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I N D U S T R Y
P R O F I L E

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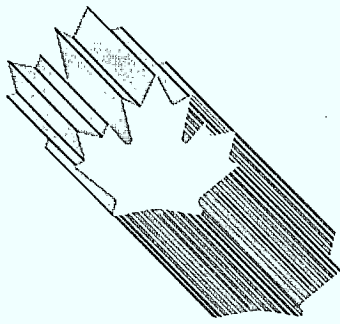


Industry, Science and
Technology Canada

Industrie, Sciences et
Technologie Canada

**Materials Handling
Equipment**

Canada



I N D U S T R Y P R O F I L E

MATERIALS HANDLING EQUIPMENT

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1. Structure and Performance

MINISTÈRE DE L'EXPANSION
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FOREWORD

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In a rapidly changing global trade environment, the international competitiveness of Canadian industry is the key to survival and growth. This Industry Profile is one of a series of papers which assess, in a summary form, the current competitiveness of Canada's industrial sectors, taking into account technological and other key factors, and changes anticipated under the Canada-U.S. Free Trade Agreement. Industry participants were consulted in the preparation of the papers.

The series is being published as steps are being taken to create the new Department of Industry, Science and Technology from the consolidation of the Department of Regional Industrial Expansion and the Ministry of State for Science and Technology. It is my intention that the series will be updated on a regular basis and continue to be a product of the new department. I sincerely hope that these profiles will be informative to those interested in Canadian industrial development and serve as a basis for discussion of industrial trends, prospects and strategic directions.

Minister

Structure

The materials handling equipment industry consists of manufacturers of machinery and systems designed to transfer people and/or to lift, convey and position various materials or items from one location to another. There are 106 manufacturers in Canada, and total direct employment is approximately 7000. Manufacturing facilities are located primarily in Ontario, which also accounts for 57 percent of employment, followed by the Prairies with 20 percent of employment, Quebec with 14 percent, British Columbia with eight percent and the Atlantic region with one percent.

Industry shipments in 1986 totalled \$1.2 billion in value, including \$328 million worth of exports which were sold mainly to the United States. Ownership is largely by U.S. multinational enterprises which established subsidiaries for the domestic market in the 1950s when the Canadian tariff rate was relatively high (between 22 and 25 percent). Corporate concentration is highest in the manufacture of elevators and industrial lift trucks.

The industry can be divided into four distinct sub-sectors: *conveyors and handling systems* (20 percent of total shipments); *cranes and hoists* (27 percent); *industrial lift trucks and attachments* (18 percent); and *elevators* (35 percent).

The *conveyors and handling systems* sub-sector includes belt conveyors, stacker-reclaimers, shiploaders, feeders, pneumatic conveyors and radial stackers, all of which are used for the transportation of goods in bulk and in resource industry applications; and belt conveyors, roller conveyors, overhead chain conveyor systems, wire mesh conveyors, automated storage-retrieval systems and palletizers, all used in unit handling applications. The *cranes and hoists* sub-sector includes overhead travelling bridge cranes, jib cranes, gantry cranes and winches, all used in lifting or pulling operations. The *industrial lift trucks and attachments* sub-sector includes pneumatic tire counterbalanced forklifts, motorized pallet trucks, telescopic boom-type lift trucks, hand trucks and fork attachments, all used in the pickup and transfer of payloads by forklift. The remaining sub-sector, *elevators*, includes gearless machines, geared machines and hydraulic units, all for use in the vertical transfer of passengers or freight.

Performance

This mature industry has undergone significant restructuring in North America as a result of the economic recession of the early 1980s. The restructuring involved a downsizing of production facilities and a new emphasis on productivity in a highly price-competitive market.

