

INNOVATIVE HULL SHAPE

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INTRODUCTION

The most part of high speed planning boats are designed according to the shape named “deep vee” and invented in the 60' by the Architect Raymond Hunt and having a constant deadrise angle of 22 degrees in the after part.

The “deep vee” hull shape has the disadvantage to increase the time of the boat to get in the planning condition because the thrust on his bottom is reduced by the extreme inclination of the bottom and always for this reason the engines power has to be reduced while closed steering due to a dangerous heeling angle.

DESCRIPTION OF THE INVENTION

To solve the above described disadvantages of a “deep vee” hull, a n innovative hull shape has been invented and having the following characteristics:

The dynamic wetted surface is reduced putting a recess having a lateral parabolic shape (F1) and two lateral bodies to the central hull having the length (L1) that have the purpose to give an additional thrust to the bottom and to reduce the heeling angle at all speeds range.

The length of the two lateral bodies (L1) depends from the total length of the hull (L0) and from the design speed of the boat and is between $L1/L0 = 1$ to $0,1$.

The breadth of the two bodies (SD) depends from the central hull width (CH) and is between $CH/SD = 0,5$ to 1.0 .

At the transom (S) the two lateral bodies (SD) have an inclination of their bottoms between -10 and $+ 10$ degrees (C2 & C3).

The hull in his after part (L1) has an angle on his bottom depending of the target speed and is between 0 and 25 degrees.

So doing the surface (Az) is flat with an angle of 0 degrees meanwhile the central surface (At) has an angle (B0) between 5 and 25 degrees for all his length (L1)

The height (H0) where starts the recess at (L1) depends from the top speed of the boat and from his displacement and has a value $H0/H1$ from 0 to 1 .

NOMENCLATURE

L0 = total hull length

L1 = length of the two lateral bodies

SD = width of the lateral bodies

C3 = external chine of the lateral body

C2 = internal chine of the lateral body

F1 = lower part of the parabolic recess

B.L. = basis line

C.L. = center line

H1 = height of the chine

H0 = recess height at L1

Beta0 = deadrise angle

Az = flat area

At = area with constant inclination

CH = central body breadth

S = transom

“A-A” + “B-B” + “C-C” = sections at after part of the hull

Attached:

- geometrical design of the hull
- rendering of the hull

CLAIMS

The claims of this invention are:

- 1) High dynamic stability in high speed during manouvring
- 2) High static stability
- 3) More volume and reserve of buoyancy in the aft part of the hull
- 4) Reduced wetted surface during running and reduced drag