QUALITY AND PRECISION MANUFACTURING

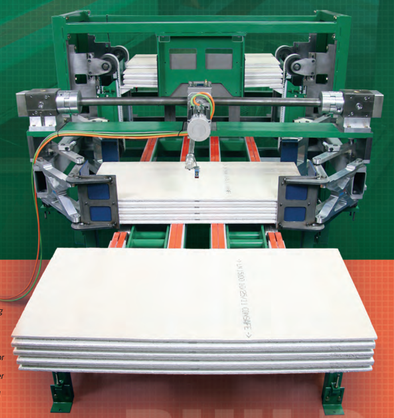
For over three decades, REL has continuously expanded its manufacturing capabilities and services to become a single source partner for many of its customers. Our specialty areas include: high-volume machined parts, cast metal matrix components, fully automated manufacturing cells and non-destructive testing equipment.

REL's ISO 9001-2008 certified manufacturing center includes a modern machine shop, fabrication, advanced R&D materials lab and an extensive prototype space. Our facility also includes a complete ceramic and casting area. REL is a leader in ceramic preform processing and has pioneered numerous proprietary shape forming techniques. In addition, our in-house casting equipment features two horizontal die casting machines and a 1200 Ton vertical squeeze cast press.

REL is a robust and agile company ready to exceed your expectations. To learn more about our manufacturing capabilities and value-added services, visit us online at www.relinc.net.

Manufacturing Capabilities

- CNC Machining
- Laser and Water Jet Cutting
- Forming, Braking and Rolling
- Punching and Grinding
- Ferrous and Non-Ferrous Casting
- Ceramic Preform Processing
- Metal Treatment Processing
- Metal Surface Coating



Ceiling Tile Accumulator

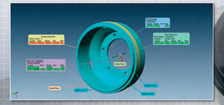
REL designed and manufactured this ceiling tile "accumulator" as one stage in a multi-step packaging conveyor line. The custom process equipment combines servo motors, photoelectric sensors, mechanical assemblies and electronics to accumulate and bundle ceiling panels for packaging. REL's accumulator has a target throughput of 15 packages per minute and is built for dependable, trouble-free operation with minimal maintenance.

BUILD

REL CAPABILITIES

REL MATERIALS LAB

- JEOL JSM-820 scanning electron microscope
- Energy dispersive x-ray spectrometer
- Fluorescent penetrant inspection system
- Split hopkinson pressure bar
- FARO Edge portable coordinate measuring machine



Contact REL, Inc. for more information regarding in-house equipment and services or visit the corporate web site at www.relinc.net.

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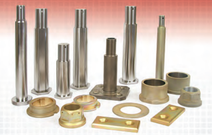
Precision Machining



REL has the equipment and the expertise to provide high volume precision-machined parts or parts in small batches for just-in-time manufacturing.

- Defense, automotive, medical & aerospace markets
- In-house quality control program
- Quick turnarounds with competitive lead times
- State-of-the-art engineering technology
- ISO 9001:2008 Certified and ITAR Compliant

CNC Milling & Turning Centers

- YCI Supermax XV-1020A Vertical Machining Center
- YCI Supermax TV-116B Vertical Machining Center
- YCI Supermax TC-26 Turning Center
- (3) Manual engine lathes - 22" swing/100" length
- #3 turret lathe

Advanced Materials

REL is a world leader in the design, manufacture and testing of Metal Matrix Composites (MMCs).

- Proprietary MMC technology
- Wide variety of ceramic preform types and sizes
- In-house squeeze casting

Casting Equipment

- (2) Ube 350 Ton horizontal high pressure die casting machines
- 1200 Ton vertical squeeze cast press
- Induction melt furnaces
- Preform manufacturing cell & high temp kilns

Custom Equipment

From advanced testing equipment to fully automated material handling, REL's engineering and manufacturing capabilities combine exceptional value with robust technolgy. Customers look to REL for:

- Complex manufacturing challenges
- Quality fabrication and on-time manufacturing
- Cost reduction and risk management
- Process flow optimization
- High strain rate material testing

Custom Equipment Specialties

- Portable split hopkinson pressure bar
- Stationary split hopkinson pressure bars
- Fluorescent penetrant inspection systems
- Fully automated material handling cells
- Process equipment

