

# SOLUTIONS OVERVIEW

Tundra Process Solutions provides municipal, light industrial and industrial process solutions.

TUNDRA Process Solutions Ltd.



Boilers & Water Treatment | Motors & Drives | Measurement & Analytical  
Valves & Actuation | Panels & Buildings | Maintenance & Support



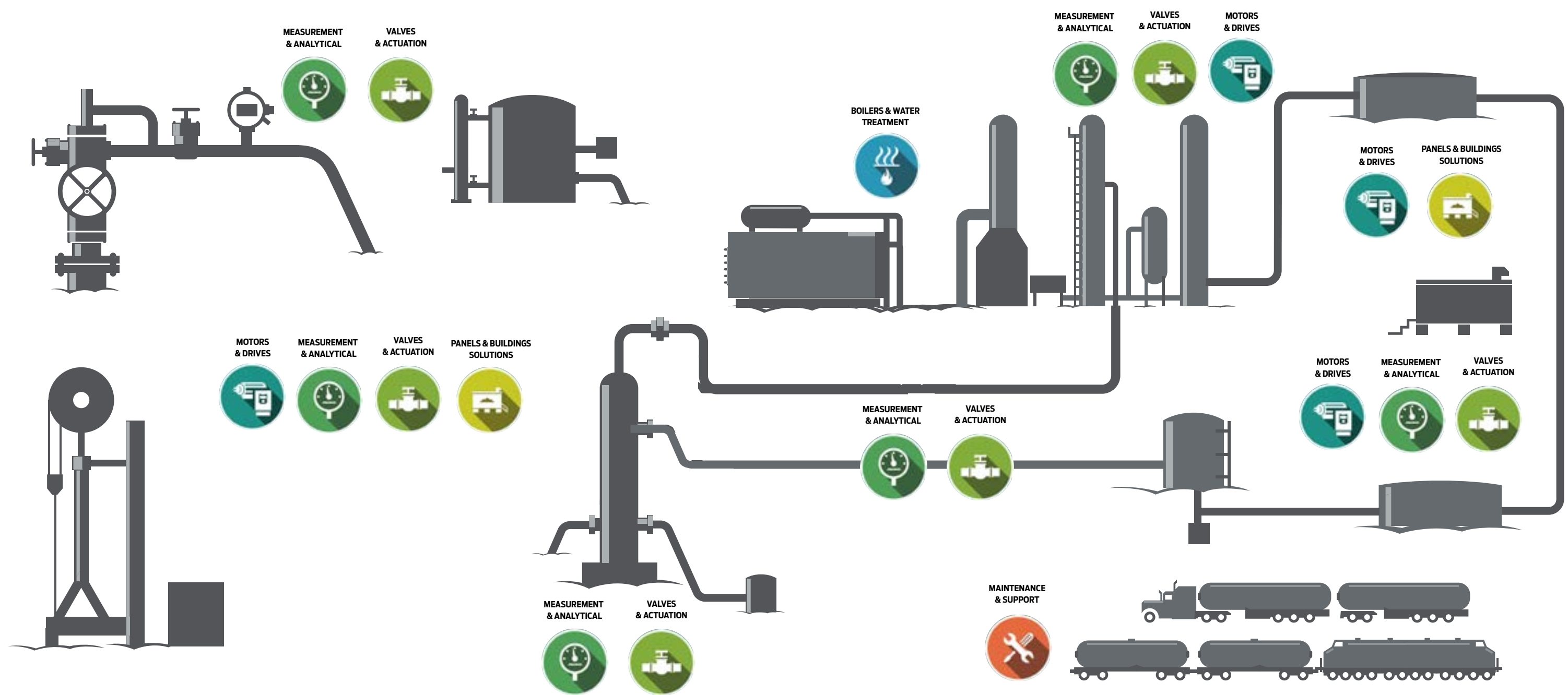




Tundra provides a variety of process equipment to industrial, light industrial, municipal and commercial facilities.

Tundra specializes in boilers and steam generation, custom panels & electrical buildings, fixed gas and flame detection, measurement & analytical instrumentation, motors & drives, valves & actuation, and water treatment solutions.

