POLITEKNIK KELAUTAN DAN PERIKANAN SORONG

BANGUNAN DAN STABILITAS

BADAN RISET DAN SUMBER DAYA MANUSIA KELAUTAN DAN PERIKANAN

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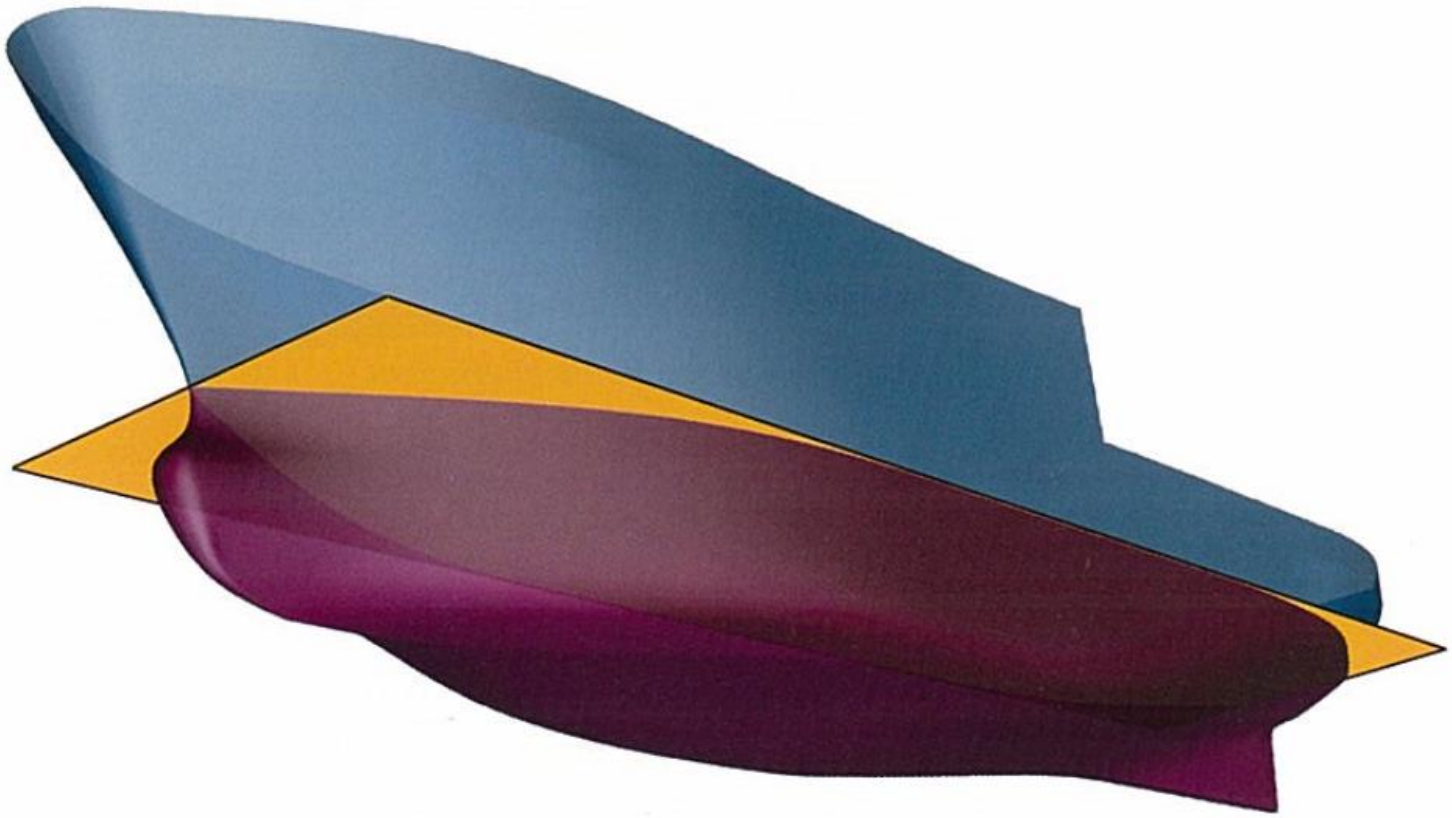
KOEFISIEN KAPAL

