A DEVICE FOR REDUCING THE RESISTANCE OF WATER SURFACE VESSELS

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DETECTION OF A SUSPICIOUS BEHAVIOUR!
TRANSOM FLOW

$F_n = 0.2$

$F_n = 0.3$

$F_n = 0.4$

$F_n = 0.5$
TRANSOM FLOW

$F_n = 0.3$

$F_n = 0.4$
RECIRCULATING WATER BEHIND TRANSOM
IDEA EVALUATION

2.8% resistance reduction

4.6% resistance reduction
DESIGN OF TRANSOM PUSHING DEVICE (TPD)

Streamlines in the recirculating water region as well as split of the flow based on its direction. The flow moving in the opposite direction relative to the hull motion is shown in dark blue and the flow moving towards transom is shown in red.

Wake adapted design for the TPD.
TRANSOM FLOW WITH TPD

Recirculating water region on the symmetry plane behind the bare hull transom (top) and with the TPD (bottom).

pressure distribution

wetted surface

Concave side

Convex side
EFFECT OF TPD ON WAVE HEIGHT

Wave-cut on the symmetry plane behind the hull

transom  down-stream
SYSTEMATIC VARIATION OF TPD POSITION

RESISTANCE REDUCTION

TOWED HULL

SELF-PROPELLED HULL

17%

12%
TRANSOM FLOW WITH AND WITHOUT TPD
PATENT FILED:

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A Swedish as well as an international patent have been filed. Inventors: Arash Eslamdoost\textsuperscript{1}, Lars Larsson\textsuperscript{1}, Matz Brown\textsuperscript{2} (1 Chalmers, 2 SSPA) Owner: Kongsberg Maritime Sweden AB
AERODYNAMICS AND THE PUSHING DEVICE

9% Drag Reduction!
The research is funded by KONGSBERG Maritime in Sweden through the University Technology Center at Chalmers and The Swedish Transport Administration.

The experimental tests were carried out at SSPA Sweden AB.

Chalmers center for Computational Science and Engineering (C3SE) and National Supercomputer Center at Linköping University (NSC) provided the computational resources.