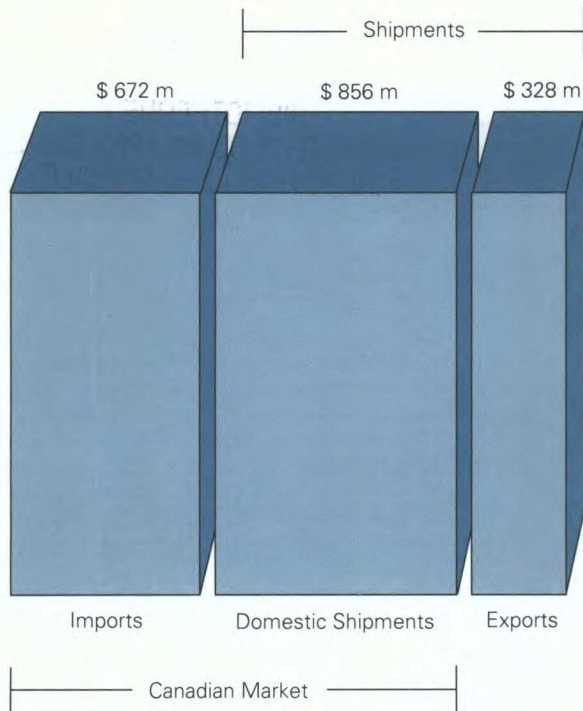
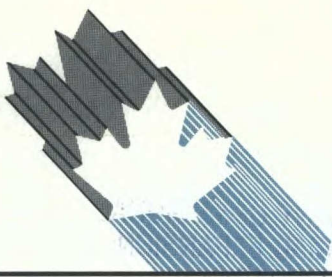
The real growth rate in shipments of materials handling equipment has averaged 2.5 percent over the past decade, but has been cyclical in nature. A sizable decline in shipments in 1983 was attributable to the worldwide recession. As a result, the industry became very aware of its cost competitiveness and began to increase efficiency and close down non-essential production capacity. Most firms experienced layoffs at both the management and worker levels. Cost cuts also were achieved by adopting new production techniques such as just-in-time inventory control, computer-aided design and production automation.

Canada



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Imports, Exports and Domestic Shipments
1986*

* Estimate

A number of firms closed manufacturing operations in Canada in the 1980s, the most prominent being Otis Canada Inc. (a manufacturer of elevators), Caterpillar of Canada Ltd. and Hyster (industrial forklifts) and Harnischfeger (cranes). Foreign-owned subsidiaries, with the responsibility for marketing and engineering and with a product mandate, tended to perform better in this period, becoming more efficient and increasing exports.

Overall, the industry is now performing well. In the 1986-87 period, it was generally profitable, with a median net profit-to-sales after tax of 5.3 percent, on a gross margin of 19.1 percent.

The following provides a detailed examination of sub-sector performance.

The *conveyors and handling systems* sub-sector had shipments worth \$237 million in 1986. There are approximately 65 firms in the sub-sector, which are dominated by subsidiaries of U.S.-owned multinationals. The sub-sector is diverse, encompassing a large number of products requiring a high degree of system engineering by both the manufacturer and the customer. Product quality is of prime concern, as this machinery is required to move material continuously from one point to another without significant downtime.

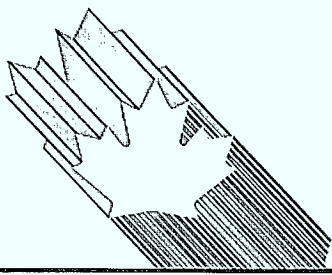
The sub-sector is broadly divided into products for unit handling and bulk handling applications. Recently, market demand has been strong for unit handling conveyors such as those used in automotive, industrial warehousing and other secondary industries. However, demand has been slow in bulk handling conveyors such as those used in mining and port handling systems.

Trade is not significant to the *conveyors and handling systems* sub-sector. Service considerations require a local presence and, therefore, manufacturing facilities tend to serve a limited geographic market area. Subsidiaries of U.S.-owned multinationals in Canada generally have not been allowed to supply the U.S. market from Canadian plants. Exceptions to this are the large, complex conveyor systems that are custom-engineered and those made for markets in developing countries. These projects attract world competition from firms with established track records. Several Canadian firms have international capabilities in this area.

There are approximately 25 firms in the largely Canadian-owned *cranes and hoists* sub-sector, which had shipments worth \$319 million in 1986. It is dominated by 15 companies which have a well-established manufacturing base in custom-engineered products, such as industrial bridge cranes and gantry cranes, and in some of the more standard items including vehicle-mounted cranes. Smaller firms specialize their production in such areas as crane carriers, hydraulic winches and lift platforms.

Canada does not manufacture a complete range of crane and hoist machinery. Nonetheless, the Canadian capability has proved to be internationally competitive, especially in the areas of heavy-duty bridge cranes, vehicle-mounted cranes and hydraulic winches. Imports tend to be in product areas not manufactured in Canada, primarily for construction, such as tower cranes, crawler cranes and all-terrain hydraulic cranes.

Demand for cranes and hoists has grown slowly in the past 10 years, and the industry does not anticipate good market growth in the near-to-mid-term, particularly for custom-designed cranes. The North American infrastructure is mature. Even where cranes and hoists have been required — such as in industrial plants, powerhouses and steel mills — markets are growing slowly. Crane and hoist products have also faced competition from alternate machinery products such as robots and conveyors. Despite the closing of several major plants in the past 10 years, there is still overcapacity and firms are diversifying their production into other heavy-duty fabrication areas.



