

MacLean Engineering & Marketing

For Don MacLean, the founder of the world's largest Canadian-owned mining equipment manufacturer, marketing was never just about advertising. It was about engineering innovative products that create their own markets.

Headquarters	300 Raglan Street, Collingwood, ON, L9Y 5R2
Year Established	1973
NAICS	333130 - Mining and oil and gas field machinery manufacturing
Employees	1000
Major Expansions	2019
Exports	United States, Mexico, Australia, South America, Africa, Middle East, Asia
Parent Company	-
Other Locations	1000 6th St E, Owen Sound, ON, N4K 1H1 (Diversified Products Division)

In the early 1980s, that core idea combined with a goal to improve mining safety motivated MacLean to develop a semi-mechanized rock bolter, a machine then unheard of in the industry. In underground mining, rock bolters are used to install bolts into hard rock to strengthen the rock mass and provide support for underground structures. Steel mesh screens that protect miners from falling rocks, for example, are attached to these bolts.

MacLean's semi-mechanized rock bolter, which was commercialized in the late 1980s with its first customer Inco (now Vale Canada), proved revolutionary. What used to be a completely manual process became semi-automated, boosting efficiency and safety in Canadian hard rock mines and in mines located as far away as the Andes in South America and the Democratic Republic of Congo.

From that first rock bolter developed in the 1980s to the 500th unit assembled in 2021, MacLean Engineering and Marketing grew into a global success story. Based in Collingwood, the company now boasts additional manufacturing and warehousing facilities in Owen Sound and Barrie, Ontario and Querétaro, Mexico. MacLean also operates an underground innovation and test mine in Sudbury and has sales and support offices on every continent. With 700 employees in the Georgian Bay area, it is one of the largest employers in the region.

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roboticized, and autonomous vehicles.

As it celebrates its [50TH YEAR IN BUSINESS](#), MacLean is at another pivotal point. Its founder's philosophy led the company to launch a program to electrify its mining vehicles in 2016, years before there was demand for them. There are now more than 50 MacLean battery electric mining vehicles (BEVs) operating in mines around the globe and the expectation is that they will make up about half of the business within a few years.

According to MacLean's management, the future of the industry is in electrified, roboticized, and autonomous vehicles. The next 50 years of the company will be shaped by these technologies and MacLean is already busy working on the next market-creating innovation to position itself as a leader in this shift. A 'first-in-the-world' type of vehicle will be unveiled next year at MINExpo 2024 in Las Vegas.

Business is booming, causing the company to double its manufacturing space in the last three years. With the recent completion of an expansion in its Querétaro, Mexico facility that now houses 120,000 square feet of full manufacturing and warehouse capacity, the company's production footprint surpasses 300,000 square feet in North America. It is evolving fast from a 'large small' company into a 'small large' company.

Still, MacLean prides itself on its ability to remain nimble to shifting customer demands and technological advancements. Its smaller size gives the company the ability to create a solution for a single mine site and then commercialize that in other places. The focus on the specialty mining vehicles market also gives the company a niche space to grow its businesses.

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Every vehicle that rolls out of the assembly bay at the busy Collingwood plant, which runs two shifts during the week in addition to a weekend shift, is testament to MacLean's deep-rooted expertise in engineering and manufacturing specialty mining equipment. A single piece of equipment may require 8,000 parts and up to 2,000 person-hours to be put together.

To add to this complexity, because each mine site is unique, MacLean's products are all highly customized, starting with the design phase. That high level of customization makes it difficult to automate production. In response, the company focuses on improving productivity and efficiency in other ways. One effort involves the use of production equipment designed and built in-house. For example, a simple machine designed specifically to rotate a large truck frame during welding has reduced the time to complete that process while simultaneously improving ergonomics. The goal in such projects is also to improve employee health and safety.

MacLean's recent decision to bring electrical panel assembly in-house at their Collingwood facility has become especially important since the company began building electrified vehicles and incorporating more complex electronics such as telemetry devices into its products.

MacLean's manufacturing plant in Collingwood is busy meeting the demand from a booming mining industry globally. But the company understands the cyclical nature of that industry and has developed other products to counter downturns. Municipal vehicles such as sidewalk snow plows, and a waste-to-energy technology that removes hazardous gasses from aerosol cans, are some examples. Compaction machines have already been exported to the Middle East and Europe.

Still, the mining equipment business accounts for the largest portion of MacLean's revenues and the general trend in mining toward further automation represents a rich opportunity. Mining, similar to many other industries, struggles with attracting talent. That means demand has been steadily increasing for products manufactured by MacLean and others.

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To meet that strong demand, the company has been scaling up rapidly. However, that has its own challenges. Management says the order book is full, but notes that labour availability and supply chain challenges persist. Supply chain issues that emerged during the pandemic are one thing and the company has been increasingly near-shoring its supply chain—whether it is sourcing e-motors from Québec or batteries from the United States. A more persistent challenge, however, has been attracting talent to a region outside of Ontario's largest population centres.

A substantial portion of MacLean's skilled trades professionals are fast approaching retirement age. Finding enough people to replace them has been a persistent challenge. Collingwood's lifestyle and appeal as a quaint town was for a long time a great pulling force for younger talent but that has eroded with the surging housing costs. Competition is strong for welders, electricians, and machinists.

Efficiency improvements are one way MacLean works to overcome these challenges. Local advertisement campaigns to raise awareness about the opportunities at the company and hiring foreign talent have proven useful in attracting new employees.

A billboard advertising campaign, done in collaboration with Simcoe County's economic development office, targeted local hockey arenas and other community venues. MacLean also uses its transport truck that travels to and from Barrie, through Collingwood to Owen Sound and back each day, as a way to raise awareness about the company and the local jobs available.

Another recent important initiative has been a hiring campaign in Querétaro, Mexico, where the company's newest manufacturing plant is located. Trainees from there are brought to Collingwood for training in the manufacturing processes to build MacLean equipment. While language can be a barrier at first and these trainees might need support through the cycle of the day, the company believes its efforts are beneficial for ensuring the consistency in quality of its products.

Local hiring is still very important and MacLean's proximity to Georgian College gives it a key advantage. A substantial number of the company's new welders come from Georgian College's Owen Sound campus. MacLean also offers apprenticeship and co-op programs to students.

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While still challenging, MacLean enjoys an advantage in finding engineers, technologists and other professionals with university and college degrees. Many of these individuals start with MacLean through co-op programs or summer internships where the candidate can determine their career path training and the company can evaluate the best fit for each candidate for future full-time placement. As mining vehicles become more technologically advanced, there are a lot of new types of skills needed to build them. People commute as far as from the Greater Toronto Area to work at MacLean, where they can participate in interesting mining innovation projects that incorporate robotics and software coding.

With a skilled and capable workforce, and a set of products that are known around the world for their quality and durability, MacLean is set for further growth in its next 50 years in business. As new mines require electrified mining vehicles, MacLean is ready to meet that demand—be it in Canada where the company has five decades of experience or in Latin America, Africa, and Australia, which are newer markets for MacLean but ones where a branch infrastructure is in place and market growth is well underway.