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## Field Services







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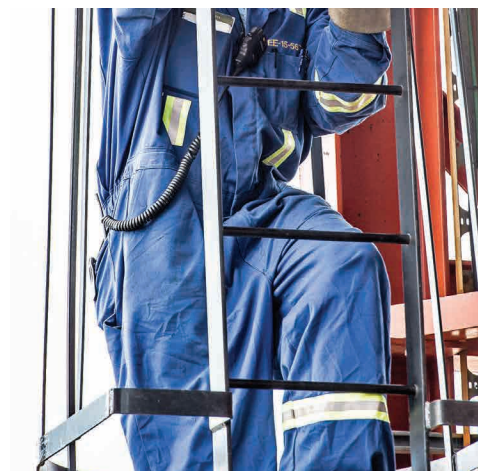
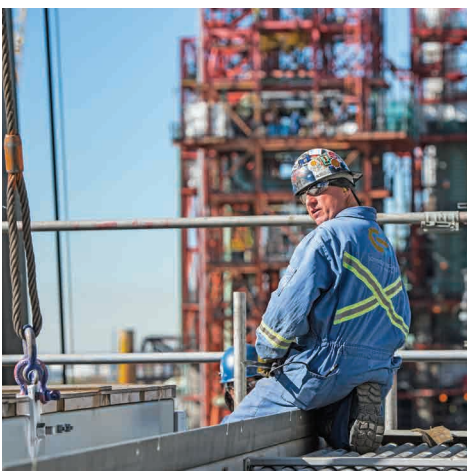
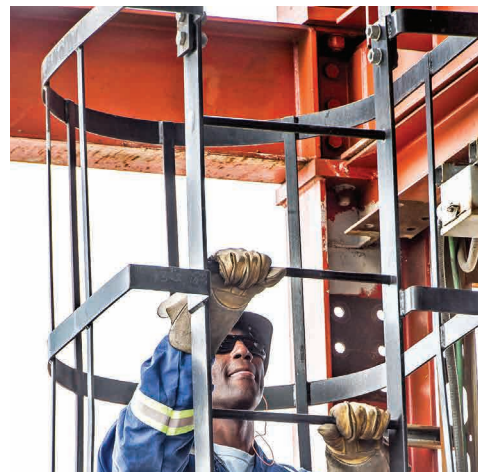
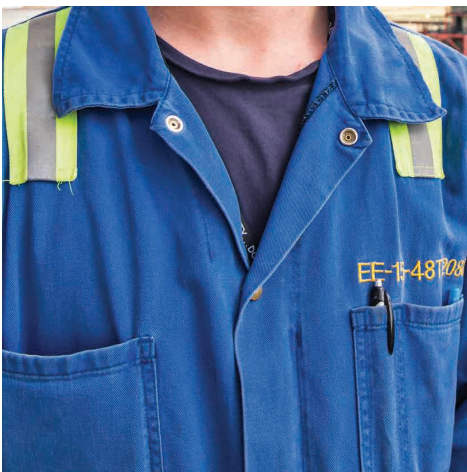




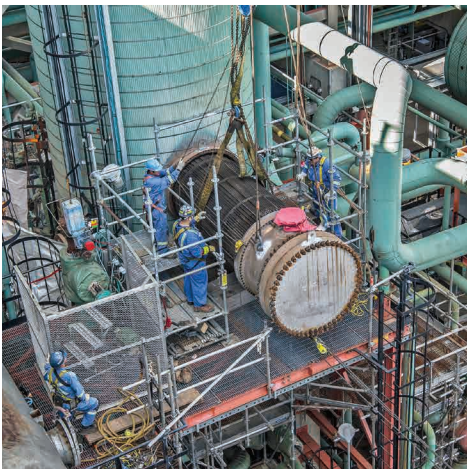
#### **EDMONTON EXCHANGER GROUP OF COMPANIES - FIELD SERVICES**

Edmonton Exchanger was founded in 1975 and is over 1,000 employees strong. We are a multi-divisional company and feature a wide range of products and services for applications in industries that include oil and gas, petrochemical and power generation. These are our Field Services.









