A Storage Legacy

The business roots for CST Industries run deep – all the way back to 1893 following our heritage as Columbian Steel Tank Company™, Peabody TecTank and Columbian TecTank®.

With a legacy of 127+ years and over 350,000 field proven installations in more than 125 countries, no other company can match CST’s world-renowned brands, premium engineered designs, world-class manufacturing or construction experience.

Highest Quality – Promised and Delivered – in Tanks and Silos for Dry Bulk Applications

Our commitment to performance is delivered through time-proven design and engineering, our precision manufacturing technologies, and our commitment to excellence in installation.

TecTank™ systems are custom engineered to our customer’s exact specifications, designed using state-of-the-art CAD and stress modeling tools, and then manufactured in one of our ISO 9001:2015 Certified manufacturing facilities located in Parsons, KS or Winchester, TN.

Proven Engineering Capabilities and Design Standards

Our experience spans into almost every dry bulk market and challenge, which gives us a unique perspective that we bring to every client relationship. CST has been relied upon for over a century and is well-known as the Storage Industry experts.

Not only do we have decades of experience as a leading innovator, but CST also offers the most variety of engineering designs to create customized solutions for each project. Unlike our competitors, we do not make the application fit the design. We are uniquely positioned to offer designs specific to your application. Simply put, we are the only storage tank manufacturer to offer Application-Based-Solutions, allowing us to be the most competitive, efficiently designed and installed silo supplier to meet customers’ exact needs.

Factors such as capacity, seismic conditions, specific gravity and wind loading vary widely from one job to the next. Our integrated project teams work to ensure every tank is designed to yield the best lifelong value for the application it’s intended for.

With more overall production capacity than the next (3) three competitors combined, you can rely on CST when quick and reliable delivery of a large volume project is necessary. Our benefits include:

- A proof load tested jacking system designed by licensed engineers to ensure construction safety
- Hopper bottom silos ranging from 4 ft. (1.21 m) in diameter and 6 ft. (1.82 m) tall to nearly 50 ft. (15.24 m) in diameter and 150 ft. (45.72 m) tall, from 100 ft³ to 200,000 ft³ of storage capacity
- First manufacturer to design, build and erect the flat panel silo and the chime panel silo
- Third-party review of company construction methods
- Professionally Engineered stamped jack-built and scaffold-built construction processes
- CST pioneered jacking tanks on grain bins and silos in the 1940s
- Apply build gaskets to bolted tanks
- Drawings can be supplied with professional engineer seal from any state, territory or province

To accommodate various dry materials, all of our silos are custom designed and fabricated. CST offers solutions such as silos with drive-through skirts for truck or railcar loadout, tanks with unique hoppers and tanks designed with office space under the hopper bottom. Tanks can be installed on steel or concrete frames or footings. Contact us today to learn more.
Maximum Performance. Lasting Protection.

CST created its first-rate epoxy coating technology to provide excellent adhesion, maximum corrosion resistance and long tank life. Decades of experience has led to continuous technology and process improvements which have resulted in the finest epoxy coating available in the storage tank industry.

The OptiBond Epoxy Coating Process is derived from years of in-field experience and performance data. This process assures the proper application of CST’s proprietary powder formulation, Trico Bond EP® and Trico Bond SD™.

OptiBond Process Includes

- Factory-applied coatings
- Pre- and post-cleaning of the steel prior to application of powder coating
- 100% coverage to eliminate areas of exposed steel
- Automated application of powder coating with laser-locating “eyes”
- Electrostatic topcoat application more efficient and smooth finish
- 100% holiday testing on all sheets
- Unlimited exterior color options

Exterior Color Options

- Tan
- Gray
- Green
- Blue
- White
- Forest Green
- Cobalt Blue

CST’s high temperature resistant coatings for bolted and welded tanks are available up to 750°F (398°C) (application dependent).

Trust the Coating and Manufacturing Experts

World-Class Coating

CST’s coating portfolio was developed in partnership with Valspar, the world’s most recognized industrial coating provider. A team of dedicated technical representatives is available 24/7 for 100% performance assurance guarantee. Used in a wide range of applications, CST’s family of high performance coatings are well-equipped to keep your assets in service and provide long-term protection against their environments.