Tundra recognizes the need for support beyond standard working hours. Tundra offers 24/7 service to ensure clients are supported all day, every day.





## BOILERS & WATER TREATMENT

In addition to world-class packaged boilers, Tundra offers burner and control upgrades to optimize and ensure combustion efficiency as well as CSA B149.3 compliance. Quality valves and steam traps are available for immediate delivery to keep your boiler room running. Tundra's team of factory trained technicians offer 24/7 service to ensure your system is never down. Take advantage of Tundra's "water in, steam out" process guarantee. Combine Veolia water treatment technology with Cleaver-Brooks steam generation to ensure safe, reliable and efficient process operation.



### COMMERCIAL

### INDUSTRIAL

Tundra Process Solutions is the exclusive distributor for Cleaver-Brooks in Alberta and Saskatchewan. Cleaver-Brooks is leading the industry with research, development of commercial and industrial steam boiler technology and auxiliary equipment for any steam or hot water system. For the oil sands market, the large capacity Cleaver-Brooks forced-circulation oil sands steam generator (FC-OSSG) offers industrial users the benefits of traditional D-style watertube boilers and the ease of cleaning of once-through steam generators (OTSG).

Cleaver-Brooks sets the bar for industry-leading, energy-efficient, low-emissions product for your boiler room. Whether it's a new boiler installation, from the smallest electric commercial boiler to the largest industrial boiler, or retrofitting your current facility, Cleaver-Brooks fully integrated systems, including boilers, burners, controls, and auxiliary equipment, supply the most efficient solutions in the world.

## WATER TREATMENT

Veolia manufactures world-class water treatment plants and specializes in the Canadian Oil & Gas market. From raw water entering the facility to process water and waste stream management, Veolia products ensure environmental regulatory compliance, energy efficiency and production optimization.



- Comprehensive Water & Wastewater Solutions
- Unique De-oiling Technologies
- Evaporation & Crystallization Technology
- Advanced Filtration Treatment Solutions
- Full Service Water Management Solution



#### Boiler Solutions, Packaged Burner Systems, Controls and Boiler Parts

- Condensing, Firetube & Watertube Boilers
- Industrial Watertube Boilers, Burners & Heat Recovery Steam Generator (HRSG) Systems
- Ultra Low NOx, Energy Efficient Gas Burners
- FC-OSSG Boilers for Oil Sands
- CBCW Pre-engineered Fired Watertube Boiler



Combustion Gas, Oxygen Measurement  
& Water Quality Analyzers



Boiler Rentals



Chimney & Venting





## MOTORS & DRIVES

Tundra Process Solutions sells and services all Toshiba low and medium voltage motors, adjustable speed drives, motor starters and custom control gear. Toshiba's reputation is founded on a 'no-compromise' philosophy for product design, manufacturing and after-sales service. With a large in-stock inventory of motors, drives and spare parts, Tundra is able to deliver a quick turnaround time on all products and services. In-house testing and repair services are available and factory trained technicians can be dispatched to site 24/7.



## TOSHIBA DRIVES



## TOSHIBA MOTORS

### TOSHIBA LOW VOLTAGE ADJUSTABLE SPEED DRIVES (ASD)

- Sizes from 0.5 to 1500 HP
- Voltages 230, 460, 575, 690 VAC
- Outdoor installation (NEMA Type 3R, 4, 4X)
- Indoor installation (NEMA Type 1, 3, 12)
- Dual-frequency 50/60 Hz
- Low harmonic solutions

### TOSHIBA MEDIUM VOLTAGE ADJUSTABLE SPEED DRIVES (ASD)

- Toshiba T300MVi® and MTX Medium voltage drives ranging from 300 to 20,000 HP
- T300MVi® and MTX 2400 V, 4160 V, 6600 V, 13.8 kV and REGEN
- Sync-XFER®/capture (multiple motors synchronized transfer and capture)
- Dual-frequency 50/60 Hz
- Enclosure NEMA Type 1 and 3R
- 24/36 pulse harmonic cancellation complies with IEEE-519