## OVERVIEW OF SERVICES

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### PLANT MAINTENANCE SOLUTIONS SINCE 1975

With more than four decades of plant maintenance experience, Edmonton Exchanger provides on-site plant maintenance services for the petrochemical industry, refineries and fertilizer plants. Our services range from specialized field machining and controlled bolting, to complete turn-key plant and refinery shutdown projects.

### FIELD OPERATIONS + SUPPORT SERVICES = POWERFUL SOLUTIONS

When you team with us, you get more than just superb field operations. You're also connected to a vast network of support services that range from project management to steel fabrication, pipe fabrication, machining and heat exchanger fabrication and repair services.

### EXPERTISE, DEDICATION, PROFESSIONALISM

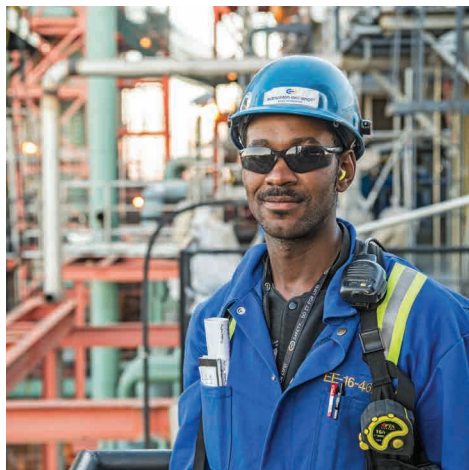
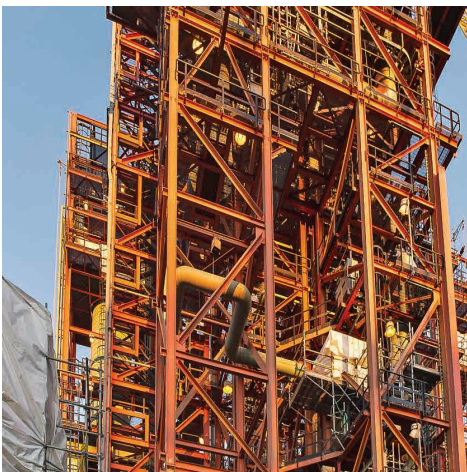
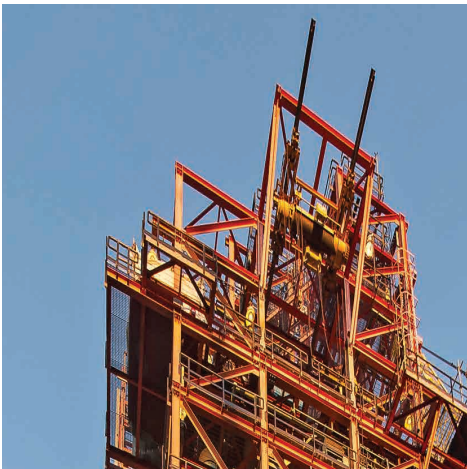
Another advantage of working with Edmonton Exchanger is our genuine commitment. While our specialized tools, heavy equipment and resource network all contribute to our ability to meet your project needs, it is ultimately the technical expertise, dedication and professionalism of our employees that make our projects successful.

- Turn-key Shutdown Projects
- General Shutdown Services
- Heavy Lift Execution
- On-site Heat Exchanger Services
- Crane and Equipment Rentals
- Piping Projects
- Controlled Bolting
- Flange Facing
- Cold Cutting
- Specialized Welding
- Project Management
- Estimating
- Safety Management
- Procurement
- Subcontract Coordination
- Custom Fabrication and Repair
- Pipe Fabrication
- Quality Control
- Engineering
- Steel Fabrication Plant Support
- Steel Plate Services
- Large-scale Machining
- Heat Exchanger Fabrication and Repair









## ON-SITE CAPABILITIES

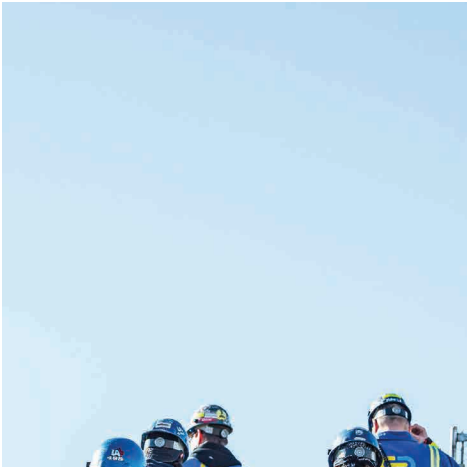
### EDMONTON EXCHANGER: FOUR DECADES OF ON-SITE EXPERTISE

You can count on us to take care of whatever on-site challenges you have, no matter what the size. We've been working at on-site locations for more than four decades.

