**Til bruk i maritime fagskoler**

# M/S «SIDUS»

GENERAL CARGO, BULK, CONTAINER CARRIER

**Versjon 2 - 29.11.2018**

**Versjon 2. 22.11.2018**
**Revidert av:**

Fagskulen
SOGN OG FJORDANE

FAGSKOLEN I ÅLESUND
- utdanner framtidas fagfolk

Til bruk i dei maritime fagskolene:

| | | | |
|---|---|---|---|
| | **Fagskolen i Kristiansand** | | **Trondheim fagskole.** |
| | **Fagskolen Rogaland Avdeling Karmsund** | | **Nord-Trøndelag fylkeskommune, Ytre Namdal fagskole** |
| | **Fagskulane i Hordaland, Bergen og avdeling Austevoll** | | **Bodin videregående skole og maritime fagskole** |
| | **Fagskulen i Sogn og Fjordane, maritim avdeling Måløy** | | **Lofoten maritime fagskole** |
| | **Fagskolen i Ålesund** | | **Fagskolen i Troms, avdeling Tromsø maritime skole** |
| | **Fagskolen i Kristiansund** | | **Nordkapp maritime fagskole og videregående skole** |
| | **Fagskolen i Vestfold** | | |

**INDEX:**

**LIST OF SYMBOLS**

| | | |
|---|---|---|
| Ap | (m) | aft perpendicular |
| FP | (m) | fore perpendicular |
| Lpp | (m) | length between perpendiculars |
| CL | (-) | centre line |
| ⊗ | (-) | Lpp/2 (midship) |
| K | (m) | keel point |
| DISP | (t) | displacement |
| WT | (t) | mass (weight) |
| VOL | ($m^3$) | volume of hold/tank |
| SG | ($t/m^3$) | specific gravity |
| LCG | (m) | longitudinal centre of gravity from AP |
| LCV | (m) | longitudinal centre of volume of tank / hold from AP |
| VCG | (m) | height of centre of gravity above K |
| VCV | (m) | height of centre of volume in tank / hold above K |
| TCG | (m) | transverse centre of gravity from CL |
| $M_0$ | | initial metacentre |
| GM | (m) | metracentric height |
| FsM | (tm) | free surface moment |
| $G_2M$ | (m) | metracentric height (fluid) |
| KG | (m) | height of centre of gravity above K |
| $KG_2$ | (m) | height of centre of gravity above K (fluid) |
| KN (KY) | (m) | cross curve of stability |
| GZ | (m) | static stability arm (righting arm) |
| $G_2Z$ | (m) | static stability arm (righting arm, fluid) |
| LM | (tm) | static moment of mass in relation to Ap |
| VM | (tm) | static moment of mass in relation to K |
| d | (m) | mean draught at midship, above K |
| dA | (m) | draft aft (at AP) above K |
| dF | (m) | draft fore (at FP) above K |
| d⊗ | (m) | draft at L/2 (midship) |
| H | (m) | hold filling measured from double bottom |
| U | (m) | hold filling measured from top of hatch coaming (ullage) |

# PART 1
# MAIN CHARACTERISTICS

**MAIN CHARACTERISTRICS**

| | |
|---|---|
| Name of the ship | SIDUS |
| Bulider | Baltica S.A., Poland |
| Yard number | C 695-II/5 |
| Year of built | 2000 |
| Home port | Bergen |
| Register number | 499745 |
| IMO number | 8075124 |
| Navigation area | Unrestricted |
| Service speed of ship at design draft | 16,3 kn. |
| Type of the ship | Bulk-Gemneral-Container carrier |
| Crew | 29 + 1 |

**PURPOSE**

The ship is intended for carriage of cargoes as :

| | |
|---|---|
| Wood-pulp in bale and reel | |
| Newsprint in reel | |
| Liner board in roll and Package lumber | |
| Plywood and Particle board in bundle | |
| Aluminium ingot and Cement | |
| Steel plates / bar / coils | |
| Bulk cargo as grains and ore | |
| 20 and 40 ft. ISO standard containers | |
| in holds and on hatch cowers | |