### POWER APPARATUS & COMPONENTS (PAC)

- MV switchgear and control gear
- Medium voltage motor starters:
  - Full Voltage Non-Reversing (FVNR)
  - Full Voltage Reversing (FVR)
  - Reduced Voltage Autotransformer (RVAT)
  - Solid State Starter (SSS)
- Components: contactors and relays

### TUNDRA INTEGRATED SOLUTIONS

- Sizes up to 1500 HP
- Voltages 230, 460, 575, 690 VAC
- Outdoor installation (NEMA Type 3R, 4, 4X)
- Indoor installation (NEMA Type 1, 3, 12)
- Dual-frequency 50/60 Hz
- Panel solutions:
  - Low harmonic panels
  - Pump Jack Panels (PJP)
  - Screw Pump Panels (PCP)
  - Electric Submersible Pump Panels (ESP)
  - Buildings
  - Skids

### TOSHIBA LOW VOLTAGE MOTORS EQP GLOBAL SERIES

- EQP Global Severe Duty (SD), EQP Global 840 (Mill & Chemical) and EQP Global 841 (Petro-Chemical)
- NEMA Premium® efficiency (1 - 500 HP)
- Low voltage motors (0.5- 1500 HP)
- Voltages up to 690 VA
- Speeds from 3600 to 600 RPM (2 pole to 12 pole)  
Other speeds available if required.
- Dual-frequency 50/60 Hz
- Vertical and horizontal mounting
- Complete range of enclosures:
  - Totally Enclosed Fan Cooled (TEF)
  - Totally Enclosed Explosion Proof (TEXP)
  - Open Drip Proof (ODP)
  - Totally Enclosed Air Over (TEAO)
  - Weather Protected (WPI & WP11)
- Global motor specifications including CE, NEMA and IEC
- Multi-mount on 140 through 445 and N449T frames

### TOSHIBA MEDIUM VOLTAGE MOTORS

- HP Range 200 - 70,000 HP
- Voltages up to 13,000 V
- Speeds from 3600 to 600 RPM (2 pole to 12 pole)  
Other speeds available if required.
- Complete range of enclosures:
  - Weather Protected (WPI & WP11)
  - Totally Enclosed Fan Cooled (TEF)
  - Totally Enclosed Air-to-Air Cooled (TEAAC)
  - Totally Enclosed Water-to-Air Cooled (TEWA)
  - Totally Enclosed Force-Ventilated (TEFV)
  - Open Drip Proof (ODP)
- Vertical and horizontal mounting
- Manufactured to meet worldwide standards (NEMA, IEC, BS, AS)
- Latest edition to API 541, 546, 547 general and special purpose
- Squirrel cage and wound rotor induction motors
- Synchronous motors







## MEASUREMENT & ANALYTICAL

Tundra Process Solutions is one of Western Canada's largest instrumentation, measurement and control solutions suppliers. Tundra specializes in selecting, sizing and supplying equipment to support all flow, level, temperature and pressure measurement and analytical requirements. To support Tundra's valued clients, Tundra offers in-house factory trained service technicians and sales support to assist with any programming, troubleshooting or start-up and commissioning activity.



**MEASUREMENT**



**GAS & FLAME DETECTION**



Flow, Pressure, Temperature, & Level Transmitters | Process Analytical incl. Chromatography, Continuous Gas, Continuous Emissions, Water, RVP & Combustion Analyzers | Process Controllers, Recorders & Indicators



Magnetic Level Gauges, Radar, Magnetostrictive & Laser Level Transmitters, Thermal Dispersion & Vibrating Fork Point Level Switches, Differential Pressure



Flow Computers and Remote Terminal Units (RTU) for Div. 1 and 2 Applications



Industry Canada Approved Liquid and Gas Flow Computers and Measurement Automation Software



V-Cone & Wafer Cone Flow Meters



Ultrasonic Gas, Liquid & Flare Meters | Moisture & Gas Analyzers



Fixed Combustible & Toxic Gas, Flame Detection, Turnkey PLC based Monitoring & Control Solutions



Horns, Beacons, Strobes



Pre-Insulated, Heat-traced Tubing Bundle, Winterization Enclosures & Instrument Stands