- Trico Bond EP® – Proven, industrial grade high performance, factory-applied epoxy
- Trico Bond SD™ – A proven enhanced performance epoxy that provides additional protection and longer life for Severe Duty applications
- Lab tested durability – Third-party tested and verified over the #2 and #3 competitors in real world applications
- CST OptiBond™ proprietary coating process utilized on every sheet
- Factory coated ensures the best quality

Setting Our Standards High

Standardized Salt Spray Test, also known as ASTM B117 or fog testing, is an accelerated corrosion test used to measure the comparative corrosion resistance of coated metals exposed to a salt spray or salt fog at high temperature. The higher the number of test hours without showing signs of corrosion, the more corrosion resistant the coating application.

Approximately 80 percent of manufacturers that specify minimum Salt Spray Test performance require only 200 to 400 hours. CST standards tests up to 6000 hours to ensure our coatings achieve maximum performance.

Falling Sand Test Results

Trico Bond test results show it is more than 2X better than Competitor A’s factory-applied bolted powder coatings and more than 12X better than Competitor B’s field-applied liquid coatings.

<table>
<thead>
<tr>
<th>Test</th>
<th>Compliant A</th>
<th>Compliant B</th>
<th>CST</th>
<th>Trico Bond SD™</th>
<th>Trico Bond EP®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test 1</td>
<td>100%</td>
<td>80%</td>
<td>120%</td>
<td>140%</td>
<td></td>
</tr>
<tr>
<td>Test 2</td>
<td>95%</td>
<td>75%</td>
<td>135%</td>
<td>155%</td>
<td></td>
</tr>
<tr>
<td>Test 3</td>
<td>90%</td>
<td>65%</td>
<td>140%</td>
<td>160%</td>
<td></td>
</tr>
</tbody>
</table>

See TecTank™ Welded epoxy exterior color options on page 12.
## Tank Comparison Chart