Our on-site services include:

- Turn-key petrochemical plant and refinery shutdown services
- Furnace and boiler repair and erection
- Vessel erection / heavy lifts / general rigging
- Tray installation for towers and vessels
- Heat exchanger bundle pulling and pushing. Capacities range from small units, to over 100" diameter in size and over 100,000 pounds in weight.
- Heat exchanger repair, re-tubing and fabrication
- Custom tube bending
- Piping fabrication and repairs
- Crane and equipment rentals
- Strip cladding and weld overlay of vessel internals
- Controlled bolting
- Field machining
- Orbital welding
- Convection tube pulling





## PRESIDENT'S MESSAGE ON SAFETY

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"When you partner with Edmonton Exchanger to work on your project, you can be assured that we take safety seriously. It's something we've done since day-one. We're proud to have experienced growth and excellence in our industry since 1975. With over 40 years experience in providing on-site plant and refinery maintenance services, and over 30 years of experience in custom steel fabrication, we've seen a positive evolution in our safety culture.

At Edmonton Exchanger, safety, quality and productivity are interconnected and together equal success. This is what makes Edmonton Exchanger a leader in a unionized market. Safety is about attitude and behaviour. We cannot achieve our vision of 'Nobody Gets Hurt' with our safety policies and practices alone. It's about our employees making the commitment by taking the time to work safely, each and every day.

Our continued success is dependent on our employee's cooperation and support in preventing and reducing accidents. This is achieved by effectively identifying and controlling hazards, ensuring that workers have the right tools and training to do the job safely, and by their attitude, behaviour and commitment.

Each and every one of us at Edmonton Exchanger is committed to sending our employees home to their family and friends, safe and healthy each day. We will do our part, but our employees' commitment is the real key to our success.

Everyone at Edmonton Exchanger strives for safety excellence and takes pride in what we do, individually and as part of a union team. That is our culture! We choose safety for life!"

- **Larry Gusse, President**  
Edmonton Exchanger Group of Companies



## SAFETY ED

Meet Safety Ed, Edmonton  
Exchanger's Safety Advocate!

As safety is integral to our company,  
Safety Ed was developed to help illustrate  
safe work practices in our safety documentation  
and training materials. His goal is to enforce  
our commitment to send our employees  
home to their family and friends, safe  
and healthy, each and every day.

**Safety... Do it For Life!**







Controlled Bolting

## SPECIALIZED FIELD SERVICES

### STATE-OF-THE-ART CONTROLLED BOLTING

We use state-of-the-art bolt torquing and tensioning equipment. Equipment is available to provide bolt torquing up to a 6 1/8" nut size and bolt tensioning up to a 4 1/2" stud size.

### CONVECTION TUBE PULLING

Edmonton Exchanger's Convection Tube Puller was custom designed and fabricated in-house, and is used on-site for heater convection tube pulling and pushing applications.

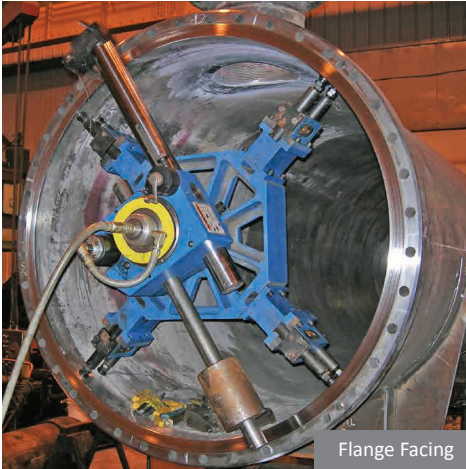
It measures 75 feet in length and features a 70 foot pulling length, a 60,000 pound pulling force and a 30,000 pound pushing force. It has the capacity to handle return bend tubes up to 12" in diameter in any orientation ranging from flat to fully vertical.