Multiphase Flow Measurement



Combustible & Toxic Gas Detection, Flame Detection, Ultrasonic Gas Leak Detection, Control Systems



Calibration Gas & Maintenance Accessories





## VALVES & ACTUATION

Tundra Process Solutions offers an extensive selection of valves for isolation and control applications, while providing linear and rotary valve actuation solutions. Tundra's full line of pressure management devices ensure personnel, facility and environment safety. Tundra offers a comprehensive selection of steam traps and certified technicians to perform facility steam audits and steam trap surveys to optimize plant efficiency and reduce unexpected maintenance. Tundra facilities and onsite valve service trailer are capable of valve assembly, service, testing and certification.



## ISOLATION, CONTROL & ACTUATION

### PRESSURE MANAGEMENT

### STEAM EQUIPMENT



Process, Steam & Specialty Relief Valves Pressure Relief System



Rupture Discs



Pressure Vacuum Relief Valves & Flame Arrestors



High Efficiency Steam Traps, Pump-Traps, & Prefabricated Condensate Drainage Packages



Actuators & Positioners



Pigging and Pressure Isolation Valves & Wellhead Pressure Switches



Wellhead and Surface Equipment, Flow Control Products, Pressure Control



Municipal Valves for Water Treatment and Distribution



Control Valves & Actuation Pneumatic Level & Pressure Control



Ball Valves, Gate, Globe & Check Valves



Triple Offset Metal Seated Process Butterfly Valves, Dual Disc Check Valves



CSA B149.3 Approved Valves for Gas & Liquid Shutoff, & Compliant Fuel Train Pkgs.



Ball, Pig, Globe, Check, and Gate Valves



Solenoid Valves, Filter Regulators & Quick Exhaust Valves



Choke Valves & Actuation



Forged Gate, Globe, Dual Plate Check, Ball Valves & Through Conduit Gate Valves



Electric Actuation Solutions for all Applications



Valve Actuators & Accessories



Positioning & Position Monitoring Devices





## PANELS & BUILDINGS

Tundra Process Solutions provides custom solutions including prefabricated panels, buildings and equipment.

Tundra works with our clients and suppliers to provide high quality, turnkey indoor/outdoor designs that ensure long-life and product performance. Turnkey building packages are constructed at Tundra's 6 acre fabrication yard in Calgary, AB.



### VFD / ELECTRICAL BUILDINGS

- Tundra offers a full range of buildings, options and accessories for a variety of applications
- Packages include integration of Toshiba drives, HVAC and electrical requirements
- Minimize customer resource requirements:
- Take advantage of Tundra's procurement, design and construction services
- A single package warranty to manage
- One point of contact for support

### MEASUREMENT & ANALYTICAL PACKAGES

- Truck, Train, & LACT Measurement
- Monitoring of battery production
- Identification of products not satisfying quality requirements
- Produced water diversion for increased separation efficiency
- Accurate daily accounting of received fluids with intuitive interface
- Regulatory body compliant metering packages
- API compliant net oil calculations
- LACT flow packages from 5 m<sup>3</sup>/hr to 300 m<sup>3</sup>/hr
- Booster pump & VFD integrated packages
- Analytical packages including: CEMS, Chromatography, Spectroscopy, Trace H<sub>2</sub>S



## CUSTOM PANEL SOLUTIONS

### ELECTRIC SUBMERSIBLE PUMP (ESP), SCREW PUMP (PCP) & PUMP JACK

- Available voltages 230, 460, 575, 690 VAC
- Outdoor installations (NEMA Type 3R, 4, 4X)
- Indoor installations (NEMA Type 1, 3, 12)
- Compact design for reduced space requirements
- Reduces operating costs
- Reduces downtime
- Ability to start an ESP while motor is spinning
- Sequence-start for use on wells with stuck pumps
- Soft-start function
- Load-side, phase-to-phase, short-circuit protection
- Sine wave output filter
- Low harmonic option available
- Extend driven equipment life
- Increases pump efficiency
- Dynamic braking resistor

