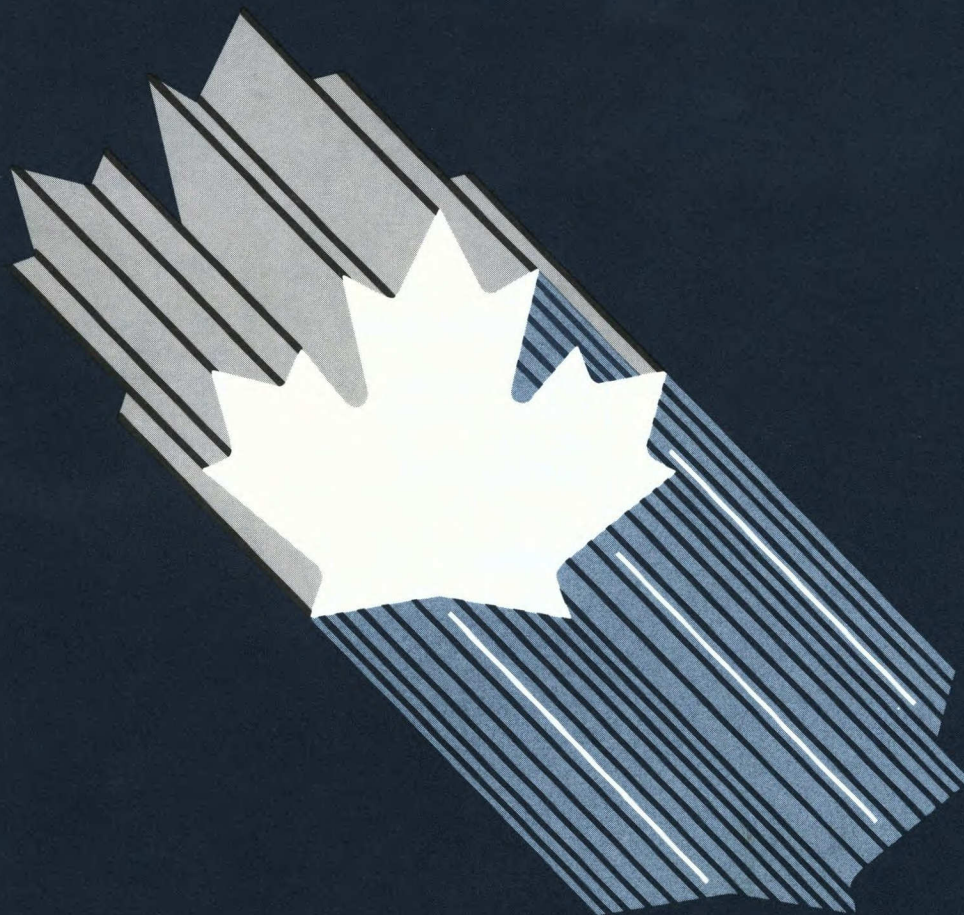


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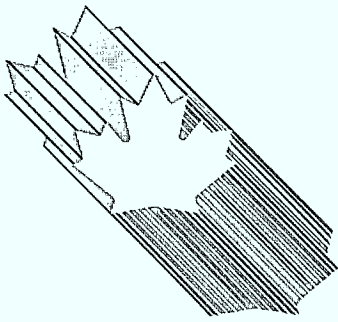


Industry, Science and
Technology Canada

Industrie, Sciences et
Technologie Canada

Fluids-handling and Mechanical Power- transmission Equipment

Canada



INDUSTRY PROFILE

FLUIDS - HANDLING AND MECHANICAL
POWER - TRANSMISSION EQUIPMENT
DEPARTMENT OF REGIONAL
INDUSTRIAL EXPANSION
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1988

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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

1. Structure and Performance

Structure

This sector comprises approximately 180 manufacturers divided into two, sub-sector product areas. These are: fluids-handling equipment, including fluid transfer pumps, compressors, fans and blowers, valves and accessories; and mechanical power-transmission equipment, including gears and gearboxes, clutches, couplings, hydraulic pumps, motors, valves and cylinders. This equipment is used in virtually every industrial sector.

