

# TONNASJEBEREGNING

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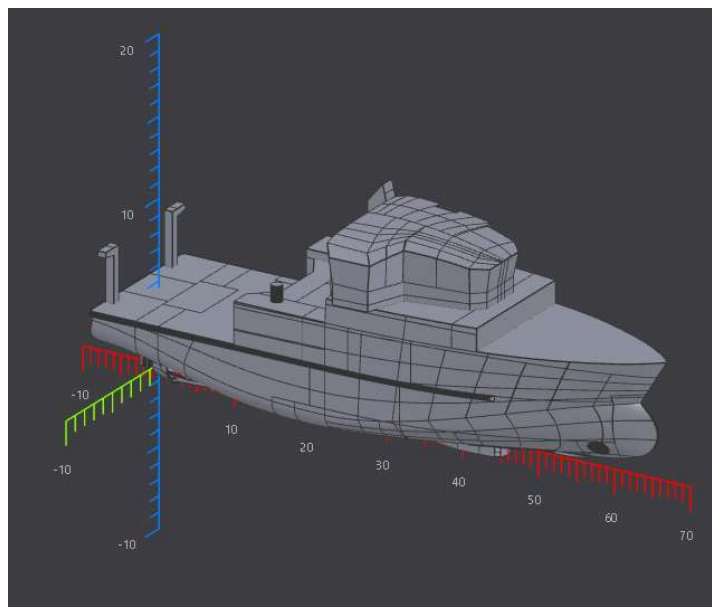
## KYSTFORSKNINGSFARTØY

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Document revision list	
Rev	Description of changes
01	First Issue
02	Utgitt i forbindelse med anbud.
03	
04	
05	

## 1. GENERAL

### 1.1 MAIN PARTICULARS

Item	Value
LOA	35.0 m
LPP	32.2 m
Breadth moulded	10.0 m
Scantling draught	3.5 m
Frame spacing	0.5 m

### 1.2 REFERENCE DOCUMENTS

- 389017-DW-101-C-LMG-00001\_02\_001 GENERAL ARRANGEMENT
- NAPA database 389017\_LMG35-CRV Revision B

### 1.3 COORDINATES SYSTEM

The coordinates system is right-handed, i.e.:

x - from aft perpendicular (AP) located at #0, positive fwd.

y - from centreline (CL), positive toward portside

z - from baseline (BL), positive upwards

Frame spacing: 500 mm along the ship; forward from AP.

## 2. DEFINITIONS AND ABBREVIATIONS

V, VOL	= total volume, moulded (m <sup>3</sup> )
K <sub>1</sub>	= $0.2+0.02\log_{10}V$
V <sub>c</sub>	= total volume of cargo spaces (m <sup>3</sup> )
K <sub>2</sub>	= $0.2 + 0.02 \log_{10}V_c$
K <sub>3</sub>	= $1.25 \times (GT + 10000)/10000$
D	= the moulded depth amidships (m);
d	= the moulded draught amidships (m);
N <sub>1</sub>	= the number of passengers in cabins containing not more than eight berths;
N <sub>2</sub>	= the number of other passengers;
N <sub>1</sub> +N <sub>2</sub>	= the number of passengers as shown in the vessel's passenger certificate;
GT	= the gross tonnage of the vessel.
NT	= the net tonnage of the vessel.
CGX	= longitudinal centre of volume from aft perpendicular (frame #-50)
CGY	= transverse centre of volume (positive on PS)
CGZ	= vertical centre of volume (above base line)
XMIN, XMAX, YMIN,	= coordinates of longitudinal extent of volume



YMAX = coordinates of transverse extent of volume  
ZMIN,  
ZMAX = coordinates of vertical extent of volume

### 3. ENCLOSED SPACES

#### 3.1 TONNHULL – SUMMARY

The ship's enclosed spaces and spaces considered enclosed have been defined based on arrangement "Tonnage" defined in NAPA.

### 4. TONNAGE CALCULATIONS

#### 4.1 GROSS TONNAGE

GT =  $K_1 \times V$   
V = total volume of the ship (m<sup>3</sup>)  
V = 1861.16 → Chapter 3.1  
K1 =  $0.2 + 0.02 \times \log_{10} V$   
K1 = 0.265396  
  
**GT = 493**

#### 4.2 NET TONNAGE

NT =  $K_2 \times V_C \times ((4 \times d) / (3 \times D))^2 + K_3 \times (N_1 + N_2 / 10)$   
V<sub>C</sub> = total volume of cargo spaces (m<sup>3</sup>) = 72.16 m<sup>3</sup>  
D = 4.60 m  
d = 3.50 m  
N<sub>1</sub> = 10  
N<sub>2</sub> = 0  
GT = 493 → Chapter above  
K<sub>2</sub> =  $0.2 + 0.02 \times \log_{10} V_C$   
= 0.23717  
K<sub>3</sub> =  $1.25 \times (GT + 10000) / 10000$   
K<sub>3</sub> = 1.31163  
  
(4×d)/(3×D)<sup>2</sup> = 1  
K<sub>2</sub>×V<sub>C</sub>×1 = 17.11 → but not less than 0.25 GT  
0.25 GT = 123.25  
K<sub>3</sub>×(N<sub>1</sub>+N<sub>2</sub>/10) = 13.64  
NT = 123.25 + k<sub>3</sub>×(N<sub>1</sub>+N<sub>2</sub>/10)  
NT = 136,9 → but shall be not less than 0.30 GT:  
0.30 GT = 147,9

**NT = 147**

### 4.3 NAPA MODEL

Some screenshots of the NAPA model used for tonnage calculation are presented below:

