



Electrical Solutions
for the
Oil and Gas Industry

Thomas & Betts. Your best connection for innovative solutions.

Thomas & Betts

Today's global project management emphasizes how maintenance, replacement and down-time affect total cost. In oil and gas installations, the impact of maintenance and downtime costs is even higher.



Challenge and commitment

Thomas & Betts understands your oil and gas operation must be competitive and profitable as well as:

- Maintaining a safe environment in process areas classified as hazardous locations
- Meeting unforgiving product delivery deadlines
- Battling corrosion (in all its many forms)
- Managing unpredictable raw material costs
- Adapting to new technologies used to find energy sources
- Complying with environmental and community regulations

The oil and gas industry demands performance from components used in electrical infrastructure.

Thomas & Betts manufactures quality products that reliably connect and protect electrical wiring systems around the world used for upstream, midstream and down-stream processes. Our innovative components and systems are designed for safety in classified hazardous locations to save you valuable installation time and stand up to the harshest, most corrosive environments.

From original design and manufacturing excellence to world-class service, Thomas & Betts meets the demands of this changing market. That's why we are one of the world's largest providers of electrical components.

A few facts about Thomas & Betts:

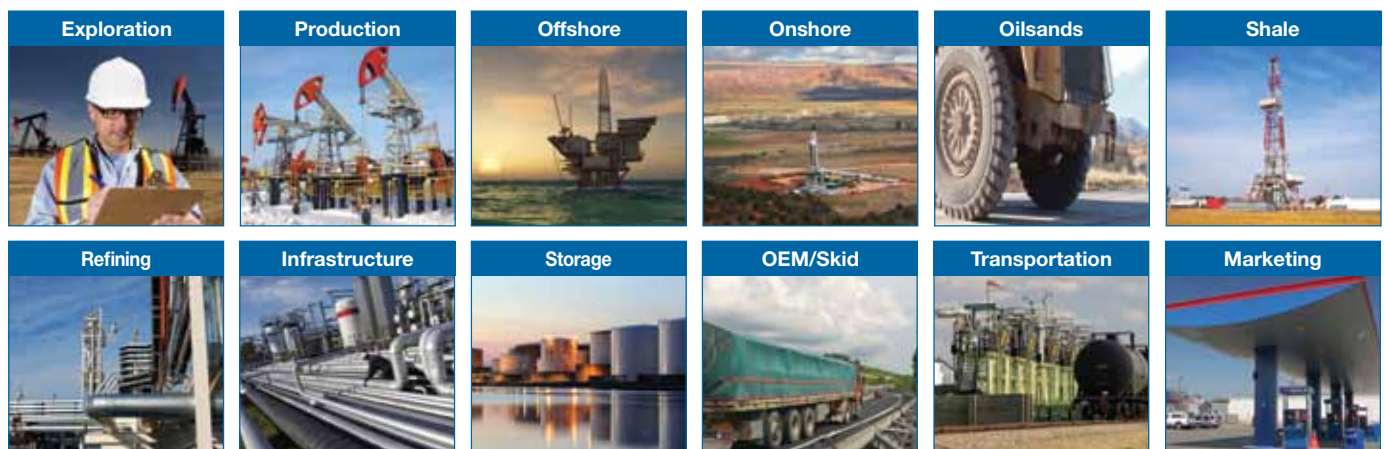
- 46 manufacturing plants in operation around the world, 8 of which are in Canada
- More than 200,000 products sold under more than 45 premium brand names
- Thomas & Betts products can satisfy up to 70% of most projects' electrical BOMs
- Efficient service infrastructure offers distributors single-order, single-shipment service on thousands of stocked items
- Over 80% of the products sold in Canada are manufactured in Canada

When you need to connect, terminate, fasten or protect, plug into the power and innovation of Thomas & Betts.

Our goal is to be the brand of choice for our products' end users. Thomas & Betts is committed to developing solutions for the oil and gas industry, staying current with the latest available technology and remaining competitive. Our electrical solutions:

- Feature built-in safeguards to protect your workplace
- Reduce installation and electrical system changeover and downtimes by 40–50%
- Extend the life of electrical systems by up to 300%
- Safeguard your infrastructure from the consequences of unpredictable power
- Provide the latest technology to connect and protect your electrical systems

Oil & Gas Applications



Delivering value through system solutions based on engineering innovation

Our Value Commitment

Oil and gas companies fundamentally rely on continuous technology development to locate, extract and process their products in diverse locations around the world. Reliability and meeting demanding production and delivery schedules are what Thomas & Betts is committed to helping you do. Tackle your oil and gas facilities' unique challenges with our electrical solutions, services and systems:

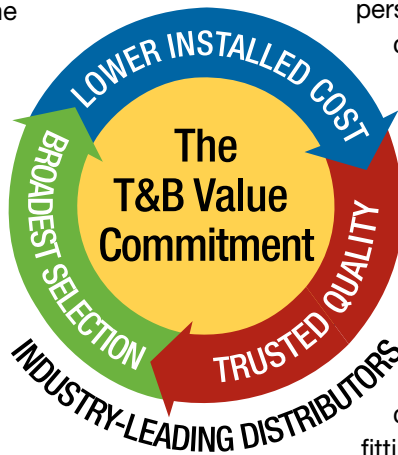
T&B Engineered solutions — Our products are designed to perform dependably in marine and hazardous area environments and around high-vibration equipment. They can withstand harsh chemicals, extreme temperatures and ultraviolet penetration.

Tested reliability — Our products are rigorously tested for use in highly corrosive environments, with proven results in thousands of installations.

Expert support — Thomas & Betts technical experts are available at every stage of a project, from planning and site preparation through construction and MRO.

Training and certification — We conduct training programs on specific products and work closely with all accredited electrical industry associations. Contact us for details.

Product availability — Our industry-leading distributor network assures you of reliable and on-time delivery. This global electrical product support system ensures that our solutions are available when and where you need them.



Product Platforms

Thomas & Betts has everything to connect and protect the infrastructure of oil and gas operations. We provide companies with electrical system solutions to help protect their employees, assets and brands while increasing safety, sustainability and revenues.