The products in almost every category vary widely in size and value. For example, valves are manufactured in sizes varying from 12 mm to more than 4.5 metres in diameter; compressors range from 0.21 kW standard portables to custom-designed 30 000 kW units; and pumps vary from inexpensive sump pumps to 2600 kW reciprocating slurry pumps.

Manufacturers are located primarily in Ontario, Quebec and western Canada, where they employ an estimated 9250 persons. Shipments for 1986 totalled \$964 million, with exports comprising 24 percent, or \$231 million. Imports were valued at \$1003 million in 1986 and captured 58 percent of the domestic market. During that year, the United States was the source of 77 percent of sector imports and the market for 70 percent of exports.

There is worldwide overcapacity in the fluids-handling and mechanical power-transmission equipment sector. This situation has led to increased levels of rationalization of production, and also to more intense competition in both domestic and international markets. Canadian manufacturers, for the most part, are operating on one shift or, nominally, at about 50-percent capacity.

Many of the Canadian industry's competitors, e.g., Bauer Gear Motors Ltd. and S.E.W. Eurodrive Ltd., have rationalized production in world-scale facilities. These plants produce either standard product lines or specialty products destined for a multinational market base. Canadian industry, which produces mainly for the domestic market, also has a range of standard and specialized products. However, these are, for the most part, manufactured in smaller facilities which cannot take advantage of high economies of scale.

As noted above, the sector is divided into two broad groups of equipment. Each is described below in turn.

Fluids-handling Equipment

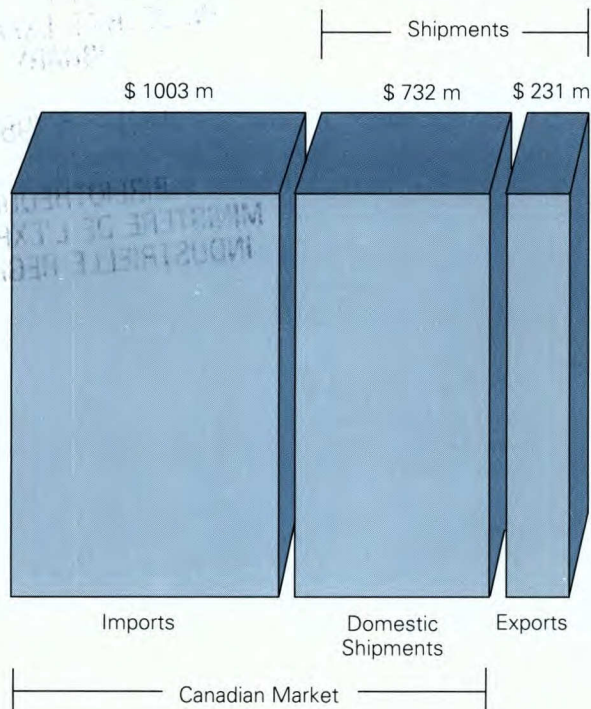
This group of products, which includes fluid-transfer pumps, compressors, fans and blowers, valves and accessories, is manufactured by approximately 150 companies with some 8000 employees. Shipments of fluids-handling equipment in 1986 totalled \$802 million, with exports of \$207 million and imports of \$681 million. About 15 manufacturers have more than 100 employees and account for over half of industry shipments. Nine of these larger firms are subsidiaries of foreign firms which manufacture different sizes and types of standard and specialty equipment to serve a wide end-use market. The smaller firms, on the other hand, have a higher incidence of Canadian ownership and are more active in the production of specialty-engineered equipment to satisfy specific end-use requirements in various industries.

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**Imports, Exports and Domestic Shipments
1986***

* Estimate.

Import penetration is high and competition strong, especially from major manufacturers in the United States, Europe and Japan. Product rationalization and specialization, brought about by the economic slowdown in 1982 and the need to adjust to increased competition in both domestic and international markets, has meant that a reduced range of products is being manufactured in Canada.

