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# Canadian Steel Mill Products



External Affairs  
Canada

Affaires extérieures  
Canada

Canadian

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Steel

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Mill

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Products

**For Further Information**

For further information regarding the companies and products/services in this directory, please feel free to contact the company directly, or contact the Canadian trade commissioner at the nearest Canadian embassy or consulate, or write to one of the following:

US Trade, Tourism and Investment  
Development Bureau  
Department of External Affairs  
125 Sussex Drive  
Ottawa, Ontario  
Canada K1A 0G2

**or**

Industry Science and Technology  
Canada  
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Ottawa, Ontario  
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Industry, Science and  
Technology, Canada  
Ottawa, Ontario  
CANADA K1A 0H5

# Canadian Steel Mill Products

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# Introduction

**T**his publication is intended for organizations and individuals seeking a concise description of Canadian steel mills, their technology and products. These would include manufacturers of steel consuming products, engineering firms, economists, potential investors and others.

Details of the major producers of steel pipe and tube are provided in this publication, however, a more complete description of that sector is given in the publication, "The Canadian Metal Pipe and Tube Industry", available through:

## **Iron and Steel Division**

Industry Science and  
Technology Canada  
Ottawa, Ontario  
CANADA K1A 0H5

## **Published by:**

Department of External Affairs  
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Industry, Science and Technology,  
Canada  
Canadian Steel Producers Association

# Canadian Steel Industry — Profile

	1982	1983	1984	1985	1986	1987
<b>Capacity (000 tons)</b>	23 473	23 519	23 519	23 519	19 815	19 815
<b>Capacity Utilization (%)</b>	55.2	59.7	68.3	68.1	77.8	81.3
<b>Employment (000)</b>	43	42	44	42	41	42
<b>Primary Iron and Steel Shipments (000 tons)</b>	10 306	11 020	12 742	12 854	12 855	14 053
<b>Exports<sup>(1)</sup> (000 tons)</b>	3 519	2 960	3 401	3 236	3 843	4 254
<b>Imports (000 tons)</b>	1 260	1 373	1 955	2 204	2 100	2 257
<b>Apparent Domestic Consumption (000 tons)</b>	8 047	9 433	11 296	11 822	11 112	12 056
<b>Imports as % of Apparent Domestic Consumption</b>	15.7	14.6	17.3	18.7	18.9	18.7
<b>Total Imports from U.S. (000 tons)</b>	490	587	583	563	501	688
<b>U.S. Imports as % of Apparent Domestic Consumption</b>	6.1	6.2	5.2	4.8	4.5	5.7

(1) Excludes exports for conversion and return.

# Canadian Steel Producers Association

The Association membership comprises fourteen companies across Canada who melt and pour steel. Member companies have kept their capacity consistent with their markets and have continued to invest in the best new technology to maintain world standards of productivity, quality and efficiency. Although some downsizing has been necessary, Canadian mills, by and large, have not experienced the disastrous performance that significant overcapacity and facility obsolescence has brought on in other parts of the world. In fact, Canadian steel 'know how' has proven very successful in other countries. Both Lasco, through its parent Canadian organization Co-Steel, and Ivaco have established significant profitable steel operations in the United States and elsewhere, while Stelco's innovative Coilbox technology has been accepted world-wide. Canadian steel producers are Canadian-owned and predominantly have generated capital for investment from private sources. They have worked hard to be world class and world competitive in a very difficult market environment.

The Association's primary focus is on steel trade and trade-related issues in both national and international spheres.

In this context, areas of major activity and interest include:

- continued fair access to the U.S. and other markets;
- minimizing the impact of unfairly traded steel imported into Canada;
- final implementation of the recently signed Free Trade Agreement with the United States;
- maintaining Canadian steel producers' international reputation of world class production and fair trade marketing.

# Member Companies

**The Algoma Steel Corporation, Limited**

**Atlas Specialty Steels**  
**Atlas Stainless Steels**  
(Divisions of Rio Algom Limited)

**Courtice Steel Limited**

**Dofasco Inc.**

**Ipsco Inc.**

**Ivaco Inc.**

**Lake Ontario Steel Company**

**Manitoba Rolling Mills**

**OIT-Fer et Titane Inc.**

**Sidbec-Dosco Inc.**

**Slater Steels**  
(Division of Slater Industries Inc.)

**Stelco Inc.**

**Sydney Steel Corporation**

**Western Canada Steel Limited**

**Managing Director:**  
Daniel W. Romanko

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**Suite 1414**  
**Ottawa, Ontario**  
**K1P 6L2**

**Telephone: (613) 238-6049**  
**Facsimile: (613) 238-1832**



# Product Range of Each Company

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
<b>Algoma Steel Corp. Ltd.</b>		•	•	•					•										•	•			•		
<b>Atlas Specialty Steels</b>		•							•				•	•	•		•								•
<b>Atlas Stainless Steels</b>		•		•					•	•															
<b>Casteel Inc.</b>																			•		•				
<b>Courtice Steel (Harris)</b>		•									•	•													
<b>Dofasco Inc.</b>		•	•	•	•	•	•	•	•													•		•	•
<b>IPSCO Inc.</b>		•	•						•													•		•	
<b>Ivaco Inc.</b>		•									•					•									•
<b>Lake Ontario Steel Co.</b>		•									•	•	•						•	•					
<b>Laurel Steel Products (Harris)</b>													•				•								•
<b>Manitoba Rolling Mills</b>		•									•	•	•						•	•					
<b>QIT — Fer et Titane Inc.</b>	•	•																							
<b>Sidbec-Dosco Inc.</b>		•	•	•							•	•	•			•			•			•			
<b>Slater Steels, Hamilton Specialty Bar</b>		•									•	•	•						•						•
<b>Slater Steels, Sorel Forge</b>		•												•	•										•
<b>Stelco Inc.</b>	•	•	•	•		•	•	•	•		•	•	•			•	•	•				•	•	•	•
<b>Sydney Steel Corp.</b>		•																			•				•
<b>Union Drawn Steel Co. Ltd.</b>																		•							
<b>Western Canada Steel Limited</b>		•									•	•	•						•						

- A** Pig iron
- B** Ingots, billets, blooms, slabs

### Flat Products

- C** Hot rolled sheet and strip
- D** Cold rolled sheet and strip
- E** Electrical steels
- F** Galvanized sheet
- G** Tin plate (and "tin free")
- H** Pre-painted steels
- I** Plate
- J** Stainless steel plate, sheet and strip

### Rod and Bar Products

- K** Merchant bars
- L** Concrete reinforcing bars
- M** Special quality bars
- N** Stainless steel bars
- O** Tool steels
- P** Wire rods
- Q** Cold finished bars, carbon and alloy

### Structurals

- R** Intermediate structurals
- S** Heavy structurals
- T** Rails
- U** Sheet piling

### Pipe and Tube

- V** Pipe and tube, welded
- W** Pipe and tube, seamless
- X** Hollow Structural Sections

### Other Products

- Y** Refer to Corporate Reports, pages 8 to 42

# Corporate Reports

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\*not a member of Canadian Steel Producers Association.

# Algoma Steel Corporation

**A**lgoma Steel was formed in 1901 as a rail producer supplying the rapidly expanding Canadian and U.S. railroads. Today, Algoma is a fully integrated steel producer with five principal product lines: Hot Rolled and Cold Rolled Sheet and Strip, Hot Rolled and Heat Treated Plate, Seamless Tubulars, Structural Shapes and Rails. Algoma employs directly and through its United States subsidiaries approximately 9 000 employees.

The Corporation's steelworks and head office are located in Sault Ste. Marie, Ontario. It has a head sales office in Mississauga, Ontario and regional sales offices in Calgary, Alberta and Houston, Texas. Through direct ownership, Algoma can satisfy all its iron ore and the majority of its coal requirements. Dofasco Incorporated of Hamilton, Ontario owns 100 percent of the corporation's shares.

The following products are sold by Algoma or its subsidiaries — ingots, blooms, billets, slabs, heavy rails, tie plates, standard angles, channels and beams, bearing pile shapes, welded wide flange and special shapes, wide flange shapes, seamless tubular products, plate, hot and cold rolled sheet, cold rolled sheet for motor laminations, sinter, coal, coke and coal tar chemicals.

The Corporation has been upgrading its product mix to reflect changes in demand for steel products in the North American steel markets. Demand for more sophisticated products has already resulted in the installation in recent years of a continuous slab casting facility, expansion of seamless tube heat treating capacity and the commissioning of a facility to produce quenched and tempered, and normalized plate.

Algoma's 166" (4216 mm) wide plate mill produces hot rolled plate up to 153" wide (3850 mm) and in thickness up to 4" (100 mm) for a variety of heavy industrial end uses. The normalizing and Quench & Temper facility extends the range of plate into high strength, abrasion resistant, heat treated products.

The Company's computerized 106" (2692 mm) hot strip mill is a six-stand continuous mill which rolls the widest product in North America. The 106" (2692 mm) mill has a unique capability to produce wide coiled plate and hot rolled sheet up to 96" (2439 mm) wide.

As a principal Canadian supplier of rail and track products since the turn of the century, Algoma has recently completed a \$40 million modernization to its Rail Mill. The facilities produce rails up to 82' (25 metres) in length and are equipped with finishing units such as roller straightening, end finishers, and modern ultrasonic and magnetic particle inspection.

A long time producer of seamless tubular products for the North American Oilfields, Algoma has recently completed a \$375,000,000 addition and updating of its seamless tubular mill at Sault Ste. Marie. This new facility came on stream in 1987 and will expand Algoma's range of tubulars to include a full range of casing, line pipe, mechanical tubing and drill pipe.

**The Algoma  
Steel Corporation,  
Limited**

395 Queen Street West  
Sault Ste. Marie,  
Ontario, CANADA  
P6A 5P2

**Sales Office:**

4 Robert Speck Parkway  
Mississauga, Ontario  
L4Z 1S1

**Contact:**

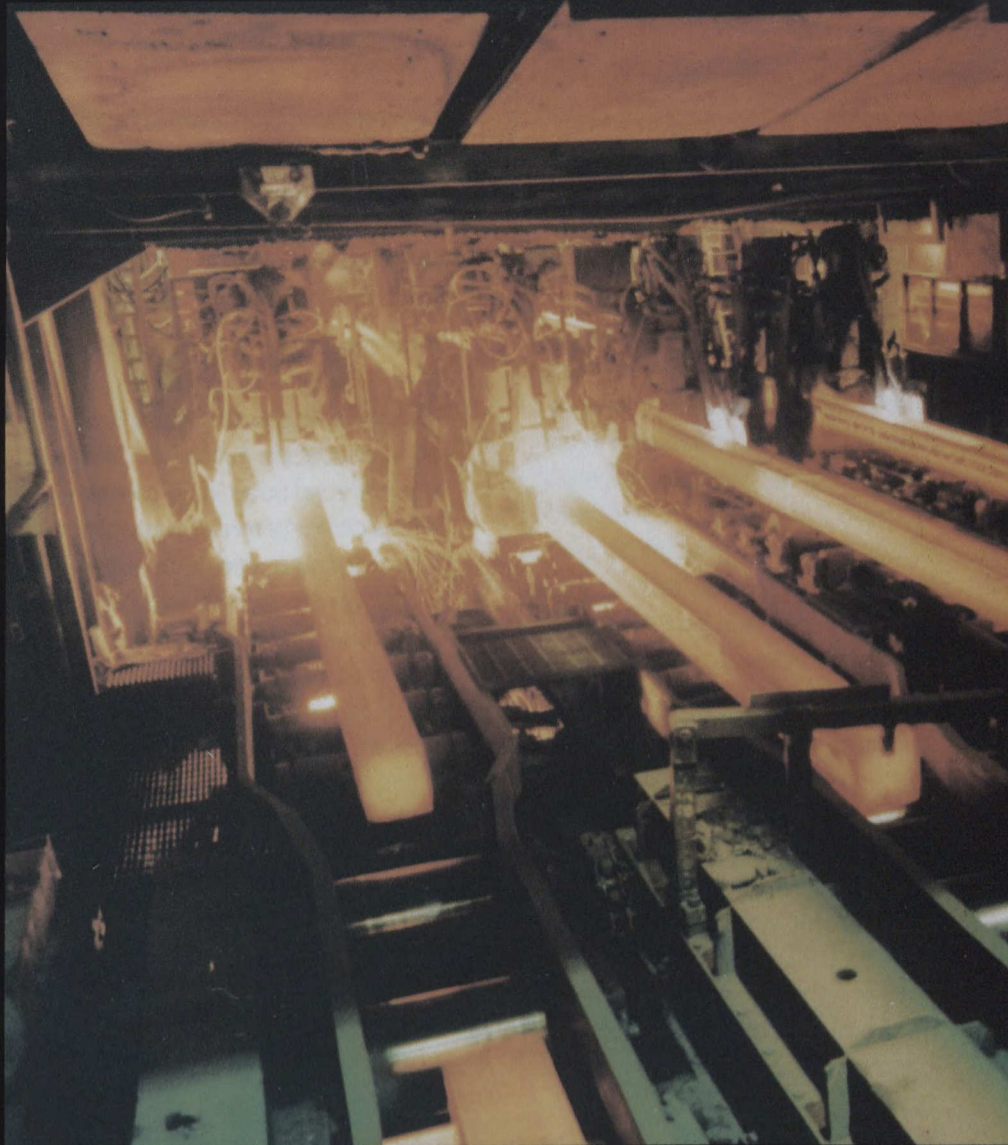
G.B. Hudson  
Vice-President — Commercial

**Telephone:**

(416) 276-1400  
(Sales Office)

**Telex:** 06-965531

**Facsimile:** (416) 276-1452



▲ Continuous casting improves efficiency and quality of steel products. These blooms will become rails, structural sections or tubes.

◀ Algoma's Steel plant at Sault Ste. Marie, Ontario is located on the St. Lawrence Seaway with direct access to North America by road and rail.

# Atlas Specialty Steels

**A**tlas Specialty Steels Division, Rio Algom Limited, is Canada's leading producer of Tool Steels including "cold work", "hot work" and "plastic mold" types and other special purpose grades; also of Stainless Steels in 300 and 400 series including precipitation hardening types; of Valve Steels; of Titanium; of Rock Drill Steels in hollow & solid forms; and of Alloy Steels & Special Quality Carbon Steels in all AISI/SAE grades including micro alloy types. Its head office and steelmaking operations are strategically located in the Niagara Peninsula close to major industrial centres in both Canada and the United States.

The wide range of specialty steels produced in the Welland facility are made in all standard bar product forms: round, square, flat, octagon, hexagon and special shapes. These products, in sizes up to 9" (228 mm) diameter, are supplied hot rolled, annealed, heat treated, rough turned, smooth turned, cold drawn or centreless ground and polished, directly to major industries (automotive, construction, mining and agricultural) as well as through a network of metal service centres to

general metal fabricators. In addition, Atlas also supplies the forging industry and other steel processors with their primary requirements for top poured and bottom poured ingots as well as billets and blooms.

Atlas celebrated its 50th anniversary in 1978 with full scale operation of a new melt shop. This facility today combines rapid electric arc melting of carefully selected steel scrap in 60-ton furnaces with a choice of three closely controlled, postmelt down refining treatments; vacuum arc degassing, vacuum oxygen decarburization and argon refining. In combination, these systems provide precision alloying, arc reheating, inert gas stirring, low sulphur control, calcium treatment/inclusion modification, cored wire injection plus full vacuum degassing. Atlas employs a fourth advanced refining process, vacuum arc remelting, to meet stringent specifications for ultra clean steels with special mechanical properties.

