

## *Turbine Overspeed Protection System*



### *Solutions for Rotating Machinery Control & Safety*

**CASE RMC is an industry leader in the design and implementation of protective systems for your rotating equipment.** Our Turbine Overspeed Protection Systems can supplement your existing trip system or can provide a complete protection system replacement. Our offering utilizing a new electronic overspeed protection system coupled with our custom designed and specified hardware, allows for removal or disabling of the existing overspeed bolt.

Installation of a complete system will provide the following benefits:

- **Improved Safety**
  - Eliminate need to "overspeed" turbine while still completing functional overspeed test - reduce insurance costs
  - Protect personnel and equipment from severe damage / injury or worse
  - Minimize / reduce human error that may be introduced during overspeed testing
  - Implement regularly scheduled, consistent testing versus delayed or omitted testing
- **Improved Reliability**
  - On-line testing supported by fault-tolerant design
  - On-line repair of trip system components
  - Replacement / removal of older and degraded components reducing potential critical component failure
  - Replacement of antiquated, hard to source parts with readily available, industry standard components
- **Improved Diagnostics, Troubleshooting and Maintenance**
  - Communication link to the plant DCS for display and operation in the control room
  - Critical parameters are monitored, trended and logged, utilized for first out trip indication
  - Testing through dedicated dynamic HMI / DCS displays
  - Maintenance made simple through design, instrumentation, and automated process
  - Unsurpassed capability to keep your operation running while testing and repairing

**Protection systems provided for all steam and gas turbine applications. Designed to meet API-670 and provide safe, highly reliable protection. Online testing and online repair while continuously providing overspeed protection.**

*Delivering Value  
Oriented Solutions &  
Services*

*On-line Testable  
On-line Repairable*

*Electronic  
Overspeed  
Protection Systems*

*Custom System  
Configurations*

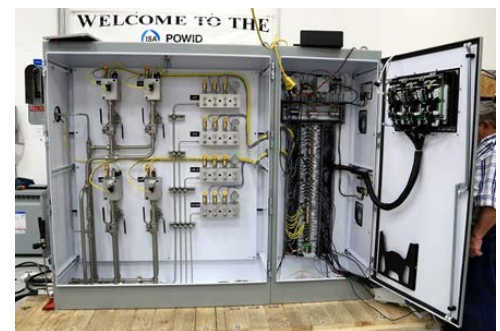
**CASE RMC, LLC** delivers excellence in Rotating Machine Control with nearly 400 years of combined industry experience. Headquartered in Northern Colorado, CASE RMC is centrally located to support North American and Global clients. Customers can expect attention to detail, follow through, and prompt service **24 hours a day, 7 days a week**. Together CASE RMC and Wunderlich-Malec can provide complete process control, safety and rotating machinery controls solutions for the most demanding project requirements.

**CASE RMC** produces Custom Trip Systems for turbine applications, based upon redundancy and flow requirements.

Our Trip Systems are typically **100% On-Line Testable and Repairable**. During on-line testing and on-line maintenance, the turbine trip system is fully active, allowing the operator or control system to initiate a turbine trip if required.



For unit overspeed detection and protection, **CASE RMC** utilizes the Woodward ProTech line of products. The ProTech TPS (Total Protection System) is a safety system that provides specialized overspeed protection functions plus additional programmable logic to address other safety critical functions. For simplex applications, the Woodward ProTech-SX can be supplied.



## *Turbine Trip System Hydraulic Cabinet*

**CASE RMC** designs and fabricates Custom Trip Systems to meet Customer Needs. Depending on what those needs may be, the Case RMC Trip System could include the following features:

- Trip Manifolds Assemblies
  - Simplex, Redundant, 2oo3 configurations
  - Unit Tripping and OPC (where applicable)
- 100% On-Line Testable / 100% On-Line Repairable
  - Manifolds are fully instrumented
- Manual (Hydraulic) Trip Handle
- Enhanced Instrumentation of Critical Parameters
  - Turbine Speed
  - Shaft Thrust
  - Lube Oil (Bearing) Pressure
  - Condenser Vacuum
  - EHC Fluid Pressure
  - Trip System Hydraulic Pressure



## *Purpose-Built Turbine Trip Systems*

**CASE RMC** supplies Purpose-Built Turbine Trip Systems Cabinet Layout for Exact System Requirements with the flexibility to include accommodations for planned future modifications. Designed to operate on existing lube oil system or high-pressure systems. Trip System components are common across all turbines – common spare parts.

## *Multiple Manifold Designs*

**CASE RMC** has designed three (3) standard Hydraulic Trip Manifold designs that can be configured to suit the needs of any system.

- High-Flow Block and Bleed Trip Manifold – 473 GPM
- Low-Flow Block and Bleed Trip Manifold – 60 GPM
- Low-Flow Bleed-Only Trip Manifold – 60 GPM

## *Turbine Trip System Project-Specific Designs*



Specific designs available for GE, WH, Allis Chalmers and many other OEMs. Additionally, CASE RMC provides Superior Documentation and System Training. Proven products from a proven supplier.

