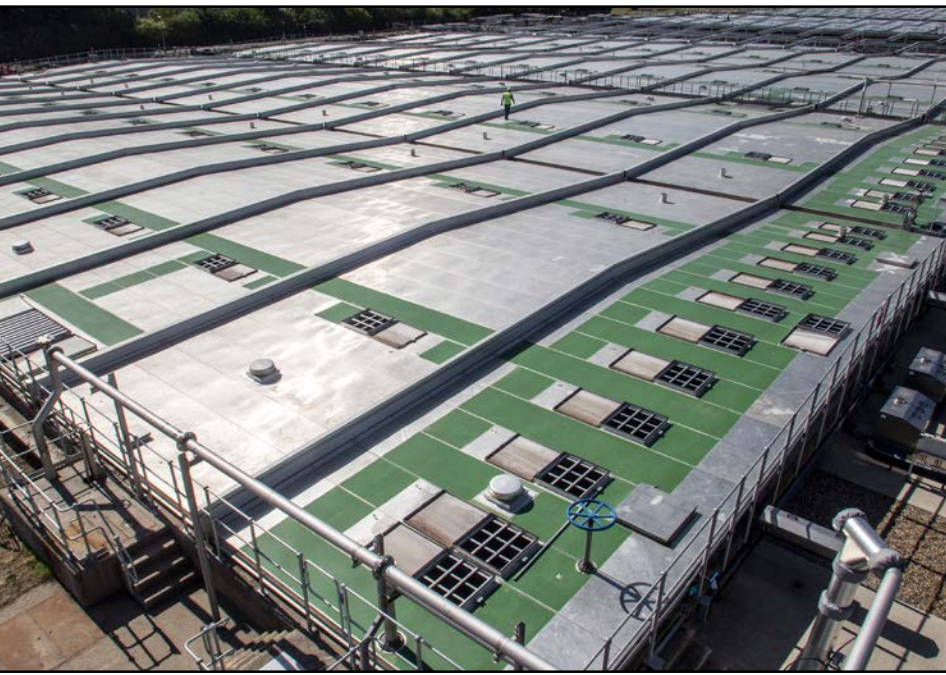


# CST COVERS

## WATER & WASTEWATER COVER SOLUTIONS





Largest Wastewater Treatment Plant in Europe  
Beckton Sewage Treatment Works, UK  
Photo credit: GBM





# ABOUT CST COVERS

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CST Covers, formerly Temcor/Conservatek, has supplied over 18,000 covers in more than 90 countries worldwide. CST is recognized for its innovative clear-span aluminum covers for wastewater process and water storage tanks that help control odorous emissions and prevent water intrusion. CST's aluminum domes and flat panel covers provide the strength, durability, odor control and protection characteristics unavailable in steel, plastic, fabric or any other materials of construction.

CST's Competitive Advantage:

Water, wastewater plants and storage facilities are increasingly turning to CST for premium all-aluminum cover solutions. In addition to high-quality, low maintenance and low life cycle costs, CST aluminum domes, reservoir and flat covers are versatile enough to permit a wide range of designs and profiles that are important to the water and wastewater industry. Using proprietary design software, CST's aluminum domes and tank covers are noted for their ability to meet exacting live load requirements by providing greater stiffness and strength, pound-for-pound, than any other dome geometry system.

- **Quality Reputation**—Unparalleled reputation for quality products and service.
- **Unmatched Experience**—Temcor and Conservatek have 80+ years of combined experience in the design, fabrication and installation of aluminum cover systems.
- **In-House Manufacturing**—CST owns and operates not one, but two manufacturing facilities. This increased manufacturing capacity helps to provide fabrication flexibility and ensure on-time deliveries.
- **Increased Coverage**—With multiple offices across the country, CST is poised to provide the best and most timely customer service regardless of the location of the project.
- **Quality Control**—All CST facilities are ISO 9001:2008 certified.
- **Aluminum Advantage**—All CST structures are all-aluminum construction providing benefits unsurpassed by other materials used in the industry.



# WHY OPTIDOME?

The flush batten OptiDome® is a next generation aluminum geodesic dome from CST. Its new, innovative and optimized design has features that result in a simple and unequalled new choice to fulfill customer needs.