Wire and Cable Management — Thomas & Betts invented the Ty-Rap® cable tie in 1958 and continues to lead the world in innovative wire and cable management. OEMs, panel builders, contractors and maintenance personnel depend on our electrical boxes, cable ties, weatherproof enclosures, cable tray and modular metal framing to do the job right and help reduce installation time and costs.

Cable Protection Systems — Thomas & Betts Cable Protection Systems provide unsurpassed protection for wire and cables in the most demanding applications. They encompass industry-leading flexible conduit systems, PVC-coated conduit and fittings for oil and gas applications and explosion-proof conduit systems meeting worldwide standards for hazardous locations.

Power Connection and Control — For reliable connection and intelligent control of electrical power, Thomas & Betts' mechanical and compression connectors, grounding products, medium-voltage cable accessories, high-voltage fuses, vacuum interrupters, reclosers and capacitor switches are specified worldwide in the industrial, construction and utility markets.

Safety Technology — Protecting lives and property requires state-of-the-art technology. Thomas & Betts is a worldwide leader in emergency lighting and supporting central battery systems, and lighting for hazardous locations. Our Safety Technology products extend the life of your electrical system and protect your employees and assets.



***Key oil and gas
business drivers***

- ***Maintaining a safe environment in process areas classified as hazardous locations***
- ***Unforgiving time schedules to meet investment deadlines***
- ***Battling corrosion (in all its many forms)***
- ***Managing unpredictable raw material costs***
- ***Adapting to changing technologies used to find energy sources***
- ***Increasing environmental and community demands***

T&B Engineered solutions for every application area

- Exploration
- Production
- Offshore
- Onshore
- Oilsands
- Shale
- Refining
- Infrastructure
- Storage
- OEM/Skid Manufacturer
- Transportation
- Marketing

Thomas & Betts designs, manufactures and supplies technically advanced products for electrical systems. Profitable drilling, extracting, processing, transporting and dispensing operations require reliable, robust and cost-effective equipment. That's why we invest extensive amounts on R&D, training and channel management. Our solutions solve real-world problems. Thomas & Betts offers the industry's most advanced materials distribution system, and our commitment shows in our unmatched products, unequalled service and loyalty from end-users and OEMs.





Oil and Gas Electrical System Issues

-  ***Safety***
-  ***Continuous Operation
& Sustainability***
-  ***Total Project Cost
Reduction***
-  ***Corrosive & Harsh
Environment
Protection***
-  ***Hazardous Location
Protection***
-  ***Grounding & Bonding***
-  ***Power Quality,
Efficiency &
Reliability***
-  ***Extreme Temperature
Protection***
-  ***Liquid Ingress
Protection***

Accidents, disasters and occupational-related injuries can occur anytime, anywhere. They most often occur because of human errors with technology or an organizational arrangement. The identification of and preparedness for such accidents would either prevent their occurrence or mitigate the impact in the case that they do occur.

The major stakeholders in safety solutions are provincial authorities, businesses and organizations, employees, and society as a whole. Furthermore, there are moral, legal and business implications to safety practices. Every spill is one too many, which is why oil and gas operators, working with regulators, continue efforts to reduce the possibility of spills. Their ultimate goal is having zero spills, zero deaths and zero injuries.

Not only does Thomas & Betts incorporate safety solutions into our manufacturing plants and offices, we also engineer our products and hold training seminars to incorporate safety in the field. Thomas & Betts can train you and your staff in the proper methods and use of tools for various applications.

E-Z-CODE®

Safety Labels, Tags, Signs and Barricade Tapes

- Help to ensure personnel and workplace safety, as well as regulatory compliance
- Visible and long-lasting materials
- Custom labels, tags and signs available
- Barricade and burial marking tapes in a variety of materials and colors



E-Z-CODE®
Safety Labels, Tags, Signs
and Barricade Tapes



EMERGI-LITE® / LUMACELL® / READY-LITE® **Emergency Lighting Systems**

- Designed to withstand damp, corrosive conditions
- Safe to use in explosive environments
- Energy efficient with long, low-maintenance service life

Hazlux®

HazFlash® M4 Strobe Lighting Fixture

- Ideal for use as warning of unsafe conditions in areas where noise prevents audible signals from being heard
- Enclosed and gasketed fixture for use in a wide range of industrial environments including marine and wet locations
- VXS model – outdoor, wet and marine locations
- DXS model - Class I, Zone 2, Division 2 and Class II, Division 1 locations

Quick Pole™ Light Fixture Mounting Assembly

- Suitable for 180km/h winds as per AASHTO LTS-4 2001
- Easy one-man operation - no ladders or lifts required
- Frees up catwalks and walkways during maintenance



Emergi-Lite®/Lumacell®/Ready-Lite®
Emergency Lighting
Systems



Hazlux®
Hazardous Location
Lighting

Accidents can happen anytime, anywhere. Preparing for accidents, however, can prevent their occurrence or mitigate the impact in case they do occur.



Thomas & Betts products for safety and contamination

Blackburn®

- E-Z-Ground® Compression Connectors
- Mechanical Grounding Connectors
- Exothermic Welding System
- Compression Lugs and Splices
- Metallic Gradient Control Mat
- Ground Rods
- Ergonomic Compression Tools

Elastimold®

- Fused Loadbreak Elbows

Emergi-Lite®

- Emergency Lighting and Exit Signs
- Nexus® Emergency Lighting Management System

E-Z-CODE®

- Danger/Warning Labels and Signs, Industrial/Wire Markers, Barricade/Burial Tape

Fisher Pierce®

- Faulted Circuit Indicators

Hazlux®

- HazFlash® M4 Strobe Lighting Fixture
- Quick Pole™ Light Fixture Mounting Assembly

Hi-Tech®

- Trans-Guard® Fuses, Molded Current-Limiting Fuses, Molded Canister Fuses

Joslyn Hi-Voltage™

- Capacitor Switches, Air Disconnect Switches and Obstruction Light-Lowering Device

Lumacell®

- Emergency Lighting and Exit Signs
- Nexus® Emergency Lighting Management System

Ocal™

- PVC-Coated Conduit and Fittings

Ready-Lite®

- Emergency Lighting and Exit Signs
- Nexus® Emergency Lighting Management System

Red•Dot®

- Code Keeper® Weatherproof While-in-Use Covers

Russellstoll®

- GSUL Ground Indicator System

Sta-Kon®

- Luminaire Disconnects

Superstrut®

- Seismic Bracing System

Ty-Rap®

- Extra-High Temperature and Flame-Retardant UL94V-O Nylon Cable Ties
- Ty-Rap Tote® Cable Tie Dispensers and Ergonomic Installation Tools

Continuous Operation & Sustainability

The costs associated with downtime in oil and gas operations can be as high as \$1 million per hour. If power is lost during production, the current production may have to be scrapped as well as the process equipment.