In 1954, Atlas was the first steel producer in North America to continuously cast steel on a successful commercial basis. Continuous casting by-passes the conventional ingot route and transforms molten steel into solid sections in minutes. In 1965, Atlas engineers were again first with curved mold continuous slab casting and in 1988 the company began operation of its state-of-the-art, 3-strand billet and bloom caster in the Welland melt shop.

Following melting and casting, ingots are reheated and hot rolled (or press forged) into large bars, blooms and billets. After conditioning, billets are hot rolled into bar products on either a volume production mill or a custom mill. Products are shipped hot rolled or receive further cold finishing in a modern 150 000 sq. ft. facility.

The Atlas Welland plant has a production capacity of 285 000 tons and employs 1 600 people. Quality is emphasized throughout their operations and includes use of statistical process control as well as a permanent commitment to the training of all employees in modern quality assurance procedures and verification of quality performance at each stage of production.

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**Atlas Specialty**

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**Steels**

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Division of

Rio Algom Ltd.

P.O. Box 1000

Welland,

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▲ The post melt-down refining station in Atlas' melt shop where vacuum arc degassing, vacuum oxygen decarburization and argon refining of 60-ton heats of stainless, tool and alloy steel takes place. Atlas also employs vacuum arc remelting to produce ultra clean steels with special mechanical properties.

◀ An aerial view of the mile-long Atlas Specialty Steel mill in Welland with its modern melt shop in the right foreground and the new 150 000 sq. ft. bar finishing facility in the left foreground.

# Atlas Stainless Steels

**A**tlas Stainless Steels Division, which is part of Rio Algom Ltd., produces stainless steel flat rolled products. Located on the St. Lawrence Seaway a short distance from Montreal, Atlas Stainless is a fully integrated producer of cold rolled sheet and strip. Stainless steel plate in coil form and semi-finished products such as slab and hot band are also produced and offered for sale.

Selected steel scrap and alloying elements are melted in a sixty-ton electric arc furnace, transferred to a vessel and subjected to a carefully controlled refining process which allows precise control of chemical analysis and purity. Following this, the molten metal is transformed directly to slab using a

52" (1321 mm) wide curved mold continuous casting machine. After slab conditioning, the Atlas hot mill design allows the direct production of stainless slab into coiled hot band in a single rolling pass. Modern Szendimir cold rolling mills equipped with the latest in process control technology round out a complete system allowing precise attention to thickness tolerance with maximum productivity. Rigorous quality control, including statistical process control, allows Atlas Stainless to meet the highest automotive quality standards established for steel plants.

While 300 series sheet and strip continue to account for the major part of Tracy production, 400 series such as T-409, T-410 and T-430 has provided much incremental growth in the past several years. Atlas Stainless has had particular success in developing product variations to meet the demands of specific applications.

With present capacity to produce 80 000 metric tonnes of continuous slab per year, Atlas Stainless will actively pursue both export and Canadian business opportunities. With total employment of less than 550 individuals, Atlas Stainless cannot be regarded as large. However, they have modern facilities, a manufacturing and quality control work force that can respond to individual customer demands and a tradition of supplying high quality specialty steels throughout the world for more than fifty years.

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**Atlas Stainless**

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**Steels**

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Division of

Rio Algom Ltd.

1675 Marie-Victorin Road

Tracy,

(Québec) CANADA

J3R 4R4

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W.I. Pollock

Vice-President

and General Manager

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**Telephone:**

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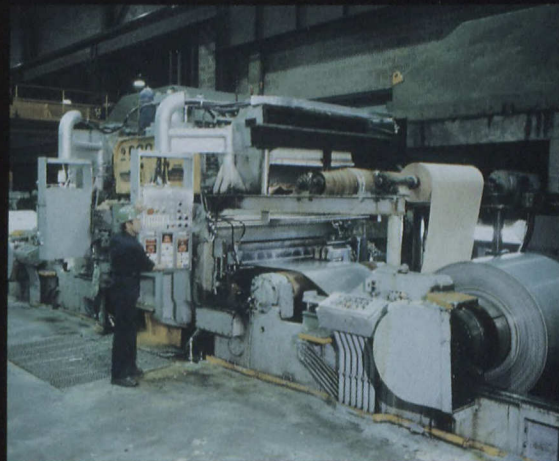
(514) 746-5000

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**Facsimile:** (514) 746-5323

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▲ The composition of the molten stainless steel is quickly provided by this advanced X-Ray Spectrometer at Atlas Stainless Steels.

◀ One of the plant's two cold rolling mills. Operation is guided by an advanced computerized control system that enables the most rigid specification to be consistently met.



# Casteel Inc.

**C**asteel, Canada's largest manufacturer of steel sheet piling, is located close to Montreal in Longueuil, Quebec. This privately owned mill is the most modern facility of its kind in the world with an annual rolling capacity of 100 000 tons (90 000 metric tonnes).

Casteel piling is produced in three basic classifications of interlocking sections: Z-shapes, arch (U-shapes and Lightweight L & S shapes). Within each of these classifications, there is the capability of rolling various section profiles with different depths, thicknesses and weight characteristics.

Casteel piling, in particular the Z-shapes, offer the greatest driving widths of any standard section on the market. As a result the user has to handle, place and drive fewer piles for a given length of wall, with significant savings in crew and equipment time. These shapes provide high strength-to-weight ratios. When section modulus and especially bending moment are critical, the user may realize significant savings by reducing the number of tons required.

The design of the Casteel interlock offers high dimensional accuracy, resulting in an excellent and positive interlocking of the pile. Uniformity throughout the interlock ensures consistent threading and running, another potentially significant time-saver.

The Casteel sections have received worldwide acceptance, as evidenced by successful installations in many countries around the world with export shipments representing 50 percent of the Company's total sales.

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**Casteel Inc.**

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P.O. Box 555,

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Station A

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Longueuil,

---

(Québec) CANADA

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J4H 3Z9

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**Contact:**

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Mr. F. Blair Shallow,

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President

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**Telephone:**

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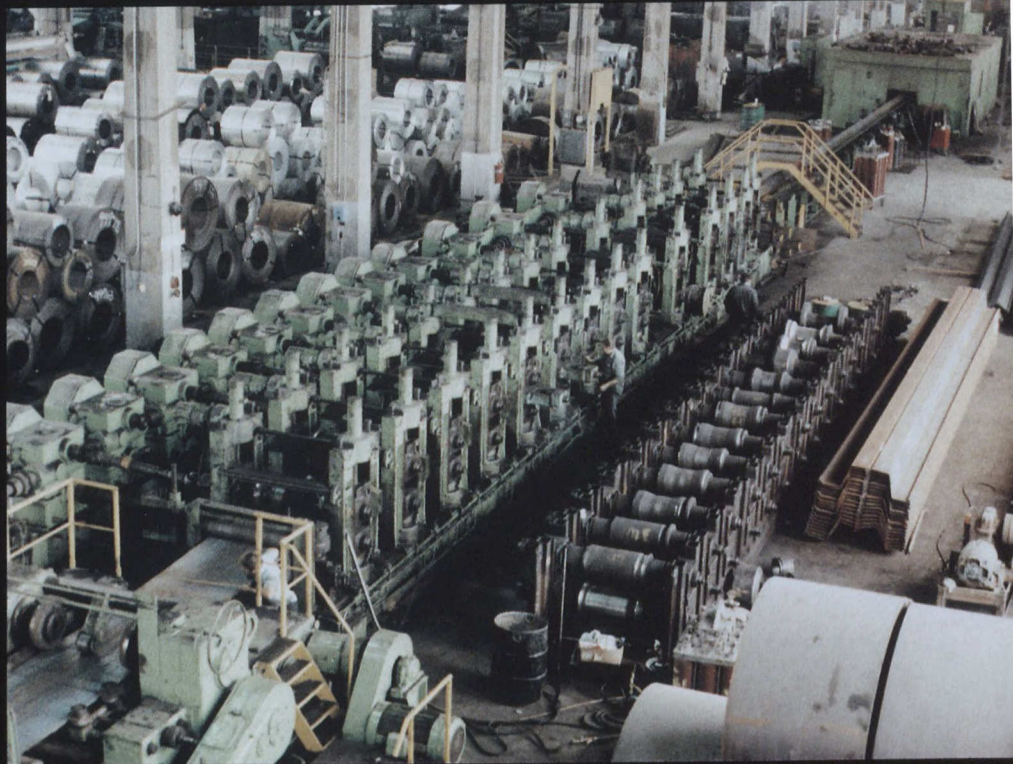
(514) 651-6260

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**Facsimile:** (514) 651-3400

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▲ Hotrolled steel, 12.5 mm thick and 1200 mm wide (approx. 0.5", 48"), being formed into Z-shape sheet piling on Casteel's 14-stand mill

# Dofasco Inc.

**D**ofasco Inc., founded in 1912, is Canada's second-largest steel producer. Dofasco's completely integrated steel mill employs over 11 500 people and covers 793 acres (320.9 hectares) in the industrial heart of Hamilton at the western end of Lake Ontario.

Dofasco was the first Canadian producer of tin plate (1935), continuously galvanized sheet and strip (1955), 60-inch (1524 mm) wide hot and cold rolled sheet, and high grade electrical steel. Capacity at the end of 1988 was 4 500 000 tons (4 050 000 metric tonnes) of raw steel, entirely produced by the L-D oxygen steelmaking process which Dofasco introduced to North America in 1954.

The introduction of oxygen steelmaking is indicative of Dofasco's long-term commitment to the use of the latest technology available — a commitment that has allowed Dofasco to meet the ever more stringent quality requirements demanded by today's customers.

As a measure of Dofasco's commitment, more than \$1.5 billion has been invested in technology from 1970 through to the early 1980s. Recently, \$750 million has been spent to introduce continuous slab

casting at Dofasco with an additional investment of over \$1 billion expected into the 1990s for expansion and upgrading. Ladle metallurgy is included in the cast slab programme along with modifications to No. 2 Steelmaking Shop and No. 2 Hot Strip Mill to take advantage of the increased capacity and improved quality which the caster provides.

Sophisticated quality monitoring systems and programmes are being adapted and developed throughout the company to make the most of technology and experienced steelmakers' skills.

The plant has four blast furnaces with an annual capacity of three million tons (2 721 000 metric tonnes) and four L-D oxygen steelmaking furnaces with a 4.5 million tons (4 080 000 metric tonnes) yearly capacity.

Major finishing facilities include a 66-inch (1676 mm) hot strip mill with an 88-inch (2235 mm) two-high slabbing mill, 66-inch (1676 mm) two-high roughing mill, seven-stand continuous hot strip mill; a 68-inch (1727 mm) continuous hot strip mill with reversing roughing mill and seven finishing stands; six cold reduction reversing mills, two-five stand continuous cold rolling mills, three temper mills, three galvanizing lines, one Galvalume line, two tinning lines and two silicon electrical steel lines.

The company produces a full range of flat rolled carbon steel products and carbon, alloy and stainless steel castings. Flat rolled steel products include hot rolled sheet and strip, hot rolled skelp, steel plate, checker (floor) plate, cold rolled sheet and strip, cold rolled skelp, electrical (silicon) steel, vitreous enameling sheets, tin mill black plate. Coated steels include Premier (regular) galvanized, Satincoat (galvanneal), galvanized Minimized Spangle, Galvalume steel, electrolytic tin plate (single and double reduced), tin free steel (chromium coated, single and double reduced) and precoat steel (prepainted galvanized, cold rolled or tin plate).

The steel foundry is capable of producing castings up to 25 000 lbs., (11 300 kg) and has complete non-destructive and radiographic testing equipment.

Dofasco products are sold throughout Canada and exported to many countries around the world. The Titan Industrial Corporation, 777 Third Avenue, New York City, NY 10017, is the company's world-wide agent.

**Dofasco Inc.**

P.O. Box 2460

Hamilton,

Ontario, CANADA

L8N 3J5

**Contact:**

Mr. Robert C. Varah,

Director

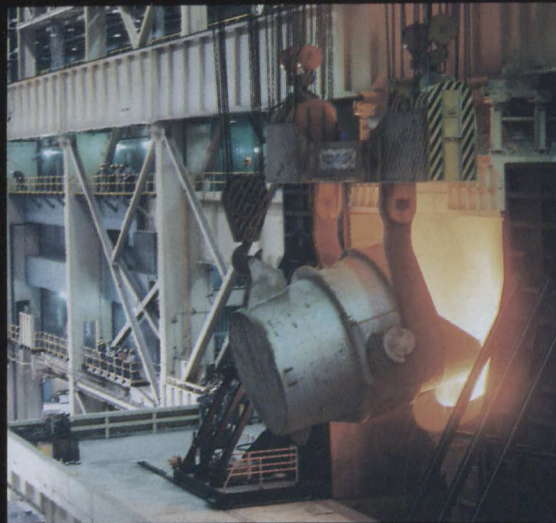
Commercial Development

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▲ An SPC computer at the rolling mill describes how accurately the process is under control. Operators can use the information to make immediate adjustments if necessary.

◀ Charging the BOF with molten iron at Dofasco's No. 2 steelmaking shop.

# Harris Steel Group Inc.

**H**arris Steel Group Inc., through its independent operating divisions and subsidiaries, is a major manufacturer, fabricator, supplier and subcontractor of construction steel, grating, rebar, mesh and related products especially suited for heavy industrial and large commercial projects throughout the world. In addition, it is a significant manufacturer of low carbon wire and cold finished bars. The company has approximately 1 100 employees and serves all of Canada and the north-eastern and central United States.

## **Courtice Steel**

Courtice Steel operates a mini steel mill. Billets are produced from scrap steel using an electric arc furnace and automated continuous casting of molten steel directly into four-inch (102 mm) square billets. The billets are rolled in a sixteen stand, in-line, rolling mill. Finished products are angles, flats, channels, rounds, squares, reinforcing steel and special sections.

Located in Cambridge, Ontario, Courtice is strategically situated near abundant sources of scrap steel and hydro electric power. Annual capacity is 300 000 tons at maturity.

Courtice has successfully followed a strategy of developing a market for small merchant bars, angles and channels in a variety of sizes which other mills find uneconomical to produce. The company continues to expand its range of steel qualities and shapes.

## **Laurel Steel Products**

Laurel Steel Products, with plants in Burlington, Ontario, and New Hudson, Michigan, manufactures wire, wire products and cold finished bars in both round and hexagonal shapes which are sold to a wide range of customers including automotive and appliance manufacturers, defence contractors and steel distributors. Laurel also makes welded mesh and other wire products used by the construction industry for the reinforcing of concrete.

In 1985, Laurel embarked upon a major program to widen product lines, expand size ranges and develop even higher quality standards. Welding capacity was upgraded to provide heavier welded mesh for the construction, pre-cast and concrete pipe industries. Drawing equipment was installed to produce cold finished bars in various shapes up to three inches in diameter and modifications were made to steel cleaning facilities to enable increased quantities of raw material to be processed. Laurel continues to enlarge its market because of its ability to shorten delivery times, and thereby allow its customers to reduce their inventory investment, as well as pay particular attention to quality control and tests for performance of the finished product.