## STRUCTURAL DESIGN

### BATTEN SEAL TECHNOLOGY

### AESTHETICS

Combining premium features and incorporating the engineering experience and heritage of Temcor and Conservatek, OptiDome sets a new standard in engineered aluminum cover technology.

## STRUCTURAL DESIGN

CST's advanced OptiDome design efficiently complies with torsional buckling requirements which have been adopted by Eurocode, 2010 Aluminum Design Manual and International Building Code 2012. The Double Web I-Beam, combined with aluminum's excellent strength-to-weight ratio, provides reliable performance under the most stringent environmental conditions including heavy snow loads and high wind speeds.

OptiDome is designed to meet the latest design codes including: Eurocode, Aluminum Association's 2010 Aluminum Design Manual, IBC 2012, AWWA D108 and API 650G.

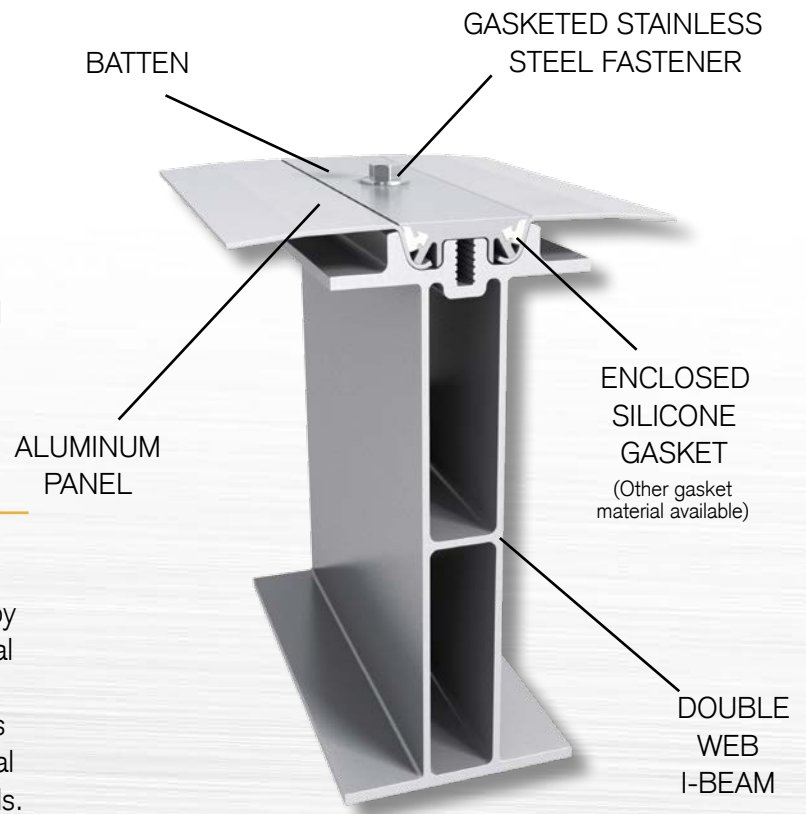
The unique properties of OptiDome make it far superior to other materials and alloys used for covers due to its:

- **Corrosion Resistance**—Aluminum is inherently corrosion resistant compared to other materials. It will last the lifetime of the structure and will not need to be painted or repainted for protection from the elements.
- **Low Lifetime Maintenance Cost**—With no need to maintain a protective finish to prevent corrosion over time, there are little-to-no maintenance costs associated with an aluminum dome.
- **Clear-Span Capability**—Aluminum's lightweight characteristics allow for larger clear-span cover capability than structures utilizing steel, concrete and other materials.
- **Fast & Low-Cost Construction**—Creative design and lightweight components provide for installation in 1/3 the time it takes to install other cover systems. Less time, labor and equipment needs combine for a low total cost of installation.
- **Design Flexibility**—Aluminum's excellent strength-to-weight ratios and creative component designs yield covers and structures that cannot be achieved with other materials.
- **Aluminum is a "Green Material"**—Not only are aluminum cover systems recyclable after their service life, but more than 50% of the aluminum used in the cover systems is made from recycled aluminum.

Every CST aluminum cover is custom designed to meet the specific requirements of each project and engineered for any snow, wind or suspended load capacity, as well as span-to-rise-ratio.