Due to the high cost of downtime, oil and gas facilities prefer to use higher performance materials and products to minimize maintenance. Preventive maintenance is performed at specific intervals instead of waiting for equipment failure.

If you do experience plant downtime, Thomas & Betts offers you:

- The capability to get your electrical system back up and running quickly
- A deep product offering to standardize your electrical system and ensure that you have the products you need on hand to minimize downtime
- High-performance electrical systems to work in clean-in-place (CIP) sanitation processes
- Long-lasting electrical systems to extend the plant life cycle, reduce your capital expenditures and increase operational equipment effectiveness (OEE)
- Installation training certification to ensure plant sustainability
- Qualified technical personnel to help you quickly get your plant back online

T&B Fittings

Liquidtight Nonmetallic, Steel and Stainless Steel Fittings

- For all types of conduit, portable cord and teck cable

Liquatite® Flexible Metallic and Nonmetallic Conduit

- Ideal for continuous flexing or vibration applications
- Create a liquid-, dust- and oil-tight seal
- Suitable for operating temperatures from -20°C to 60°C



Blackburn®

Motor Lead Disconnects

- Quick, reliable change-out of electric motors with no bolting, taping or loose connections
- Complete line of motor lead disconnects for 600V and 5kV applications, covering wire ranges from #16 through 4/0 AWG
- Total assembly fits into tight motor housings
- Featuring the Color-Keyed® Compression System that ensures proper connections

Russellstoll®

MaxGard® Interconnection System

- Heavy service amp load
- Ever-Lok® system for durable operations
- Back-up door safety latch

elastimold®

Underground Cable Accessories and Arresters

- Underground cable accessories rated for 5 to 35kV applications including elbows, joints and accessories
- Underground arresters



T&B® Fittings
Liquidtight Nonmetallic, Steel
and Stainless Steel Fittings



Liquatite®
Flexible Metallic
and Nonmetallic Conduit




Blackburn®
Motor Lead Disconnects



Russellstoll®
MaxGard®
Interconnection System



Elastimold®
Underground Cable
Accessories and Arresters



Performing routine preventive maintenance is not as expensive as the skyrocketing costs of downtime. Make sure your electrical system runs right with Thomas & Betts products.

Thomas & Betts products for continuous operation and sustainability

Blackburn®

- E-Z-Ground® Compression Connectors
- Mechanical Grounding Connectors
- Exothermic Welding System
- Compression Lugs and Splices
- Motor Lead Disconnects
- Ergonomic Compression Tools

Elastimold®

- Underground Cable Accessories and Arresters

Ocal™

- PVC-Coated Conduit and Fittings

PMA®

- Nylon Cable Protection Systems

Russellstoll®

- MaxGard® Pin-and-Sleeve Connectors, Explosion-Proof Interlocked Receptacles and GSUL Ground Indicator System
- MaxGard® Interconnection Systems

Shrink-Kon®

- Cable, Wire and Connector Insulation Products

Sta-Kon®

- Nylon-, Vinyl- and Non-Insulated Wire Terminals
- Luminaire Disconnects
- Corrosion-Resistant, Nickel-Plated Wire Terminals
- Heat-Shrink Terminals, Ergonomic Comfort Crimp® Tools and Disconnect Installation Tool

Superstrut®

- 316 Stainless Steel, Aluminum, PVC-Coated and Nonmetallic (Fiberglass) Channel
- Hangers, Clamps and Seismic Bracing System

T&B® Cable Tray

- Aluminum, Stainless Steel and Fiberglass Support and Wire Management Systems

T&B® Fittings

- Stainless Steel and Aluminum Hubs and Nonmetallic Liquidtight Conduit and Cord Fittings
- Silver Grip® Tray Cord Fittings
- STAR TECK® and STAR TECK XP® Fittings for Jacketed Metal-Clad and Teck Cables
- XD Expansion/Deflection Coupling for Rigid Conduit
- Liqueatite® Flexible Metallic and Nonmetallic Conduit

Thomas & Betts products for continuous operation in your onsite electrical substation

Elastimold®

- High-Voltage Connectors and Solid-Dielectric Switchgear

Homac®

- Substation Connectors

Joslyn Hi-Voltage™

- Capacitor Switches, Air Disconnect Switches and Obstruction Light-Lowering Device



Total Project Cost Reduction

Innovative, high quality products can help to reduce the overall costs associated with maintaining the electrical systems within oil and gas operations. From reduced maintenance and installation time to reduced inventory investment, savings can add up quickly.

Many T&B® cable fittings, for example, are designed to reduce the number of hub sizes required to accommodate a range of cable diameters. This translates into reduced inventory investment and simplified installation.

The Cobra® one-piece cable and pipe clamp comes ready to install, right out of the box. One clamp size attaches equal trade sizes of EMT and rigid conduit to strut channel, reducing inventory and speeding up the installation process.

For 90-degree cable termination, the Star Teck Extreme Director™ fitting can reduce installation time by up to 50%. Featuring an exclusive swash-plate design, the STED® fitting is fully adjustable from 90 to 180 degrees.