The Convection Tube Puller's "C-style" cradle allows for forklift loading and unloading without disconnect from a crane. It is operated via remote control and can be self-balanced in two directions. This is a significant advancement over the traditional method from a safety perspective.



Convection Tube Puller

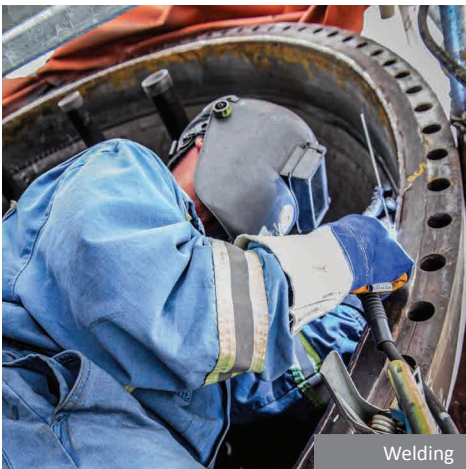




Flange Facing



Cold Cutting



Welding

## SPECIALIZED FIELD SERVICES

### FLANGE FACING EQUIPMENT

Our flange facing equipment enables us to machine material ranging from 5" I.D. - 110" O.D..

### COLD CUTTING FROM 4" TO 86"

We are able to cut and custom bevel pipe from 4"- 86" in diameter.

### ORBITAL WELDING

Working closely with our clients to develop new and innovative ways to meet on-site welding requirements on an accelerated timeline, Edmonton Exchanger has acquired and implemented orbital welding technology as one of our on-site services provided.

Orbital Welding technology enables us to provide repeatable, reliable, high purity welds that are of a superior quality and consistency. When required, we are capable of developing new weld procedures to facilitate specific client specifications.

### SPECIALIZED WELDING: OVER 1,000 CERTIFIED WELD PROCEDURES

We feature over 1,000 certified weld procedures for the welding of numerous materials, and have the ability of quickly obtaining and implementing a specific procedure in the event that it is not immediately available.

#### WELD PROCEDURES INCLUDE:

- All types of Stainless Steel
- Chrome Moly Alloys
- Multiple Bi-metallic Procedures
- Titanium
- Incoloy(s)
- Monel(s)
- Nickel Alloys
- Hastelloy
- Inconel(s)
- Copper Nickels

#### HIGH TEMPERATURE CASTS:

- HK-40
- HP-40
- Paralloy
- Kubota





## FIELD SUPPORT SERVICES

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### COMBINE FIELD SUPPORT WITH IN-HOUSE SERVICES

When you combine our field services with our respected in-house services, it's a one-two punch that strengthens your project.

All field operations at Edmonton Exchanger are fully supported by in-house services that can be obtained individually or as a complete service package:

- Custom Fabrication and Repair
- Pipe Fabrication
- Engineering Support
- Heat Exchanger Fabrication and Repair
- Tubesheet Fabrication
- Prefabrication Pressure Vessel Components
- Steel Plate Services
- Large-scale Machining



### QUALITY CONTROL

Standards available include:

- ASME Section 1
- ASME Section VIII Div. 1
- ASME Section VIII Div. 2
- ASME Power Piping
- ASME B31.1 Power Piping
- ASME B31.3 Piping
- CWB 47.1 Level 3 Structural
- National Board





## FIELD SUPPORT SERVICES

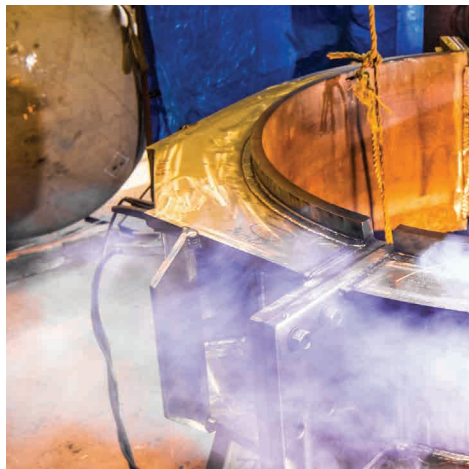
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### CUSTOM FABRICATION AND REPAIR

Edmonton Exchanger has extensive experience in the custom fabrication and repair of pressure related components. These include replacement vessels and exchangers on a “low volume” and urgent basis, often in support of our field operations.