With the ability to cover spans of 900 feet or more, OptiDome offers a wide range of applications without unsightly beams, girders or columns.

# OptiDome®





# BATTEN SEAL TECHNOLOGY

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At the core of OptiDome® is its superior, patent pending batten seal technology. This system increases water shedding and eliminates ponding, even on a low profile design, while providing a water-tight cover solution. Featuring an enclosed gasket design, the batten protects against ultra-violet exposure and sealant degradation. Since battens are flush with dome panels, it eliminates ponding. They are easy to install and require less sealant than typical geodesic domes.

## OptiDome Batten Seal Technology

- Gasketed Stainless Steel Fasteners
- Protection from UV and Sealant Degradation
- Flush Batten Bar
- Eliminates Ponding
- Non-Exposed Sealant at Nodes (Optional)
- Easy to Install

## AESTHETICS

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EFFICIENT IN DESIGN.

DISTINCTIVE IN APPEARANCE.

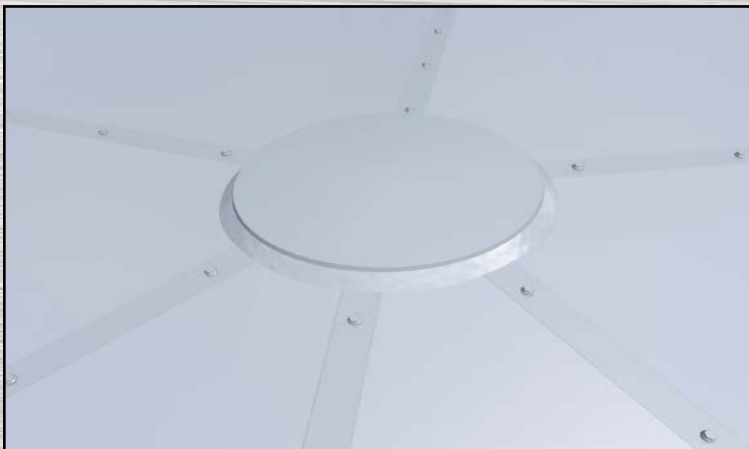
UNSURPASSED IN QUALITY AND VALUE.

CST has combined proven dome design with modern engineering and materials to produce a flush batten aluminum geodesic dome that offers significant economic advantages.

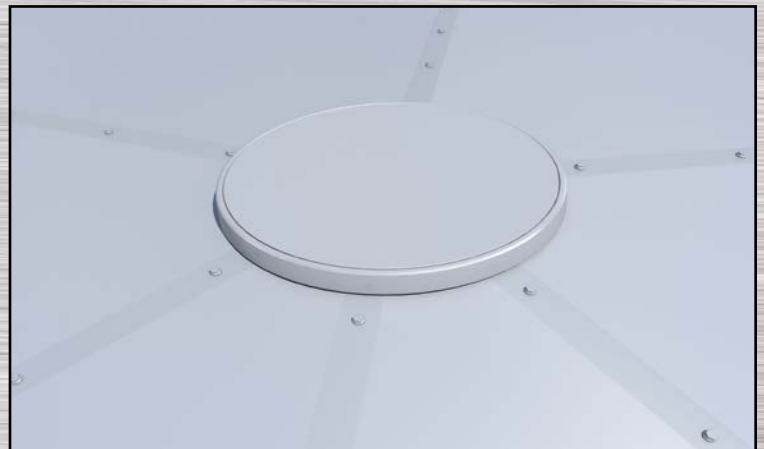
In addition to the optimized design and superior seal technology, the OptiDome has a smooth, sleek appearance. With no external sealant required (optional) at the nodes and reduced staining from ponding on panels, customers get the most functional, longer lasting dome solution in the industry.