**Harris Steel**

**Group Inc.**

P.O. Box 67

20 Queen Street West,

Suite 2210

Toronto,

Ontario, CANADA

M5H 3R3

**Contact:**

Milton E. Harris

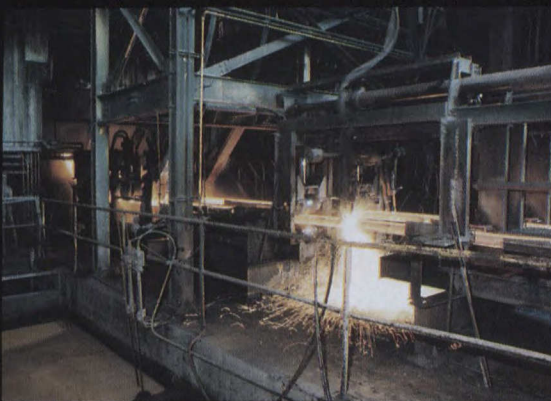
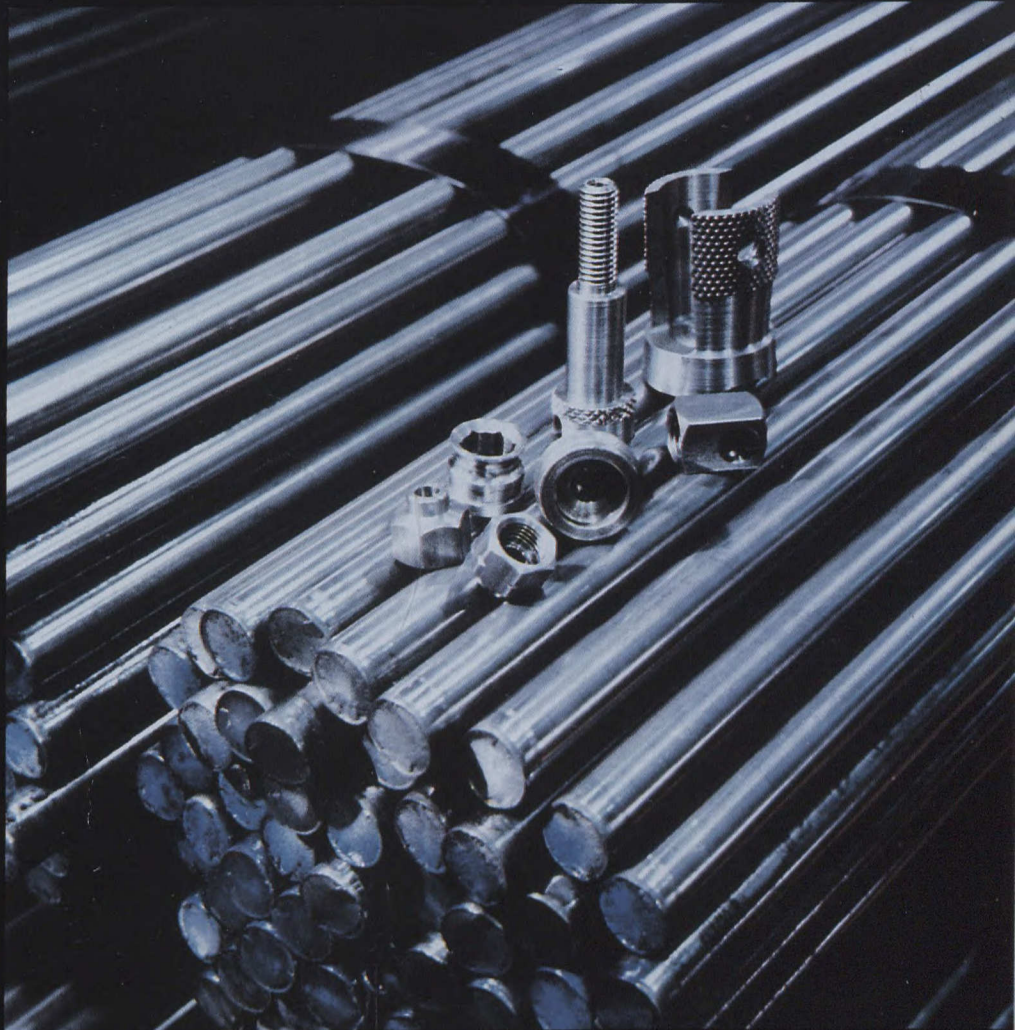
Chairman and C.E.O.

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(416) 585-9425

**Telex:** 06-217789

**Facsimile:** (416) 585-9431



▲ Cold finished bar produced by Laurel Steel Products and some of the components produced by its clients.

▲ Four inch (100 mm) square steel billet is automatically cut to length as it leaves the continuous caster at Courtice Steel.

# IPSCO Inc.

IPSCO Inc. which is Canada's largest, western-based steel company, manufactures a diverse range of steel products including coil, sheet, plate, hollow structural sections, oil country tubular goods, standard pipe, large diameter pipe and line pipe for markets throughout North America.

Milestones in the company's history have been the development of exceptionally fine-grained steels and a line of special products, such as IPSCO Arctic Grade steel and high frequency welded line pipe for sour gas applications. Also, IPSCO produced North America's first large diameter, spiral welded pipe to American Petroleum Institute specifications. Further product development has been made in the transportation industry and the automobile and farm implement manufacturing sectors. These applications include low carbon hot rolled steel for automotive wheels; high strength low alloy steel for cement mixers and road tankers; and a special grade of hollow structural sections for roll-over protection structures in off-road vehicles.

IPSCO's electric arc furnace steelmaking and its secondary steelmaking processes produce microclean steels having more uniform and reproducible mechanical properties and controlled inclusion morphology. The steelmaking processes coupled with controlled temperatures during rolling produce a steel with optimum toughness, increased ductility, and better shear strength.

Of special note in the finishing department, is the company's new high speed slitting facility, consisting of a slitter and coil build-up line commissioned in 1985 and with an annual capacity of 430 000 tonnes.

The North Vancouver facility has an annual capacity of 100 000 tonnes and can convert half-inch (12 mm) thick coils into 96" (2440 mm) wide cut-to-length sheet and plate.

IPSCO's Oil Country Tubular Goods Centre, is located at Calgary and was completed in 1983. It produces oil and gas well casing in diameters from four and a half inch to ten and three quarter inch (114 to 273 mm) and has an annual capacity of 140 000 tonnes. Their state-of-the-art, gas-fired heat treatment furnace can produce the

higher grades of casing used for deeper wells and enhanced oil recovery programs. This heat treatment facility coupled with the high speed ERW welding line and advanced non-destructive testing result in a casing product of extreme cleanliness, minimum wall thickness variation, and high collapse strength.

The recent expansion of IPSCO's steelmaking facilities included the installation of an 84-inch (2133 mm) wide continuous caster and a slab reheat furnace. These became operational in 1987 and improved production yields, quality, and costs.

IPSCO operates a quality assurance system based on three fundamental principles:

1. consistency of operation through the use of standardized steelmaking and rolling practices;
2. independent verification of compliance with specifications through the Canadian Standards Association's Quality Assurance system (CSA Z299.3); and
3. statistical process control from raw material to end product.

**IPSCO Inc.**

P.O. Box 1670

Regina,

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S4P 3C7

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John R. Tulloch

V.P. & G.M., ERW Sales

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▲ Tapping the furnace at the Regina Steelworks

◀ Inspection of the weld at the Calgary Oil Country Tubular Goods Center



# Ivaco Inc.

Since its incorporation as a public company in 1969, Ivaco has quickly grown to be one of North America's twelve largest steel producers with an annual steelmaking and rolling capacity of two million tons. Its range of primary steel products includes billets, bars, shapes, strips and wire rod. The company employs 12 000 people at 73 plants of which 44 are in Canada, 28 in the U.S. and one in Australia.

The past 17 years have seen the company's sales grow from \$11 million in 1969 to \$2.17 billion in 1987. From 1980 to 1987, Net Additions to Fixed Assets have amounted to over \$438 million which have been directed to extending the quality and metallurgical range of its products as much as to achieving cost efficiencies.

Ivaco is a major producer of wire and wire products including fasteners, ropes, chain and fencing and its plants provide market coverage throughout Canada and to the U.S. eastern seaboard and mid-west. Ivaco is believed to be the largest producer in the world of nails and other standard fasteners and the largest producer in North America of certain other wire related products including rods, welded wire fabric, oil tempered spring wire and pre-stressed strand. The corporation is also heavily engaged in the fabrication and erection of structural steel.

Bolts, nuts and other fastener products are produced at four locations in Canada to serve the automotive, machinery, construction and consumer goods markets in Canada and abroad.

In such a competitive market, it is noteworthy that two of Ivaco's fastener plants have been honoured by some of their leading customers in recognition of their excellent record of high quality and reliability. The Marieville plant has received the General Motors Corporation Spear No. 1 Award and a similar distinction from Caterpillar. The Ingersoll plant was also honoured by

a major automobile manufacturer and consequently raised its suppliers rating, providing the status of a privileged supplier.

Ivaco has recently expanded and upgraded one of its rolling mills to convert high quality steel billets into special quality hot-rolled wire rods and thus create potential to penetrate markets which previously have not been available to it.

In addition to its steel-based products, Ivaco and its subsidiaries provide a wide range of other products and services including:

- pipe in plastic, concrete and cast iron;
- machinery for specialized purposes, including railway track maintenance;
- copper and copper alloy products including tube;
- precision machining of industrial components;
- clothing for paper making machines.

**Ivaco Inc.**

Place Mercantile

770 Sherbrooke

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Quebec, CANADA

H3A 1G1

**Contact:**

John G. Metrakos,

Director

Marketing of Raw Materials  
and Materials Mgt.

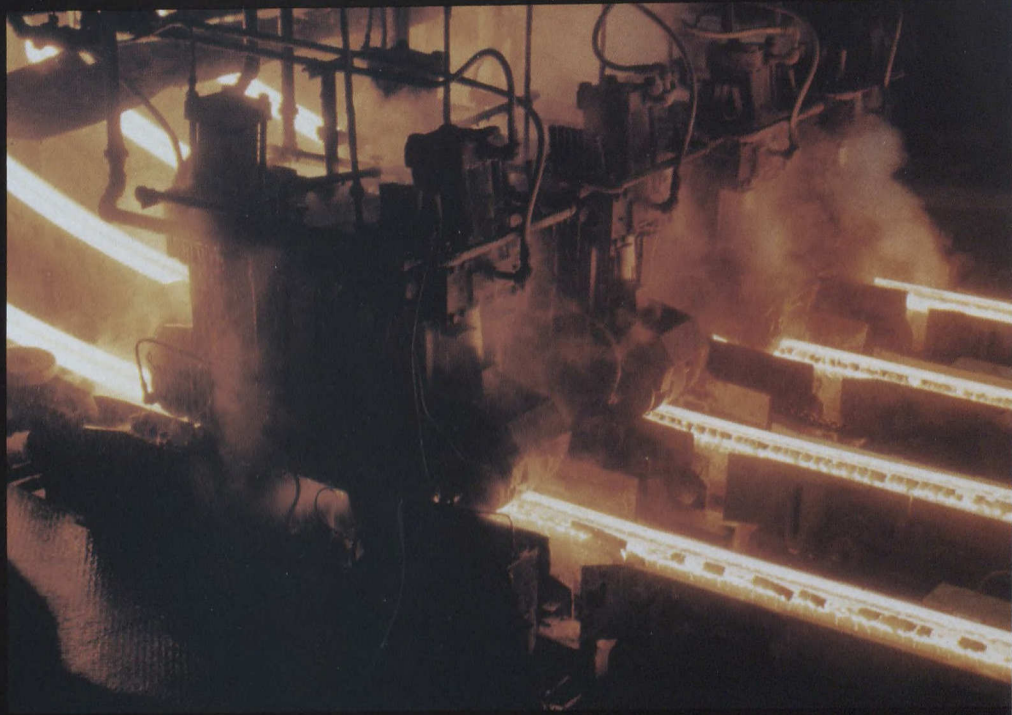
**Telephone:**

(514) 288-4545

**Telex:** 055-60305

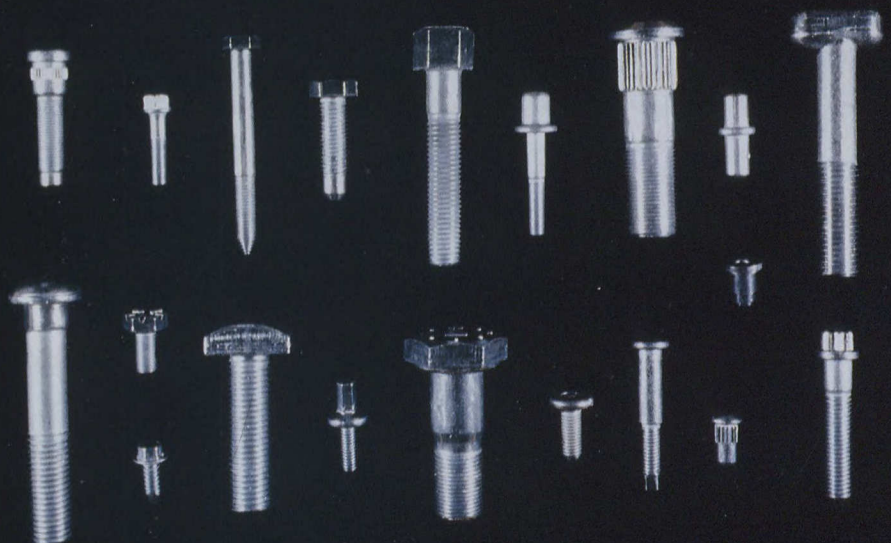
**Facsimile:** (514) 284-9414 and

(514) 284-9429



▲ The four strand billet caster at L'Orignal, Ontario

▼ Cold headed fasteners produced at the Ingersoll, Ontario plant



# Lake Ontario Steel Company

Lake Ontario Steel Company, known as LASCO, is one of the most modern and efficient continuous cast steelmaking facilities in the world. It is the pioneer member of the Canadian based Co-Steel Inc. Since its inception in 1964, LASCO has maintained a philosophy that it will implement the newest proven technology to remain cost competitive and lead the industry in productivity and product quality. This strategy has singled out LASCO as a "high-tech" competitor in a traditionally mature industry.

During the last two decades of facility upgrading and constant innovation, LASCO has evolved from a 109,000 tonne per year mini-mill to what can better be described as a market mill with annual steelmaking capacity of over 900,000 tonnes. In spite of this growth, LASCO has remained a small company in its management style and stresses employee participation and analytical tools such as Statistical Process Control to maximize not only product quality but quality of work-life as well.

Originally a producer of reinforcing bar and light structural sections, the thrust for improving quality has permitted a larger product offering. Now, LASCO produces carbon, alloy, micro-alloyed chemistries; merchant and special quality levels; in rounds, flats, bar size and structural angles and channels, rebar, as well as special sections such as grader blade. Recent facility changes and new product developments have been successful in expanding LASCO's role in supplying special quality bar to customers in the cold drawing and forging industries.

Located on a 365-acre (148 hectares) lakefront site in Whitby, just east of Toronto, the LASCO facility has easy access to major markets around the Great Lakes by water, rail or truck. The plant has two modern melt shops which recycle metal, purify and continuously strand-cast billets used for subsequent rolling. Melt Shop No. 1 contains a 53-ton (48 tonnes) ultra-high powered electric arc furnace and a new state-of-the-art ladle arc refining furnace. This combination was implemented to provide precision cleanliness, chemistry and temperature controls needed in producing superior quality steel for our most demanding customers. Melt Shop No. 2 contains one 130-ton (118 tonnes) ultra-high powered electric arc furnace

used to produce most of the high volume structural products. This facility was commissioned in 1981 using innovations such as a twin-arm ladle turret to permit sequence casting which improves productivity and product uniformity.

The Rolling Mills transform "high-tech" steel from concast billets into the numerous shapes sold in the marketplace. Modern computer-aided design and manufacture of mill rolls combined with sophisticated process controls have made superior product tolerances a standard practice. The 17-stand continuous bar mill produces smaller bars and shapes. The 10-stand structural mill rolls larger sections.

Recent additions to storage and shipping areas have been made to keep up with today's changing needs. Streamlined computer-assisted operations are helping customer efforts to implement "just-in-time" inventories.

Throughout the operation, statistics are used through Operator Process Control to monitor and maximize performance.