This sub-sector draws upon a wide range of suppliers for engineering services, basic steel and alloys, castings, forgings, instrumentation and controls, bearings and seals. Most of the equipment and services are of Canadian origin; however, some alloys, forgings, bearings and seals are not available in Canada and are imported. The sub-sector's markets are predominantly the natural resource and process industries, pipelines, and service and maintenance companies.

Mechanical Power-transmission Equipment

There are some 30 companies with 1250 employees manufacturing this group of products, which includes gears and gearboxes, clutches and couplings, hydraulic pumps and motors, valves and cylinders. Shipments of mechanical power-transmission equipment in 1986 totalled \$162 million, with exports of \$24 million and imports of \$322 million. All companies in this sub-sector are small, with fewer than 100 employees. Approximately 30 percent are foreign-owned, mainly by major U.S. manufacturers.

Mechanical power-transmission equipment manufactured by Canadian-owned companies is mainly limited to custom-engineered and specialty products, and to the assembly and packaging of imported components. Mass-produced standard products such as gearboxes, gear motors, hydraulic motors, pumps and valves, for the most part, are imported by Canadian subsidiaries of major producers in the United States and Europe either as fully machined individual components or as sub-assemblies for custom packaging. Import competition in both specialty and standard products comes from major manufacturers in the United States, Europe and Japan.

Manufacturers of this equipment are purchasers of basic steel, forgings, castings, electric motors, lubrication systems and finished components. More than half of these parts and equipment are of Canadian origin. Mechanical power-transmission equipment is sold to a wide range of manufacturers for incorporation in other industrial machinery and equipment.

Performance

The fluids-handling and mechanical power-transmission sector is mature. Demand for its products closely follows overall industrial activities in Canada. During the 1981-86 period, profit levels remained at low levels, with plant capacity utilization generally in the range of 50 percent.

The performance (in current dollars) of the two major sub-sectors between 1981 and 1986 was somewhat different.

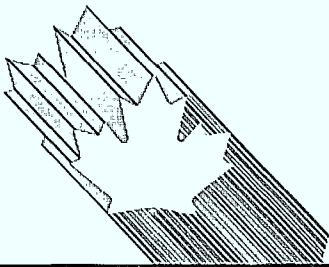
Fluids-handling Equipment

Shipments of fluids-handling equipment, which in 1986 were \$802 million, increased at an annual rate of 3.1 percent between 1981 and 1986. Exports of \$207 million represented 26 percent of shipments in 1986 and decreased at the rate of 0.64 percent during the same period. Imports of \$681 million, which captured 53 percent of the \$1275 million domestic market in 1986, increased at the rate of 1.3 percent over the period, and manufacturers in Canada were able to increase their share of the domestic market from 44 percent to 47 percent.

The strong impact of the recession forced many Canadian companies either to reduce employment and automate or to subcontract work to automated shops, in order to reduce product costs and improve international competitiveness.

Mechanical Power-transmission Equipment

Shipments of mechanical power-transmission equipment, which in 1986 stood at \$162 million, increased at an annual rate of 1.5 percent during the 1981-86 period. Exports of \$24 million accounted for 15 percent of shipments from domestic manufacturers in 1986 and increased at a rate of 0.81 percent between 1981 and 1986. Imports of \$322 million captured 70 percent of the domestic market and increased at the rate of 1.1 percent during these five years, while Canadian manufacturers held their share of the domestic market at 30 percent.



The recession forced many companies to reduce employment and to use more automated manufacturing techniques to enhance competitiveness.

2. Strengths and Weaknesses

Structural Factors

The competitiveness of this sector, with its large proportion of high value-added products, is very dependent on several key factors which include quality materials, skilled labour and advanced manufacturing technologies.

Fluids-handling Equipment

Product technology and service are important factors for sales of fluids-handling equipment, a fact which has tended to favour domestic manufacturers which are strong in both these areas. The companies are less able to compete on price, since labour and material costs are high in relation to those of major international competitors. This situation is the result of the smaller economy of scale and lower level of automation which prevails in Canadian plants. Only a minority of firms have made large investments in sophisticated design and production equipment to increase their competitive position significantly.

