Tower Elevator Systems, Inc.

Company and Product Overview

Quality Engineered Industrial Elevators, Lifts, Conveyors and Amusements
Tower Elevators builds smart elevators for rugged environments.

TESI is a US manufacturer of industrial personnel moving equipment, and will work closely with your team regarding equipment supply, design, engineering, and specifications to insure a successful project.

At TESI our mission is to bring innovation and new technology to automated industrial systems. We offer solutions that have been designed and engineered from inception to bring improvements over existing technology, in terms of safety and functionality.
We don’t just meet the Codes and Building Standards; we exceed them when it comes to safety.

The Machine Safety Codes are minimums based on new equipment without damage or deterioration. In the real-world, equipment gets worked hard and deteriorates due to environmental exposure.

Knowing that, we build in Safety Factors exceeding the Code minimums to make our machines real-world safer for you. We manufacture heavy duty machines designed to handle the toughest industrial use.
Our elevators are manufactured in Austin, Texas. This is in contrast to other options that may be imported from other parts of the globe.

An important objective of the US economic recovery is to work under the US Government’s Rebuild America plan to “create jobs through spurring private spending on highways, airports and bridges.”

This objective gains maximum traction and success when purchasing equipment and services from US Manufacturers with Local Labor support.
TESI Safety

Design and Automation Safety

1. Design safety is a cornerstone of the TESI culture.

2. All TESI Projects begin with safety as a key priority.

3. All TESI structural and mechanical designs consider movement and lifting of people with the appropriate safety factors in place.

4. UL Classified Elevator Control Systems based on Fail-Safe Technology

5. Technically Advanced Speed and Position Control

6. Critical Systems are actively monitored with built-in Safety Circuits, Redundancy and Safety Rated Devices
Trac-Cab Rack and Pinion Elevators

The Trac-Cab® Rack and Pinion gear drive elevator system is designed for industrial use in rugged environments. Our Trac-Cab® system uses a gear drive rather than standard elevator cables. The system uses Dual Pinion Gear Drives with Dual Automatic Brakes, which ride on a guide track system.

Trac-Cab® models are available in several different sizes and load capacities, ranging from small Special Purpose Personnel inspection elevators to large Freight and Personnel Elevators.
The GearLift® Rack and Pinion gear drive Vertical Reciprocating Conveyor (VRC) system is designed for industrial use in rugged environments. Our GearLift® VRC uses a gear drive rather than standard cables or chains. The system uses Dual Pinion Gear Drives with Dual Automatic Brakes, which ride on a Guide Rack and Rail system.

A VRC is a material lift or freight lifting device, it’s not an elevator, and is designed to a different Code. TESI is the only company offering Industrial Grade Rack and Pinion technology for VRCs. Rack and Pinion positive engagement makes GearLift® the safest VRC lifting technology on the market. When you consider the long life and reduction of liability exposure derived from an industrial duty rack and pinion VRC, we believe GearLift® will be the choice for your application.
One of a Kind – Custom Projects

Tower Elevator Systems, Inc. was recently selected by the National Park Service to Design, Engineer, and Manufacture a very unique “one-of-a-kind” rack and pinion elevator for service inside the Statue of Liberty.
TESI has the experience and expertise to provide unique custom designed solutions for complex US Government and Industrial Projects. Some examples include the US NAVY, US ARMY COE, FAA, NPS (Statue of Liberty), and many large engineering driven industrial customers.

**IMAGE SHOWN:**
Custom Designed and Installed by TESI. 10,000 LB Rated Load Industrial Rack and Pinion Elevator Installed at Dry Dock #3 Pearl Harbor Naval Ship Yard.
TESI has developed a fully automated, self-supported material handling system for transporting large heavy loads up and down for service in shipyard dry docks. These machines are industrial quality for rugged service in harsh environments.

**IMAGE SHOWN:**
Custom Designed and Installed by TESI. 15,000 LB Rated Load Industrial Rack and Pinion VRC w Power Roller Bridge and Turntable, at Dry Dock #3 Norfolk Naval Ship Yard.
Automated Material Handling
VRC w/ Power Rollers & Turntable

IMAGE SHOWN:
Custom Designed and Installed by TESI.
15,000 LB Rated Load
Industrial Rack and Pinion VRC
w Power Roller Bridge and Turntable, at
Dry Dock #3 Norfolk Naval Ship Yard.
Automated Material Handling
VRC w/ Power Rollers & Turntable

15,000 LB Rated Load Industrial Rack and Pinion VRC w/ Power Roller Bridge and Turntable, at Dry Dock #3 Norfolk Naval Ship Yard.