In order to get a plant process back up and running, we can provide expedited fabrication and repair of large and small pressure related components such as pressure vessels, heat exchangers and other items on an “as needed” basis. We often receive requests to repair items such as heads and shell sections up to 20’ diameter, as well as replacement of nozzles and internals.

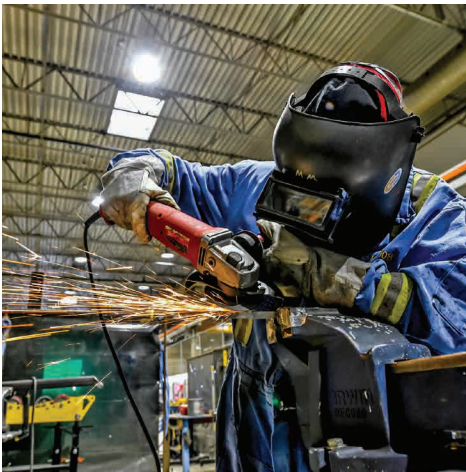
Many times these requests include material upgrades to deal with specific process requirements and prevent accelerated corrosion. We have extensive experience with different grades of stainless steel and alloys.







Welding Titanium



Titanium Welds

## FIELD SUPPORT SERVICES

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### PIPE FABRICATION

Edmonton Exchanger's pipe fabrication facility constructs mechanical piping systems to ASME and client specifications.

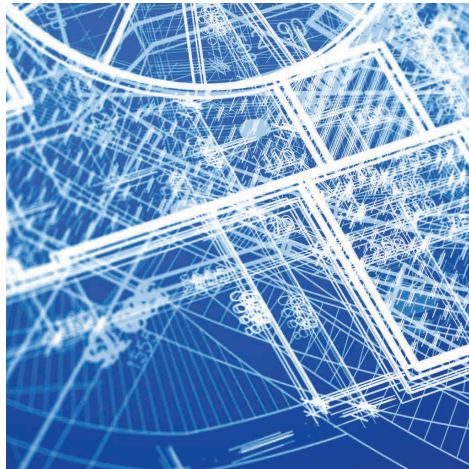
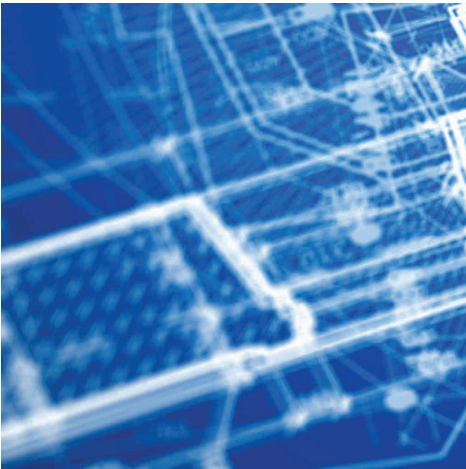
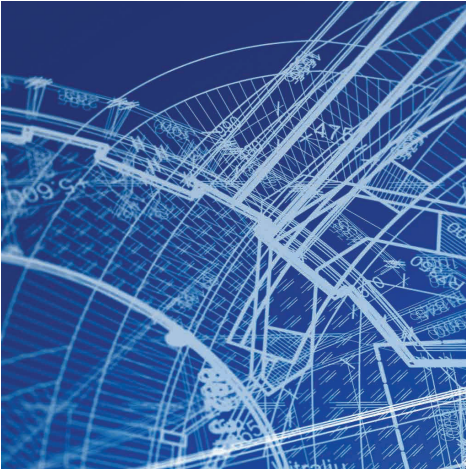
Because we hold over 1,000 weld procedures, we have welded most materials required in Alberta. We can accommodate a wide variety of materials ranging from carbon steel, stainless steel, low alloys and high alloy materials.