<table>
<thead>
<tr>
<th>DESIGN FEATURES</th>
<th>TECTANK FP®</th>
<th>TECTANK CP®</th>
<th>TECTANK® WELDED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel Design</strong></td>
<td>Flat panel 105 in (267 cm) wide by 56 in (142 cm) tall premium grade cold rolled steel, convex shaped cut tapered panel.</td>
<td>Chime panel 56 in (142 cm) wide by 58 in (147 cm) tall by 96 in (244 cm) tall with 2 in (5 cm) external top and bottom flange, each chime is a stiffener.</td>
<td>Panel design not applicable. Full welded construction from 4.8 ft (1.42 m) to 15 ft (4.57 m) in diameter and 85 ft (25.90 m) for carbon steel and 90 ft (27.43 m) for stainless steel and aluminum in a single piece. Larger heights available with price based on design requirements.</td>
</tr>
<tr>
<td><strong>Seam Between Panels</strong></td>
<td>Industry leading leak-free gasket available in EPDM or Viton (temps to 400°F [204°C]). Only tank manufacturer to provide both gasket and external mastic joints between panel seals to keep moisture out.</td>
<td>Compression seal formed between chimes with EPDM/ NBR/Viton gasket depending on the application.</td>
<td>Seal between panels not applicable. Robotic, sub-arc welds exceptionally consistent “smooth/not flush” horizontal seams.</td>
</tr>
<tr>
<td><strong>Panel Coating Interior</strong></td>
<td>Trico Bond EP®-4 up to 4 mil (100 μm) to 9 mil (225 μm) average dry film thickness precision-applied powder coating. Trico Bond SD® up to 3 mil (75 μm) to 5 mil (130 μm) average dry film thickness precision-applied powder coating.</td>
<td>Trico Bond EP®-4 up to 9 mil (225 μm) average dry film thickness precision-applied powder coating. Trico Bond SD®-3 up to 5 mil (130 μm) to 10 mil (250 μm) average dry film thickness precision-applied powder coating.</td>
<td>Welded coated interior is 1.5 mil (38 μm) to 5 mil (130 μm) average dry film thickness standard epoxy coating. (Special coatings available)</td>
</tr>
<tr>
<td><strong>Panel Coating Exterior</strong></td>
<td>Trico Bond EP®-6 precision-applied powder coating with high performance urethane topcoat for additional protection and UV resistance at 3.5 mil (85 μm) to 5 mil (130 μm) average dry film thickness. (Unlimited topcoat color options)</td>
<td>Trico Bond EP®-6 precision-applied powder coating with high performance urethane topcoat for additional protection and UV resistance at 3.5 mil (85 μm) to 5 mil (130 μm) average dry film thickness. (Unlimited topcoat color options)</td>
<td>Welded coated exterior is 2 mil (50 μm) to 3 mil (75 μm) standard epoxy coating - 1.5 mil (38 μm) to 3 mil (75 μm) high performance urethane for additional protection and UV resistance.</td>
</tr>
<tr>
<td><strong>Operating Temperatures for Dry Applications</strong></td>
<td>Trico Bond EP® up to 200°F (93°C)</td>
<td>Trico Bond EP® up to 200°F (93°C)</td>
<td>Standard coating up to 250°F (121°C) (FDA Approved Coating)</td>
</tr>
<tr>
<td><strong>Field Installation</strong></td>
<td>18,000 lb (8164.66 kg) hydraulic actuated, synchronized jack system third-party proof load tested and PE stamped. Fastest bolted installation for tanks greater than 24 ft (7.31 m) tall.</td>
<td>Third-party safety PE stamped scaffold system. Fastest bolted installation for tanks 24 ft. (7.31 m) tall or less.</td>
<td>Delivered in one piece on specialized equipment, ready for lift and placed on a prepared foundation (by others). Fastest installation.</td>
</tr>
<tr>
<td><strong>Modularity</strong></td>
<td>Tanks can be modfied – contact your local sales representative for more information.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maintenance</strong></td>
<td>Normally scheduled PM inspections by site maintenance group or CST provided maintenance.</td>
<td></td>
<td>No ledges. Welds ground smooth not flush. Special weld finishes available up to 150 grit for internal and external welds (additional cost may apply)</td>
</tr>
<tr>
<td><strong>Internal Ledge</strong></td>
<td>Horizontal and vertical carriage bolt heads are in product zone but secured flush to panel. Gap remaining from meeting of flanged points is minimal and compressed under load.</td>
<td>Horizontal 90° flanges meet external of product zone where they are securely bolted thus compressing the gasket for leak-free connection. Entirety of horizontal bolted connection is outside of product zone to not interfere with material flow.</td>
<td></td>
</tr>
<tr>
<td><strong>Licensed Professional Engineering Staff</strong></td>
<td>Professional Engineers on staff that are capable of stamping in all states, territories and provinces. Includes voting member of NFPA 22. Committee chair for AWWA, API, NFPA and EN (Eurcode). Assisted with API-2B and other AWWA standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age of Company &amp; “Years of Experience”</strong></td>
<td>Established in 1893. More tank and employee experience than the next two competitors combined.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Field Construction</strong></td>
<td>CST employed or exclusive subcontract crews using third-party safety certified and PE stamped scaffold design. Most experienced crews.</td>
<td>CST employed or exclusive subcontract crews using third-party safety certified and PE stamped scaffold design. Most experienced crews. (International sites may vary)</td>
<td>Not applicable. Arrives on site in one piece fully constructed.</td>
</tr>
<tr>
<td><strong>Plate Thickness</strong></td>
<td>Up to 1/2 in. (12.7 mm) thick. Available in carbon steel, aluminum and 304/316 types of stainless steel.</td>
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<td>Up to 1/2 in. (12.7 mm) thick. Available in carbon steel, aluminum and 304/316 types of stainless steel.</td>
</tr>
</tbody>
</table>
TecTank FP®

TecTank FP is a result of numerous advances in bolted steel tank design and construction that have occurred over the past several decades.

