***Determined to cool***

## Industry characteristics

Chemical plants and production facilities are often characterized by harsh ambient conditions of acidic and corrosive fumes, dust, and high levels of aggressive particles. In many cases circulated water quality is challenging as well as design conditions and required inlet/outlet water temp. A combination of high-quality and reliable components with advanced cooling tower design and engineering, ensures that our cooling towers will fulfill their duty even under the toughest of conditions.



### Rotem Amfert Negev - 'Plant 30'

**Year** 1996

**Water flow rate** 8,000 m<sup>3</sup>/hr

**Construction** Wood, Concrete

**The Challenge** YWCT was asked to design and build a cooling tower that can cool water saturated with high levels of Hydrofluoride acid. This challenging water property dictated an extraordinary combination of a forced-draft counterflow multi-cell cooling tower. Several years ago, due to erosion of the metallic hardware by the acidic water, the internal wooden structure needed replacement. YWCT designed and built the entire wooden structure outside of the operating cooling tower, and in a complicated and continuous execution, extracted the existing structure and replaced it with the new one.



### Bromine Compound Plant

**Year** 2012

**Water flow rate** 160 m<sup>3</sup>/hr

**Construction** FRP, stainless steel

**The Challenge** YWCT was asked to design and manufacture a cooling tower to cool water flowing from a new Biological Sludge Treatment facility. The solution for this task was a cooling-system that included: factory-made counterflow induced-draft cooling tower made of FRP, piping and instrumentation, circulation pumps, filtration system, and a water treatment system (dosing pumps, sampling electrode, controllers, etc.) All complementary subsystems were designed and skid-mounted as a PlugN'Play system, providing the customer a tailor-made solution to which he had only to connect water and electricity and start cooling.



### Haifa Oil Refineries

**Year** 2006

**Water flow rate** 8,000 m<sup>3</sup>/hr

**Construction** Concrete cement

**The Challenge** The task was to replace a 70-year-old atmospheric cooling tower with a new, more efficient tower. A two-cell 14m x 14m counterflow induced-draft cooling tower was designed, including concrete structure's scale drawings. After the concrete structure was completed, YWCT had furnished the cells with cooling tower's parts and commissioned it successfully.



### Adama Machtshim Chemical Works

**Year** 2009

**Water flow rate** 1,600 m<sup>3</sup>/hr

**Construction** pultruded FRP structure

**The Challenge** Dusty and acidic ambient conditions, along with tight schedule of execution, required special attention to design, project management and on-site erection. YWCT designed a field-erected dual-cell tower made of pultruded FRP and erected it on-site in record time.

