MAHUTAVUSE ARVUTUS

Patrullpaat “K-010”

K-010 – 0340.901 - 455

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Andmed laeva kohta:

Laeva nimi:	**K-010**
Tüüp	patrullpaat
Material	teras
Ehitusaasta	1997, BLRT, Eesti
Kutsung	
Registrinumber	
Kodusadam	
Kogupikkus,	L_{OA} = 15.05 m
Arvestustik pikkus	$L_{(p.2.1)}$ = 13.92 m
Loodivaheline pikkus	Lpp = 13.05 m
Laius max	Bmax = 3.70 m
Teoreetiline parda kõrgus	D = 2.00 m

Arvutuse alus

Patrullpaadi “K-010” mahutavus on arvestatud Majanduse-ja kommunikatsiooniministri 11 veebruari 2003.a (muudetud 2012.a) määruse nr 29 "Alla 24-meetrise pikkusega laevadele mõõtekirja väljastamise tingimused" kohaselt.

Kasutatud materjalid

1. Lines drawing Nr. 340-123-101A
2. Общее распололение Nr. 0340-112-47.199
3. Стальной корпус Nr. 0340-211-101A
4. Рубка Nr.1340—211-47.002
5. Перо руля Nr. 1340-322-101
6. Другие чертежи

1. Mahutavuse (GT) arvutamine

$$GT= (V_1+V_2) \times 0.25$$

V_1 – pardalatialune ruumala, m^3;
V_2 – pealpool pardalati asuvate kinniste tekiehitiste ruumala, m^3.

Laeva alumine ruumala V_{1A} määrati osaliselt projekti 1 programmi abil laeva süvise d = 2,3 m jaoks (Информация об остойчивости Nr.0340-131-47.206).

$$V_{1A} = 44.5\ m^3$$

Ülejäänud ruumi maht teki all V_{1B} määratakse teoreetilise joonise põhjal trapetsikujulise reegli abil.

V_{1B} =2x{[(1.17+1.2)/2x0.3+(1.23+1.24)/2x0.3]/2x0.28 + [(1.23+1.24)/2x0.3+(1.37+1.4)/2x0.3]/2x1.0 + [(1.37+1.40)/2x0.3+(1.50+1.55)/2x0.3]/2x1.0 + [(1.50+1.55/2x0.3+(1.62+1.67)/2x0.3]/2x1.0 + [(1.62+1.67)/2x0.3+(1.705+1.75)/2x0.3]/2x1.0 + [(1.705+1.75)/2x0.3+(1.77+1.815)/2x0.3]/2x1.0 + [(1.77+1.815)/2x0.3+(1.80+1.85)/2x0.3]/2x1.0 + [(1.80+1.85)/2x0.3+(1.81+1.85)/2x0.3]/2x1.0 + [(1.81+1.85)/2x0.3+(1.795+1.85)/2x0.3]/2x1.0 + [(1.795+1.85)/2x0.3+(1.74+1.85)/2x0.3]/2x1.0 + [(1.74+1.85)/2x0.43+(1.62+1.83)/2x0.54]/2x1.0 + [(1.62+1.83)/2x0.54+(1.44+1.76)/2x0.65]/2x1.0 + [(1.44+1.76)/2x0.65+(1.12+1.60)/2x0.775]/2x1.0 + [(1.12+1.60)/2x0.775+(0.68+1.38)/2x0.89]/2x1.0 + [(0.68+1.38)/2x0.89+(0.10+1.02)/2x1.01]/2x1.0 + [(0.10+1.01)/2x1.01+(0+0.66)/2x0.4]/2x0.5 + [(0+0.66)/2x0.4+(0)]/2x0.27} =
2x{0.151+0.393+0.4365+0.4755+0.5059+0.528+0.5426+0.5475+0.5479+0.5483+0.6593+0.8517+0.9858+1.047+0.9853+0.7411+0.1731+0.0178} = 2x10.1373 = 20.2746 = 20.27 m^3

$$V_{1B} =20.27\ m^3$$

$$V_1 = V_{1A}+V_{1B} = 44.5 + 20.27 = 64.77\ m^3$$

Pardalati ehitus kohal asuvad koosnevad järgmistest osadest:

Kaared 33½ -40½
V_{2A1} = LxHkeskxBkesk = 2.15 x (0.28x0.35)/2 = 0.105 m^3
V_{2A2} = LxHkeskxBkesk = 1.65 x {(0.28x2.15)+(1.3x0.09)}/2 = 0.593 m^3
V_{2A} = 0.105+0.593 = 0.698 m^3

Kaared 23-34½
V_{2B1} = LxHkeskxBkesk = 3.0 x (1.882+1.559)/2 x 2.42 = 12.49 m^3
V_{2B2} = LxHkeskxBkesk =0.375 x 1.559 x 2.11 = 1.23 m^3
V_{2B3} = LxHkeskxBkesk = (3.0x0.305x2.28) + (0.375x0.305x(2.5+1.8)/2) = 2.35 m^3
V_{2B} = 12.49+1.23+2.35 = 16.07 m^3

Kaared 12-23
Kaared 12-15½
V_{2C1} = LxHkeskxBkesk =1.05 x0.194 x 2.22 = 0.45 m^3
Kaared 15½ 23
V_{2C2} = LxHkeskxBkesk = 2.25 x 0.194 x 2.53 = 1.10 m^3
V_{2C} =0.45 +1.10 = 1.55 m^3

Pardalati ehituse ruumala

$$V_2 = V_{2A}+V_{2B}+V_{2C} = 0.698+16.07+1.55 = 18.32\ m^3$$

2. Kogumatutavus (GT)

$$GT = (64.77 + 18.32) \times 0.25 = 20.77$$

GT = 21

3. Puhasmahutavuse (NT)

$$NT = 0.3 \times GT = 0.3 \times 21 = 6.3$$

NT = 6