## Optional Gusset Cover Designs



Exposed Caulk (Standard Detail)



Non-Exposed Caulk (Optional Detail)

# NON-WELDED SHOE ASSEMBLIES

## Bolted Steel Tank Options

Low Capacity Shoe



High Capacity Shoe



## Concrete Tank Options

Low Capacity Shoe

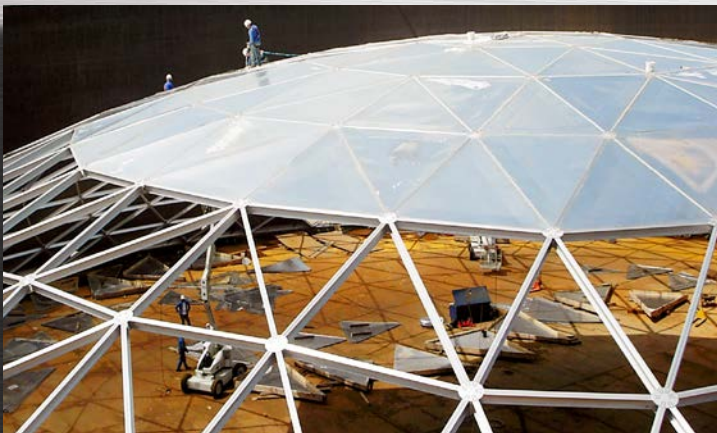


High Capacity Shoe



# CONSTRUCTION

CST's OptiDome® can be constructed in a variety of methods. The most common are outside-in, used mainly with jack constructed storage tanks and inside-out, where the dome is constructed from the center outwards and is lifted into place. Certain specialty covers are constructed with proprietary jacking and crane systems specifically designed for fast, easy and safe construction of your aluminum dome.



## Inside-Out Cover Construction

1. Inner frames and panels are constructed and raised by a pole crane.
2. Remaining frames and panels are constructed outward until dome is complete.



## Outside-In Cover Construction

1. Outside frames and panels are constructed directly on the walls of the structure.
2. Frames and panels are constructed inward until dome is complete.



# OPTIDOME INSTALLATIONS

**Port Arthur Water Treatment Plant**  
Port Arthur, Texas - 202' diameter



**Forbes Hill Reservoir**  
San Rafael, California - 151' x 203'



**National Water Company**  
Makkah, Saudi Arabia - 361' diameter



**Thomasville NC Water Department**  
Thomasville, North Carolina - 85' x 126'



**Fayetteville Utilities**  
Fayetteville, Tennessee - 42' diameter



**Golden State Water Company**  
Huntington, California - 60' diameter





# RESERVOIR COVERS

As legislation is enacted to address the public's growing concern about water quality, more and more water storage facilities are being required to cover "finished water" reservoirs.

CST designs innovative aluminum roof systems that offer cost-effective, long-term solutions for covering water reservoirs. When you face regulatory and fiscal challenges covering your water storage reservoir, look to CST. We offer cost-effective, long-term solutions for the protection of water quality.

Large water basins and reservoirs are often a challenge to cover. Our team of experienced engineers specializes in custom solutions for new construction or retrofitted systems. CST is the clear choice for covering large and complex reservoir systems.

Geodesic dome engineering principles and aluminum components from CST allow lightweight, durable and corrosion resistant covers to meet the demands of all reservoir system requirements.





# RESERVOIR APPLICATIONS

**Alderwood Water & Wastewater District**  
Lynnwood, Washington - 375' diameter



**City of San Diego Water District**  
Rancho Bernardo, California - 250' x 320'



**Carpinteria Valley Water District**  
Carpinteria, California - 340' x 340'



**Linden Reservoir**  
Riverside, California - 200' x 500'



**Laguna Beach Water District**  
Laguna Beach, California - 162' x 262'





# FLAT COVERS

Municipal wastewater treatment facilities everywhere face many new challenges. Among them are the need to conform to a growing list of tough environmental regulations, and the need to do so while maintaining tight control of operating costs.

At CST, we design innovative clear-span aluminum cover systems that help wastewater facility owners and operators meet environmental and fiscal challenges.

Solutions from CST are fast becoming the preferred choice to cover clarifier tanks, aeration basins and other process basins of all sizes and shapes. Aluminum is vapor-compatible with everything from sewage to most process chemicals and treatment processes. For example, hydrogen sulfides and mercaptans don't attack aluminum. In short, its corrosion resistance makes it the ideal material for most municipal wastewater applications. That's why CST specializes in all-aluminum structures.





CST's innovative clear-span aluminum flat cover roof systems can help wastewater and other facilities control odors and provide a safe working environment for operators. They are built to withstand harsh, humid treatment plant environments. CST's flat cover roof systems require little to no maintenance and can be easily retrofitted with an array of appurtenances that allow them to interface—not interfere—with plant equipment and operations. They can be manufactured in a wide variety of shapes and sizes without compromising their precise fit and performance.