**Lake Ontario  
Steel Company**

Division of  
Co-Steel Inc.  
Hopkins Street South  
Whitby,  
Ontario, CANADA  
LIN 5TI

**Contact:**

Mr. Rimas J. Gudelis  
Marketing Manager

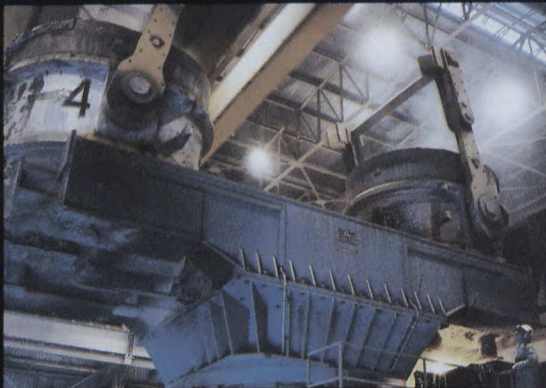
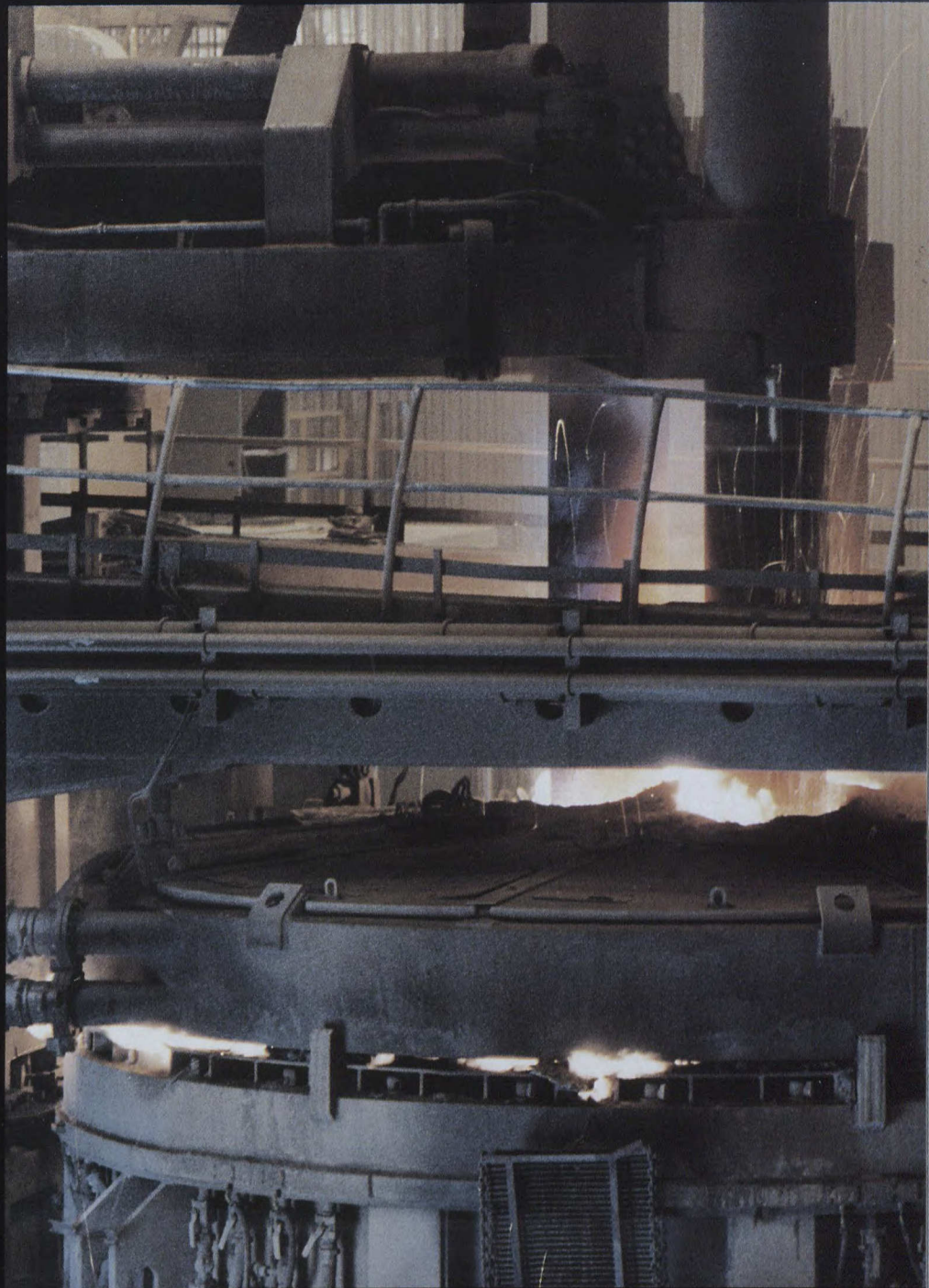
**Telephone:**

(416) 668-8811

**Telex:** 06-981265

**Facsimile:** (416) 668-6469

**Cable Address:** LASCOS



▲ For their size, LASCO's furnaces are among the highest powered and, therefore, most productive in the world.


◀ This state-of-the-art, twin-arm ladle turret permits sequence casting for productivity and consistent quality

# Manitoba Rolling Mills

**T**he widest product range in North America produced from continuously cast billets in a high technology state-of-the-art rolling mill and melt shop, supported by technical and engineering specialists, aptly describes Manitoba Rolling Mills.

More than 80 years of experience in making steel in Selkirk, just north of Winnipeg has made the company well known as a dependable producer of high quality products.

M.R.M. has an annual production capacity of 300 000 tons (272 000 tonnes). The main production facilities include a melting and casting shop having two, 50-ton (45 tonnes) capacity, high productivity, electric arc furnaces and two, twin strand, continuous casting machines, controlled by process computers.



The development of sophisticated ladle metallurgy techniques, micro-alloying, a computerized production and process control system and mechanized billet conditioning all provide for high quality continuous cast steel including alloy and Boron Grades.

The fully automated high speed continuous in-line rolling mill is fitted with universal stands capable of producing to extremely tight tolerances. The mills produce a full range of angles, flats, rounds, squares and channels. In addition, light beam sections and a wide variety of special sections have become a very important part of the product range. M.R.M.'s products are marketed through sales offices in Selkirk, Toronto and Calgary. M.R.M. also has a representative located in Milwaukee.

M.R.M.'s continuing development has included the installation of Universal stands for the production of light weight and standard beams, rail and the capacity to produce heavier special sections. Emphasis is placed on Statistical Process Control, computerized order and scheduling systems to service today's market in quality products. M.R.M. welcomes inquiries from North America and beyond.

**Manitoba Rolling Mills**

P.O. Box 2500

Selkirk,

Manitoba, CANADA

R1A 2B4

**Contact:**

Mr. H. Bruce Irvine

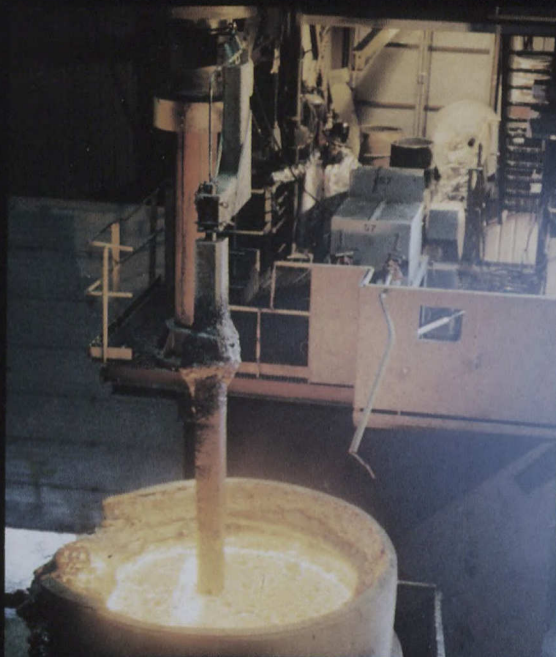
Marketing & Sales Manager

**Telephone:**

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**Telex:** 07-57506

**Facsimile:** (204) 785-9011



▲ The operators pulpit in the continuous mill.

◀ The Ladle Treatment Station

# QIT-Fer et Titane Inc.

**Q**IT-Fer et Titane Inc. was formed in 1948 to mine and smelt ilmenite ore. Originally a joint venture between Kennecott Corporation and Gulf and Western Ind., QIT is today a wholly owned subsidiary of B.P. America, Cleveland.

The ore comes from the world's largest known rock ilmenite deposit. Over three million tons of ore is transported annually from the mine near Havre St. Pierre, Quebec to Sorel, near Montreal. Here it is beneficiated, roasted, mixed with anthracite coal and charged into one of nine electric smelting furnaces.

The smelting technique was developed by QIT and is unique. The two products of the smelting operation, slag and iron, serve different markets.

The slag production of nearly one million tons annually is marketed under the registered trade name SORELSLAG and contains 75 to 85 percent of titanium dioxide. QIT is the world's largest supplier of titanium units, mainly to the pigment industry.

The iron portion is of unusually high quality with very low sulphur, phosphorus, manganese and silicon contents. A portion of the iron is pigged and sold under the trade name SORELMETAL to iron foundries throughout the world. Its high purity or absence of significant quantities of tramp elements, makes SORELMETAL the ideal charge material for the production of spheroidal or ductile cast iron. QIT is the world's largest producer of high purity iron.

In 1986, QIT completed a state-of-the-art steel plant to produce 360 000 tonnes of high quality steel billets. Starting with the high purity iron from its smelter, the steel plant utilizes KOBM ladle metallurgy producing billets for the most critical applications in the wire and bar industries.

The QIT plant has its own port facilities, handling over four million tonnes of raw materials and export products. Nearly 90 percent of QIT's production is exported to more than 1 200 customers in over 47 countries.

To complement its production and marketing facilities, QIT maintains an extensive research facility in Sorel. Staffed with over 100 professional, technical and engineering personnel, QIT conducts basic and applied research in pertinent scientific areas.

**QIT-Fer et**

**Titane Inc.**

770 Sherbrooke

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**Contact:**

J-M Lapointe

Manager

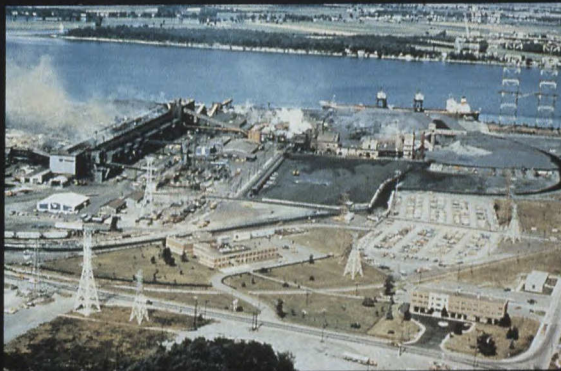
Sorelmetal Marketing

**Telephone:**

(514) 288-8400

**Telex:** 05-268575

**Facsimile:** (514) 286-9336



▲ The company's laboratory and research facilities are located on the site to provide necessary services.

◀ The ore is transported by vessel from Havre St. Pierre to Sorel, 80 km downstream from Montreal on the south shore of the St. Lawrence River.



# Sidbec-Dosco Inc.

In 1968, Sidbec purchased Dominion Steel and Coal Corporation Limited, creating a subsidiary: Sidbec-Dosco Inc.

Today, Sidbec-Dosco operates four plants, including three in the province of Quebec, at Contrecoeur, Montreal and Longueuil, and one in the province of Ontario, at Etobicoke near Toronto. The company has a total steelmaking capacity of 1.3 million tonnes, producing billets at its Montreal mill and billets and slabs at Contrecoeur.

In order to meet the increasingly demanding requirements of its customers, the company has constantly

sought to improve its steelmaking and rolling techniques. At the Contrecoeur mill, this has involved the installation of two eccentric bottom tapping furnaces and a ladle furnace. One of the added benefits of the ladle furnace has been the ability of the company to manufacture new grades of steel.

To ensure supply of the consistently high quality products sought by today's steel consumers, Sidbec-Dosco has established a program of quality management with increased emphasis on the prevention of defects during production. Such a program necessitates that all line operators are closely involved in quality. The program comprises several elements including quality

assurance, the use of statistical process controls and quality awareness. Through the expertise of its employees and its use of modern equipment, Sidbec-Dosco is able to offer products of the highest quality.

Sidbec-Dosco invites inquiries from steel consumers abroad concerning their steel requirements and emphasizes that it has favourable access to ocean shipping lines through its plants located on the St. Lawrence Seaway.

**Sidbec-Dosco Inc.**

300 Léo-Pariseau Street

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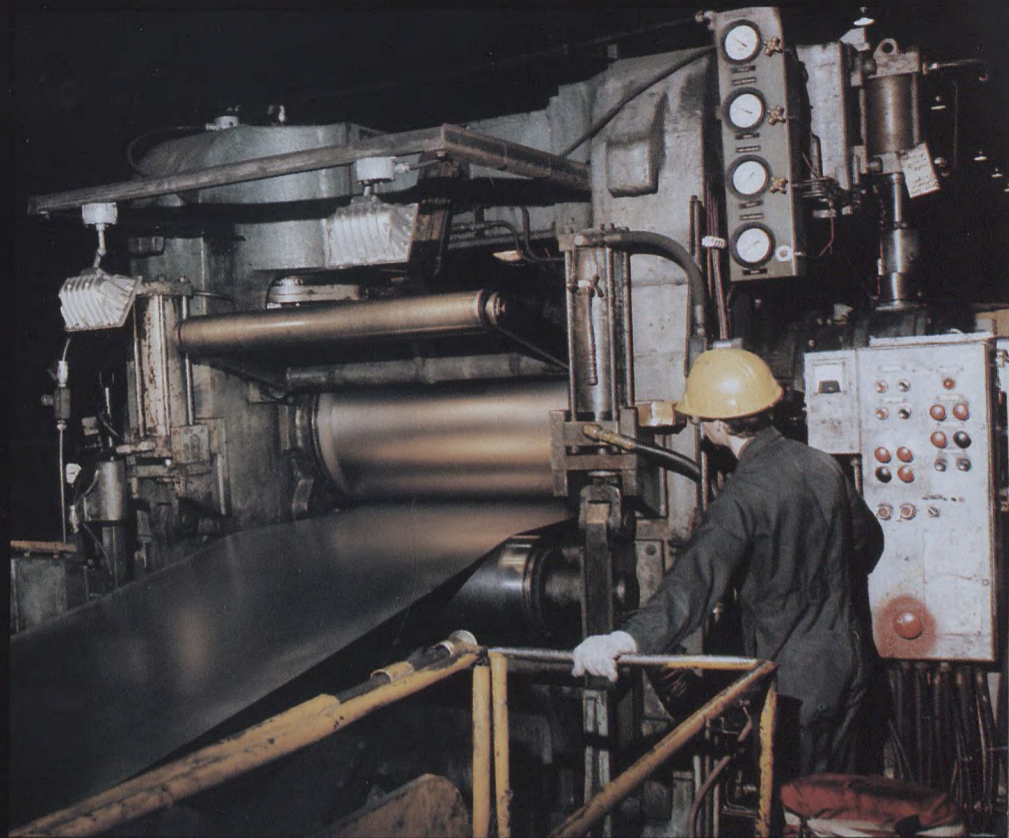
Marketing and Sales

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**Facsimile:** (514) 286-8649



▲ Cold rolling at the Contrecoeur plant

◀ Tapping of one of the eccentric bottom tapping furnaces at Contrecoeur

# Slater Steels — Hamilton Specialty Bar

**S**ituated at Hamilton, Ontario in the heartland of Canada's industrial area this plant is well placed geographically to serve world markets. Major facilities for boat, rail or truck shipment are all readily available nearby.