Hazlux®

Quick Pole Light Fixture Mounting Assembly

- Suitable for 180km/h winds as per AASHTO LTS-4 2001
- Easy one-man operation - no ladders or lifts required
- Frees up catwalks and walkways during maintenance



T&B® Fittings

Ranger® Cord Connectors

- Allow for 1/4-inch more range of cord, providing an opportunity to reduce inventory
- Take twice the cable range of ordinary strain relief connectors
- Straight, 45° and 90° designs

Star Teck Extreme Director™

- Fitting adjusts from 90° to 180°
- Saves on installation time by up to 50%

Blackburn®

Compression Lugs Featuring the Color-Keyed® Compression System

- High quality, reliable connections at a low installed cost
- Accommodate both code and flex cable on the same lug
- Eliminate the need for additional SKUs to accommodate lugs for both cable types



Hazlux®
Quick Pole
Mounting Assembly



T&B® Fittings
Ranger® Cord Connectors



T&B® Fittings
STAR TECK EXTREME
DIRECTOR™



Blackburn®
Compression Lugs



Thomas & Betts understands the needs of oil and gas companies, which is why we deliver complete solutions that help reduce costs at every stage of operation and maintenance.

Thomas & Betts products for total project cost reduction

Blackburn®

- Compression Lugs and Splices
- Ergonomic Compression Tools

Hazlux®

- Quick Pole Light Fixture Mounting Assembly

Joslyn Hi-Voltage™

- Capacitor Switches, Air Disconnect Switches and Obstruction Light-Lowering Device

Superstrut®

- Cobra® One-Piece Pipe and Cable Clamp
- QuikClamp® Conduit Clamp
- Trapnut® Strut Fastener

T&B® Fittings

- Ranger Portable Cord Connectors
- Star Teck Extreme Director™ Adjustable Teck Cable Fitting
- LU® Universal Elbow



Corrosive & Harsh Environment Protection

Most corrosion at refineries is not caused by hydrocarbons that are processed but by various inorganic compounds — such as hydrogen sulfide, hydrochloric acid, sulfuric acid and water — used in the process. Feed-stock contaminants and process chemicals are two principal sources of these corrosives. The use of corrosion-resistant materials and coatings is the key to extending the life and reliability of your electrical system components.

For the oil and gas industry, preventing and dealing with the effects of corrosion are a significant cost of doing business. In electrical systems, corrosion can lead to:

- Equipment failure and shortened life
- Poor electrical system reliability caused by high-resistance connections
- Long maintenance repair time due to corroded parts
- Safety hazards at the grounding level and from product contamination
- Added labor expenses

Ocal™

OCAL-BLUE® PVC-Coated Conduit

- PVC-coated, hot-dipped galvanized conduit and threads
- Fully complies with UL® 6, NEMA RN-1 and ANSI C80.1
- PVC-Coated Conduit System provides superior corrosion protection against many harmful elements
- Interior blue polyurethane provides corrosion protection around copper wire or fiber optics



OCAL™
OCAL-BLUE®
PVC-Coated Conduit



Hazlux®
HazCote® Kynar-Coated
Lighting Fixtures



Hazlux®

HazCote® Kynar-Coated Lighting Fixtures

- Enclosed, gasketed, sealed fixtures for adverse, wet and marine locations
- Cast aluminum with HazCote® corrosion protection
- Polymeric fixtures also available

Ty-Rap®

Stainless Steel Cable Ties

- Strong, fireproof and easy to apply — for safe cable bundling
- Resist corrosion and UV light, with the ability to withstand temperature extremes
- Provide a strong, safe installation with a unique dual-locking mechanism




Ty-Rap®
Stainless Steel Cable Ties

T&B® CABLE TRAY SYSTEMS

- Stainless steel ladder tray and fittings
- Nonmetallic cable tray and strut systems
- Prevent moisture from channeling to electrical systems – prevent corrosion and equipment failure
- Prevents channeling of corrosive, explosive or toxic gases



T&B® Cable Tray Systems

A large offshore oil rig is shown in the background, featuring a complex network of white steel structures, yellow cranes, and various platforms. The rig is situated in the middle of a blue ocean under a clear sky. The text is overlaid on a white rectangular box in the upper left quadrant of the image.

Offshore sites face corrosion from saline water and various chemicals. Onshore petrochemical plants are subject to corrosion from separation, filtration, extraction and distillation processes involving the use of chemical agents.

Thomas & Betts products for corrosive and harsh environment protection

Emergi-Lite®

- Hazardous Location Emergency Lighting and Exit Signs

Hazlux®

- HazCote® Kynar-Coated Lighting Fixtures

Kopex-Ex™

- Conduit Systems and Accessories for Hazardous Area Applications

Lumacell®

- Hazardous Location Emergency Lighting and Exit Signs

Ocal™

- PVC-Coated Conduit and Fittings
- OCAL-BLUE® NEMA Type 4X Form 8 Conduit Bodies

PMA®

- Nylon Cable Protection Systems

Ready-Lite®

- Hazardous Location Emergency Lighting and Exit Signs

Red•Dot®

- Code Keeper® Weatherproof While-in-Use Covers

Reznor®

- Washdown Unit Heater

Sta-Kon®

- Corrosion-Resistant, Nickel-Plated Wire Terminals

Superstrut®

- Aluminum, Stainless Steel and Fiberglass Support and Wire Management Systems

T&B® Cable Tray

- 316 Stainless Steel, Aluminum, PVC-Coated and Nonmetallic Channel, Hangers and Clamps

T&B® Fittings

- Liqueatite® Flexible Metallic and Nonmetallic Conduit
- Star Teck® and Star Teck XP® Stainless Steel, Aluminum and PVC-Coated Fittings for Jacketed Metal Clad and Teck Cable
- Silver Grip® Stainless Steel Tray Cord Fittings

Ty-Rap®

- Coated and Uncoated Stainless Steel Cable Ties
- Ty-Rap Tote® Cable Tie Dispensers and Ergonomic Installation Tools
- Deltec® Outdoor Fastening System
- Ty-Met™ Stainless Steel Cable Ties



Hazardous Location Protection

There are two ways that equipment is made safe. Either the equipment is located in a safe place outside the hazardous location, or the equipment is designed, installed and maintained to the standards applicable to a hazardous location.

All codes define hazardous locations as areas where the possibility of explosion and fire is created by flammable liquids, gases, vapors, dusts, fibers or flyings. In oil and gas facilities, hazardous locations may be present due to liquids, gases or chemicals.