TecTank FP tanks and silos offer an optimized bolt pattern, increased steel thickness, reduced hardware and fewer penetration points. The jackable flat panel bolted design of TecTank FP surpasses competitive designs in the dry bulk industry and is available in short lead time pre-configured models and fully customizable designs.

Design Benefits and Features Include:

- Arrives on jobsite as complete kit
- Fastest construction option for tanks greater than 24 ft. (7.31 m) in height
- Largest capacity, capable of storing up to 200,000 ft³ (5,663 m³) or more
- Available in 2 in. (5 cm) or 4 in. (10 cm) wide horizontal bolt spacing based on design requirements
- Leading design for bolted steel tanks around the world
- Improved structural integrity
- Allows for greater steel thickness and larger taller tanks and capacities vs. chime

Pre-configured models are available in (4) four standard sizes and with 50% lead time improvement vs. non-pre-configured chime models:

- 600T – Working Capacity: 9,858 ft³ (279 m³)
- 2000T – Working Capacity: 40,489 ft³ (1,147 m³)
- 3000T – Working Capacity: 62,591 ft³ (1,772 m³)
- 5000T – Working Capacity: 103,468 ft³ (2,930 m³)

Flat Panel Design

- Reduces need for vertical and wind stiffeners, saving engineering time
- Industry leading leak-free gasket available in EPDM or Viton up to 450°F (232°C)
- Built with gaskets or sealant or both
- Versatility of assembly
- Reduces interferences on non-standard models and custom options
- Factory coated for highest quality of corrosion protection
- Comprised of replacement panels for ease of repairs, relocation and expansion

Flat Panel Tank Construction

TecTank’s are typically erected from ground level using a hydraulic actuated, synchronized jacking system, improving safety at the construction site. Our heavy duty jacking system is the first ever jacking system designed and stamped by licensed professional engineers and third-party proof load tested per ASME Standard B301 – 2015.

- Simplified and safer construction process with jacking system
- Largest percentage of work can be performed at ground level
- Jacks are set up and down only once saving time and money
- Tank is jacked up and successive rings are constructed
- The final ring is constructed and tank is lowered onto foundation ring
- Manufactured, erected and in operation up to three times faster than field welded or concrete applications
- Sheets can be 1/2 in. (1.27 cm) thick requiring less structural columns needed in design
- 18 kip designed load per jack, largest in bolted tank industry
- Easily constructed in remote locations – minimum lay down required
- Tanks can be relocated and expanded, improving residual value
- Lower erection cost due to economical shipping and elimination of field welding
- No on-site welding required during construction
- Reduced need for heavy equipment on construction site

Third-party proof load tested and PE stamped hydraulic, actuated, synchronized jacking system

Explosion relief vent
TecTank CP™

TecTank CP tanks and silos offer the best expansion adaptability by adding capacity without full disassembly of your dry bulk tanks. CST’s TecTank CP tanks and silos are field constructed by our expert crews utilizing a scaffold system that is third-party safety certified and stamped by licensed professional engineers.

TecTank CP tanks and silos provide additional hoop strength during crane lifts, either as part of the installation process or lifting and placing the entire system, whereas when using a flat panel style system a formed/rolled angle (chime) must be added to each ring to provide equivalent rigidity necessary for lifting by crane.

Design Benefits and Features Include:

- Arrive on jobsite as complete kit
- Fastest construction option for tanks 24 ft. (7.31 m) or less in height
- Available in capacities from 1,000 ft³ (28 m³) to over 170,000 ft³ (4,814 m³)
- Available in diameters from 9 ft. (2.74 m) to 48 ft. (14.63 m) with hopper bottom
- Factory coated for highest quality of corrosion protection
- Economical storage solution
- Features factory formed flanges at horizontal seams for added structural strength
- Special gaskets and sealants create leak-proof joints and allow for a broader range of applications
- Comprised of replacement panels for ease of repair, relocation and expansion
- Best choice for oil field service and industrial applications

Chime Panel Tank Construction

TecTank CP™ tanks and silos are generally scaffold-built. Special scaffolding mounts and assembly ladders increase construction efficiencies and safety. Chimed tanks are the only design allowed under the API-12B standard and API-12B Monogram Certification. CST was the first manufacturer in the world to receive its API-12B Monogram Certification.