**Options** Prepackaged pad systems • Indoor self-contained building • Outdoor open grate skid mount



### COMMUNICATION, CONTROLS & MARSHALLING PANELS

- Outdoor installations (NEMA Type 3R, 4, 4X)
- Indoor installations (NEMA Type 1, 3, 12)
- Custom panel sizes to suit any installation requirement
- Available as a standalone unit or a complete system package

### RTU PANEL

- Outdoor installations (NEMA Type 3R, 4, 4X)
- Indoor installations (NEMA Type 1, 3, 12)
- Custom panel sizes to suit any installation requirement
- Available as a standalone unit or a complete system package
- Flow computer, well-optimization and remote monitoring integration
- Certified to CAN/CSA STD C22.2 for use in Class-1, Division-2 hazardous locations

### CUSTOM PANEL SOLUTIONS

- Available voltages 230, 460, 575, 690 VAC
- Outdoor installations (NEMA Type 3R, 4, 4X)
- Indoor installations (NEMA Type 1, 3, 12)
- Low harmonic option available
- Custom panel sizes to suit any installation requirement
- Available as a standalone unit or a complete integrated package

### LOW HARMONIC

- Available voltages 230, 460, 575, 690 VAC
- Outdoor installations (NEMA Type 3R, 4, 4X)
- Indoor installations (NEMA Type 1, 3, 12)
- Limits total current harmonic distortion to 8% TDD (<6% typical at full load)
- The LH Series ASD meets current distortion limits outlined in IEEE Std 519-1992 "IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems" based on an IS(/IL level of 20+
- Lower filter cost when compared with 12 & 18-pulse designs
- Decreased sensitivity to voltage imbalance when compared to 12 & 18-pulse designs
- Decreased sensitivity to line disturbances vs. Active Front End (AH) drive-based filters
- Uninterrupted operation; the ASD will continue to operate in the event of a filter shutdown





## MAINTENANCE & SUPPORT

Tundra's Reliability, Maintenance & Support team can solve the most challenging maintenance and reliability issues. Tundra offers factory trained technicians that are available 24/7 to assist with start-up, commissioning, preventative maintenance programs, troubleshooting and repairs. Tundra holds a Certificate of Recognition (COR), and believes in safety as a core value.

## VALVE SERVICES

Tundra's facility is National Board approved with the ability to handle individual valve repairs or complete facility turn-around requirements. As Western Canada's exclusive Farris representative and Farris Authorized Service Team (FAST) Centre, Tundra is available 24/7 with OEM parts and relief valve inventory to accommodate facility pressure safety requirements. Additionally, Tundra's 53 ft. mobile valve repair facility is available for on site maintenance support.



### THE TUNDRA GUARANTEE

TUNDRA OFFERS A 100% SATISFACTION GUARANTEE ON ALL PRODUCTS, PARTS AND SERVICES. CONTACT US FOR MORE INFORMATION AT 1-800-265-1166 OR INFO@TUNDRASOLUTIONS.CA.



TUNDRA SUPPLIES, ASSEMBLES AND SERVICES PRESSURE RELIEF, ROTARY AND LINEAR CONTROL & CHOKE VALVES.

### TUNDRA'S SERVICE DEPARTMENT PROVIDES:

- Certified factory trained technicians available on-call 24/7
- On-site service capabilities for industrial and commercial customers
- Remote troubleshooting and tech support
- Same-day response
- Emergency shipments available 24/7
- Long-term and short-term maintenance agreements
- Over \$5,000,000 in stocked parts inventory
- Computerized inventory link system with over 6,000 additional parts ready for shipment
- Scheduled maintenance plans



### VALVE, AUTOMATION & SERVICE

- Air & Liquid Relief Valve Testing
- Pressure Relief Valve Supply w/Rush-Ship Inventory
- Rotary Valve Supply and Assembly
- Pneumatic, Electric & Hydraulic Actuation
- Emergency Shut Down (ESD) Valve Packages
- CSA B149.3 Gas Safety Shutoff Valves
- Wellhead Choke Assemblies
- Valve Repair
- Surplus Management
- On Site Service Trailer







# TUNDRA

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