

2018 Team Achievement Award

MacDon Windrower Design Team



MacDon Industries Ltd. and its predecessor Killbery Industries Ltd. have been world leaders in the technology, innovation, and

manufacturing of high quality harvesting equipment for over 65 years. Every MacDon machine is designed and manufactured at their headquarters in Winnipeg, Manitoba, using the latest advanced manufacturing technologies including computer numerical control (CNC) laser cutters, CNC lathes, robotics, and automated calibration and measuring tools for quality control. The Winnipeg operation includes facilities for research and development, engineering, quality control, parts, manufacturing, marketing, and supporting departments. From this location they supply equipment to dealers and distributors around the world.

The M1 Self Propelled Windrower which was, from the ground up, conceptualized, designed, and ultimately manufactured here in Winnipeg. The purchased Cummins engines are used to power hydraulic pumps which in turn power the traction drive and header drive units of the windrower. The unique hydraulic system had to be very flexible in order to interface with several different types of harvesting attachments that are also manufactured by MacDon at their Winnipeg facility. The interface required mechanical, hydraulic, as well as electronic engineering considerations.

MacDon uses Lean Manufacturing management to make their products. The custom frame for the harvester was designed to not only be as strong and as lightweight as possible, but also to be easily moved down the production line as components were added to it during manufacture of the windrower.

Several patents were issued as part of the development of the M1 Windrower. The frame is developed for off road applications and a patented suspension system dubbed CrossFlex gives the operator a smooth and comfortable ride with in-field speeds of up to 29 km/hr. Electrical-mechanical interfacing has also created automated functions which offer simple setup and operation of the machine and helps reduce operator fatigue. The hydraulically driven cooling system is also unique and is able to handle cooling loads in even the most extreme ambient temperatures under full load.

The cab includes a number of creature comfort systems which were also designed by MacDon, including the electrical/operator interface. The cab can be rotated using patented Dual Direction technology in order to switch from in-field operation to road operation in seconds. Road operation allows travel speeds of up to 45 km/hr. In most cases there is no need to detach the header attachment when moving between fields.

The harvesting technology engineered into the M1 Windrower provides the highest productivity in the market, which is critical in a world with a growing population. The large cab and easy to use interface make the machine enjoyable to the point where operators can treat it more like a workstation in an office.

In recognition of the engineering excellence demonstrated in their M1 Windrower project, Engineers Geoscientists Manitoba is pleased to present the 2018 Team Achievement Award to MacDon Industries Ltd.