Fabrication certifications:

- Construct, Repair / Alter ASME B31.1 Power Piping and ASME B31.3 Process Piping in the field and shop
- ABSA Construct, Repair / Alter ASME B31.1 Boiler External Piping in the field and shop
- ABSA Manufacture, Repair / Alter Category 'A', 'B', 'C', 'D', 'E' & 'H' Fittings in accordance with CSA B51 in the field and shop
- Canadian Welding Bureau (CWB) certified to CSA Standard W47.1 for structural welding in Division 1
- ABSA Welder Testing

Once the project has been welded, our quality control staff who are CWB and CGSB qualified, perform LPI, NPI, Ferrite testing, hardness testing, PMI and UT.

Edmonton Exchanger field crews can field measure and verify drawings before fabrication to minimize field work. We can also provide the field support to install the piping system, start the system with operations and then provide continuing maintenance on those systems.



## FIELD SUPPORT SERVICES

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### ENGINEERING EXPERTS ARE AT YOUR SERVICE

Do you require engineering support as well? Our high-tech engineering capabilities allow us to provide complete in-house engineering support to our field operations.

Additional support is provided for such applications as:

- Equipment Rigging Analyses
- Alterations to ASME Sec. VIII Div. 1 and 2
- Vessel Evaluations
- Vessel Re-rates

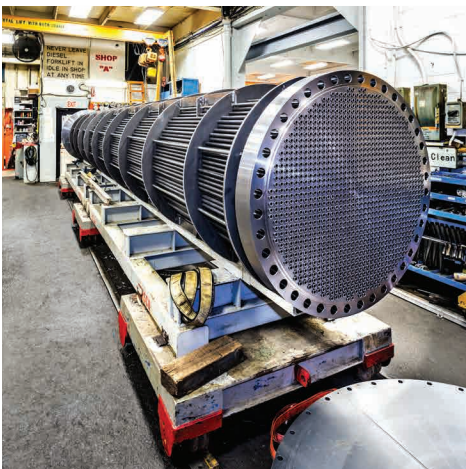
### FINITE ELEMENT STRESS ANALYSES

Finite Element Stress Analyses are available for such uses as SIF, and allowable load and stiffness determinations for vessel nozzles and fittings. Additional comparisons to traditional verification methods are also offered.

### ADDITIONAL FIELD SUPPORT SERVICES AVAILABLE:

- Nondestructive Examination
- Weld Mapping
- Turnover Documents





## FIELD SUPPORT SERVICES

### HEAT EXCHANGER FABRICATION AND REPAIR

Specializing in heat exchanger fabrication and repair, Edmonton Exchanger's Heat Exchanger Services facility stocks a diverse inventory of materials and heat exchanger equipment that allows us to quickly adapt to your project's specialized requirements and specifications.

This facility fully supports our field operations for all heat exchanger services required, and upon customer request, will schedule shop time in preparation for field projects in order to ensure an expedited turnaround time for field maintenance work.

### HEAT EXCHANGER SERVICES: MANUFACTURE, REPAIR, REFURBISHMENT

Whatever shape or size your heat exchanger may be, we're the ones for the job. At Edmonton Exchanger, we manufacture, repair and refurbish any size and type of heat exchangers including:

- Shell and Tube Bundles
- Straight-tubed Heat Exchangers
- U-bundle Heat Exchangers
- Plate Exchangers
- Coil-style Heat Exchangers
- Fin-fan Coolers
- Hairpin Exchangers

### QUALITY CONTROL INSPECTION PRIOR TO SHIPMENT

Prior to shipment, all of our manufactured components undergo thorough Quality Control inspection to ensure conformance to ASME codes Sec. VIII Div. 1 and 2.

### CERTIFICATE OF COMPLIANCE

All materials are supplied with a Certificate of Compliance showing material type, size, order numbers, heat numbers, minimum thicknesses and Mill Certification Specifications.



## FIELD SUPPORT SERVICES

### TUBESHEET FABRICATION

#### CNC TUBESHEET DRILLING, SLOTTING, MILLING AND BORING

Your search for versatile tubesheet drilling is over. Our QuickDrill 120 CNC enables us to offer a wide range of drilling, slotting, milling and boring services.