PENGERTIAN

2.1 Water-plane coefficient, C_w (α)

$$\text{Waterplane-coefficient } (C_w) = \frac{A_w}{L_{pp} \times B_{mld}}$$

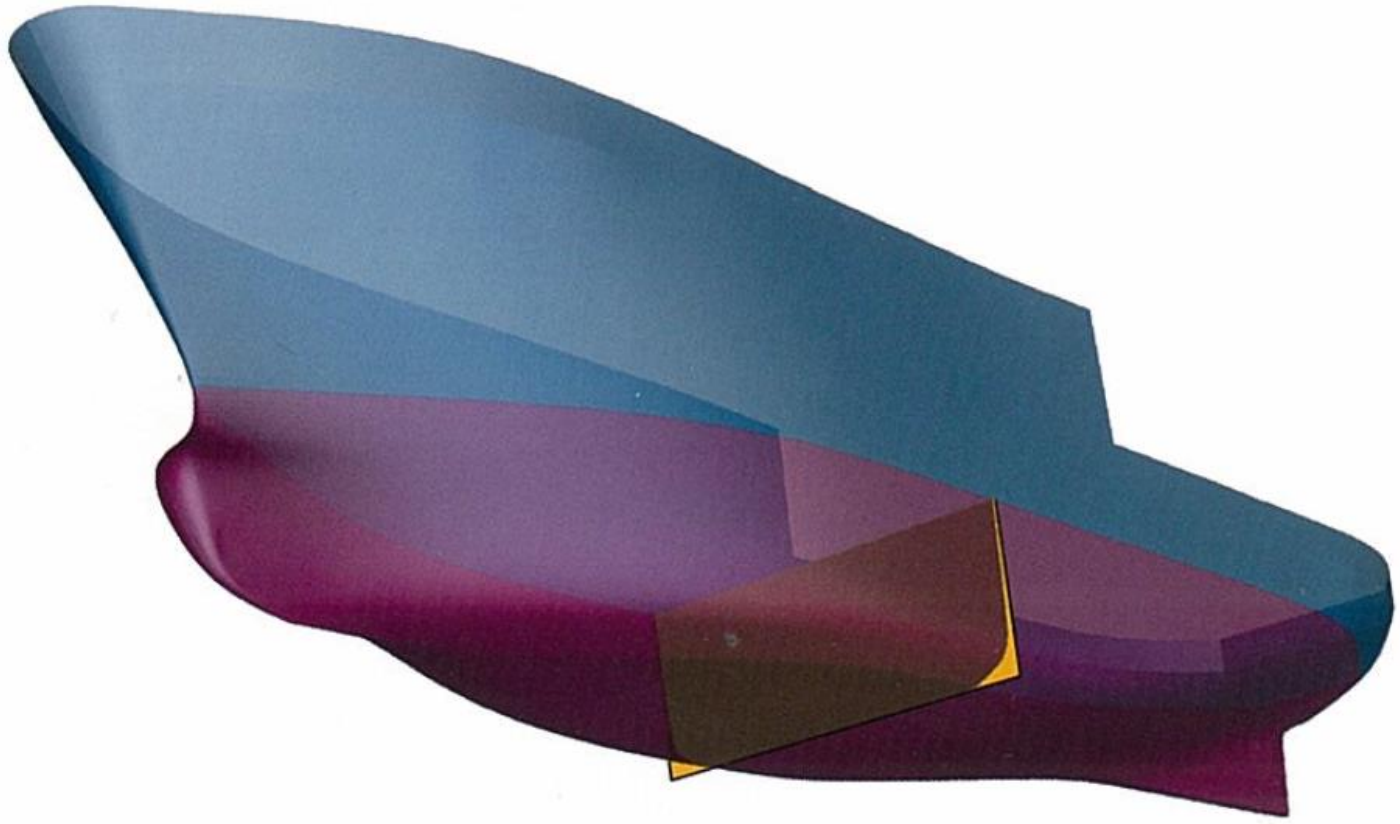
The water-plane coefficient gives the ratio of the area of the water-plane ($\mathbf{A_w}$) and the rectangular plane bouded by $\mathbf{L_{pp}}$ and breadth moulded ($\mathbf{B_{mld}}$). A large waterplane coefficient in combination with a small block coefficient (or coefficient of fineness) is favourable for the stability in both transverse and longitudinal direction.



2.2 Midship Section coefficient, C_m (β)

$$\text{Midship-coefficient } (C_m) = \frac{A_m}{B_{mld} \times T}$$

The midship coefficient gives the ratio of the area of the midship section ($\mathbf{A_m}$) and the area bounded by B_{mld} and **T**.