**Bottom line, we guarantee results.**

# Experience you can build on since 1981

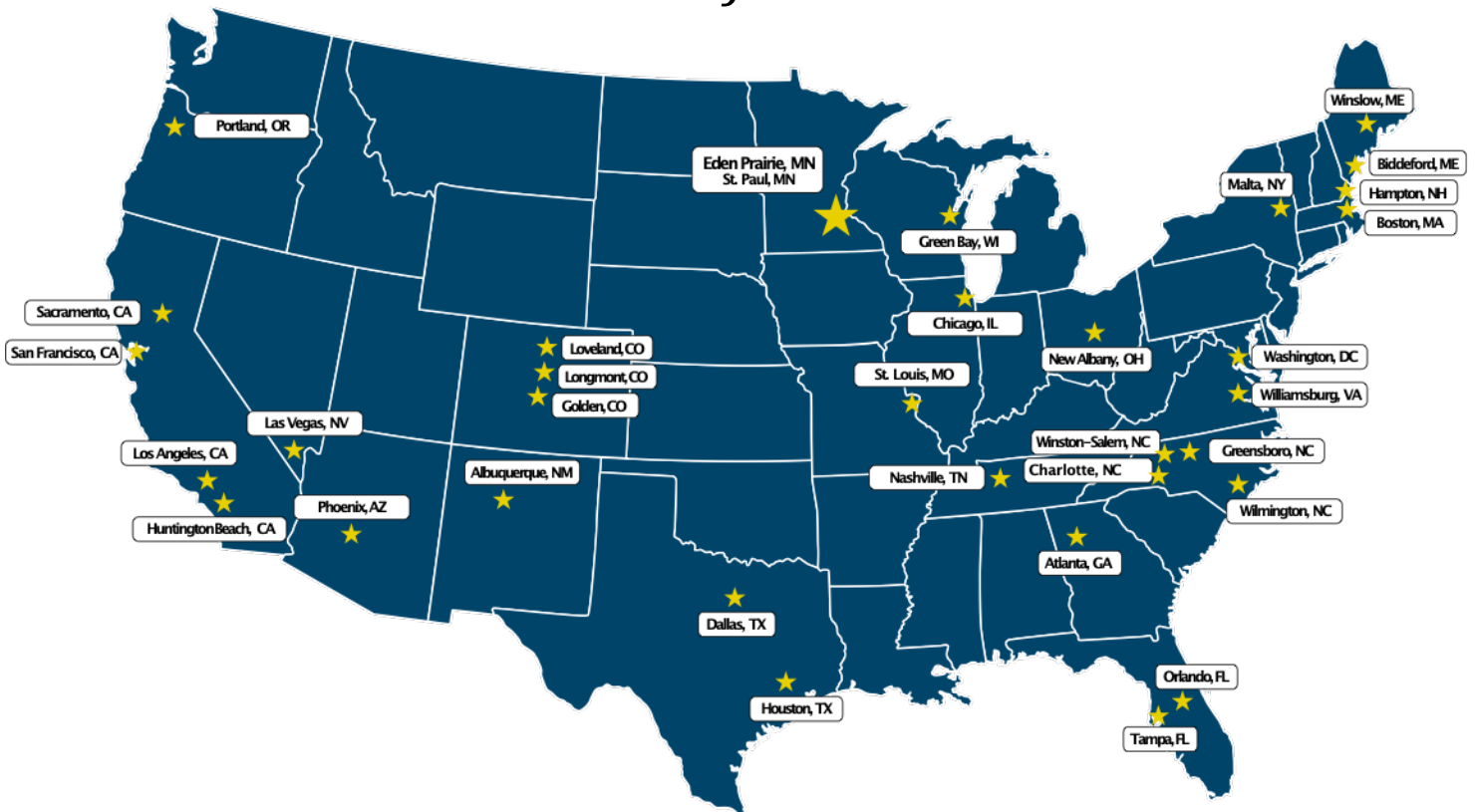
CASE RMC with Wunderlich-Malec offers clients complete control solutions for most power generation and industrial plants with turbines and compressors. By managing a more complete scope clients are freed from coordinating multiple vendors.

As an experienced engineering company with offices throughout the United States, we are uniquely qualified to *deliver value engineering services that lower costs, improve quality and accelerate project schedules.*

With over 450 experienced professionals, our team is one of the largest and most well-established engineering, system integration and process automation providers in North America;

- Architect Design
- Mechanical Design
- Power Electrical Design
- Controls and Automation
- Environmental Compliance
- Realtime Documentation
- System Integration
- Mechanical Fabrication
- Process Skids
- Power Distribution Control
- Modular Control Enclosures
- Plug & Play Construction

## Centers of Excellence



**Wunderlich-Malec**  
6101 Blue Circle Drive  
Eden Prairie, Minnesota 55343  
Ph: (952) 933-3222  
Fx: (952) 933-0608  
www.wmeng.com

**CASE RMC, LLC**  
5857 Wright Drive  
Loveland, CO 80538  
Ph: (970) 776-8657  
Fx: (970) 776-8658  
www.wmeng.com

©Wunderlich-Malec, 2019. All rights reserved.