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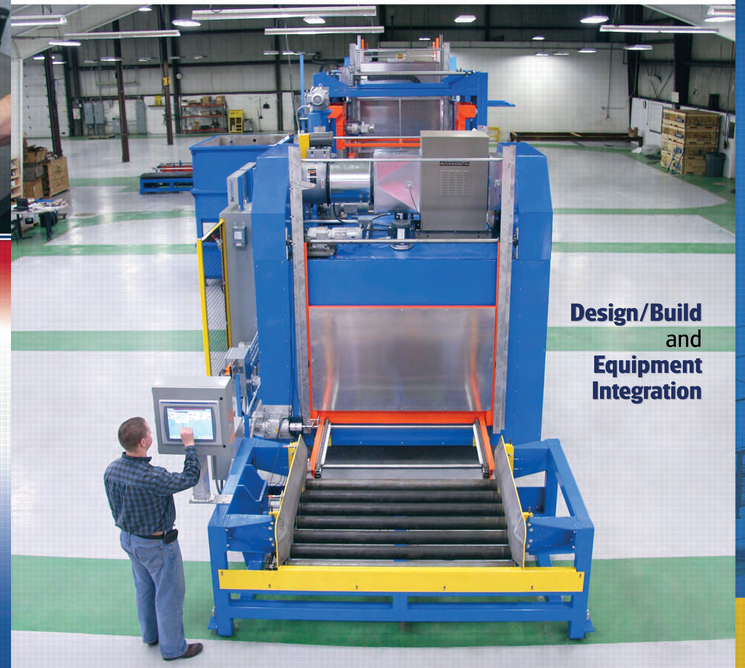


Design/Build and Equipment Integration

www.relinc.net

PROFESSIONAL ENGINEERING AND DESIGN

It starts with your challenge.
And ends with a custom-tailored REL solution.

REL, Inc. provides professional engineering services for the design, manufacture and integration of advanced material products and complex automated equipment.

REL uses the latest technologies and manufacturing concepts to provide novel engineered solutions that streamline manufacturing processes, dramatically increase productivity, and improve quality. Our progressive engineering solutions are designed to reduce overall costs, eliminate downtime and manage risk.

Engineering and Design Capabilities

- Mechanical & Electrical Engineering
- Electro-Mechanical System Design
- Custom Equipment Design/Build
- Process Flow Optimization
- Advanced Material Analysis
- Rapid Prototype Development
- 3-D SolidWorks® Design & Modeling

Fluorescent Penetrant Inspection Line

The 150-foot long FPI line features PLC controls, two elevator/lowerators, two dryer stations, two liquid dip stations, a spray rinse chamber, fluorescent light inspection station, a dry developer station and a multi-pick unload conveying system. The custom-tailored line was designed to reduce labor costs, increase part throughput, improve part inspection and deliver higher quality parts.

DESIGN

COMPLETE DESIGN/BUILD AND EQUIPMENT INTEGRATION

Transfer & Unload Staging Conveyors
To efficiently move parts off of the FPI line, REL's conveyor design uses powered rollers and a pop-up chain transfer system to move parts 90 degrees. Two sets of staging conveyors provide multiple pick points for unloading.

Spray Rinse & Fluorescent Light Inspection
A unique traversing spray header delivers clean, high pressure water to an enclosed spray rinse station, while wastewater is removed to a separate rinse tank farm. The parts are then manually inspected under fluorescent lighting for surface imperfections and cracks.

Automated Dip Stations
REL's FPI conveyor design includes fully automated dip stations for submersing parts in dye penetrant and rinse water. An intermediate dwell area between the two stations allows for continuous batch processing of parts.

Elevator/Lowerator
An integrated conveyor elevator raises and advances nested parts to the first dip station. The lowerator automatically returns to the conveyor level to receive the next batch of parts.

FPI Line Integration
REL's design team worked closely with the customer to define and document all parameters for operation and integration of the FPI line. 3 -dimensional CAD models were then developed to map build requirements, optimize process flow and to maximize floor space for the equipment.

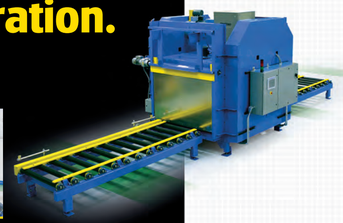
Innovation. Automation. Integration.

PLC Controls
REL engineers designed custom PLC controls for complete monitoring and operation of each station in the FPI line. The integrated touch terminal allows the entire system to be controlled by a single person, creating substantial cost savings throughout the entire testing process.

Custom Control Panels
REL designs and builds a variety of custom control panels, including:

- process and machine panels
- drive/motion and PLC panels
- hydraulic and pneumatic panels.

REL also performs panel assembly, testing, complete systems documentation and installation.