The Canadian *industrial lift trucks and attachments* sub-sector consists of 15 firms in narrowly defined product areas such as rough-terrain forklifts, narrow-aisle stackers and pallet trucks. In 1986, shipments from this sub-sector totalled \$216 million in value. The production of lift trucks has undergone a period of major restructuring, primarily in reaction to the highly competitive environment created by major Japanese manufacturers' penetration of the North American market. During the 1983-86 period, several North American plants of U.S.-owned multinationals were closed and manufacturing shifted to offshore, low-cost locations. Remaining firms rationalized their production to achieve higher volumes for the North American market.

The *elevators* sub-sector, which had shipments worth \$414 million in 1986, is having to adjust to an overall smaller market. Shipments in the sub-sector are directly related to growth in the North American building stock. In addition, manufacturers have increasingly looked to service and maintenance work to retain profitability. The six Canadian manufacturers have efficient operations which offer a complete range of elevator products. Otis Elevator, which was the sub-sector's largest manufacturer, closed its Canadian plant in 1987 as part of a corporate downsizing. However, Otis continues to serve the Canadian market through its established installation and service network.

Micro-electronic technology has had a major impact and Canadian firms have developed their own elevator control packages. The high safety and performance standards required in the installation of elevators necessitates a domestic manufacturing presence and, therefore, with the exception of Otis, trade is limited.

2. Strengths and Weaknesses

Structural Factors

The strengths of this diverse industry include its well-equipped manufacturing facilities, which employ modern production processes; its stable costs for materials and labour, which are competitive with North American locales; its access to U.S. technology; and its excellent custom-engineering capabilities. Nevertheless, economies of scale remain a continuing concern, particularly for forklifts and conveyors.

Because the industry is dominated by subsidiaries of U.S.-owned multinationals whose autonomy is generally restricted, only limited research and development is conducted in Canada. Further, in common with other machinery industries, Canadian firms have had an ongoing problem with attracting and maintaining skilled labour.

The key factors influencing competitiveness in the *conveyors and handling systems* sub-sector are proven experience and quality. Industrial capability in Canada ranges from basic gravity-roller conveyors to highly automated conveyor systems. The strengths of this sub-sector include its well-equipped manufacturing facilities; its excellent system engineering; and its competitive marketing expertise. Production is job-shop oriented and considered efficient by North American standards. Manufacturers of conveyors and handling systems have an efficient supplier base for materials such as steel, conveyor belting and drive motors.

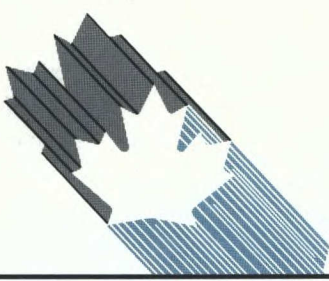
A weakness of the sub-sector is that Canadian plants have not invested in new product development. The market has increasingly demanded goods, such as automated guided vehicles or electrified monorail systems, which Canadian firms do not currently manufacture. Automation, including computer controls, linear induction motors and robotics, will grow in the future and Canadian firms may have difficulty keeping pace with this technology unless more resources are committed to R&D.

Manufacturers in the *cranes and hoists* sub-sector have an excellent capability in custom-designed products. Their strengths include substantial heavy-duty manufacturing facilities; world-class machining capabilities; a well-established reputation for quality custom design, particularly for overhead bridge cranes and heavy-duty winches; and a solid supplier base for such items as steel, gears and hydraulic cylinders. There is some specialization in more standard production of utility cranes, lift platforms, hydraulic winches and crane carriers.

With the exception of utility cranes and winches, the sub-sector does not manufacture pre-engineered standard products which have recently increased their market share. As well, some Canadian manufacturers have not adapted themselves well to new product developments in such areas as automated cranes and overhead manipulators.

The strengths of the *industrial lift trucks and attachments* sub-sector include its modern assembly shop operations that use just-in-time inventory methods; its excellent design expertise in specialized classes of lift trucks; its stable and competitive supplier base; and its access to North American distribution channels. Of all the materials handling equipment sub-sectors, the development of product niches has been most successfully used in lift truck manufacturing. Most firms in Canada are competitive in the North American market, particularly for pneumatic tire rider units.

A major weakness of the sub-sector is that it does not achieve sufficient economies of scale to justify the production of power-train components.



The strengths of the *elevators* sub-sector include its modern production facilities, which operate efficiently, achieving satisfactory economies of scale in component fabrication; its solid reputation for safety; and its broad-based repair and replacement parts aftermarket. While advanced electronic components have been incorporated into this machinery, firms will have to invest further in electronic technology to keep pace. Also, a shortage of skilled labour in Canada will continue to affect production.