Foreign ownership of the major firms has had mixed effects on the industry. Some firms are restricted to selling in the Canadian market. In an industry which already has overcapacity problems, such a restriction makes them vulnerable to closure during periods of reduced demand as parent companies rationalize their operations in an effort to maintain profitability. Other firms have benefited from foreign ownership. Product mandates have enabled these Canadian plants to achieve greater sales volumes from automated facilities. One example is Bingham International Inc., which is the sole world supplier of Bingham liquid ring vacuum pumps. Being part of a larger international corporation often provides these companies with market, technical and financial access which smaller Canadian companies do not enjoy.

Mechanical Power-transmission Equipment

This sub-sector has good technology for a few niche products such as telescopic cylinders and hydraulic systems. However, there are a number of products not produced in Canada, such as hydraulic pumps and motors and variable speed drives.

The companies manufacturing mechanical power-transmission equipment in Canada are basically involved in two types of production: specialty-engineered products and product assembly.

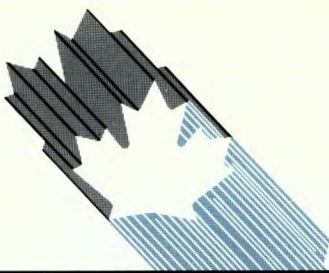
The first type of firms, which manufacture a range of specialty-engineered products such as gear reducers, couplings and hydraulic cylinders, are strong in the design and precise manufacture of component parts for finished machines. These companies tend to be small and Canadian owned. They have been unable to justify heavy investments in advanced, high-volume production machinery and, with high labour and material costs, do not have the economies of scale of their major international competitors. As such, they are not price-competitive and must compete on the basis of the specialized services they can offer.

The second type of firm in this sub-sector imports finished components, such as gears or hydraulic pumps, and assembles them into machines and systems for sale to numerous end-user markets. These firms are, for the most part, subsidiaries of major U.S. or offshore manufacturers. They tend to have larger plants and sales volumes, and are able to respond very promptly to requests for supply of product within their range. However, since these companies are generally restricted to the Canadian market, there is little opportunity for increases in Canadian content or development of export marketing mandates.

In general, the fluids-handling and mechanical power-transmission industry, with its thorough knowledge of equipment service requirements, skilled people and (in the case of subsidiary operations) access to parent-company design information, is on a par in technological competence with that of the United States and other industrialized countries. However, in terms of their production capability and capacity, companies operating in Canada are somewhat weaker.

Trade-related Factors

The tariff rate on the majority (approximately 75 percent) of fluids-handling and mechanical power-transmission equipment imported into Canada is 9.2 percent. Duty remission may be granted for products which are not available from Canadian manufacturers. However, a number of items, such as plastic valves, are given a tariff classification based on a "material of construction" and face import duties of up to 13.5 percent. There are also a number of "end-use" categories under which a wide range of equipment enters Canada duty-free. These "end-users" include fertilizer plants, mining and oil recovery equipment.



Tariffs on goods shipped to the United States, which account for approximately 70 percent of sector exports, vary from two to nine percent, while those to the European Community (E.C.), Canada's second-largest market, range from four to five percent. Shipments to Japan face tariff levels of between 3.6 and six percent.

Canadian manufacturers are at a disadvantage in the domestic market when they are competing with foreign producers which have secured favourable financing for major projects. These projects are particularly important to domestic manufacturers which rely on the Canadian market as a base for financing capital investment and research and development.

Under the Canada-U.S. Free Trade Agreement (FTA), most tariffs are scheduled to be phased out over five years, with the remainder phased out over 10 years. It is unclear what effect, if any, the rules-of-origin provisions of the FTA will have on this sector.