**RULES** …….Det norske Veritas of 1997, DnV class :

| | |
|---|---|
| ✠ 1A1 | |
| General Cargo | |
| Container Carrier | |
| Ice 1B | |
| HC-EA | |
| Grain | |
| E0 | |
| HA(+) | |
| IB(+) Except No 10 Hold | |
| LCS (D, G, 1, S) | |
| TMON | |

**NAVIGATIONAL EQUIPMENT**

Is the following Navigational Equipment fitted :

| | | |
|---|---|---|
| Magnetic Compass | Yes | |
| Gyro Compass and Repeaters | Yes | |
| Radars | Yes | |
| Radar Plotting Equipment | Yes | |
| ARPA | Yes | |
| Echo Sounder | Yes | |
| Speed/Distance Indicator | Yes | |
| Doppler Log | Yes | |
| Speed of Approach Doppler | Yes | |
| Rudder Angle Indicator | Yes | |
| RPM, Variable Pitch Indicators | Yes | |
| Bow Thruster Indicator | Yes | |
| Rate of Turn Indicator | Yes | |
| Radio D.F. | Yes | |
| Navtex Receiver | Yes | |
| Decca Navigator | Yes | |
| ECDIS | Yes | |
| Loran C | Yes | |
| Sexstant(s) | Yes | |
| Signal lamp (Aldis) | Yes | |
| Course Recorder | Yes | |
| Engine Order Printer | Yes | |

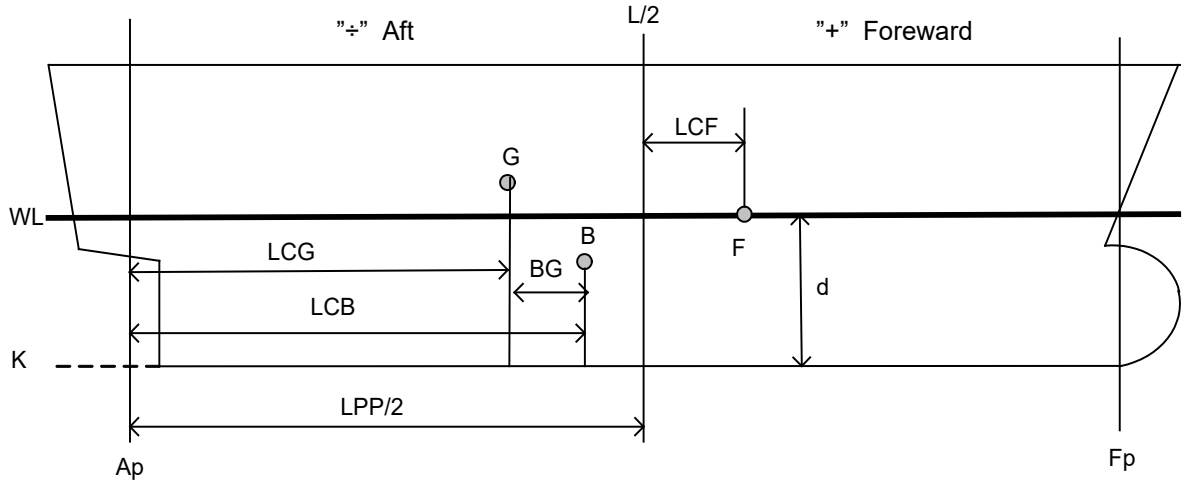
| | | |
|---|---|---|
| What Chart Outfit Coverage is Provided | Worldwide | |
| Formal Chart Corrections System in use | Yes | |