Trade-related Factors

The materials handling equipment industry has experienced a basic restructuring and adaptation to a more price-competitive environment which includes a declining tariff under the General Agreement on Tariffs and Trade (GATT). Present Most Favoured Nation (MFN) tariff rates for major market areas are shown in the following table:

RANGE OF TARIFF RATES FOR MATERIALS HANDLING EQUIPMENT

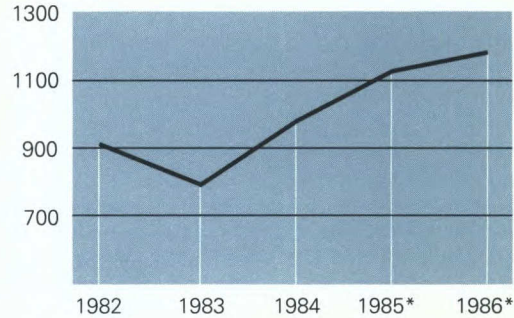
Effective January 1, 1987

	(%)
Canada	9.2 – 9.3
United States	0.0 – 3.7
Japan	3.0 – 4.8
European Community	2.9 – 6.0

Non-tariff barriers (NTBs) are not an important factor in the North American market. Product safety and performance standards are almost identical in both countries and not a source of concern. However, significant NTBs do limit Canadian access to other markets. For example, in the European Community (E.C.) technical standards are often different and Canadian manufacturers have experienced difficulties in obtaining product certification. Similarly, Japanese product safety codes are more elaborate and involve a complicated processing procedure.

The Canada-U.S. Free Trade Agreement (FTA) will remove tariffs in this industry over a five-year period. The FTA also contains provisions to ease entry requirements of service personnel, which will increase the ability of Canadian firms to sell in the United States.

Shipments (\$ millions)



Shipments —————

Total Shipments

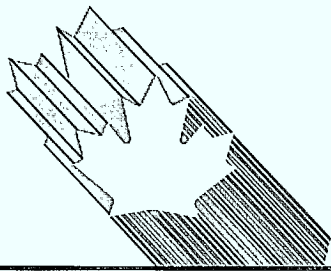
* ISTAT estimate

Technological Factors

While research and development is not extensive in the industry, Canadian firms have a strong capability in custom-engineered products. Whereas Canadian subsidiaries of foreign-owned multinationals normally have access to the technology base of their parent company, Canadian-owned enterprises are faced with additional costs and risks for R&D and, therefore, tend to conduct smaller research projects. Firms also follow the innovations made in the United States as there is acceptance of U.S. technical standards and it is the largest export market. The use of electronic controls and more efficient modular designs continues to influence product development. Overall, there appears to be little progress in the Canadian industry to develop or acquire leading-edge technology.

3. Evolving Environment

Future trends in the materials handling equipment industry will continue to see a demand for specialized products, as well as greater automation and increasing sophistication in machine components. The industry will continue the trend of restructuring and adaptation to the mature market environment and the globalization of the marketplace. The development of new technology will become even more important to firms in Canada, now competing mainly with the United States and Japan, when they face the emerging competitors from the Republic of Korea, Taiwan and Brazil in the next 10 years.



Under the FTA, the critical element for this industry is the elimination of tariffs. Historically, Canada has had a comparatively higher tariff than the United States — a tariff which fostered Canadian production. The ability to custom engineer and specialize and the restructuring which has already occurred have placed the industry in Canada in a good position to develop North American sales. Phasing in the tariff elimination over five years should give the industry time to adjust to the terms of the agreement. There is a risk that some plant rationalization may occur where duplicate operations for multinational firms exist in both Canada and the United States. However, due to the restructuring which has already taken place, this is not seen as a significant problem.

Canadian-owned firms throughout the industry will need to develop strategies involving technology transfer, international licensing and joint ventures, and modern production methods in order to maintain their competitiveness. In particular, there is increasing competition from producers other than the United States, such as from Europe (for sophisticated materials handling systems) and from Asia (for price-competitive materials handling equipment). Competitive pressures from these areas are likely to intensify in the future. The proportion of imports from countries other than the United States rose from 12 percent in 1981 to 35 percent in 1986.

In the *conveyors and handling systems* sub-sector, the industry will involve itself increasingly with complex automation and the development of high-technology products such as robotic handlers, electrified monorails and automated guided vehicles. Increasingly, systems will have to meet the end users' requirements for just-in-time inventories, automated processing lines and computer-aided manufacturing.