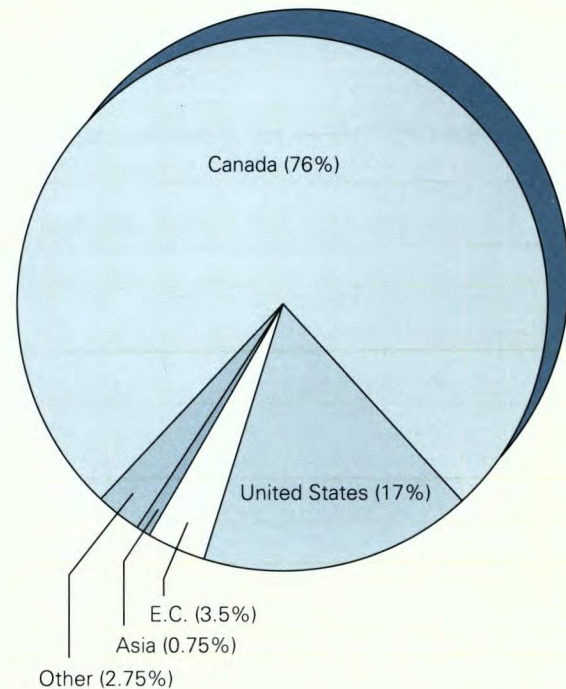
Technological Factors

Canadian fluids-handling and mechanical power-transmission equipment manufacturers possess a high level of technological competence. This capability is, however, due partially to affiliations with foreign-parent organizations that have developed most of the technologically advanced machinery products. Canadian-owned firms tend to specialize in areas where technological requirements are related to improvements in performance characteristics of the equipment, and in the use of equipment for specific process applications, as opposed to new-product development.

While many manufacturers utilize modern computer numerically controlled (CNC) machinery and computer-aided design (CAD) equipment in their manufacturing operations, there is room to upgrade productivity with additional automation.

Other Factors

With a significant proportion of the inputs to production in Canadian currency, the value of the Canadian dollar is critical to the success of many of this sector's manufacturers. Should the value of the dollar increase substantially, Canada's competitive position in relation to foreign suppliers in both the export and domestic markets could be seriously impaired.



Domestic Shipments** \$ 732 M, 76%

Exports \$ 231 M, 24%

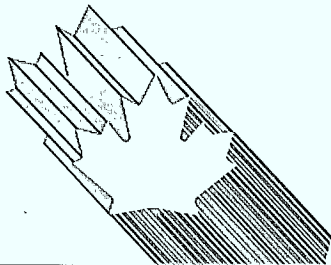
Total Shipments By Destination, 1986*

* Estimate.

** May not add due to rounding.

3. Evolving Environment

Demand for fluids-handling and mechanical power-transmission equipment is tied to investments in capital stock by industry. With the current strength of the Canadian economy, the medium-term forecast is for the industry to maintain its position. However, there is still worldwide overcapacity in the sector and it is likely that there will be continuing product rationalization and plant closings as the major manufacturers struggle to maintain their competitive positions. Radical changes in product technology are not expected, but these companies will likely continue to make improvements in their production processes to reduce costs. In the fluid-handling sub-sector, companies producing specialized, niche products will be less vulnerable than those with more standard product lines. In the mechanical power-transmission sub-sector, competitive pressure on companies may be stronger. The emergence of new suppliers in countries where labour costs are low is likely to increase pressures on smaller companies in the industrialized nations.



Canadian-owned manufacturers which produce niche-market products, as well as companies operating assembly-warehouse-sales facilities, are not expected to experience significant difficulties as a result of free trade with the United States. However, manufacturers of more standard products in which productivity is related to economies of scale, may lose manufacturing capability while retaining their current warehousing, sales and service facilities.

4. Competitiveness Assessment

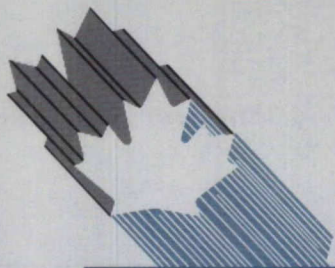
There is worldwide overcapacity and strong price competition in the fluids-handling and mechanical power-transmission equipment sector. The Canadian-owned segment of the industry has been able to maintain its position on the basis of its technical strength. However, many companies are small, with manufacturing methods lagging behind those of the multinationals which dominate the industry. These smaller companies are also vulnerable to price competition. Firms which update their manufacturing and produce more-advanced niche products are likely to do better than the traditional firms which produce standard products. The competitive position of both could be affected by a substantial revaluation of the Canadian dollar. As for the foreign-owned firms, the overcapacity in the industry which has resulted in rationalization and plant closings is likely to continue. The few firms that have world product mandates have demonstrated that they are competitive and should have greater stability.