Typical hazardous locations include:

- Onshore and offshore drilling rigs
- Refineries and chemical plants
- Booster stations and valve areas along pipelines
- Loading and unloading areas in terminals
- Storage areas for tanks, barrels and trucks

To protect both your facility and your employees, Thomas & Betts offers a wide variety of high-performance, explosion-proof solutions designed to prevent or contain an explosion in classified hazardous locations.

Hazlux®

Industrial Lighting Fixtures

- Certified to withstand the demands of hazardous locations and adverse environments
- Explosion-proof fixtures for Class I, II, and III hazardous locations
- Enclosed gasket and rated NEMA 4X, IP66 and UL 1598 for wet and marine locations

KOPEX-EX™

Stainless Steel Flexible Conduit

- Available for oil-resistant, high-temperature and low and limited fire hazard applications
- Made from Type 316 stainless steel



Hazlux®
Industrial
Lighting Fixtures



Kopex-Ex™
Stainless Steel
Flexible Conduit



T&B® Fittings
STAR TECK® XP
Fittings



Emergi-Lite®/Lumacell®/Ready-Lite®
Hazardous Location
Emergency Lighting



Russellstoll®
MaxGard® Pin-and-Sleeve
Connectors



T&B® Fittings

Star Teck XP® Explosion-Proof Teck Cable Fittings

- Easy to fill, integral sealing chamber and disconnecting design requires minimal cable preparation
- Benchmark for ease of installation in hazardous locations
- Provides grounding continuity of cable armor

Tray Star® Explosion Proof Tray Cable and Flexible Conduit Fittings

- Offers all of the advantages of Star Teck XP® for tray cable and flexible metal conduit applications

EMERGI-LITE® / LUMACELL® / READY-LITE®

Emergency lighting and exit signs for hazardous locations

- Emergency lighting
- Self-powered exit signs
- Combination units - emergency lighting and exit signage

Russellstoll®

MaxGard® Pin-and-Sleeve Connectors

- Copper-free, cast aluminum, epoxy powder-coated housings
- Explosion-proof interlocked receptacles also available



Thomas & Betts products for hazardous location protection

Emergi-Lite®

- Hazardous Location Emergency Lighting and Exit Signs

E-Z-CODE®

- Danger/Warning Labels and Signs, Industrial/Wire Markers, Barricade/Burial Tape

Hazlux®

- HazCote® Kynar-Coated Lighting Fixtures
- Explosion-Proof Lighting Fixtures for Hazardous Locations
- Strobe Lighting Fixtures

Kopex-Ex™

- Conduit Systems and Accessories for Hazardous Area Applications

Lumacell®

- Hazardous Location Emergency Lighting and Exit Signs

Ready-Lite®

- Hazardous Location Emergency Lighting and Exit Signs

Reznor®

- Explosion-Resistant Electric Unit Heaters

Russellstoll®

- MaxGard® Pin-and-Sleeve Connectors and Explosion-Proof Interlocked Receptacles
- GSUL Ground Indicator System

T&B® Cable Tray

- Aluminum, Stainless Steel and Fiberglass Support and Wire Management Systems

T&B® Fittings

- Explosion-Proof Boxes, Elbows, Fittings and XP Explosion-Proof Flexible Couplings
- Star Teck® and Star Teck XP® fittings for Jacketed Metal Clad and Teck Cable
- Tray Star® Explosion Proof Tray Cable and Flexible Conduit Fittings

There is always a concern at petrochemical installations about the significant presence of gases and vapors. Our explosion-proof solutions can prevent or contain an explosion in classified hazardous locations.



Grounding & Bonding

An electrical system includes various pieces of conductive equipment connected together to keep them at the same potential. Static sparking cannot take place between objects that are at the same electrical potential. Thomas & Betts electrical raceway products provide excellent bonding characteristics for the electrical system.

Grounding the electrical system provides a means in which conductive equipment is connected to an earth potential via the grounding electrode. This prevents potential differences and sparking between conductive equipment and grounded structures.

Blackburn®

E-Z-Ground® Compression Connectors

- High-conductivity copper and bronze connectors for direct burial

Mechanical Grounding Connectors

- High-strength split-bolt connectors for copper-to-copper connections
- Service post connectors for steel structures, fence posts or transformers using one or two cables
- ViceLock® connectors for cable tray, channel and strut applications

Exothermic Welding System

- Simple, self-contained system to form high-quality electrical connections

Grounding Components

- Ground Rods
- Metallic Gradient Control Mat
- Electrode Boxes
- Compression Tools and Dies



BOREAL™

High-Quality Flexible Connectors

- A wide variety of grounding and bonding straps
- Extra-flexible links for heavy-duty applications up to 3600 A
- Standard flexible links for medium-duty applications up to 2350 A

T&B® Fittings

Grounding Fittings

- Bond Star® grounding lock-nut for use in data and control applications sensitive to floating voltage differences
- XD expansion/deflection coupling for rigid conduit with internal bonding strap

Russellstoll®

GSUL Safe Ground Indicator System

- Prevents operation of pumps without a safe ground
- Lights indicate the establishment of safe ground



Blackburn®
E-Z-Ground®
Compression Connectors



Blackburn®
Mechanical Grounding
Connectors



Blackburn®
Exothermic Welding
System



Boreal™
High-Quality
Flexible Connectors



T&B® Fittings
Bond Star®
Grounding Lock Nut



Russellstoll®
GSUL Safe Ground
Indicator System

By properly connecting all metallic non-current carrying equipment at your oil and gas facility, you greatly reduce the potential for electric shock and explosions.