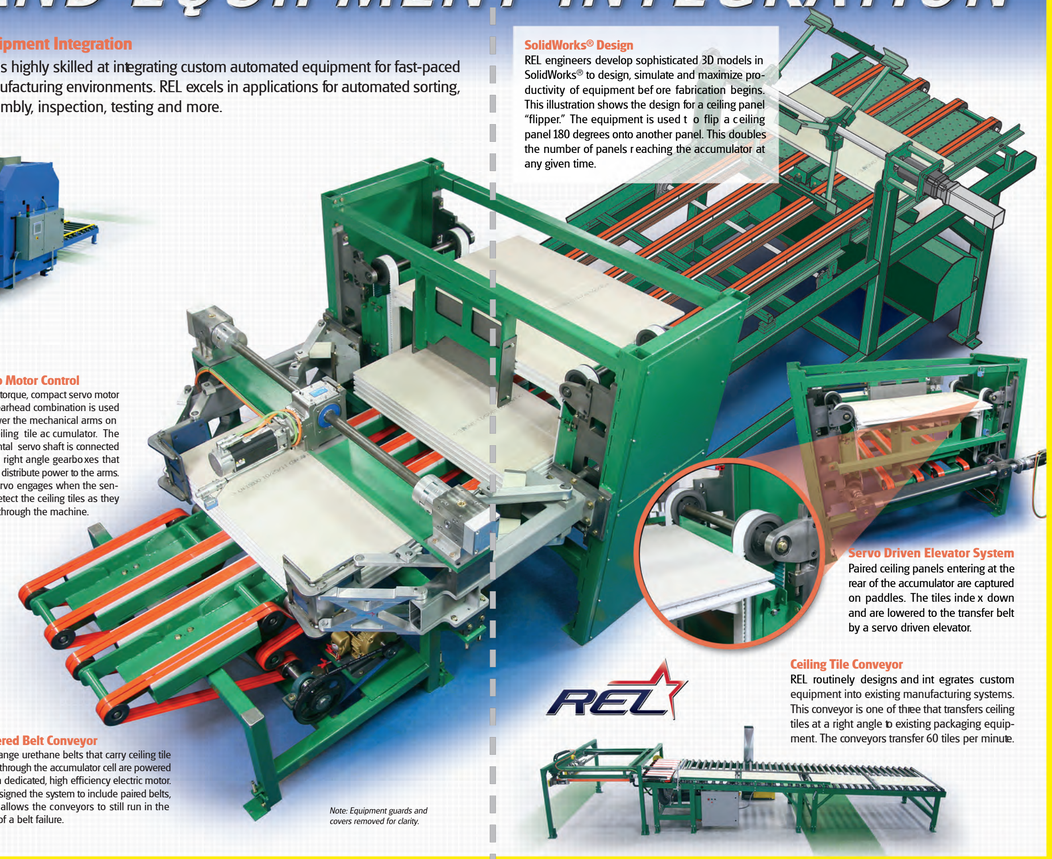


Photoelectric Sensors
The accumulator cell uses a series of photoelectric sensors to monitor ceiling panel movement through the equipment. This sensor identifies a stack of panels on the conveyor and signals the mechanical arms to close.

Mechanical Arms
The mechanical arms square up each ceiling tile stack and release them for packaging. REL designed and fabricated the arm assemblies and mechanical linkages to operate using a single servo motor.

Equipment Integration
REL is highly skilled at integrating custom automated equipment for fast-paced manufacturing environments. REL excels in applications for automated sorting, assembly, inspection, testing and more.

SolidWorks® Design
REL engineers develop sophisticated 3D models in SolidWorks® to design, simulate and maximize productivity of equipment before fabrication begins. This illustration shows the design for a ceiling panel "flipper." The equipment is used to flip a ceiling panel 180 degrees onto another panel. This doubles the number of panels reaching the accumulator at any given time.



Servo Motor Control
A high torque, compact servo motor and gearhead combination is used to power the mechanical arms on the ceiling tile accumulator. The horizontal servo shaft is connected to two right angle gearboxes that further distribute power to the arms. The servo engages when the sensors detect the ceiling tiles as they move through the machine.

Servo Driven Elevator System
Paired ceiling panels entering at the rear of the accumulator are captured on paddles. The tiles index down and are lowered to the transfer belt by a servo driven elevator.

Powered Belt Conveyor
The orange urethane belts that carry ceiling tile stacks through the accumulator cell are powered using a dedicated, high efficiency electric motor. REL designed the system to include paired belts, which allows the conveyors to still run in the event of a belt failure.

Note: Equipment guards and covers removed for clarity.

Ceiling Tile Conveyor
REL routinely designs and integrates custom equipment into existing manufacturing systems. This conveyor is one of these that transfers ceiling tiles at a right angle to existing packaging equipment. The conveyors transfer 60 tiles per minute.