Our flat panel covers are designed to be self-supported (clear-span) or supported with beams and trusses. CST has multiple design configurations to choose from depending on your application.



## FORMED FLAT PANEL COVERS

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CST's formed flat panel covers design is available in clear-spans up to 30 feet (9.14m) and custom designed to meet your project's specific functional and design loading requirements. By using high-quality aluminum panels and structural members, CST ensures ultra-low maintenance for the life of the cover.





# EXTRUDED FLAT PANEL COVERS

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CST's extruded flat panel covers design is available in clear-spans up to 15 feet (4.57 m) and custom designed to meet your project's specific functional and design loading requirements. The all-aluminum design, aluminum structural members and specified extrusions ensures quality, durability and longevity. The extruded aluminum panels offer an integral non-skid, low deflection walking surface.



Twin Oaks Valley WWTP San Marcos, California - 30' x 165'



McAlpine Creek WWMF, Charlotte, North Carolina - (2) 130' diameter



# PRODUCT SELECTION

CST's aluminum covers are suitable for a wide variety of water and wastewater applications. To help determine what cover is right for your application, please refer to the accompanying table.

	Geodesic Domes	Vault Covers	Low-Profile Covers	Formed Flat Panel Covers	Extruded Flat Panel Covers	Reservoir Covers
Resistant to corrosion from water/wastewater processes	X	X	X	X	X	X
Suitable for odor control applications	X	X	X	X	X	
Easily customized to accommodate penetrations or appurtenances	X	X	X	X	X	X
Watertight enclosure	X	X	X			X
Reduced air volume for reduced air handling costs			X	X	X	X
Equipment above cover to reduce confined space entry			X	X	X	
Headroom for access beneath cover	X	X				
Removable panels for access to large areas below covers*				X	X	
Heavy duty (low-deflection, integral non-skid) walking surface					X	

\*Extruded flat panel covers are recommended for applications where heavy foot traffic and frequent access to center equipment is required.





# ADDITIONAL COVER APPLICATIONS

CST designs clear-span aluminum covers for storage tanks that help operators achieve regulatory compliance and bring new levels of cost efficiency to storage facility operations.

By employing geodesic dome engineering principles and lightweight aluminum materials, CST produces tank covers whose superior strength and design flexibility can be instrumental in meeting the increased regulatory demands of petroleum and chemical storage industries.

- Ideal for New Construction or Retrofit Projects
- Reduces Emissions
- Eliminates Rain Water in Stored Product
- Reduces Risk of Fire
- Ease of Installation
- No Welding/Hot Work
- Virtually Maintenance-Free
- Compatible with All Stored Products
- Lightweight Design

CST custom aluminum covers can be designed to meet the demands of almost any bulk storage application. Aluminum is the ideal material to handle applications where the entire structure is exposed to the elements.

CST aluminum covers are custom designed around a bulk storage facility's specific clearance requirements, stockpile configuration and bulk handling equipment. Structurally efficient and lightweight, they minimize foundation costs and provide dependable protection from the elements while remaining virtually maintenance-free.

CST's aluminum vaults and domes provide lightweight, corrosion resistant, low-maintenance bulk material covers to:

- Eliminate Fugitive Particulate Emissions
- Comply with Clean Air Requirements Worldwide
- Manage Dust
- Protect Stored Material from Degradation by the Elements

CST offers unique options for architectural applications. Advancements in lightweight, high-strength aluminum allow for a wide variety of configurations and cover options. Proprietary systems allow for novel 2D and 3D space frame solutions while proven dome and truss systems have long been the global standard for large cover applications. CST has the ability to bring architects' and engineers' cover concepts to reality through products, engineering, precision manufacturing and a reputation for durability and service.

CST's high-strength aluminum signature solutions include space frames, domes, environmental enclosures, canopies, large-span and specialty lightweight structures designed with corrosion resistant material for unique eco-friendly applications.

Markets served: Arts & Science, Leisure & Gaming, Social Service, Transportation and Signature & Custom.

