

# Robust, Space-saving Cooling Strategies for leading Solar Cell Manufacturer in India



## Challenge

A customer in western India is establishing a 2.8 GW Topcon PV Cell manufacturing facility that demands more precise chiller solutions with redundancy. Proposed initial design involves 2,500 TR capacity using 6 Simplex Centrifugal Chillers, but this setup consumes higher footprint, CAPEX, and auxiliary support systems. Given the substantial power requirements of the cell line, customer sought the most efficient utility solution possible.

## Solution

Trane proposed a more robust, space-saving design:

- 4 units of 3,200 TR Water-Cooled Duplex HT Centrifugal Chillers to ensure reduced footprint, lower mechanical dependency, and operational redundancy to handle heat load.
- Adoption of HFO R514a refrigerant, which lowers the facility's carbon footprint compared to HFC R134a, thus enhancing LEED credential points.
- Implementation of enhanced condenser tube thickness and marine water box design, facilitating improved utility operation with minimal maintenance.

## Result

- Reduced operating costs to accommodate changing atmosphere and load variations.
- Achieved maximum cooling capacity within the available footprint, optimizing utility space usage.
- Lowered CAPEX on distributed generation and transformer sizing.

## Project Highlights

**Market:** India

**Segment:** industrial (Solar cell manufacturing)

**Products and Services used:**  
4 X CDHF Duplex CenTraVac® Water-Cooled Centrifugal Chiller

## Featured Products



**Product name:** Duplex CenTraVac® Water-Cooled Centrifugal Chiller Model CDHF

### At a glance:

- Capacity Range: 1450-3950 RT
- Refrigerant: R514A
- Centrifugal compressor
- Series counterflow for highest efficiency
- Trane smart controller with Adaptive Controls™
- Designed for large capacity applications such as district cooling plants and industrial processes



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