The impact of the FTA may be to accelerate the trend to plant rationalization which currently exists in the industry, and increase the pressure on Canadian-owned firms to update their manufacturing methods.

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

Surface Transportation and Machinery Branch
Industry, Science and Technology Canada
Attention: Fluids-handling and Mechanical
Power-transmission Equipment
235 Queen Street
Ottawa, Ontario
K1A 0H5

(613) 954-3191



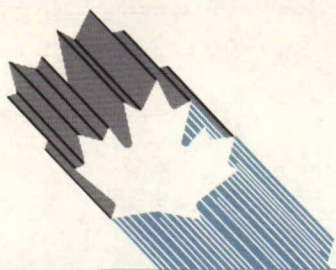
PRINCIPAL STATISTICS SIC(s) COVERED: 3092, 3191, 3192, 3199, 3911, 3194*

	1973	1981	1982	1983	1984	1985 ^e	1986 ^e
Establishments							180
Employment							9 250***
Shipments (\$ millions)	247	838	837	764	825	916	964

TRADE STATISTICS

	1973	1981	1982	1983	1984	1985	1986
Exports (\$ millions)	69	247	219	188	235	237	231
Domestic shipments (\$ millions)**	178	591	618	576	590	680	732
Imports (\$ millions)	278	880	803	632	817	956	1003
Canadian market (\$ millions)**	456	1 471	1 421	1 209	1 406	1 636	1 735
Exports as % of shipments	28	30	26	25	29	26	24
Imports as % of domestic market	61	60	57	52	58	58	58
Source of Imports (% of total value)				U.S.	E.C.	Asia	Others
			1982	79	11	5	5
			1983	82	10	5	3
			1984	82	11	5	2
			1985	80	12	5	3
			1986	77	14	6	3
Destination of Exports (% of total value)				U.S.	E.C.	Asia	Others
			1982	69	7	6	18
			1983	57	11	2	30
			1984	69	12	4	15
			1985	70	12	4	14
			1986	70	15	3	12

(continued)



REGIONAL DISTRIBUTION — Average over the last 3 years

	Atlantic	Quebec	Ontario	Prairies	B.C.
Establishments — % of total	2	13	61	17	7
Employment — % of total	2	18	60	15	5
Shipments — % of total	3	20	55	15	7

MAJOR FIRMS

Name	Ownership	Location of Head Offices
Crane Canada Inc.	American	Montréal, Quebec
Canadian Blower/Canada Pumps Ltd.	American	Kitchener, Ontario
Novenco Canada Inc.	Danish	Cambridge, Ontario
CML Northern Blowers Inc.	Canadian	Winnipeg, Manitoba
De Vilbiss (Canada) Limited	American	Barrie, Ontario
Dresser-Rand Canada Inc.	American	Lethbridge, Alberta
CompAir Canada Inc.	British	Mississauga, Ontario
Monarch Industries Limited	Canadian	Winnipeg, Manitoba
Bingham International Inc.	American	Burnaby, British Columbia
Velan Inc.	Canadian	Montréal, Granby, Quebec
Jenkins Canada Inc.	Canadian	Montréal, Quebec
Dresser Canada Inc.	American	Mississauga, Ontario
Allis Chalmers Canada Inc.	American	Guelph, Ontario
Sheldons Engineering Limited	Canadian	Cambridge, Ontario
Wilson Machine Co. Ltd.	Canadian	Montréal, Quebec
Compro Limited-Hamilton Gear Div.	Canadian	Toronto, Ontario

e Shipment data for 1985 and 1986 are estimates.

* SICs on 1980 basis.

** May not add due to rounding.

*** Industry, Science and Technology Canada internal sources.

Note: Statistics Canada data have been used in preparing this profile.

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A1B 3R9
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Prince Edward Island

Confederation Court Mall
Suite 400
134 Kent Street
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Tel: (902) 566-7400

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1496 Lower Water Street
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