### >> 19A nozzle

The profile of the 19A nozzle sets a global standard. This type is characterised by its slim profile, and we can produce it in various L/D versions.

This nozzle type is often used for rudder propellers and where thrust reversal is less important. This nozzle is particularly suitable for tugboats and work boats.



### >> VG40 nozzle

The VG40 has been designed by Damen Marine Components with a shorter profile length than the 19A, but often delivers the same performance in terms of forward propulsion. At high cruising speeds, the VG40 performs better than the 19A.

This nozzle is suitable for fishing boats and special purpose vessels because of its short installation length and good thrust at low and high speeds.





# **Propeller Nozzles**

## **MAXIMISES THRUST**



Nijverheidsstraat 5 3371 XE Hardinxveld-Giessendam The Netherlands +31 (0)184 67 62 62 info-dmc@damen.com damenmc.com

Damen Shipyards Gorinchem is the copyright owner of this brochure – © Damen Shipyards Gorinchem 2024. All rights reserved. Except with the prior express written permission of Damen Shipyards Gorinchem, this brochure and its content may not be distributed and/or commercially exploited.







### >> Optispec nozzle

The Optispec nozzle is designed for vessels where a conventional rudder system is unsuitable, such as self-propelled dredgers and pushers. The Optispec is a steerable nozzle with a fixed rudder blade that can rotate through an angle of 2 × 35 degrees around the propeller. An advantage of the Optispec is that a sole-piece connection is not needed, so the underwater part of the ship takes up little space.

### **DMC** Nozzles

Optimise the efficiency of your ship movements with our propeller nozzles. The nozzle is one of our core products that we have had on the market since 1979. With our manufacturing system developed in-house, we can produce each nozzle exactly according to the customer's requirements.

## **Optima nozzle**

After 25 years, we optimised and reintroduced the design of our Optima nozzle in 2023.

# Improved Optima nozzle

#### >> Advantages

Using Computational Fluid Dynamics (CFD), both the profile shape and performance have been optimised further to generate up to 3.4% more forward and reverse thrust than its predecessor. > Lower fuel consumption > Lower noise levels > Significantly reduced vibration

Easy installation

### >>> Easy to replace or refit or refit

Another benefit: when you replace your old nozzle, there is no need to modify the existing ship design. The new profile fits seamlessly into the current construction.



With its robust profile and excellent performance characteristics, the Optima nozzle is ideal for a variety of vessel types. To ensure versatility, the Optima nozzle is available in all possible diameters and different lengths:

- The L/D 0.4 version requires less engine power in ice-class vessels and generates less drag at high speeds. The 0.4 nozzle reduces noise levels from coasters, fishing vessels and other vessel types navigating at speeds up to 14 knots.
- > The L/D 0.5 version is perfect for hoppers, pushers, tugs, AHTS and inland waterway vessels.
- > The Optispec version is a rotating, free-hanging nozzle for steering.

### >> Frequency adjustment

The Optima nozzle reduces the noise caused by the pressure pulses of the propeller. As these vibrations are no longer transmitted directly to the hull of the ship.

### >> Calculations

Damen Marine Components is able to analyse the operational requirements of individual customers and provide information on whether and which nozzle is best. It is also possible to produce a customised design and adapt it accordingly.

**Sustainability and the Single Weld Spinning Method** Nozzles contribute to reduced fuel consumption and, with that, lower CO<sub>2</sub> emissions. Damen Marine Components' innovative method called Single Weld Spinning Method, goes a step further. The method produces the inner part of the nozzle in one operation, which reduces the amount of welding and grinding required and creates a sustainable, environmentally friendly product. The Single Weld Spinning Method perfectly shapes the inside of the nozzle, it can handle stainless steel, steel, duplex and special steel material for propeller nozzles. Using a single weld seam improves the overall quality of the product by creating a smoother surface.



# For excellent forward and reverse propulsion