Annual production capability is 300 000 tonnes. Melting is via electric furnace with secondary refining in a ladle arc unit. Billets are strand cast through one of two triple strand curved mold casters. Following reheating, rolled product is produced on a semi continuous, high speed, multi stand rolling mill. Additional processing capability includes heat treating, sawing, shearing and machine straightening. Two grinding ball mills for the production of forged steel balls are also available.

Formerly known as Burlington Steel and in existence since 1911, these operations currently employ 700 people. Quality at Hamilton Specialty Bar Division starts with its people and their commitment. Statistical process control techniques, laser measuring devices and in-line rolling mill non-destructive testing equipment are all combined with modern laboratory gauging and testing equipment in a computerized environment to ensure product conformity with customer requirements.

In steelmaking, the ladle arc refining unit permits the separation of melting from the more complex refining process. Coupled with sophisticated shrouding techniques during casting the result is consistently cleaner billets with improved internal quality and exacting chemistry control.

Following reheating and guided by computer controlled temperature gauging to maintain specified size tolerances the billets are rolled to a wide array of available product sizes and complex shapes. This mill's capabilities in the field of custom designed special sections rolled to demanding chemical and physical specifications are well known in many parts of the world.

They are also a major producer of spring steel flats currently serving customers in both North America and Mexico. Round bars for varied end uses from bright bar drawing to forging and in grades ranging from plain carbon, resulfurized, or microalloy through to full alloy are also manufactured for customers in the automotive, construction, mining and agricultural industries.

At Hamilton Specialty Bar Division, a continuous improvement in quality of product is the goal. In support of this, extensive capital investments have been made and additional funds are already committed. These technological improvements have been united with education in their use for the workforce to provide the best possible quality in products for their customers.

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**Slater Steels**

Hamilton Specialty Bar

A Division of

Slater Industries Inc.

319 Sherman Avenue North

P.O. Box 2943

Hamilton,

Ontario, CANADA

L8N 3P9

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Mr. Brian Naber,

Vice-President

Commercial

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**Telephone:**

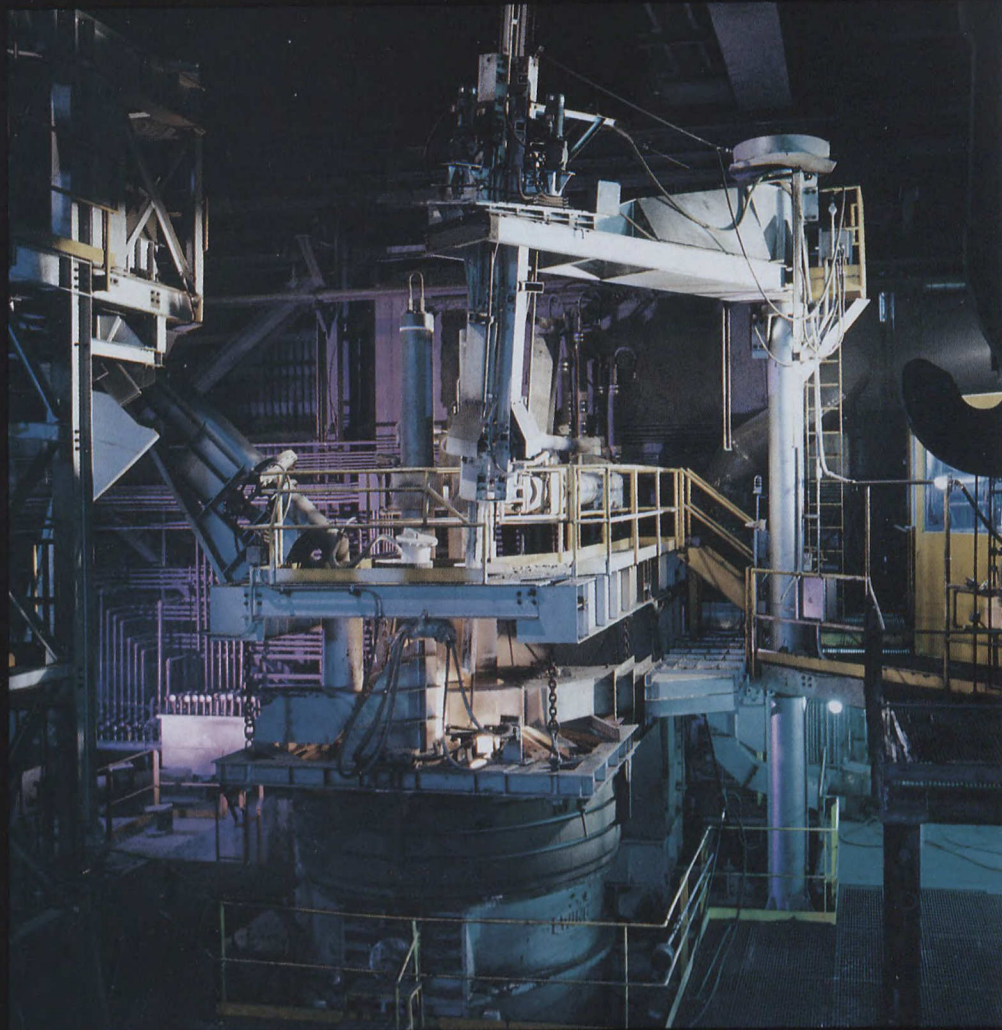
(416) 549-4774

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**Telex:** 061-8480

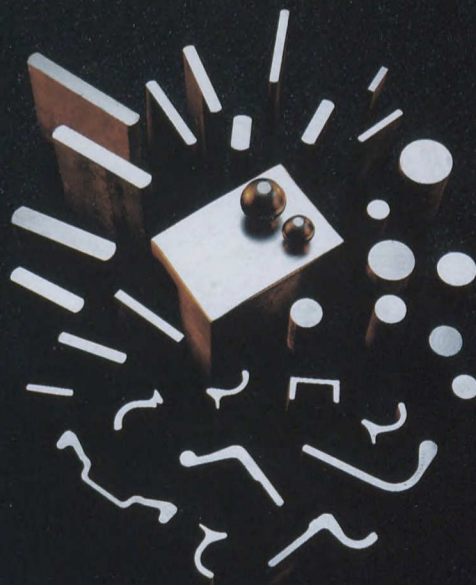
**Facsimile:** (416) 549-3785

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▲ The ladle arc refining unit at Hamilton provides the technology for the exacting quality steels that meet today's customer requirements.


◀ Samples of products including billets, rounds, flats, grinding balls and some examples of Slater's special section capability.



# Slater Steels — Sorel Forge

**S**later Steels — Sorel Forge Division is a major producer of forged tool and die steels and is one of the largest fully integrated open die custom forging operations in Canada. The plant is located in Sorel, Quebec, about 50 miles east of Montreal.

At the plant, a full range of carbon, alloy and stainless steel grades are melted in electric furnaces equipped with degassing facilities. The furnaces feed two open die forging presses with capacities of 2 000 tons and 5 000 tons (1 800 and 4 500 tonnes). Complete heat treating, quenching and rough machining services are available and the machine shop houses modern and efficient lathes, milling and trepanning machines.



Open die forgings are supplied rough machined to a maximum individual weight of 50 000 pounds (22 700 kg) in all AISI and SAE carbon, alloy and stainless grades or their equivalents. Slater's range of custom forgings covers discs up to 90 inches (229 cm) in diameter, rounds (solid, hollow, shaped and plain) up to 52 inches (132 cm) in diameter and flat or square bars with a maximum cross-section of 2 000 square inches (12 900 cm<sup>2</sup>).

High quality custom forgings are produced to exact customer specifications and have found applications in many industries including steel, shipbuilding, nuclear, machinery building, mining and electrical.

The Sorel Forge Division of Slater Industries Inc. has carved a name for itself in the forged tool and die steel industry with the introduction of its densifying process. This forging method ensures a homogeneous structure

throughout the die block and has created a greater demand for the company's tool and die steel products both in North America and Europe. The company backs its high standards with a guarantee on its CSM-2 (AISI P-20) plastic mold steel — if these blocks are found metallurgically defective, the tool makers are compensated for both material and labour involved in sinking the cavity. Production is rigorously controlled from the time of melting to the final inspection assuring constant high quality. Slater's size range of forged tool and die steels varies from a minimum five inches (12.7 cm) in diameter for rounds and squares and a thickness of four inches (10.16 cm) for flat bars to a maximum weight of 50 000 pounds (22 700 kg).per block.

The company welcomes export inquiries for its custom forgings and tool die steels.

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**Slater Steels —**

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**Sorel Forge**

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A Division of

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Slater Industries Inc.

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P.O. Box 520

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201 Montcalm Street

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Sorel,

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Quebec, CANADA

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J3P 5P2

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**Contact:**

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Michel Cardin

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General Manager

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Sales and Marketing

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**Telephone:**

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(514) 746-4100

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**Telex:** 052-68603

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**Facsimile:** (514) 746-4092

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▲ The 5 000-ton (4 500 tonne) forging press at Sorel

# Stelco Inc.

**S**telco Inc., Canada's leading steel producer, came into existence in 1910 when Canadian financier, Max Aitken, who went on to become Lord Beaverbrook, eminent British newspaper publisher and politician, brought five steel manufacturers together to form The Steel Company of Canada, Limited. In its first year of operation, the newly-formed company produced 85 000 tonnes of steel; current annual production is in the order of 4.5 million tonnes.

Stelco currently employs about 16 000 people. With its head office in Toronto and general offices in Hamilton, the company has two distinct spheres of operation — a core business comprising Hilton Works in Hamilton, Lake Erie Works at Nanticoke and two mini-mill complexes in Edmonton, Alberta and Contrecoeur, Quebec which manufacture and roll basic steel products and four separate, entrepreneurially-oriented strategic business units — The Stelco Wire Products Company; The Stelco Fastener and Forging Company, The Stelco Pipe and Tube Company and the Canadian Drawn Steel Company which make and sell finished products for specific markets. The Company also has marketing subsidiaries in the United States,

Switzerland, Argentina and Venezuela, owns outright or has ownership interests in mining properties in the United States and Canada and is involved in a number of joint ventures, the most recent of which is a facility in British Columbia for the production of grinding media for the mining industry. Stelco has had an historic commitment toward continually modernizing and upgrading its manufacturing facilities. In this vein, it has recently completed a major renovation of its Hilton Works basic steel plant in Hamilton involving the installation of two continuous casters, the complete rebuilding of one of its bar mills and modifications to other production facilities.

The Company has also always been noted for its technological leadership. In addition to operating its own research and development centre in Burlington, it maintains very close links with the academic research community and it is the only Canadian steelmaker to have endowed chairs of metallurgy at Canadian universities, one at McMaster University in Hamilton and the other at the University of British Columbia. This relationship is based upon a conviction that a closer integration of the pure research, conceptual and pilot plant skills inherent in the world of academia with the well-demonstrated capacity of corporate researchers to convert these elements

into mature manufacturing and processing technologies can bring very real benefits to both parties involved. One of the most recent examples of Stelco-developed technology is the Coilbox, a device that has significantly reduced both the capital and the operating costs of hot strip mills as well as enhancing product quality. This and other Stelco technology is being marketed throughout the world.

Harnessing the power of its human resources is an important component of Stelco's forward planning and particular stress is laid on employee training. A considerable percentage of the Company's workforce has already become proficient in the technique of statistical process control which basically involves monitoring and correcting quality problems at the processing rather than at the inspection stage of the manufacturing sequence. In addition, every manager and supervisor is required to take both initial and refresher courses in inter-action management which, in essence, is the practice of effective human relationships.

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**Stelco Inc.**

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Stelco Tower  
Hamilton,  
Ontario, CANADA  
L8N 3T1

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**Contact:**

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W.A. Hopkins  
V.P. Stelco Steel

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**Telephone:**

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(416) 528-2511

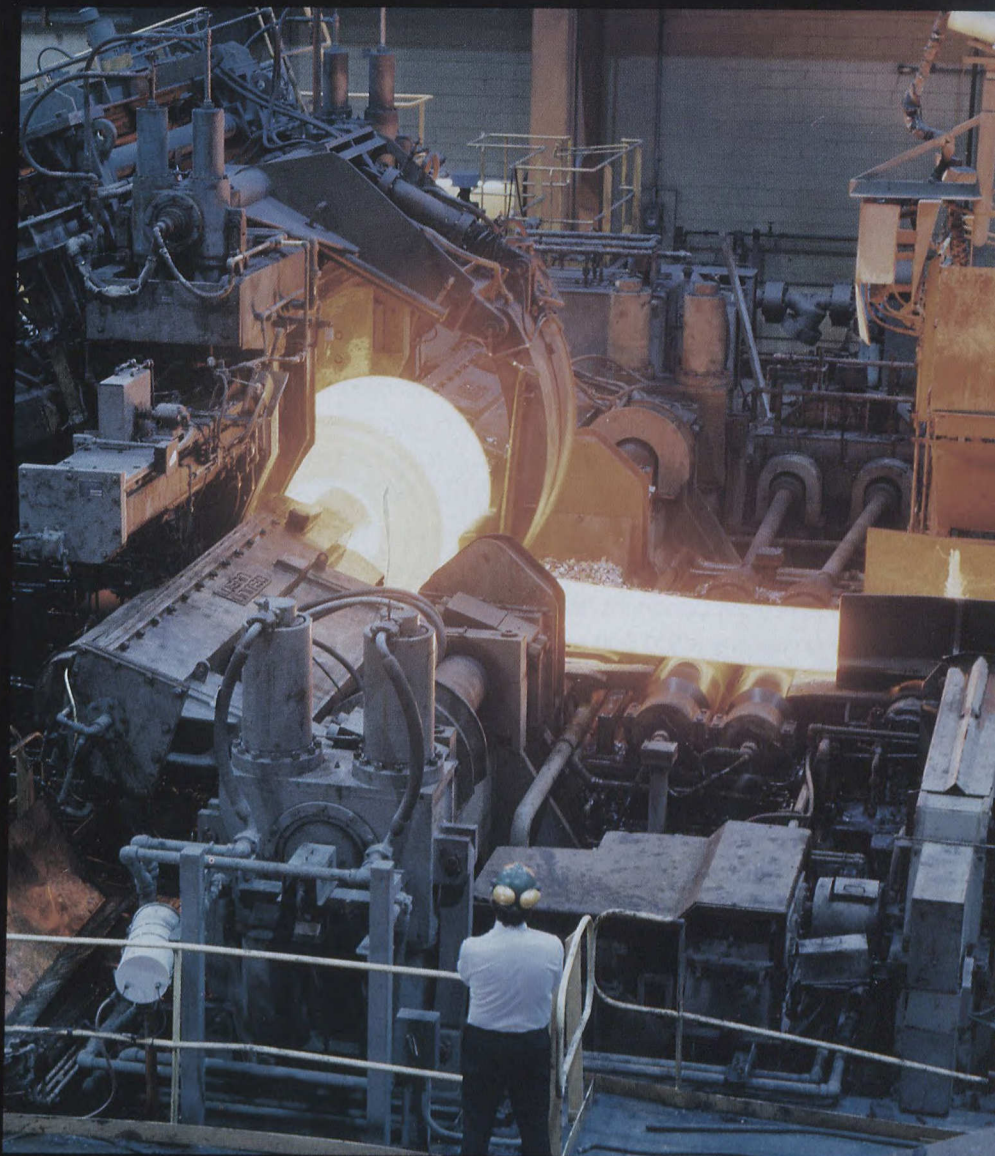
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**Telex:** 061-8621/8626

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**Facsimile:** (416) 528-2511 ext. 4994

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▲ One of the most recent examples  
Stelco-developed technology is  
the Coilbox.



# Sydney Steel Corporation

**S**ydne Steel Corporation (Sysco) has been supplying major Canadian railroads and markets throughout the world with quality rail products for more than eighty years.