In the *cranes and hoists* sub-sector, the development of various specialized products will continue under the FTA, with new opportunities anticipated in custom-designed cranes and winches. Because of the mature nature of the market, manufacturers in Canada compete in an aggressive international environment. However, with secured access to the U.S. market, the industry will have an opportunity to increase output.

In the *industrial lift trucks and attachments* sub-sector, intense international competition will continue; however the future of Canadian manufacturers will depend largely on their ability to provide specialized products for the world marketplace. The restructuring, which has already occurred, should position the industry to be more internationally competitive.

In the *elevators* sub-sector, the electronic revolution will continue to have an impact with the challenge to develop faster and more specialized units. Owing to the importance of local installations and service, the FTA is seen as having a limited impact on this product area.

4. Competitiveness Assessment

The materials handling equipment industry represents a broad range of machinery manufacturers. Overall, Canadian firms have a well-established capability to supply quality products in niche areas which fully meet internationally accepted engineering standards and are comparable to the best in other industrialized nations.

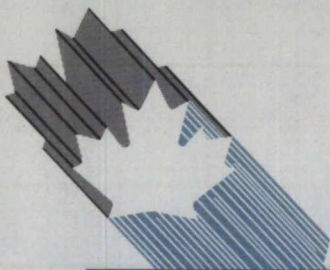
The major challenge will be to keep pace with the growing innovation in sophisticated, electronically controlled, automated machinery, particularly from the United States, Japan and the European Community. Further, the industry will have to shift its general orientation from the Canadian market and continue to develop internationally competitive products in order to meet the emerging competition from the Republic of Korea, Taiwan and Brazil.

Overall, the FTA will secure access to the North American market and allow firms to take advantage of their competitive strengths.

For further information concerning the subject matter contained in this profile, contact:

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PRINCIPAL STATISTICS

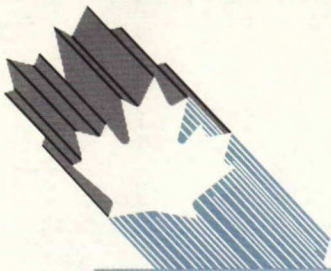
SIC(s) COVERED: 3192 (1980)

	1973	1982	1983	1984	1985 ^e	1986 ^e
Establishments	70	106	100	102	105	106
Employment	N/A	N/A	N/A	N/A	N/A	7 000
Shipments (\$ millions)	266	905	799	979	1 124	1 184

TRADE STATISTICS

	1973	1982	1983	1984	1985 ^e	1986 ^e
Exports (\$ millions)	42	198	286	309	322	328
Domestic shipment (\$ millions)	224	707	513	670	802	856
Imports (\$ millions)	181	371	316	423	547	672
Canadian market (\$ millions)	405	1 078	829	1 093	1 349	1 528
Exports as % of shipments	16	22	36	32	29	28
Imports as % of domestic market	45	34	38	39	41	44
Source of imports (% of total value)			U.S.	E.C.	Asia	Others
		1981	88	6	4	2
		1982	85	8	4	3
		1983	85	8	5	2
		1984	78	11	8	3
		1985	72	17	5	6
		1986	65	18	9	8
Destination of exports (% of total value)			U.S.	E.C.	Asia	Others
		1981	63	7	3	27
		1982	67	7	6	20
		1983	71	5	5	19
		1984	79	2	5	14
		1985	90	1	3	6
		1986	88	2	3	7

(continued)



REGIONAL DISTRIBUTION — Most recent year available — 1984

	Atlantic	Quebec	Ontario	Prairies	B.C.
Establishments — % of total	3	18	44	23	12
Employment — % of total	1	14	57	20	8
Shipments — % of total	2	11	59	21	7

MAJOR FIRMS

Name	Ownership	Location of Major Plants
Rapistan Systems Limited (conveyors)	American	Rexdale, Ontario
Mathews Conveyor Company (conveyors)	British	Port Hope, Ontario
Stephens Adamson Limited (conveyors)	Swedish	Belleville, Ontario
Jervis B. Webb Company of Canada Ltd. (conveyors)	American	Hamilton, Ontario
John T. Hepburn Limited (cranes)	Canadian	Toronto, Ontario
Pitman Manufacturing Company Inc. (cranes)	Canadian	Toronto, Ontario
Raymond Industrial Equipment Limited (forklifts)	American	Brantford, Ontario
Sellick Equipment Ltd. (forklifts)	Canadian	Windsor, Ontario
Dover Corporation Canada Ltd. (elevators)	American	Toronto, Ontario
Schindler Elevator Corporation (elevators)	American	Pickering, Ontario

e ISTC estimate
N/A Not available

Note: Statistics Canada data have been used in the preparation of this profile.

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