It boasts a machining envelope of 120" x 120" x 15" (3,048 mm x 3,048 mm x 381 mm), and can accommodate material up to 141" x 154" (3,581.40 mm x 3,911.60 mm) in size.

#### QUICKDRILL 200 CNC = CIRCULAR INTERPOLATE OFF CENTER


Does your project require tubesheet drilling with an added twist? Our QuickDrill 200 CNC not only features drilling, slotting, milling, and boring capabilities, it also enables us to circular interpolate off center.

It features a machining envelope of 200" x 120" x 30" (5,080 mm x 3,048 mm x 762 mm), and accommodates material up to 29" (736.60 mm) in height and a drilling capacity of up to 16" (406.40 mm) thick.

Additional CNC machines are also available to complement our full range of drilling capacities.



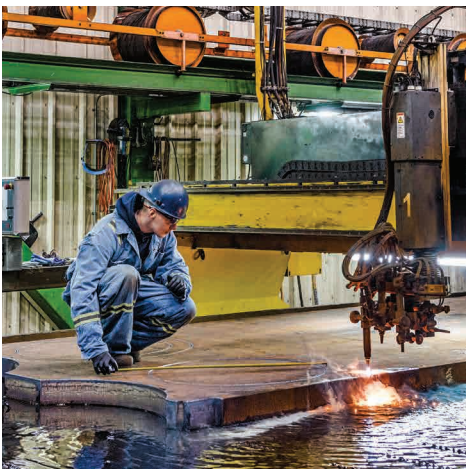
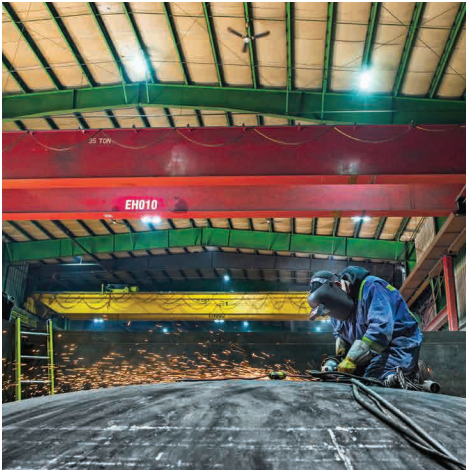




The Davi "Monster Rolls" machine can hot roll plate up to 12" thick. It's not only the largest steel plate rolling machine at Edmonton Exchanger, it is one of the largest of its kind in North America.

**DAVI**  
EXCELLENCE IN FORM





## FIELD SUPPORT SERVICES

### PREFABRICATION PRESSURE VESSEL COMPONENTS

When required by a client, our Steel Fabrication plant will provide full support and emergency repair services to our field operations.

This facility features services such as head forming, plate rolling, profile cutting and custom stress relieving. It is supported by a large plate inventory of pressure vessel quality carbon steel, stainless steel and chromium molybdenum steel.

### YOUR ONE-STOP HEAD FORMING AND SHELL ROLLING HEADQUARTERS

No matter what your pressure vessel component requirements are, Edmonton Exchanger has your solution. The fact is, our experienced professionals have the most extensive one-stop head forming and shell rolling capabilities in North America. So whatever your challenge, Edmonton Exchanger can tackle it.

### HEAD FORMING TYPES FOR PRESSURE VESSELS AND TANKS

- Semi-Elliptical 2:1
- Torispherical Flanged and Dished
- Hemispherical
- Flanged Only and Dished Only

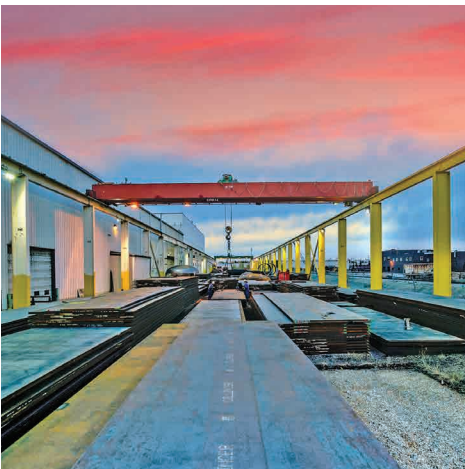
### STEEL PLATE ROLLING

- Shells for Pressure Vessels and Tanks
- Eccentric and Concentric Cones
- Rolled Repads
- Rolled Rings for machining applications
- Custom Rolling

### PROFILE CUTTING FOR MOST PATTERNS AND SHAPES

- Available for almost any pattern or shape imaginable from plate up to 17'-0" x 40'-0" in size (5,182 mm x 12,192 mm).