Thomas & Betts products for grounding and bonding

Blackburn®

- E-Z-Ground® Compression Connectors
- Compression Lugs and Splices
- Mechanical Grounding Connectors
- Exothermic Welding System
- Metallic Gradient Control Mat
- Ground Rods

Boreal™

- High-Quality Flexible Connectors

Elastimold®

- High-Voltage Separable Connectors and Solid-Dielectric Switchgear

E-Z-CODE®

- Danger/Warning Labels and Signs, Industrial/Wire Markers, Barricade/Burial Tape

Fisher Pierce®

- Faulted Circuit Indicators

Russellstoll®

- GSUL Ground Indicator System

Sta-Kon®

- Shield-Kon® Coaxial Grounding Connectors

T&B® Fittings

- Bond Star® Grounding Lock-Nut
- XD Expansion/Deflection Coupling for Rigid Conduit



Power Quality, Efficiency & Reliability

The loss of a single data record can mean the permanent loss of a process batch — or the loss of millions of dollars every minute. In this critical industry, the need for stable power is paramount. Count on Thomas & Betts products for Power Quality, Efficiency & Reliability.

Our power solutions provide the peace of mind that comes from knowing your equipment is safe and secure from the consequences of unpredictable power. By designing the world-class standard in power equipment, Thomas & Betts has become a leader in custom-designed digital static transfer switches, power distribution and uninterruptible power systems.

From the clean environment of a data center to the harsh conditions of an offshore oil platform, Thomas & Betts products meet the challenge of providing clean, dependable electric power to the oil and gas industry.



elastimold

Switchgear and Cable Accessories

- Solid-dielectric, maintenance-free switchgear for application in vault, riser pole and pad mount installations
- A full line of loadbreak and deadbreak separable connectors, cable joints and cable terminators
- Developed for 5 to 35 kV distribution systems



Elastimold®
Solid Dielectric Switchgear



Joslyn Hi-Voltage™
Recloser



Homac®
Substation Connectors



Emergi-Lite®/Lumacell®/Ready-Lite®
Central Battery Systems

JOSLYN

Overhead Switches and Reclosers

- Capacitor switches for distribution and substations
- Reclosers
- Interrupter accessories for disconnect switches

HOMAC

Substation Connectors

- Superior performance under extreme operating conditions

EMERGI-LITE® / LUMACELL® / READY-LITE®

Central Battery Systems

- Fully automatic charger, battery and specified transfer and distribution features
- Offer all of the advantages of a central location for maintenance with full supervision of all operating functions

Power is prone to sags, spikes and surges. But Thomas & Betts power solutions provide clean, dependable electric power to facilities — and they keep your equipment and data safe.

Thomas & Betts products for power quality, efficiency and reliability

Blackburn®

- E-Z-Ground™ Compression Connectors
- Color-Keyed® Compression Lugs and Splices
- Exothermic Welding System
- Ground Rods

Elastimold®

- High-Voltage Separable Connectors and Solid-Dielectric Switchgear

Emergi-Lite®

- EMEX Central Battery Systems

Fisher Pierce®

- Faulted Circuit Indicators

Hi-Tech®

- Current-Limiting Fuses

Homac®

- Copper Flood-Seal Compression Splice Kits
- Substation Connectors

Joslyn Hi-Voltage™

- Capacitor Switches, Air Disconnect Switches and Obstruction Light-Lowering Device