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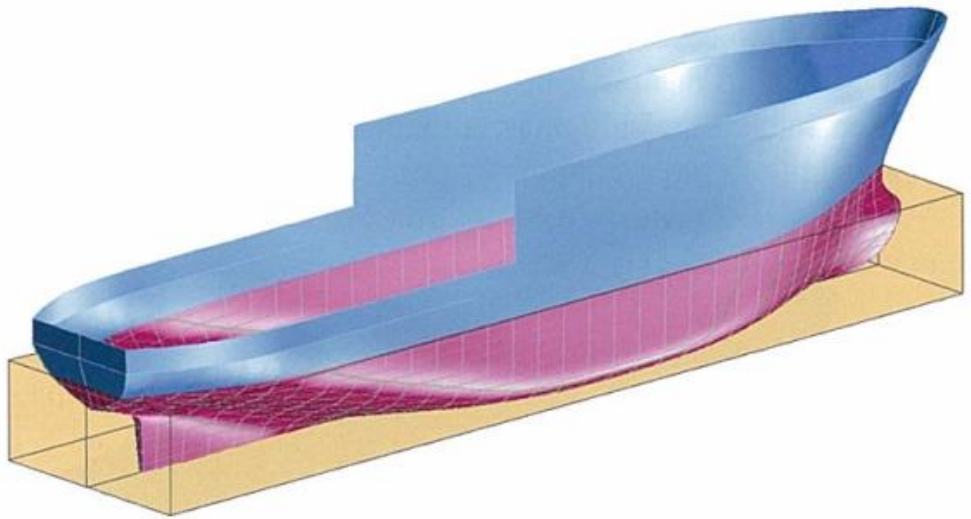
2.3 Block coefficient, coefficient of fineness, C_b. (δ)

The block coefficient gives the ratio of the volume of the underwater body (V) and the rectangular block bounded by L_{pp}, Bmld and draught (T).
A vessel with a small block coefficient is referred to as 'fine'. In general, fast ships have small block coefficients.
Customary values for the block coefficient of several types of vessels:

Ship type	Block coefficient C_b	Appr. ship speed
Lighter	0.90	5 – 10 knots
Bulk carrier	0.80 – 0.85	12 – 17 knots
Tanker	0.80 – 0.85	12 – 16 knots
General cargo	0.55 – 0.75	13 – 22 knots
Container ship	0.50 – 0.70	14 – 26 knots
Ferry boat	0.50 – 0.70	15 – 26 knots

$$\text{Block coefficient } (C_b) = \frac{\text{Volume}}{L_{pp} \times B_{mld} \times T}$$



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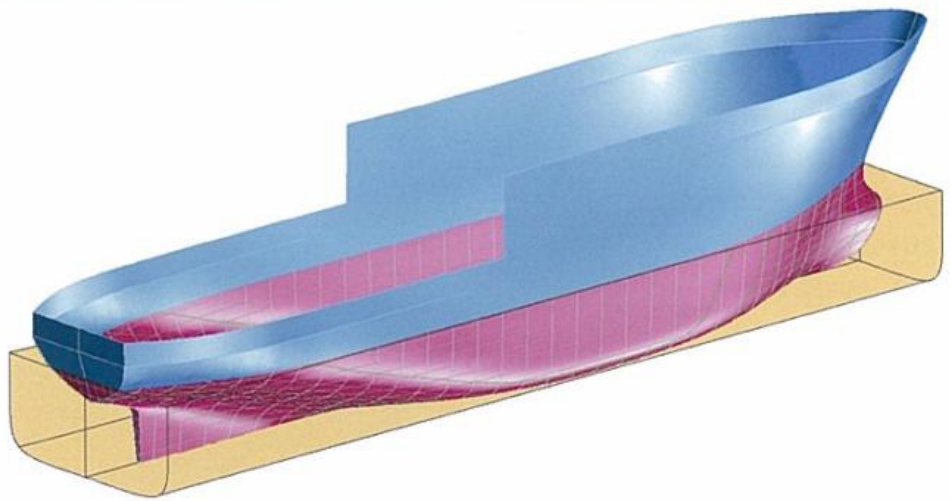
2.4 Prismatic coefficient, C_p. (phi)