Higher Technology for Safety’s Sake
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US ARMY Corp of Engineering Project. Special Purpose Vehicle. Descends 1,200 ft underground to service water supply tunnel at the Schofield Army Base, Oahu HI.
US ARMY Corp of Engineering Project. Special Purpose Vehicle. Descends 1,200 ft underground to service water supply tunnel at the Schofield Army Base, Oahu HI.
TESI has a continuous improvement philosophy for product development that draws on past experience and cutting edge technology to make each generation and new product better than the last.

We hold multiple patents for unique mechanical systems, including our Smart-Reel Cable Management and Full-Height Hydraulic Rescue Lowering Systems.
TESI Roller Pinion Drive System

- Smooth Ride
- Fast Speed
- Eliminates Routine Rack Lubrication
Roller Pinion Drive

TESI Roller Pinion Drive System
TESI Roller Pinion Drive System

Higher Technology for Safety’s Sake
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Hydraulic Rescue Lowering

Patented System allows unrestricted full height lowering, quickly and safely.

The TESI Hydraulic Rescue Lowering System is a clear functional improvement over existing slip-clutch brake technology.

Other systems using centrifugal slip-clutch brakes to rescue descend will need to stop and cool the brakes every 30 ft to avoid damage. If this instruction is ignored by the rider the brakes will over-heat and be damaged, causing a potentially dangerous situation.

Lowering from tall heights can take significant time using the stop and cool cycling method. With our system, lowering 400ft will take 8 minutes while lowering with a traditional centrifugal brake will take over 1 hour.
Industrial Duty design is core to all we do. Our products are built tough. The systems are specifically designed for outdoor use in harsh industrial environments to provide many years of service life.

- Amusements
- Power Generation
- Refineries
- Aviation
- Manufacturing
- Broadcast
- Mining
- Oil Rigs
- Mills
- Bridges
- Dams
- Ships
- and more

Inclined Elevator being installed on a 500 ft chimney stack.
Based on the proven Siemens Safety PLC platform, the TESI Elevator Controller includes fail-safe Safety PLC processor, full feature communications capability, real-time car position displayed on screen, automatic landing call stations, touch screen diagnostic and maintenance capabilities, audio VMI Voice Messaging System, and remote alarm with plain text system status.
The TESI system uses precise absolute position control along the travel path of the elevator. The technician can field program the system to set a landing stop anywhere along the elevator travel path with accuracy of 1/16". Even upon a system power cycle, there is no need to "re-calibrate" or "home" the elevator. The system measures speed and direction of the moving cab and reports a redundant virtual overspeed alarm if the car is detected to be moving faster than the preset nominal travel speed. This eliminates multiple physical devices, such as switches and cams in the hoistway.
The dual, high resolution, full color, touchscreen user interface allows car riders to know real time system status and ground support personnel to easily locate the car and perform diagnostics upon any system issue from the ground control station.
Advanced Position and Speed Control

VFD Control with Absolute Rotary Encoder provides Smooth Operation and Precise Position Control and Redundant Overspeed Safety Alarm Information

- No need to “HOME” or recalibrate the elevator due to power cycle
- Precise position control along the travel path of the elevator
- Eliminates multiple physical devices, such as switches and cams in the hoistway.
- Positive rack and pinion mechanical engagement eliminates encoder slip
- Measures speed and direction of the moving cab and displays to the operator
- Reports a redundant virtual overspeed alarm if the car is detected to be moving faster than the pre-set nominal travel speed.
Solenoid Elevator Interlocks

Electro-Mechanical Solenoid Operated Elevator Interlocks for robust industrial duty

We use advanced electro-mechanical solenoid operated elevator interlocks.

Old style interlocks require a movable “retiring-cam” mounted on the car to physically contact a roller arm lever that mechanically un-locks the landing and car doors. These systems often experience reliability problems over time due to alignment, adjustment, corrosion and environmental issues.