Sydne Steel operates an integrated steelworks situated on a 260-hectare site at tidewater in Sydney, Nova Scotia, on Canada's Atlantic Coast. With excellent harbour and docking facilities, Sydney is ideally situated to serve world markets and the rail lines of the Canadian National Railway provide access to rail transport throughout the North American Continent. Raw steelmaking capacity is 910 000 tonnes per year.

Primary facilities include iron and steel-making furnaces, an oxygen plant, vacuum degassing unit, continuous slab/bloom caster, rolling mills, rail finishing facilities and auxiliary shops. Employment totals 1 200.

Railroad rails are Sydney's most important product and have been its principal export since 1905. Other products include cast slabs and blooms, rolled blooms, forging and slab ingots, tie plates and mine arch bars.

Sydne has maintained a position of leadership in the rail industry from the outset and has been responsible for many industrial innovations. The controlled cooling process for eliminating shatter cracks in rails was developed at Sydney. Sydney was the first mill in North America to produce rail from vacuum-degassed steel; to manufacture 25-metre rails on a production basis; and to use a roller straightener to process all rails produced.

Sydne rails and tie plates are supplied to railroads around the world and have a proven record over a complete range of operating, climatic and geographic conditions. Sydney manufactures rails to all major national and international specifications, including A.R.E.A., A.S.T.M., B.S.S., C.N.R., C.P.R., I.S.O. and U.I.C.

Sydne rails are produced in carbon, intermediate and premium alloy grades under an exacting clean steel practice.

A capital improvement program, designed to ensure Sydney's capability as a viable, self-sufficient and internationally competitive entity is underway. Costing approximately \$200 million, the plan includes the installation of an electric arc furnace, ladle refining furnace, bloom casting facilities, a universal rail mill and improvements to service and administrative areas. The program is projected for completion during 1989.

**Sydney Steel  
Corporation**

P.O. Box 1450

Sydney,

Nova Scotia, CANADA

B1P 6K5

**Contact:**

Dr. John Strasser

Vice-President,

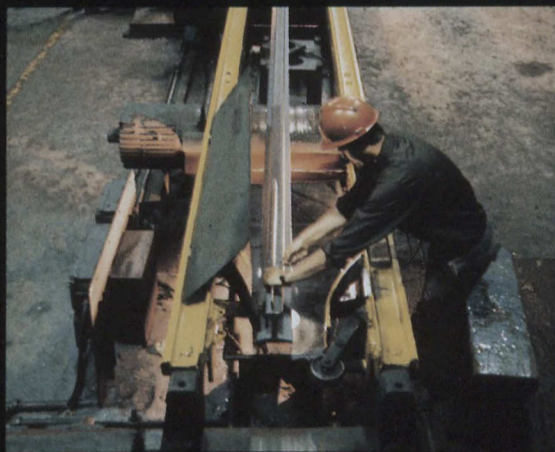
Marketing

**Telephone:**

(902) 564-5471

**Telex:** 019-35197

**Facsimile:** (902) 539-6009



▲ Rails being loaded for export.

◀ Each rail is checked to ensure conformity to specification. Ultrasonic testing ensures internal soundness.

# Union Drawn Steel Co. Ltd.

**F**ounded in 1905, Union Drawn Steel Company, Limited is Canada's largest producer of cold finished carbon and alloy steel bars.

The present plant was opened in 1942 with major expansions to buildings and equipment in 1967-68 and 1980-81. Capacity is rated at 70 000 tonnes annually. This facility is well located with in-plant truck and railcar loading and easy access to the Hamilton docks for water shipments.

Cold drawn bars are produced on three bar drawbench lines, a continuous coil drawing unit and a coil block. A centerless turning unit, six centerless grinders, a bar annealing furnace, and five mechanical descaling units together with supporting systems for straightening, cutting, and quality control, round out this flexible and efficient facility.

Many of the production units are fully automated to provide large volume, high quality cold finished bar products at low cost for the automotive industry. Other manufacturing units produce high quality short run products for machinery and hydraulic cylinder manufacturers.

A full range of carbon steel, cold drawn rounds, hexagons, squares and flats as well as turned and polished rounds and precision ground shafting are processed from purchased wire rod and hot rolled bars. Free machining, high strength and commercial alloy steels are regularly produced. Future plans include processing of stainless and specialty alloy cold finished bars.

Because of the critical end use of many parts produced from cold finished bars, consistency and high quality is emphasized at all production steps. The Statistical Process Control (S.P.C.) Program is expanded and updated as needed to keep ahead of customers' quality expectations. The latest non-destructive testing equipment is used and bar peeling is available when required.

A prime example of production and quality control techniques is Union Drawn's "SUPREME 100" Precision Ground Shafting. With a guaranteed 100 000 p.s.i. or 690 MPa minimum yield strength this medium carbon ground product features a standard 20RMS finish and seam free surface (suitable for chrome plating) that is designed for top of the line hydraulic cylinder piston rods.

Somewhat unique in the Canadian steel industry Union Drawn Steel is privately owned by a group of investors which include several managers. Quick decisions, good location, excellent facilities and in-depth experience ensure customers will receive the best service as well as high quality and cost effective cold finished carbon and alloy steel bars.

**Union Drawn Steel  
Company, Limited**

1350 Burlington

Street East

P.O. Box 98

Hamilton,

Ontario, CANADA

L8N 3A2

**Contact:**

J.J. Yelland

Vice-President

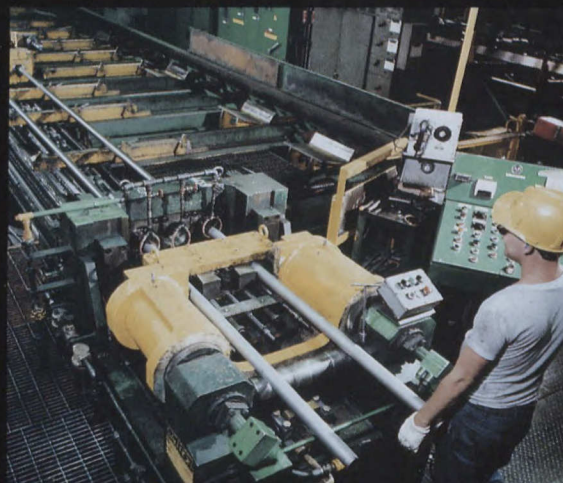
Marketing and Sales

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(416) 547-4480

**Telex:** 061-8314

**Facsimile:** (416) 544-3852



▲ Checking for tight seams and surface defects not readily visible using a Roto Bar non-destructive testing unit

◀ Cold drawing rounds on a fully automated, 150 000 p.s.i. (1034 MPa) drawbench with an in-line shear and straightener.

# Western Canada Steel

**S**trategically situated in Vancouver, Canada's gateway to the Pacific Rim, Western Canada Steel Limited has grown steadily during the past 35 years, keeping pace with the rapidly developing economy of British Columbia.

The company's main steel producing facilities are contained in a modern plant located at a 175-acre (70.8-hectare) site on the Fraser River. They include a computer controlled electric furnace and continuous casting operation, continuous and semi-continuous rolling mills and a fastener manufacturing plant.

The annual capacity of the Vancouver plant has grown to 165 000 tonnes of steel products. Raw material is steel scrap supplemented by basic oxygen furnace ingots for rolling.

In addition to the Vancouver operation, the company has a 110 000 tonnes annual capacity electric furnace and rolling mill in Calgary, Alberta, which serves the Alberta and Saskatchewan markets.

Across the Pacific, the company operates a 60 000-ton (54 000 tonnes) capacity modern steel plant in Honolulu where it successfully pioneered a mill in conjunction with Hawaiian interests to serve the growing market in Hawaii and the adjacent Pacific islands.

Products include reinforcing bar, merchant shapes including rounds, squares, flats, angles and channels, special quality bars and alloy bars as well as a wide variety of fasteners such as standard bolts and nuts, mine-roof bolts, spikes, pipe and tank bands and forgings. The company continues to expand its product range as part of a program to meet the special needs of Canada's western provinces and the Pacific area in mining, milling, lumbering and construction.

*Note: At the time of printing, the status of the Vancouver plant is subject to change.*

**Western Canada**

**Steel Limited**

P.O. Box 67050

Postal Station O

Vancouver,

B.C., CANADA

V5W 4A6

**Contact:**

Mr. D.A. Hoffman

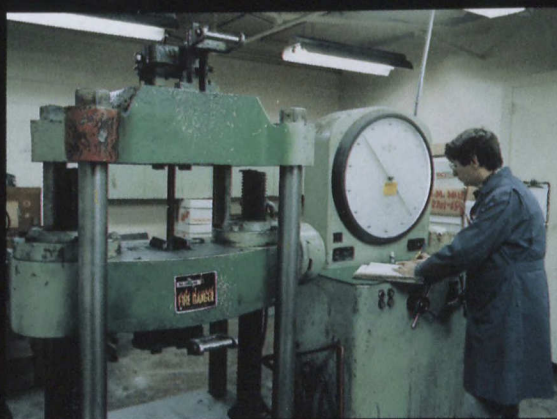
Vice-President,

Sales

**Telephone:**

(604) 321-7700

**Facsimile:** (604) 321-7786



▲ The Rokop four strand continuous casting machine.

▲ Mechanical testing facilities where test bars are pulled to determine the steel's tensile and yield strength.

# Product Dimensions Available<sup>(1)</sup>

Ingots, billets, blooms, slabs <sup>(2)</sup>	46
<b>Flat Products<sup>(2)</sup></b>	
Hot rolled sheet and strip	47
Cold rolled sheet and strip	47
Electrical steels (silicon)	47
Galvanized sheet	47
Tin plate and "tin free"	47
Prepainted steel	47
Plate	48
Stainless steel	48
<b>Rod and Bar Products<sup>(3)</sup></b>	
Merchant bars	48
<i>Angles, Channels, Flats, Grader blades, Hexagons, Rounds, Special Shapes, Squares</i>	
Concrete reinforcing bars	50
Special quality bars and Alloy bars	51
<i>Flats, Hexagons, Rounds, Squares, Special Shapes (including Hollow Drill Rod)</i>	
Stainless steel bars	52
Tool steels	52
Wire rod	52
Cold finished bars	52
<i>Flats, Hexagons, Machined, Rounds, Specials, Squares</i>	

(mm) diam

### Structural Shapes<sup>(2)</sup> (3)

Intermediate structurals	53
<i>Angles, Beams, Channels, Specials</i>	
Heavy structurals	54
<i>Angles, Bearing pile, Channels, Sheet piling, Standard beams, Wide Flange shapes</i>	
Hollow structural sections	55
Rail	55

### Pipe and Tube<sup>(2)</sup>

Pipe and tube welded	55
Pipe and tube seamless	55

### Other Products

Refer to Corporate Reports, pages 8 to 42.

References (1)-(11) are found on page 56.



Imperial (inches)

Metric (mm)

	Width	Thickness	Width	Thickness
<b>Ingots:</b>				
Atlas Specialty <sup>(5, 6, 8)</sup>	17-52	round or square	432-1321	round or square
Dofasco	34-66 <sup>(4)</sup>	24-30	864-1675 <sup>(4)</sup>	610-685
IPSCO	45-77	25-30	1143-1956	635-762
Slater, Sorel Forge <sup>(5, 6)</sup>	19-63	round or square	483-1600	round or square
Stelco	25-72	23-31	635-1829	584-787
Sydney Steel Corp.	25-72	23-30	635-1829	584-762
<b>Slabs:</b>				
Algoma	20-84	3-12	508-2134	76-305
Atlas Stainless <sup>(6)</sup>	to 52	to 5	to 1320	to 127
Dofasco	29-63	10	740-1600	254
IPSCO <sup>(7)</sup>	36-80	8-10	914-2032	203-253
Sidbec-Dosco	28-60	7	711-1524	180
Slater, Sorel Forge <sup>(5, 6)</sup>	16-72	6-30	406-1830	152-762
Stelco	5½-7½	3-4	140-190	76-102
	23½-68	3¾-16	597-1727	95-406
	44½-80	7 7/8-9½	1130-2030	200-241
Sydney Steel Corp.	20-84	3-12	508-2134	76-315
<b>Blooms and Billets:</b>				
Algoma	2¼-14	2½-14	57-356	65-356
Atlas Specialty <sup>(5, 6, 8)</sup>	2 13/16-24	2 13/16-24	71.4-610	74.1-610
Courtice (Harris)	4	4	102	102
Ivaco	4¾	4¾	120	120
Lasco	5¼	5¼	133	133
	5 1/8	7 3/8	130	187
Manitoba Rolling Mills	5¼	5¼	133	133
	6¾	6¾	172	172
	7 5/8	7 5/8	194	194
	8	8	203	203
QIT-Fer et Titane Inc.	4¾-5.1	square	120-130	square
Sidbec-Dosco	3½-7½	square	90-188	square
Slater, Sorel Forge <sup>(5, 6)</sup>	8-40	square	203-1016	square
Slater, Hamilton Specialty Bar <sup>(8)</sup>	5	7	127	178
Stelco	3½-8	3½-8	89-203	89-203
	8½	8½	216	216
Sydney Steel Corp.	6-12½	square	152-305	square
Western Canada Steel	4½-5½	square	114-140	square

	Imperial (inches)		Metric (mm)	
	Width	Thickness	Width	Thickness
<b>Hot Rolled Sheet and Strip:</b>				
Algoma	¾-96	0.060-0.500	19-2439	1.22-12.7
Dofasco	to 60	0.059-0.500	to 1525	1.5-12.7
IPSCO	36-72	0.060-0.750	914-1800	1.6-19
Sidbec-Dosco	to 60	0.059-0.375	to 1525	1.5-9.5
Stelco	18-72	0.064-0.625	457-1829	1.626-15.87
<b>Cold Rolled Sheet and Strip:</b>				
Algoma	¾-74	0.015-0.125	19-1880	0.38-3.18
Atlas Stainless <sup>(6)</sup>	to 49.2	0.015-0.187	to 1250	0.43-4.76
Dofasco	to 60	0.015-0.138	to 1525	0.381-3.50
Sidbec-Dosco	to 50.5	0.015-0.120	to 1283	0.381-3.04
Stelco	18-72	0.013-0.142	457-1829	0.330-3.607
<b>Electrical Steels (Silicon):</b>				
Dofasco	to 44	0.011-0.014	to 1117	0.27-0.35
<b>Galvanized:</b>				
Dofasco <sup>(9)</sup>	2.95-60	0.012-0.167	75-1525	0.305-4.242
Stelco	20-60	0.010-0.168	508-1525	0.254-4.270
<b>Tin Mill Products:</b>				
<b>Single Reduced</b>				
Dofasco	20-38	0.008-0.015	508-965	0.203-0.38
Stelco	18 3/16-42¼	0.008-0.015	462-1073	0.203-0.38
<b>Double Reduced</b>				
Dofasco	20-38	0.006-0.011	508-965	0.15-0.28
Stelco	18 3/16-41¼	0.006-0.011	462-1073	0.15-0.28
<b>Tin Free Steel (Electrolytic chrome)</b>				
Dofasco	20-38	0.006-0.015	508-965	0.15-0.38
Stelco	20¼-42¼	0.006-0.0141	514-1073	0.15-0.36
<b>Prepainted Steels:</b>				
Dofasco	to 60	0.012-0.052	to 1524	0.30-1.321
Stelco	to 60	0.010-0.052	to 1524	0.254-1.321

Imperial (inches)

Metric (mm)

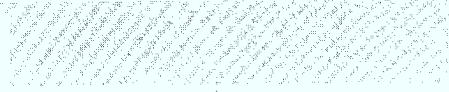
<b>Plate:</b>	<b>Width</b>	<b>Thickness</b>	<b>Width</b>	<b>Thickness</b>
Algoma	32-153	0.188-4.0	813-3850	4.9-102
Atlas Specialty <sup>(5)</sup>	to 20	1.5-6.0	to 508	38.1-152
Atlas Stainless <sup>(6)</sup>	to 48	0.25-2.0	to 1220	6.4-51
Dofasco	to 60	to 0.5	to 1525	to 12.7
IPSCO	to 72	to 0.75	to 1830	to 19
Stelco	to 140	0.187-6.0	to 3556	4.75-152

**Stainless Steel Flat Products:**

Atlas Stainless

Sizes as listed under Cold Rolled Sheet and Strip on page 47 and under Plate on page 48.

