

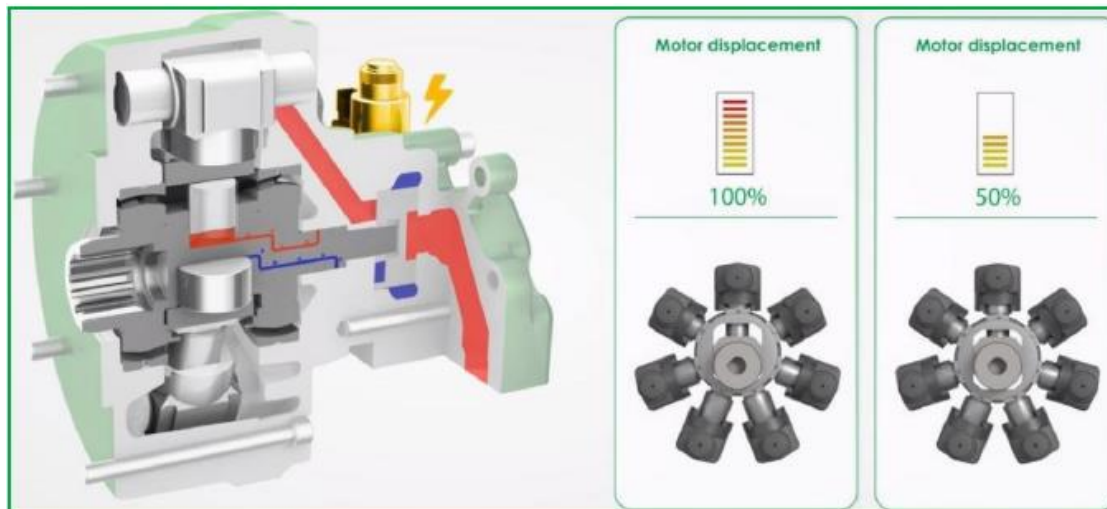
# SAI Variable Displacement motors DAMEN tug boat winches



## Constant Pressure variable displacement motor

In 2015 Damen Winch Technology and SAI started collaborating for the development of a new winch with the highest level of innovation available in the marine market. The purpose was the evaluation and selection of a hydraulic solution to be involved in this project.

For Damen Winch Technology, SAI developed and engineered an innovative and very efficient variable displacement hydraulic motor with fully hydraulic self-adjustment features.



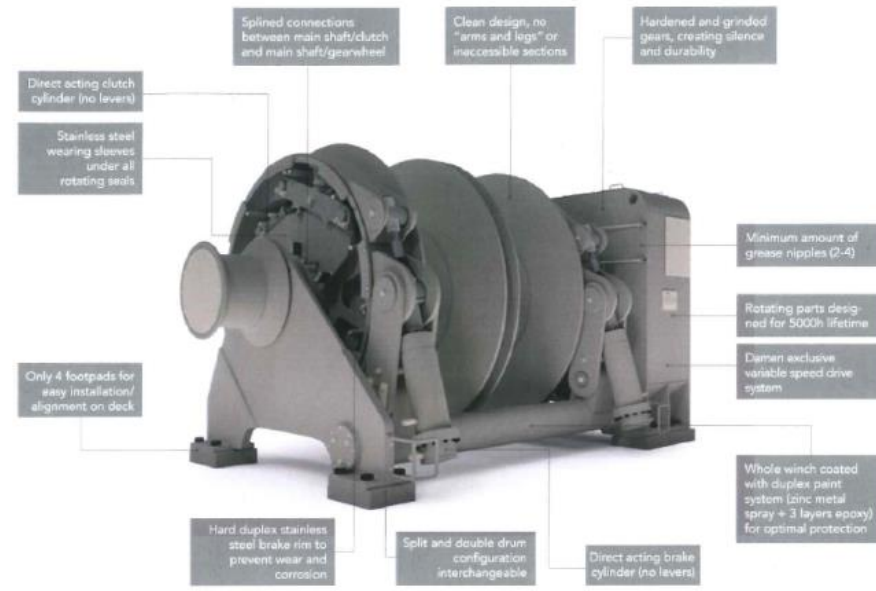
SAI – variable displacement technology



## New DAMEN winch

Damen Winch Technology recently launched RSD Tug 2513, its new generation ship-handling tug equipped with the latest innovative hydraulic drive winch solution powered with the new SAI solution.

Tug 2513 winch innovation of Damen is a variable speed drive, equipped with constant pressure system. This makes it possible to always haul and veer with the highest available speed line. The speed of the drive system automatically adjust itself in proportion to the required line force (for both hauling and veering).



## Development of the new hydraulic solution



SAI – R&D center

Reproducing precisely the same circuit where the hydraulic motor was supposed to work, the most representative tests have been arranged in R&D center with Damen staff. SAI verified that the solution was perfectly matching (even overcoming) the high winch drive system requirement. Then, these superb results on the motor performances measured on the test bench was confirmed and measured on the winch performance during the extensive test arranged on the field with SAI staff that at the end check, set and verify that the complete system was powering properly the motor in each possible running condition. The strong partnership and cooperation between two Companies results focus innovation, efficiency, performance and system reliability.



*Damen Winch Technology RSD Tug 2513 was officially presented during ITS 2018 Exhibition in Marseille, France.*