Lumacell®

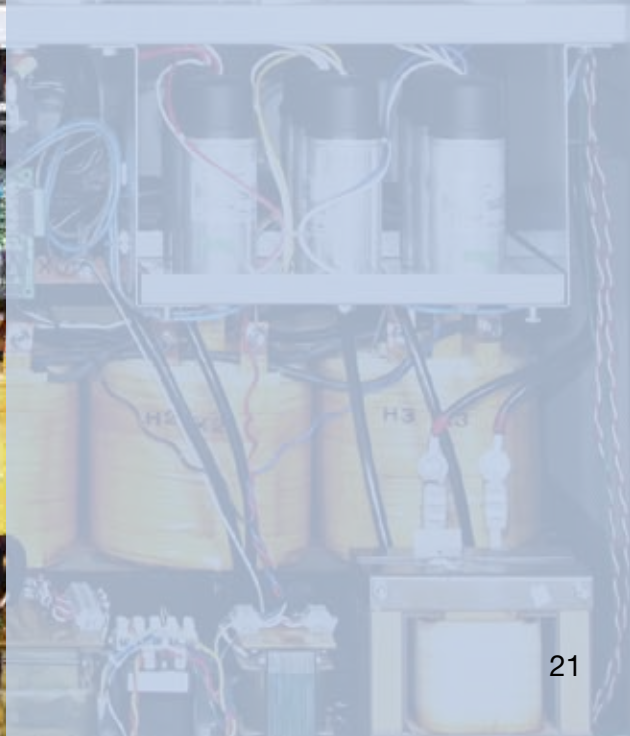
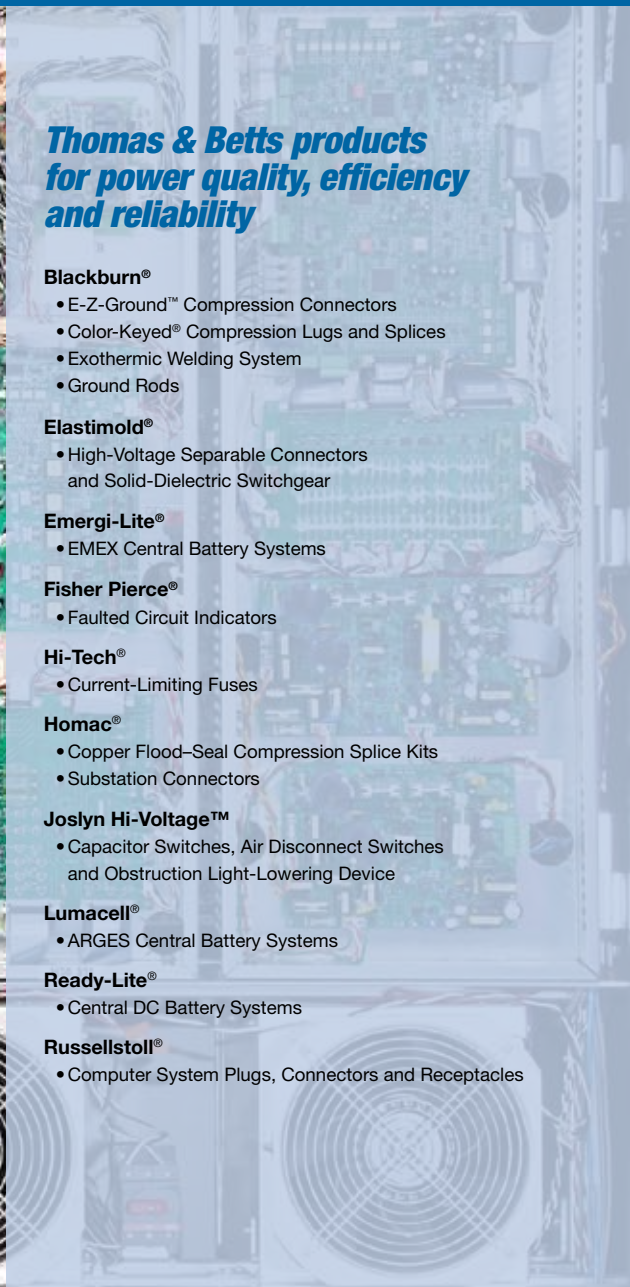
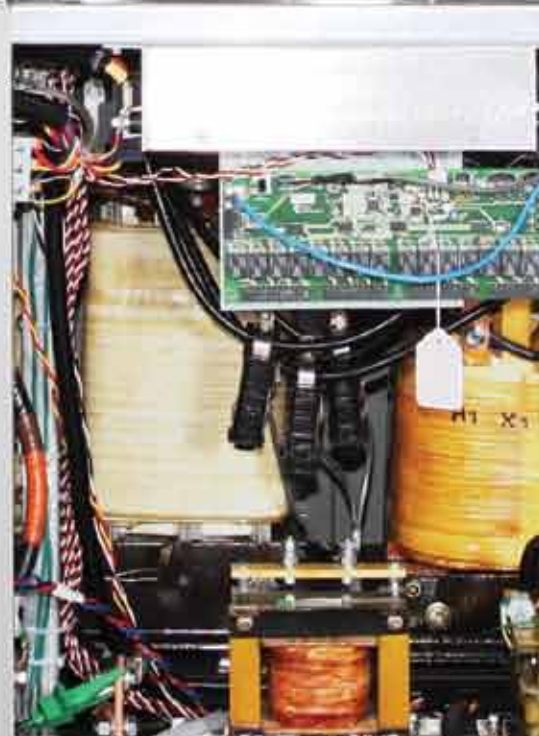
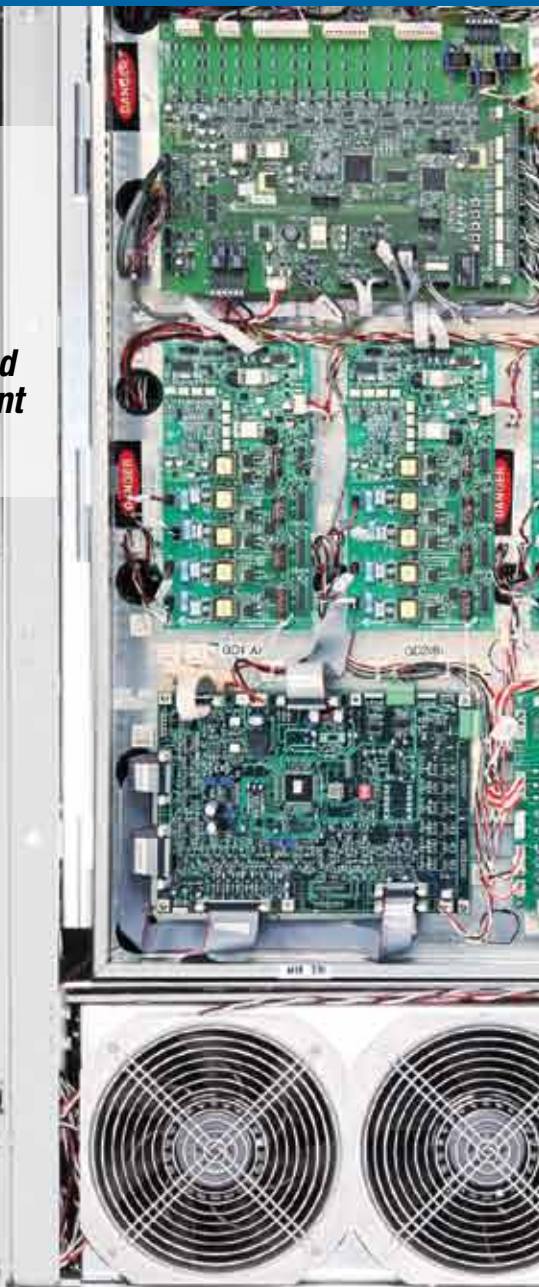
- ARGES Central Battery Systems

Ready-Lite®

- Central DC Battery Systems

Russellstoll®

- Computer System Plugs, Connectors and Receptacles





Extreme Temperature Protection

Whether you are in the Far North or an arid desert, electrical systems need to perform consistently. Many of the processes require heat tracing to maintain elevated temperatures throughout oil and gas process systems. Oil and gas operations are constantly exposed to nature, sometimes hot, sometimes cold.

To ensure that connections remain properly shielded against extreme temperatures and to safeguard the uninterrupted transmission of power and data flows, Thomas & Betts provides tried and tested solutions for a wide variety of applications.

T&B® Fittings

52® Series High-Temperature Flexible Metal Liquidtight Fittings

- Handle temperatures up to 150°C
- Steel or malleable iron construction, electro-zinc plated and chromate coated for corrosion protection
- Available in 45°, 90° and straight versions

Liquatite® Type ATX Flexible Liquidtight Conduit

- Performs in extreme temperature environments up to 150°C
- Conduit sizes from 3/8-inch to 4-inch

PMA®

High-Temperature Nylon Conduit and Fittings

- Offer good fire protection (flammability and smoke generation)
- Provide high impact strength even at low temperatures
- Resistant to weather



Ty-Rap®

Extra-High Temperature Nylon Cable Ties

- For use in temperatures from -40° to 150°C
- Feature “The Grip of Steel®” stainless steel locking device and offer infinite adjustability

Fluoropolymer Cable Ties

- Perfect for low-smoke applications
- UL® 94V-0 flammability rating
- For use in temperatures ranging from -45°C to 140°C

Sta-Kon®

High-Temperature Wire Joints and Terminals

- Rated for temperatures up to 150°C, 600V maximum
- Molded, one-piece nylon construction for electrical insulation, rated UL94V-2
- Wire joints feature brazed copper sleeves that prevent separation of connection during crimping
- Internal serrations on wire joints enable cold flow for increased conductivity and pull-out strength




T&B® Fittings
Liquatite® Type ATX Flexible
Liquidtight Conduit

PMA®
High-Temperature Nylon
Conduit and Fittings

Ty-Rap®
Extra-High Temperature
and Fluoropolymer Ties

Sta-Kon®
High-Temperature Wire
Joints and Terminals



At remote locations, temperatures can go to extremes. Thomas & Betts has the solutions to protect electrical systems from extreme cold and heat.