<b>Merchant Bar Size Products:</b>	<b>Width × Height</b>	<b>Thickness</b>	<b>Width × Height</b>	<b>Thickness</b>
<b>Angles, Equal Leg</b>				
Courtice (Harris)	3/4 × 3/4-	1/8-1/4	19 × 19-	3.2-6.4
	1 1/2 × 1 1/2		38 × 38	
Lasco	1 1/4 × 1 1/4-	1/8-1/4	32 × 32-	3.2-6.4
	2 1/2 × 2 1/2		65 × 65	
Manitoba Rolling Mills	1 × 1-	1/8-3/8	25.4 × 25.4-	3.2-10.0
	2 1/2 × 2 1/2		65 × 65	
Sidbec-Dosco	1 1/4 × 1 1/4-	1/8-1/2	32 × 32-	3.2-12.7
	2 1/2 × 2 1/2		64 × 64	
Stelco	1 × 1-	1/8-5/8	25.4 × 25.4-	3.2-15.9
	4 × 4		102 × 102	
Western Canada Steel	1 × 1-	1/8-3/8	25.4 × 25.4	3.2-10.0
	2 1/2 × 2 1/2		65 × 65	
<b>Angles, Unequal Leg</b>				
Lasco	2 × 1 1/2-	3/16-3/8	51 × 38-	4.8-9.5
	2 1/2 × 2		64 × 51	
Stelco	2 × 1 1/2-	1/8-1/2	51 × 38-	3.2-12.7
	5 × 3 1/2		127 × 89	
Sidbec-Dosco	2 × 1 1/2-	3/16-3/8	51 × 38-	5.0-10.0
	2 1/2 × 2		64 × 51	
Western Canada Steel	3 × 2	3/16-3/8	76 × 51	5.0-10.0
<b>Channels</b>				
Courtice (Harris)	1 × 1/2-	N/A	25 × 13-	N/A
	2 × 1		51 × 25	



	Imperial (inches)		Metric (mm)	
	<b>Width × Height</b>	<b>Thickness</b>	<b>Width × Height</b>	<b>Thickness</b>
<b>Merchant Bar Size Products: (Cont'd)</b>				
Manitoba Rolling Mills	1¼ × ½	1/8	31.8 × 12.7	3.2
	1¼ × 9/16	3/16	31.8 × 14.3	4.8
	1½ × ½	1/8	38.1 × 12.7	3.2
	1½ × 9/16	3/16	38.1 × 14.3	4.8
Slater, Hamilton Specialty Bar <sup>(8)</sup>	2	3/16	51	5
Western Canada Steel	2	3/16	51	5
<b>Flat Bars, Square Edge</b>				
Courtice (Harris)	1-3	3/16-3/8	25-76	5-10
Lasco	2-6	¼-2	51-152	6.4-51
Manitoba Rolling Mills	1-10	¼-2	25.4-254	6.3-51
Sidbec-Dosco	1-8	¼-4½	25.4-203	6.3-114.3
Slater, Hamilton Specialty Bar <sup>(8)</sup>	1½-6	¼-1½	40-152	6.3-38
Stelco	2-8	1/8-1¼	51-203	3.17-32
Western Canada Steel	1-6	3/16-1	25.4-152	4.8-25.4
<b>Flat Bars, Rounded Edge</b>				
Sidbec-Dosco	1-8	¼-4½	25.4-203	6.3-114.3
Slater, Hamilton Specialty Bar <sup>(8)</sup>	1½-6	¼-1½	40-152	6.3-38
Stelco	1-6	1/8-1¼	25.4-152	3.17-32
<b>Grader Blades</b>				
Atlas Specialty <sup>(8)</sup>	4-8	¾-1	101-203	19.0-25.4
Lasco	6-8	½-1	152-203	12.7-25.4
Manitoba Rolling Mills <sup>(7)</sup>	6-10	½-1	152-254	12.7-25.4
Sidbec-Dosco	6-8	½-1	152-203	12.7-25.4
Stelco	Various	Various	Various	Various
<b>Hexagons</b>				
Stelco	½-1 11/16	N/A	12.7-43	N/A
<b>Rounds</b>				
Courtice (Harris)	½-1¼		13-32	
Lasco	5/8-3 5/8		15.9-92	
Manitoba Rolling Mills	½-4		12.7-102	
Sidbec-Dosco	½-4½		12.7-114	
Slater, Hamilton Specialty Bar <sup>(8)</sup>	¾-2½		19-65	
Stelco	¼-5 5/8		6.35-143	
Western Canada Steel	½-1½		12.7-38	



Imperial (inches)

Metric (mm)

**Merchant Bar Size Products: (Cont'd)**

**Special Shapes**

	<b>Width</b>	<b>Width</b>
Courtice (Harris) <sup>(7)</sup>	Various	Various
Manitoba Rolling Mills <sup>(7)</sup>	Various including: Plowshare sections; Joist chord sections; Rail-track sections; Elevator guide rails; Spring sections; Super light beams.	
Sidbec-Dosco <sup>(7)</sup>	Various	Various
Slater, Hamilton Specialty Bar <sup>(7, 8)</sup>	Various including: Hinge sections; Plowshare sections; Tire rings.	
Stelco <sup>(7)</sup>	Various including: Grader blade sections; Tie plates; Rail anchor sections; Chord sections; Grinding rods.	

**Squares**

Courtice (Harris)	3/8-1	10-25
Manitoba Rolling Mills	1/2-3	12.7-76
Sidbec-Dosco	1/2-4	12.7-102
Stelco	1/2-4	12.7-102
Western Canada Steel	1/2-1	12.7-25.4

**Squares, Rounded Edge**

Manitoba Rolling Mills	1/2-3	12.7-76
Sidbec-Dosco	1/2-4	12.7-102
Stelco	7/8-5 1/4	22.2-133

**Concrete Reinforcing Bars:**

	<b>Imperial Sizes</b>	<b>Metric Number (11)</b>
Courtice (Harris)	Imperial Sizes available <sup>(7)</sup>	10, 15, 20, 25, 30, 35
Ivaco	-	10, 15
Lasco	Imperial sizes available <sup>(7)</sup>	10, 15, 20, 25, 30, 35, 45, 55
Manitoba Rolling Mills	-	10, 15, 20, 25, 30, 35, 45, 55
Sidbec-Dosco	Imperial sizes available <sup>(7)</sup>	10, 15, 20, 25, 30, 35, 45, 55
Slater, Hamilton Specialty Bar	Imperial sizes available <sup>(7)</sup>	10, 15, 20, 25, 30, 35, 45
Stelco	Imperial sizes available <sup>(7)</sup>	10, 15, 20, 25, 30, 35, 40, 45, 50, 55
Western Canada Steel	Imperial sizes available <sup>(7)</sup>	10, 15, 20, 25, 30, 35, 40, 45, 50, 55



Imperial (inches)

Metric (mm)

**Special Quality Bars and Alloy Bars:**

**Flat Bars**

	<b>Width</b>	<b>Thickness</b>	<b>Width</b>	<b>Thickness</b>
Atlas Specialty <sup>(5, 6, 8)</sup>	1/2-18	1/4-6	12.7-457	6.4-152
Lasco	2-6	1/4-2	51-152	6.4-51
Manitoba Rolling Mills	1-8	1/4-2	25.4-203	6.4-51
Sidbec-Dosco <sup>(10)</sup>	1-8	1/4-2 1/2	25.4-203	6.4-63.5
Slater, Hamilton Specialty Bar <sup>(8, 10)</sup>	1 1/2-6	1/4-1 1/2	37.5-152	6.4-37.5
Stelco <sup>(10)</sup>	Sizes as listed under Merchant Bars on page 49.			
Western Canada Steel	1-6	3/16-1	25.4-152	4.8-25.4

**Hexagons**

Atlas Specialty <sup>(5, 6, 8)</sup>	to 2 1/2	to 63.5
	<b>Diameter</b>	<b>Diameter</b>

**Rounds**

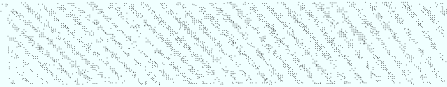
Atlas Specialty <sup>(5, 6, 8)</sup>	0.72-18	18.2-457
Lasco	5/8-3 5/8	15.9-92
Laurel (Harris)	1/8-3	3.18-76.2
Manitoba Rolling Mills	1/2-3 1/2	12.7-90
Sidbec-Dosco	1/2-4 1/2	12.7-114
Slater, Hamilton Specialty Bar <sup>(8)</sup>	3/4-2 1/4	19-57
Stelco	1/4-5 5/8	6.35-143
Western Canada Steel	1/2-1 1/2	12.7-38

**Special Shapes**

Atlas Specialty <sup>(5, 6, 7, 8)</sup>	Various including: Hollow drill rod; Octagons; Half rounds; Bevelled edge flats; etc.	
Lasco <sup>(7)</sup>	Grader blades	
Manitoba Rolling Mills <sup>(7)</sup>	Various including: Forging quality products; Sucker rods; Rail anchors; Rock bolts; Spring steels, Wear plates.	
Sidbec-Dosco <sup>(7)</sup>	Various	Various
Slater, Hamilton Specialty Bar <sup>(7, 8)</sup>	Various	Various
Stelco <sup>(7)</sup>	Various	Various

**Squares**

Atlas Specialty <sup>(5, 6, 8)</sup>	1 1/16-1 1/4	17.5-31.8
Manitoba Rolling Mills	1/2-3	12.7-76
Sidbec-Dosco	1/2-4	12.7-102
Stelco	1/2-4	12.7-102
Western Canada Steel	1/2-1	12.7-25.4



Imperial (inches)

Metric (mm)

**Stainless Steel Bars:**

Atlas Specialty

Sizes are listed under the section "Special Quality Bars and Alloy Bars" beginning on page 51. Maximum bar weight 6,000 lbs. (2,700 kg.).

Slater, Sorel Forge

Maximum bar weight 50,000 lbs.

Maximum bar weight 22,700 kg.

Minimum bar thickness 4"

Minimum bar thickness 101 mm.

**Tool and Die Steels:**

Atlas Specialty

Sizes are listed under the section "Special Quality Bars and Alloy Bars" beginning on page 51. Maximum bar weight 6,000 lbs. (2,700 kg.).

Slater, Sorel Forge

Maximum bar weight 50,000 lbs.

Maximum bar weight 22,700 kg.

Minimum bar thickness 4"

Minimum bar thickness 101 mm.

**Wire Rods:**

Ivaco

0.218-0.768

5.5-19.5

Sidbec-Dosco

0.218-1.031

5.5 to 26.2

Stelco

0.218-0.546

5.5-13.9

0.546-1.031

13.9-26.2

**Cold Finished Bars:**

**Cold Drawn Flats**

Atlas Specialty<sup>(5, 6, 8)</sup>

to 4

to 1

to 101.6

to 25.4

Laurel (Harris)

to 4

1/16 min.

to 101.6

1.6 min.

Stelco

to 6

to 2 1/2

to 152

to 63

Union Drawn

3/4-5

3/16-2

16-125

5-50

**Width**

**Width**

**Cold Drawn Hexagons**

Atlas Specialty<sup>(5, 6, 8)</sup>

1/8-2 1/2

3.18-63.5

Laurel (Harris)

1/8-3

3.18-76.2

Stelco

to 2 1/2

to 63

Union Drawn

1/4-2 3/4

6-70

**Diameter**

**Diameter**

**Cold Drawn Rounds**

Atlas Specialty<sup>(5, 6, 8)</sup>

0.718-6.0

18.2-152.4

Laurel (Harris)

1/8-3

3.18-76.2

Stelco

to 7

to 178

Union Drawn

3/16-4 1/2

5-115

**Width**

**Width**

**Cold Drawn Squares**

Atlas Specialty<sup>(5, 6, 8)</sup>

1/2-4"

12.7-101.6



	Imperial (inches)	Metric (mm)		
<b>Cold Finished Bars: (Cont'd)</b>	<b>Width</b>	<b>Width</b>		
Laurel (Harris)	1/8-3	3.18-76.2		
Stelco	to 3 1/2	to 89		
Union Drawn	1/4-2 3/4	6-70		
	<b>Diameter</b>	<b>Diameter</b>		
<b>Machined Shafting</b>				
Atlas Specialty <sup>(6, 8)</sup>	up to 7"	up to 178		
Stelco	up to 7"	up to 178		
Union Drawn	1/2-6	13-150		
<b>Special Shapes</b>				
Atlas Specialty <sup>(7)</sup>	Various	Various		
Laurel (Harris) <sup>(7)</sup>	Various	Various		
Stelco <sup>(7)</sup>	Various	Various		
Union Drawn <sup>(7)</sup>	Various	Various		
	<b>Width x Height</b>	<b>Width x Height</b>	<b>Thickness</b>	
<b>Intermediate Structural:</b>				
<b>Angles</b>				
Lasco	3 x 2- 6 x 6	3/16-1/2	76 x 51- 152 x 152	4.8 - 12.7
Manitoba Rolling Mills	3 x 2- 6 x 4		76 x 51- 152 x 102	
Sidbec-Dosco	3 x 2 to 6 x 6		76 x 51 to 152 x 152	
Stelco	see sizes under Merchant Bar listing on page 48.			
Western Canada Steel	3 x 3- 4 x 4		76 x 76- 102 x 102	
	<b>Height</b>		<b>Height</b>	
<b>Beams</b>				
Manitoba Rolling Mills	4-4 1/4		102-108	
	<b>Width</b>		<b>Width</b>	
<b>Channels</b>				
Lasco	3-6		76-152	
Manitoba Rolling Mills	3-8		76-203	
Sidbec-Dosco	3-6		76-152	
Stelco	3-6		76-152	
Western Canada Steel	2-6		51-152	





	Imperial (inches)		Metric (mm)	
<b>Intermediate Structural: (Cont'd)</b>	<b>Width</b>		<b>Width</b>	
<b>Special Shapes</b>	See Merchant Bar listing on page 50.			
Manitoba Rolling Mills <sup>(7)</sup>	Various		Various	
Sidbec-Dosco <sup>(7)</sup>	Various		Various	
Slater, Hamilton Specialty Bar <sup>(7)</sup>	Various		Various	
	<b>Width × Height</b>		<b>Width × Height</b>	
<b>Heavy Structural:</b>				
<b>Angles</b>				
Algoma	8 × 8		203 × 203	
Lasco	7 × 4		178 × 102	
<b>Bearing Pile</b>				
Algoma	8 × 8– 12 × 12		203 × 203– 305 × 305	
	<b>Width</b>		<b>Width</b>	
<b>Channels</b>				
Algoma	12–15		305–381	
Lasco	7–10		178–254	
Manitoba Rolling Mills	8		203	
	<b>Width</b>		<b>Width</b>	
	<b>Thickness</b>		<b>Thickness</b>	
<b>Sheet Piling</b>				
Casteel	48 <b>Height</b>		1200 <b>Height</b>	
	0.5"		12.5	
<b>Standard Beams</b>				
Algoma	8–12		203–305	
<b>Welded Wide Flange Shapes</b>				
Algoma	14–85 <b>Height × Width</b>		350–2150 <b>Height × Width</b>	
<b>Wide Flange Shapes, Hot Rolled</b>				
Algoma	6 × 6– 24 × 12¾		152 × 152–	