- First ring of panels is constructed directly on the foundation
- Successive rings are constructed in place on lower rings
- Roof can be built in place or on the ground and placed by crane
- Most efficient way to “can” a tank; building method allows pre-assembly on ground for efficient, productive and safe installation
- Best option for erecting bolted short skirt silos onto a structure, especially when silo will be lifted by crane
- Constructed up to three times faster and with half the building crew than traditional field welded tank designs
- Versatility for in-field modification and expansion
- Easily constructed in remote locations
- No on-site welding required during construction
- Reduced need for heavy equipment on construction site
- Minimum lay down area required
CST’s reputation as the world leader in factory coated tanks goes beyond bolted, field-assembled tanks, to include factory coated welded tanks. Our welded tanks are manufactured using a high performance and FDA approved coating process to guarantee the best quality coatings for longer life and better life cycle costs. Unlike field welded and painted tanks, CST welded tanks are fabricated in a modern, indoor, controlled environment.

CST’s coatings feature a high solids epoxy with excellent resistance to corrosion and dramatically reduce life cycle maintenance costs. This makes our factory-applied coatings for superior to field welded tanks as well as other shop welded and field-bolted tank suppliers.

Our fully staffed, in-house engineering department is capable of designing custom welded tanks to meet the most demanding needs and applications. CST offers standard tank designs up to 15 ft. (4.57 m) in diameter that can be fabricated in a matter of weeks for quick delivery. CST’s welded tanks can be fabricated from aluminum, carbon steel and stainless steel. Once fabricated the tank is cleaned, coated and force cured in our 90 ft. (27.43 m) long oven on a specifically designed, controlled processing line.

Design Benefits and Features Include:

- Shortest install time
- Available from 4 ft. (1.21 m) to 15 ft. (4.57 m) in diameter
- Available heights up to 85 ft. (25.90 m) for carbon steel and 90 ft. (27.43 m) for stainless steel and aluminum in a single piece, larger heights available with splice based on design requirements
- Available in capacities from 400 ft³ (11 m³) to over 14,000 ft³ (396 m³)
- Tanks can be shipped as one unit or multi-piece unit
- Arrives on-site fully assembled and ready to stand
- Can be specified with internal and/or external factory coating
- Mass or funnel flow loads
- Custom engineering and quick fabrication
- ASME-qualified welders can produce standard and specialty welds based on design requirements
- Provides the most versatile type of support method (skirt, short skirt, leg, stub leg, lug supports and material types [carbon steel, stainless steel and aluminum])
- Available in two standard exterior color options (white & tan), custom colors available upon request

With CST’s qualification of welders and welding procedures, customers can be confident that CST will produce a quality welded component with properties that satisfy their design requirements.

Coating Options for Factory Welded Tank Systems

### Interior & Exterior Coatings

<table>
<thead>
<tr>
<th>Dry Bulk Applications</th>
<th>Coating Application Type</th>
<th>Average Dry Film Thickness</th>
<th>Maximum Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Interior</td>
<td>Epoxy Primer</td>
<td>Liquid / 1 Coat</td>
<td>2 mils (50 μm)</td>
</tr>
<tr>
<td>Upgrade Interior #1</td>
<td>FDA Epoxy Primer</td>
<td>Liquid / 1 Coat</td>
<td>5 mils (150 μm)</td>
</tr>
<tr>
<td>Upgrade Interior #2</td>
<td>Ar-Lon 6101</td>
<td>Liquid / 2 Coat</td>
<td>5 mils (150 μm)</td>
</tr>
<tr>
<td>High Temperature Interior Coatings</td>
<td>High Temperature Inorganic Zinc</td>
<td>Liquid / 1 Coat</td>
<td>2 mils (50 μm)</td>
</tr>
<tr>
<td>Standard Exterior</td>
<td>Epoxy Primer</td>
<td>Liquid / 2 Coat</td>
<td>3.5 mils (85 μm)</td>
</tr>
<tr>
<td>Upgrade Exterior - System 3</td>
<td>Inorganic Zinc</td>
<td>Liquid / 3 Coat</td>
<td>7.5 mils (190 μm)</td>
</tr>
<tr>
<td>High Temperature Exterior Coatings</td>
<td>High Temperature Inorganic Zinc Primer</td>
<td>Liquid / 2 Coat</td>
<td>5 mils (150 μm)</td>
</tr>
<tr>
<td></td>
<td>High Temperature Inorganic Zinc Silicate</td>
<td>Liquid / 2 Coat</td>
<td>5 mils (150 μm)</td>
</tr>
</tbody>
</table>