## Petrochemical



## Bulk Storage



## Architectural





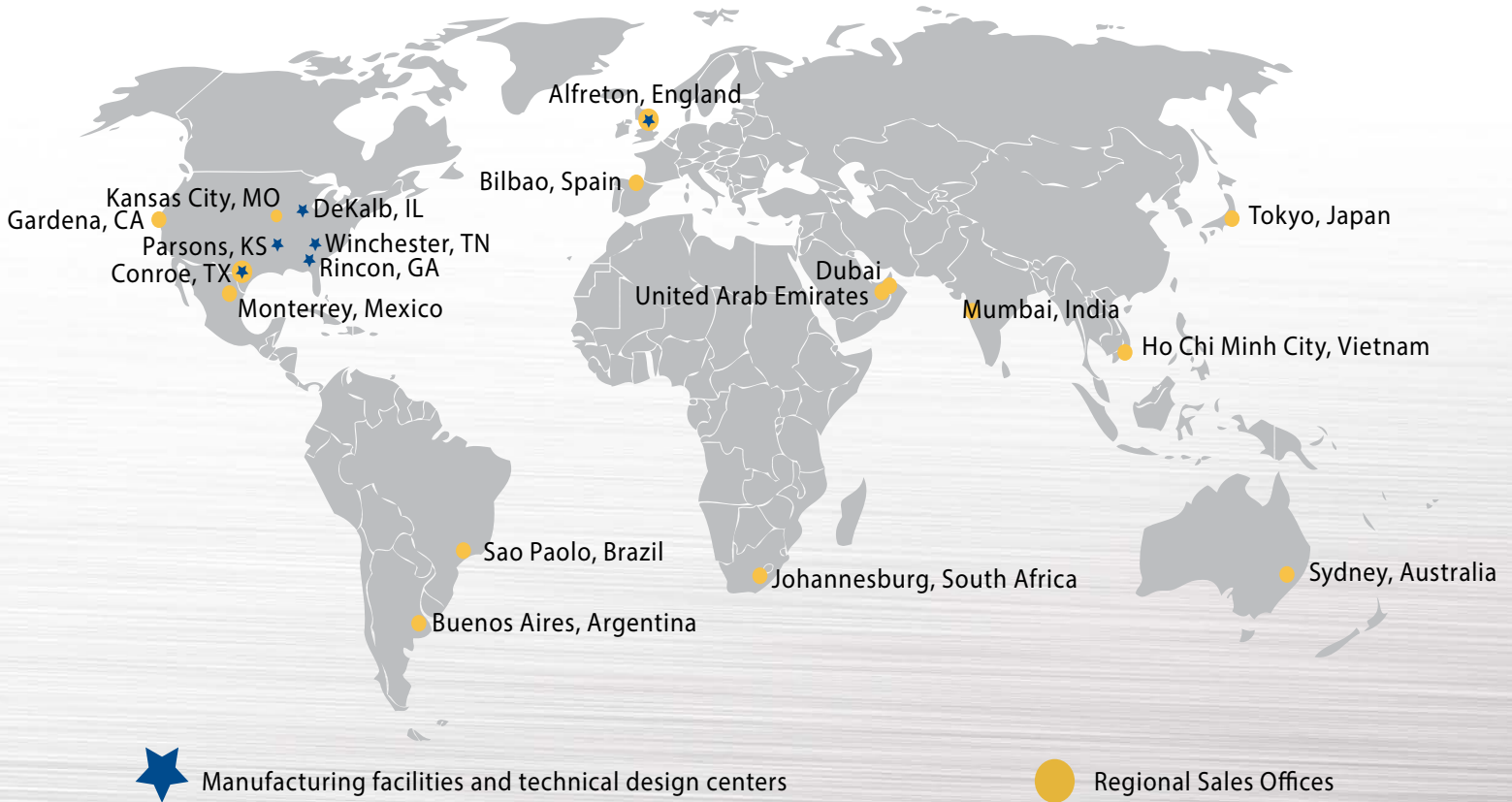




# WORLDWIDE AVAILABILITY

CST Global Manufacturing and Offices

With multiple offices around the world, CST is poised to provide the best and most timely customer service regardless of the project location.



**OptiDome®**

**TEMCOR**

**CONSERVATEK®**

Visit [www.cstcovers.com](http://www.cstcovers.com) for information on sales service offices.

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**COVERS**

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