These problems are eliminated by the self-contained electrically operated, fully sealed, NEMA-4, door locking devices. Using this system is possible because of our advanced networked controller and precise position feedback system.
Flexible Traveling Cable Management System

Flexible Cable Management System.

Igus Energy Chain.
Provides Reliable and Configurable Power and Communications Options.

Higher Technology for Safety’s Sake
We have the design expertise to create custom products to give you exactly what you need.

TESI designers provide low maintenance, robust designs, using permanently sealed bearings, stainless steel wheels, galvanized and non-corrosive materials whenever practical.

We work directly with your team to custom design an efficient, cost effective, code compliant elevator system to fully meet the project requirements.
TESI has the experience and knowledge on staff to support even the most challenging engineering and design objectives.

4 Permanent Interior Bridge Pylon Elevators at North America’s Longest Cable Stay Suspension Bridge.
TESI Heavy Steel Fabrication
Made in the USA
TESI Custom Heavy Turntable with Integrated Load Weighing
Tower Elevator Systems, Inc. has partnered with “Best-in-Class” OEM suppliers, providing the Trac-Cab elevator systems with the highest possible Quality, Safety, Reliability and Long Term Ownership Experience.

- Siemens
- Mitsubishi
- SEW Eurodrive
- Rossi - Habistat
- Pepperl+Fuchs
- Igus
- and More
Quality Systems

*Industrial Automated Equipment Engineered, Manufactured and Tested in Austin, Texas USA.*

- Systems comply with current Safety Code Standards for Conveyors, Elevators, Amusements, NEC and OSHA

- *Fabrication performed in accordance with American Welding Society (AWS) D1.1*

- ISO 9000 Compliant Quality System to insure highest quality standards
Higher Technology for Safety’s Sake

Fail Safe Controls

Fail Safe Safety PLC Control Technology

UL Classified Fail-Safe Elevator Control System

Powered by the Siemens Safety PLC

Sirius Force Guided Category 0/1 Devices

Siemens PROFI-Safe distributed Network

Safety PLC Continuously Monitors System Health

Fail-Safe Variable Frequency Drive Control

Fail-Safe Mechanically Applied Brakes Controlled by Safety PLC and Safety I/O

HMI Touch Screen Interface for User and Technician Access gives powerful system status and diagnostic information

Simple Remote Initiation of Code Required Safety Testing
Machine controls are essential to safe operation and movement of people in elevators, escalators, and amusement rides. Technology has moved the market to accept the Programmable Logic Controller (PLC) as an improved method of managing this process, very much parallel with most of the world’s processes becoming digitized.

The safety PLC is an improvement over the non-safety PLC, born from the need for greater reliability and safety for operations involving the risk of injury or property loss. The elevator application is a perfect example of this use as the goal is to reduce the risk of injury to the lowest possible percentage.

The benefit of using FS PLC control for elevators and amusements is reduction of the risk of injury and property damage. Manufacturers, owners, and riders can have greater confidence in the reliability of system performance through the use of this higher technology.
Trac-Cab Installation Photos

Higher Technology for Safety’s Sake
The TESI Drive and Safety system utilizes:

- Advanced Siemens Fail-Safe technology
- UL / ETL Classified Elevator Controller
- Highly Reliable Best-In-Class Components
- Dynamic and mechanical parking brakes
- Independent Safeties

This configuration achieves efficiency, redundancy, and maintains the required safety factor in the mechanical, structural, and control systems.
WHY CHOOSE TESI FOR YOUR PROJECT

• TESI has a dedicated team of experienced professionals to design, engineer, and manage your project and product life cycle from start to finish

• Knowledgeable in advanced automation systems and machine control

• Experienced in design and manufacture of personnel-rated, people moving, automated machine types across multiple industries

• Engineered products that are built to stand the test of time and use

• Experts in addressing and solving creative design challenges on unique custom projects that result in functional and cost effective solutions

• Safety, Reliability, and High Technology are cornerstones of each system we build

• UL / CE / CSA Certified Fail Safe Automation Control System built on Advanced Safety PLC Technology

• TESI has a proven track record of success on many challenging and unique projects

• TESI Products are Made in the USA