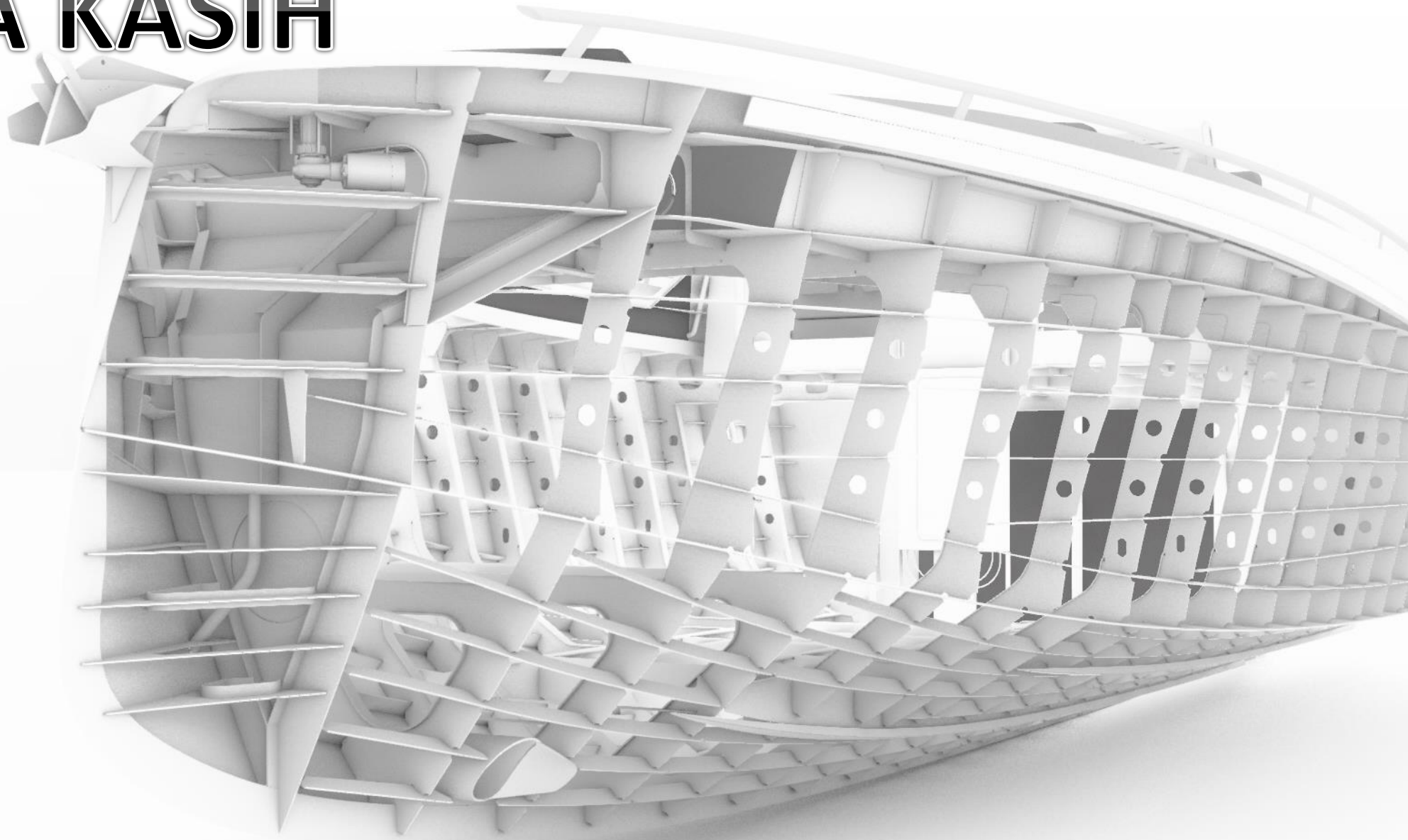
The Prismatic Coefficient gives the ratio of the volume of the underwater body and the block formed by the area of the Midship Section (Am) and L_{pp}. The C_p is important for the resistance and hence for the necessary power of propulsion (if the C_p decreases, the necessary propulsion power also becomes smaller).

The maximum value of all these coefficients is reached in case of a rectangular block, and equals 1. The minimal value is theoretically 0.

$$\frac{V}{L_{pp} \times A} = \frac{L_{pp} \times B \times T \times C_b}{L_{pp} \times B \times T \times C_m} = \frac{C_b}{C_m}$$



TERIMA KASIH



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