	Imperial (inches)		Metric (mm)	
<b>Hollow Structural Sections:</b>	<b>Diameter</b>	<b>Wall</b>	<b>Diameter</b>	<b>Wall</b>
<b>Round</b>				
Dofasco (Prudential)	2 3/8-10 3/4	0.095-0.5	60.3-273	2.4-13
IPSCO	1.05-16	0.1-0.5	27-406	2.5-13
Stelco	1.25-16	0.1-0.5	32-406	2.5-13
<b>Square</b>	<b>Width</b>		<b>Width</b>	
Dofasco (Prudential)	2-8	0.095-0.5	50.8-203	2.4-13
Ipsco	1-10	0.083-0.5	25-254	2-13
Stelco	1-12	0.10-0.5	25-305	2.5-13
<b>Rectangular</b>	<b>Width × Height</b>		<b>Width × Height</b>	
Dofasco (Prudential)	2.5 × 1.5- 10 × 6	0.095-0.5	63 × 38- 254 × 15	2.4-13
IPSCO	1 × 2- 8 × 12	0.083-0.5	25 × 51- 203 × 305	2-13
Stelco	1 × 2- 8 × 12	0.10-0.5	25 × 51- 203 × 305	2.5-13

	<b>Weight per Yard</b>	<b>Weight per Metre</b>
<b>Rails:</b>		
Algoma	up to 136 lbs.	up to 67.6 kg
Sydney Steel Corp.	75 to 136 lbs.	37.3 to 67.6 kg

	<b>Outside Diameter</b>	<b>Wall</b>	<b>Outside Diameter</b>	<b>Wall</b>
<b>Pipe and Tube:</b>				
<b>Welded</b>				
Dofasco (Prudential)	2 3/8-10 3/4	0.083-0.50	60.3-273	2.1-12.7
IPSCO	1.05-80	0.083-0.540	21.3-2032	2.11-13.7
Sidbec-Dosco	0.84-6.625	0.1-0.3	21.3-168.3	2.5-7.6
Stelco	0.405-60	0.068-1.125	10.3-1524	1.73-28.58
<b>Seamless</b>				
Algoma	2 3/8 to 12 3/4	0.126-1.5	60.3-324	3.17-38.1

**Other Products:**  
(refer to Corporate Reports, pages 8 to 42)

## Notes

1. This table does not cover the availability of such products as pig iron, castings, forgings and most further processed products with the exception of pipe and tube.
2. Most firms can produce products in a range of carbon and alloy steel compositions. The availability of products with specific chemistries or meeting specific performance criteria should be discussed with the producer.

The products and size ranges shown in the table are representative of each company's products at the time of going to press. However, since product availability is subject to change at any time, this should be verified with the company at the time of ordering.

In most cases metric dimensions are obtained by a "soft" conversion.

3. For the purposes of this publication, "bar-size" shapes are defined as those with a leg or web size which is less than 3" (76.2 mm); "intermediate size" includes those from 3" to under 6" (76.2 to 152.4 mm); and "heavy" includes 6" (152.4 mm) and over.
4. In 4-inch (100 mm) increments.
5. Includes alloy tool steels.
6. Includes stainless steels.
7. Check current availability with the manufacturer.
8. Includes alloy steels.
9. Includes proprietary zinc/aluminum coating, "Galvalume", up to 48½" (1232 mm wide).
10. Includes round edge.
11. The "Metric Number" of reinforcing bar is its diameter in millimeters.

# Summary of Canadian Steel Industry Operations<sup>(1)</sup>

Plant Locations	Steel Making Capacity <sup>(2)</sup>	Other Production Facilities <sup>(3)</sup>	Ownership	Affiliations
<b>Integrated Iron and Steel Producers</b>				
<b>The Algoma Steel Corporation, Limited</b>				
Sault Ste. Marie, Ontario	BOF (4.08)	Coke ovens Blast furnaces Seamless tube mill	Dofasco Inc	a) Iron mining, Tilden Mine JV, MI b) Coal mining, Maple Meadow Mining Co., Cannelton Industries Inc., W.V. c) Algoma Tube Corp., Houston, TX
Wawa, Ontario		Iron mining, sinter plant		
<b>Dofasco Inc.</b>				
Hamilton, Ontario	BOF (4.32)	Coke ovens Blast furnaces	Canadian owned public company	a) Iron mining — Wabush Mines, Wabush Nfld. and Pointe Noire, Que. (pellet plant), Eveleth Expansion Co., MN (mining and pellet plant)
Kirkland Lake, Ontario		Iron mining pellet plant (Adams mine)		b) Coal mining — Itmann Coal Co. WV
Temagami, Ontario		Iron mining pellet plant (Sherman mine)		c) Prepainted steel — Baycoat Ltd., Hamilton (50% Interest)
Beachville, Ontario (Beachvilime Ltd.)		Limestone, lime		d) National Steel Car Corp.
Guelph, Ontario (Guelph Dolime)		Dolomite		e) Whittar Steel Strip Inc., Detroit, MI
Calgary, Alberta (Prudential Steel)		Pipe and tube mill		f) Algoma Steel Corp.
<b>QIT-Fer et Titane Inc.</b>				
Sorel, Quebec	K-OBM (0.4)	Ladle refiner, Continuous caster	B.P. America (Cleveland)	Quebec Metal Powders Ltd.
Havre St. Pierre, Quebec		Ilmenite mine		
<b>Sidbec-Dosco Limitée</b>				
Contrecoeur, Quebec	Electric furnaces (1.5)	Scrap plant (Sidbec-Feruni) Hot and cold rolling mills, rod and bar mill Midrex direct reduction	Quebec government 100%	

<b>Plant Locations</b>	<b>Steel Making Capacity<sup>(2)</sup></b>	<b>Other Production Facilities<sup>(3)</sup></b>	<b>Ownership</b>	<b>Affiliations</b>
<b>Sidbec-Dosco Limitée</b> (Cont'd)				
Montreal, Quebec	Electric furnace (0.18)	Bar mill		
Longueuil, Quebec Etobicoke, Ontario		Pipe mill Wire mill Bar mill Wire mill		
<b>Stelco Inc.</b>				
Hamilton, Ontario	BOF (2.47)	Coke ovens Blast furnaces	Canadian owned public company	a) Iron mining and pellet plants — Wabush Mines, Wabush, Nfld, and Pointe Noire, Que., Tilden Mine, MI, Hibbing, Taconite, Eveleth Expansion Co., MN. b) Coal mining — Beckely, Olga Co., WV, Mathies Co., PA Elk River B.C. c) Scrap — Montreal (Fers et métaux)
Nanticoke, Ontario	BOF (1.57)	Coke ovens Blast furnace Hot strip mill R&D Centre Fastener distribution centre		
Burlington, Ontario		Pipe & Tube mill Large diam. spiral pipe mill		d) Prepainted steel — Baycoat Ltd., Hamilton (50% interest)
Welland, Ontario		Forging plant Fasteners Fasteners Bar mill		e) Fully owned Coal Mines: Pikeville Co., (Chisolm Mine) Louisville, Kentucky; Kanawha Co., (Madison Mine) Ashford, W.V.
Gananoque, Ontario Brantford, Ontario Toronto, Ontario Contrecoeur, Quebec	Electric furnace (0.31)	Bar mill		f) Moly-Cop Canada Inc., a joint venture with Armco.
Kamloops, B.C. (Moly-Cop Canada Inc.) Lachine, Quebec Edmonton, Alberta		Grinding media  Wire mills Scrap plant Bar rolling mill		g) M-E International, MN, a joint venture
Camrose, Alberta Beachville, Ontario	Electric furnace (0.29)	Pipe & Tube Limekilns		

<b>Plant Locations</b>	<b>Steel Making Capacity<sup>(2)</sup></b>	<b>Other Production Facilities<sup>(3)</sup></b>	<b>Ownership</b>	<b>Affiliations</b>
<b>Sydney Steel Corporation (SYSCO)</b> Sydney, Nova Scotia	Open hearth furnaces (1.0)	Blast furnaces Rolling mill	Nova Scotia government 100%	
<b>Integrated Steel Producers</b>				
<b>Atlas Stainless Steels Division</b> Tracy, Quebec	Electric furnaces (0.8)	Continuous caster Rolling mill	Division of Rio Algom Ltd., a public company	a) Atlas Alloys Ltd. b) Vincent Metals Inc., USA c) AI Tech Specialty Steel Corp., Dunkirk, N.Y., USA d) Atlas Steels Australia Pty., Melbourne
<b>Courtice Steel (Harris Steel)</b> Cambridge, Ontario	Electric furnaces (0.10)	Rolling mill Continuous caster	Harris Steel Group Inc., a public company	a) Fisher & Ludlow, grating b) Frankel Steel Ltd., Structural c) Harris Rebar/VSL Canada Ltd. d) Laurel Steel Products, bar & wire products
<b>IPSCO Inc.</b> Regina, Saskatchewan	Electric furnaces (0.85)	Scrap plant 2 spiral weld and 2 ERW pipe mills 2 spiral weld pipe mills	Public company CIC Industrial Interests Inc., 16% Alberta Energy Co., 10%	a) Brooks Tube Ltd., ERW pipe mill b) Paper Cal Steel Co. St. Paul, MN. c) IPSCO Steel Inc., U.S.A. Geneva Nebraska Works Brookshire Texas Works d) Western Canada Steel Ltd.

<b>Plant Locations</b>	<b>Steel Making Capacity<sup>(2)</sup></b>	<b>Other Production Facilities<sup>(3)</sup></b>	<b>Ownership</b>	<b>Affiliations</b>
<b>IPSO Inc.</b> (Cont'd) Edmonton, Alberta  Calgary, Alberta  Red Deer, Alberta Port Moody, B.C.		2 spiral weld pipe mills ERW pipe mill for OCTG ERW pipe mill 2 ERW pipe mills galvanizing		
<b>Ivaco Inc.</b> L'Original, Ontario  Marieville, Quebec Ingersoll, Ontario Ottawa, Ontario	Electric furnaces (0.36)	Rod rolling  Wire mill Wire mill Scrap Plant	Canadian owned public company	a) Atlantic Steel Co., GA, USA* b) Amercorda Inc. c) Cannron Inc. d) Ingersoll Machine & Tool Co. Ltd. e) Laclede Steel Co., MO, USA* f) National Wire Products Corp, MD, USA g) Niagara Lockport Industries, MS, USA h) Arrowhead Metals Ltd. i) Wrights Canadian Ropes Ltd. * Atlantic Steel and Laclede Steel operate raw steelmaking facilities
<b>Lake Ontario Steel (LASCO)</b> Whitby, Ontario	Electric furnaces (0.91)	Scrap plant (Industrial Metal Co.)	Co-Steel Inc. (a Canadian public company)	Co-Steel also has interest in Raritan River Steel, NJ, and Sheerness Steel, Kent, England; total steelmaking capacity 3.5 million tonnes

<b>Plant Locations</b>	<b>Steel Making Capacity<sup>(2)</sup></b>	<b>Other Production Facilities<sup>(3)</sup></b>	<b>Ownership</b>	<b>Affiliations</b>
<b>Manitoba Rolling Mills</b>				
Selkirk, Manitoba	Electric furnaces (0.30)		Canam Manac Group Inc.	
<b>Slater Steels</b>				
Hamilton Specialty Bar Division Hamilton, Ontario	Electric furnace (0.30)	Ladle refiner	Slater Industries Inc. Controlled by Fobasco Ltd. (a Canadian company)	a) Slacan Division, Hamilton makes forged steel products b) Fort Wayne Specialty Alloys, Fort Wayne, IN
Sorel Forge Division Sorel, Quebec	Electric furnace (0.06)	Open die forging presses to 5,000 tons		
<b>Western Canada Steel Limited</b>				
Vancouver, B.C.	Electric furnaces (0.18)		IPSCO Inc.	Owns 51% of Hawaiian Western Steel Ltd. (electric furnace steelmaking 0.06 million tonnes capacity, and bar rolling)
Calgary, Alberta	Electric furnaces (0.12)			
<b>Non-Integrated Producers</b>				
<b>Casteel Inc.</b>				
Longueuil, Quebec	—	14 stand roll forming	Canadian owned private company	a) Casteel U.S.A. Inc., Pittsburgh, PA, Foundation products b) Akstel Inc. Longueuil, Que. machining, fabricating
<b>Laurel Steel Products</b>				
(Harris Steel) Burlington, Ontario	—	Bar drawing wire drawing Mesh welder	Harris Steel Group Inc.	a) Courtice Steel, merchant re bar b) For other affiliations, refer to Courtice Steel



<b>Plant Locations</b>	<b>Steel Making Capacity<sup>(2)</sup></b>	<b>Other Production Facilities<sup>(3)</sup></b>	<b>Ownership</b>	<b>Affiliations</b>
<b>Union Drawn Steel</b> Hamilton, Ontario	—	Bar annealing furnace	Canadian owned private company	

1. Detailed descriptions of metallurgical plants are given in "Mining and Mineral Processing Operations in Canada" published by and obtainable from Energy, Mines and Resources, Canada, 580 Booth Street, Ottawa, Ontario K1A 0E4.
2. Annual capacity, millions metric tonnes in parentheses.
3. See pages 44 to 56 for more details on most products.

## Geographic Locations of Industry Operations



<b>Town</b>	<b>Province</b>	<b>Companies*</b>	<b>Map Reference</b>	<b>Town</b>	<b>Province</b>	<b>Companies*</b>	<b>Map Reference</b>
Beachville	Ontario	Dofasco, Stelco	—	Marieville	Quebec	Ivaco	6
Brantford	Ontario	Stelco	—	Montreal	Quebec	<i>Sidbec</i>	9
Burlington	Ontario	Stelco, Laurel	15	Nanticoke	Ontario	<i>Stelco</i>	18
Calgary	Alberta	Dofasco, IPSCO, <i>Western Canada Steel</i>	28	Ottawa	Ontario	Ivaco	31
Cambridge	Ontario	<i>Courtice</i>	19	Port Moody	B.C.	IPSCO	31
Camrose	Alberta	Stelco	25	Red Deer	Alberta	IPSCO	27
Contrecoeur	Quebec	<i>Sidbec, Stelco</i>	5	Regina	Sask.	<i>IPSCO</i>	24
Edmonton	Alberta	<i>Stelco, IPSCO</i>	26	Sault-			
Etobicoke	Ontario	Sidbec	14	Ste-Marie	Ontario	<i>Algoma</i>	21
Gananoque	Ontario	Stelco	—	Selkirk	Manitoba	<i>Manitoba Rolling Mills</i>	23
Guelph	Ontario	Dofasco	—	Sorel	Quebec	<i>QIT, Slater</i>	3
Hamilton	Ontario	<i>Dofasco, Stelco, Slater, Union</i>	16	Sydney	Nova Scotia	<i>Sydney Steel Corp.</i>	1
Havre-				Temagami	Ontario	Dofasco	—
St-Pierre	Quebec	QIT	2	Toronto	Ontario	<i>Stelco, Lasco</i>	13
Ingersol	Ontario	Ivaco	—	Tracy	Quebec	<i>Atlas</i>	4
Kamloops	B.C.	Stelco	29	Vancouver	B.C.	IPSCO	32
Kirkland Lake	Ontario	Dofasco	20	Vancouver	B.C.	<i>Western Canada Steel</i>	30
Lachine	Quebec	Stelco	8	Wawa	Ontario	<i>Algoma</i>	22
L'Orignal	Ontario	<i>Ivaco</i>	10	Welland	Ontario	<i>Stelco, Atlas</i>	17
Longueuil	Quebec	Sidbec	7	Whitby	Ontario	<i>Lasco</i>	12

\* Steelmaking plants are italic.

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