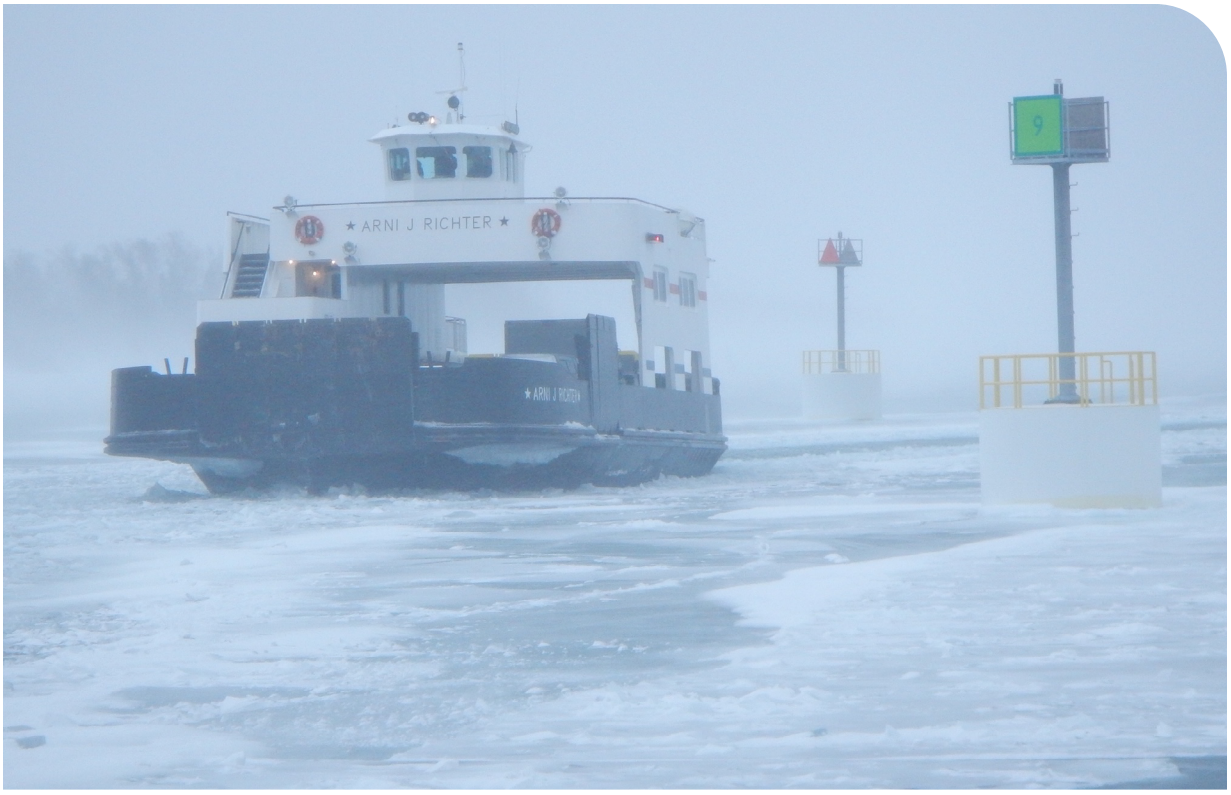
ICE BREAKER FERRY

MARINE PRODUCTS

When the Washington Island Ferry Line added a new ice breaker vessel, they chose a marine transmission from Twin Disc—which has powered the fleet for generations.



Fleet:	Washington Island Ferry Line
Location:	Washington Island, Wisconsin (Lake Michigan)
Shipyard:	Fincantieri Bay Shipbuilding, Sturgeon Bay, Wisconsin
Naval Architect:	Seacraft Design LLC, Sturgeon Bay, Wisconsin
Distributor:	Palmer Johnson Power Systems
Transmission:	Twin Disc MG-540
Electronic Controls:	Twin Disc EC300 electronic controls
Other:	Ice hull, ice class propeller

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MARINE PRODUCTS
Ice Breaker Ferry Case Study

Situation

Washington Island, off of Wisconsin's Door Peninsula, has thousands of summertime visitors and more than 700 year-round residents who depend on the Washington Island Ferry Line's four vessels for transport, mail and package freight. The line makes about 5,000 trips a year across Death's Door Passage—a half hour one way in summer, and 45 minutes or longer in harsh winter months.

Implication/Problem

Winter trips are handled by the Arni J. Richter, built in 2003 with essential ice breaking capabilities. "We've had ice to the bottom in 30 feet of water, with ice coming through the propeller the entire trip," says Hoyt Purinton, ferry line president. "Our propwash looks like an extra-dry margarita."

With the line's entire winter operation riding on the Richter, Purinton says, "it was time to put another horse in the barn."

Solution

Enter the m/v Madonna—at 124 feet long and 40 feet across the beam, the fleet's largest vessel and the third to be built by Fincantieri Bay Shipbuilding. Set to launch in summer 2020, the Madonna can carry up to 28 vehicles and 150 passengers. Like the Richter, it's equipped with the Twin Disc MG-540 transmission.

The Madonna also includes Twin Disc EC300 electronic propulsion control, featuring single-lever control of engine RPM and transmission engagement.

"It's important to have a vessel that can start and stop on a dime," Purinton says.

Distributor Palmer Johnson, the ferry line's service partner, also recently upgraded the Richter's controls from the Twin Disc EC250 to the EC300.

The EC300 interfaces with all popular electronic engines and transmissions, including the revolutionary Twin Disc QuickShift® transmission, and is expandable to include Express Joystick System® stations. It includes active system monitoring, diagnostics and fault indication with event logging, and optional data display. The fly-by-wire concept behind the EC300 makes the system remarkably easy to install on a new boat or retrofit on an older one.

The MG-540 transmission comes standard with:

- Vertical offset, cast iron housing
- SAE J617 housing no. 0
- Electric GP-valve with manual override
- EC050 Profile module—interface for engagement signals
- Oil strainer and oil filter
- Companion flange/bolt set

Customers can also choose from options including:

- SAE J617 housing no. 00
- Flexible coupling for 18″ or 21″ flywheel
- Input flange for freestanding installation
- Mechanical control valve
- Harness with single-point interface to Twin Disc EC300 control system
- Oil cooler for raw or fresh water cooling
- Special companion flange/bolts set for shaft brake application

Results

Operations are already more efficient since the Richter moved to the EC300. Says Purinton, "We've seen gains in torque and responsiveness, and built in further safeguards to the transmission itself."

And based on the decades of reliable performance the fleet has enjoyed with Twin Disc transmissions, Purinton expects the Madonna to enhance efficiency for years to come. "People who haven't even been born yet will benefit from that boat and its robust driveline," he says.

> ***"The MG-540 transmission is so rugged and dependable that some of our crew members joke about naming their kids 'Twin Disc.'"***
>
> Hoyt Purinton
> President
> Washington Island Ferry Line