## FIELD SUPPORT SERVICES

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### STEEL PLATE SERVICES

#### PLATELAND: OVER 30,000 METRIC TONS OF INVENTORY

You want steel plate selection? You've come to the right place. The quantity of steel plate inventory at Edmonton Exchanger is so immense (over 30,000 metric tons), it's commonly referred to as Plateland. All stocked steel plate complies with ASME code requirements and is accompanied by clearly legible Mill Test Certificates at time of shipment.

#### MASSIVE INVENTORY OF PRESSURE VESSEL PLATE

Welcome to one of the largest inventories of pressure vessel quality SA516-70 normalized plate in the world, ranging from  $\frac{1}{4}$ " (6.35 mm) to 12" (304.8 mm) thick. SA 516-60, SA 537 CL1 and A572-50 (all normalized) are also available.

#### STAINLESS STEEL

We stock stainless steel in the following grades:

- SA 240-304
- SA 240-316
- SA 240-304L
- SA 240-316L

Plate ranges in thickness from  $\frac{3}{16}$ " (4.76 mm) to 2  $\frac{1}{2}$ " (63.50 mm).

#### CHROMIUM MOLYBDENUM STEEL

We offer a large inventory of chrome moly steel (normalized & tempered) in the following grades:

- SA 387 Gr. 11 CL.2
- SA 387 Gr. 22 CL.2
- SA 387 Gr. 5 CL.2

Chrome moly steel plate is available from  $\frac{1}{4}$ " (6.35 mm) to 2" (50.80 mm) thick.



## FIELD SUPPORT SERVICES

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### LARGE-SCALE MACHINING

Tackle your project with the right machining solution. Edmonton Exchanger's large-scale machining facility is located in close proximity to our main plant and offers a wide variety of machining services. It was specially designed to handle large diameter components and boasts equipment that is some of the largest of its kind.



General machining equipment consists of a lathe and a drill press. Three vertical boring mills of various sizes are available, as well as a large-scale horizontal boring mill.

### VERTICAL BORING MILLS FOR TURNING, FACING, BORING

We make boring exciting! Three machines are available for turning, facing and boring. Our smallest boring mill handles material up to 68" diameter x 5'-0" high (1,727 mm x 1,524 mm).

A larger machine will handle material up to 13'-0" diameter x 10'-0" high (3,962 mm x 3,048 mm). Our largest vertical boring mill also has drilling and slotting capabilities. It can handle material up to 24'-0" diameter x 10'-0" high (7,315 mm x 3,048 mm), and a weight of 50 tons.



### HORIZONTAL BORING MILL FOR FACING, SLOTTING, BORING, DRILLING AND TAPPING

The horizontal boring mill has a travel of 156" vertical and 360" horizontal (3,962 mm V x 9,144 mm H). Its applications include facing, slotting, boring, drilling and tapping.

To support our large-scale milling equipment, a 50-ton overhead crane spans the entire length of the machining facility and thus enables transport of large components throughout the shop.





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## CONTACT

### HEAD OFFICE / MAIN PLANT MAILING ADDRESS:

Edmonton Exchanger Group of Companies  
5545-89 Street, Edmonton, Alberta  
Canada T6E 5W9

### E-MAIL / WEBSITE:

Request a Quote:  
[equote@edmontonexchanger.com](mailto:equote@edmontonexchanger.com)

### General Inquiries:

[sales@edmontonexchanger.com](mailto:sales@edmontonexchanger.com)

### Website:

[www.edmontonexchanger.com](http://www.edmontonexchanger.com)

### TELEPHONE:

Tel: 780.468.6722  
Toll Free (Alberta Only): 1.888.343.4365

### SOCIAL MEDIA:









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