Thomas & Betts products for extreme temperature protection

E-Z-CODE®

- Danger/Warning Labels and Signs, Industrial/Wire Markers, Barricade/Burial Tape

Kopex-Ex™

- Conduit Systems and Accessories for Hazardous Area Applications

PMA®

- Nylon Cable Protection Systems

Sta-Kon®

- High-Temperature Wire Joints and Terminals

T&B Fittings®

- Liquatite® Type ATX Flexible High-Low Temperature Liquidtight Conduit
- HT Series High Temperature Flexible Metal Liquidtight Fittings

Ty-Rap®

- Extra-High Temperature and Flame-Retardant UL94V-O Nylon Cable Ties
- Ty-Rap Tote® Cable Tie Dispensers and Ergonomic Installation Tools



Liquid Ingress Protection

A single drop of oil seeping into an electrical control box is all it takes to knock out your production line for days. A single faulty fitting can be the culprit causing that failure.

At Thomas & Betts, we realize that while most of our products are small, the jobs they do are big. Big jobs demand the right product engineering, testing and quality control. That's what you get with Thomas & Betts.

We engineer more into our products, so you get more out of them — important extras not found in ordinary fittings, like a ground cone that improves pull-out strength while reducing the risk of stripping wires, or a sealing ring with tough, durable plating. Our quality liquidtight fittings stay on the job even under the toughest conditions.

Why do we put more effort into our products and quality control? It's simple. The more effort we put in, the better the product. We've been doing it right for over 100 years. And you can be sure that if a product is right for Thomas & Betts, it will be right for you, too.

T&B® Fittings

Stainless Steel Liquidtight Conduit and Cord Fittings

- Stainless steel construction resists corrosion
- Rounded gland nut deflects water from connector
- Continuous sealing ring ensures a liquidtight seal



T&B® Fittings
Stainless Steel Liquidtight
Conduit and Cord Fittings



Ocal™
OCAL-BLUE® PVC-Coated NEMA
Type 4X Form 8 Conduit Bodies



Homac®
Flood-Seal® and
Squid® Products



Russellstoll®
MaxGard® Interconnection
Systems



Ocal™

OCAL-BLUE® PVC-Coated NEMA Type 4X Form 8 Conduit Bodies

- Double coated inside and out for corrosion protection
- Stainless steel encapsulated cover screws can be hand-tightened — using only 15 in.-lbs. of torque — to achieve the NEMA 4X watertight rating

HOMAC®

Flood-Seal® and Squid® Products

- Unaffected by liquid ingress, sun, and soil
- Flood-Seal® compression splice kits' insulating cover seals perfectly every time and is prefilled with an oxide inhibitor that keeps out moisture
- Squid sealing sleeves make seals without tape, compound or heat source

Russellstoll®

MaxGard® Interconnection Systems

- Standard Neoprene O-ringed interior components provide separation at the front of each device
- 24 single-rate device polarizations ensure exact voltage, frequency and phase differentiation
- All system components use mating screw collars



Thomas & Betts products for liquid ingress protection

Emergi-Lite®

- NEMA 4X-Rated Emergency Lighting

Hazlux®

- HazCote® Kynar-Coated Lighting Fixtures
- Explosion-Proof Lighting Fixtures for Hazardous Locations
- Strobe Lighting Fixtures

Homac®

- Flood-Seal® and Squid® Products

Kopex-Ex™

- Liquidtight Conduit Systems for Hazardous Area Applications

Lumacell®

- NEMA 4X-Rated Emergency Lighting

Ocal™

- PVC-Coated Conduit and Fittings
- OCAL-BLUE® NEMA Type 4X Form 8 Conduit Bodies

PMA®

- Nylon Cable Protection Systems

Ready-Lite®

- NEMA 4X-Rated Emergency Lighting

Red•Dot®

- Code Keeper® Weatherproof While-in-Use Covers

Reznor®

- Wet Environment/Washdown Area Heaters

Russellstoll®

- MaxGard® Pin-and-Sleeve Connectors and Explosion-Proof Interlocked Receptacles

Sta-Kon®

- Shrink-Kon® Wire and Connector Insulation Products

T&B Fittings®

- Liquidtight Flexible Metallic and Nonmetallic Conduit Fittings
- Lquatite® Type ATX Flexible Liquidtight Conduit
- Silver Grip® Stainless Steel Tray Cord Fittings
- Star Teck® and Star Teck XP® Stainless Steel, Aluminum and PVC-Coated Fittings

***Water, water everywhere,
except in your connections.
Thomas & Betts solutions
provide superior liquid ingress
protection. Our products keep
your electrical equipment —
and those who use it — safe.***

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Industry codes and specifications

All Thomas & Betts products for use in oil and gas facilities meet or exceed applicable industry specifications or codes detailed in the appropriate Thomas & Betts product literature.



Online CAD library

Thomas & Betts offers free download of two- and three-dimensional CAD models of many of its products in more than 90 native CAD formats at: www.tnb.com/cadlibrary



All information and specifications contained in this catalogue are subject to change due to engineer design, errors and omissions. Illustrations and diagrams within this catalogue may vary from actual products.

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Thomas & Betts. Your best connection for innovative solutions.

Wire & Cable Management • Cable Protection Systems • Power Connection & Control • Safety Technology

Thomas & Betts