Notes:
- Maximum temperature refers to temperature for dry bulk storage applications
- Standard Epoxy Primer and Ar-Lon 6101 are compliant with FDA regulations
- High performance urethane topcoat will take temperatures up to 300° F (150° C) with above 200° F (93° C) some color change may occur. It is a cumulative effect of heat and temperature and will be most noticeable on lighter colors.
CST provides a full range of services for your blender project. From initial consulting to final installation, we are there with professional and experienced staff and associates to take the guesswork out of your project. Services we provide include:

- Material Flow Testing – To make sure your blender is designed for reliable flow
- Blend Testing – To make sure the proper blender configuration is designed to meet your process
- Blender Layouts – To facilitate your plant site design
- Blender and Silo Design – Our registered engineers certify each design
- Pricing – Both budget and firm, including installation
- Installation and Commissioning – Trained staff and specialist contractors complete your project on time and within budget

**Tank Applications**

TecTank™ silos are designed to meet your specific application; each is engineered and fabricated to successfully store all types of dry bulk materials including:

- ABS Pellets
- Bauxite
- Bentonite
- Blood (Dried)
- Bone Meal
- Calcium Carbonate
- Calcium Chloride
- Carbon Black
- Cement
- Flour
- Fly Ash
- Frac Sand
- Grain
- Gypsum
- Kaolin Clay
- Lime
- Limestone
- Perlite
- Polyethylene Pellets
- Polyvinyl Chloride
- Sand
- Salt
- Sodium Bicarbonate
- Starch
- Sugar
- Wood Pellets

List of other suitable product applications available. The table above applies to Trico Bond EP® and Trico Bond SD™ coatings. Tank product lines might have other limitations, based upon their configurations.

**Premium Tank Technology Provides Smooth Material Flow**

The smooth-wall interior has no cracks or crevices that could suspend material flow. TecTank storage tank systems are designed and built to the exact requirements you need for material flow efficiency and reliability.

- Mass and funnel flow designs
- Expanded and fluidized flow designs
- Multiple Type Tanks

**Why Blend?**
- Reduce process and production variables
- Achieve consistent color
- Achieve consistent Melt-Flow Index (MFI)

**Advantages of Gravity In-Tank Blending**
- Non-mechanical blending
- Large batch sizes
- Low maintenance
- Storage ‘plus’ blending

**Measuring Blend Performance**
- Blend Index = Standard Deviation of Incoming Material
  Standard Deviation of Discharged Material
- The higher the Blend Index, the more homogeneous and consistent the blended material
- Consistency of MFI and color is important for enhanced processing performance and maintaining process continuity and repeatability
- Recirculation of material through the blender increases the Blend Index

**Blender Capacity**
- Capacities range from 304 ft³ (8.61 m³) to over 40,000 ft³ (1,133 m³)
- Ideal ratio of height to diameter is 3:1
- TecTank’s smallest blender (5 ft. (1.52 m) diameter by 15 ft. (4.57 m) height) will hold between (2) two and (5) five batches of most plastic processes
CST offers a variety of repairs, modification and turnkey services for dry bulk, liquid and welded storage tanks. CST also offers Master Service Agreements for Tank Repair and Inspection Services.

CST is committed to providing its customers with the highest engineered quality, best service, longest product life and greatest value for every storage solution we supply. Contact CST for all your bulk storage needs.

For more information, call +1 844-44-TANKS or visit us online at cstindustries.com.