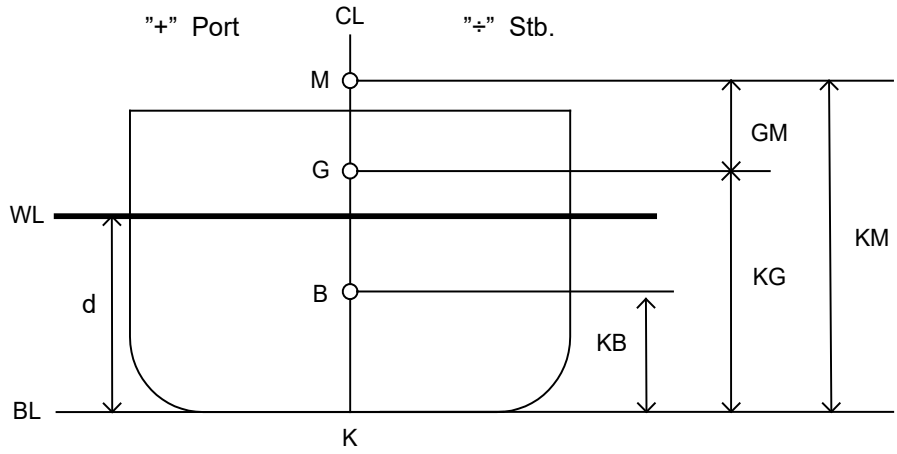
**COMMUNICATIONS EQUIPMENT**

Is the following Communications Equipment fitted :

| | | |
|---|---|---|
| Radio Telegraph main Transmitter including facility transmitt on radio Telephone Distress Frequency | Yes | |
| Radio Telegraph main Receiver including facility transmitt on radio Telephone Distress Frequency | Yes | |
| Radio Telephone Distress Frequency Watch Receiver | Yes | |
| Main radio Antenna | Yes | |
| Radio Telegraph Reserve Transmitter | | No |
| Radio Telegraph Reserve Receiver | | No |
| Reserve Radio Antenna | Yes | |
| Are the Main and Reserve Installations electrically separate and electrically independent of each other | Yes | |
| Radio Telegraph Auto Alarm | | No |
| Radio Telephony Auto Alarm | Yes | |
| VHF Radio | Yes | |
| Inmarsat Satellite Communication System | Yes | |
| Telex | Yes | |
| Telefax | Yes | |
| Weatherfax | Yes | |
| EPIRBS | Yes | |
| At least Three Survival Craft Two-way Radio Apparatus | Yes | |
| Emergency Lifeboat Transmitter | Yes | |
| Full Set of Publications | Yes | |

**EXPLANATION OF THE STABILITY DEFINITIONS**




Ap……Aft perpendicular

Fp……Fore perpendicular

Lpp……..length between perpendiculars

K……..Keel point

M……..Metacentre

d……..mean draft, at midship

KB……height of centre of buoyancy above Keel

KG……..centre of gravity above Keel

GM……..metacentric height

LCG……length of centre of gravity from Ap

LCB……length of centre of buoyancy from Ap

LCF……length of flotation from midship, "+" forward

TCG…….transverse centre of gravity from CL

**PRINCIPAL DIMENIONS** (THEORCTICAL)

| | |
|---|---|
| Length over all | 185,00 m |
| Length between perpendiculars | 176,00 m |
| Breadth moulded | 31,00 m |
| Depth to main (freeboard deck) | 15,40 m |
| Depth to upper deck | 19,00 m |
| Summer freeboard drught | 12,05 m |

| | |
|---|---|
| Displacement for SFB draught | 53 181 t |
| Deadweight for SFB draught | 39 465 t |
| GT (register tonnage) | 30 745 |
| NT | 11 664 |
| Air Draft (from Keel) | 47,00 m |

**LIGHT SHIP DATA**

(used in the stability documentation)

| | |
|---|---|
| Lightships weight | 13 716 MT |
| LCG | 77,24 m |
| VCG | 12,76 m |
| TCG | 0,03 m |

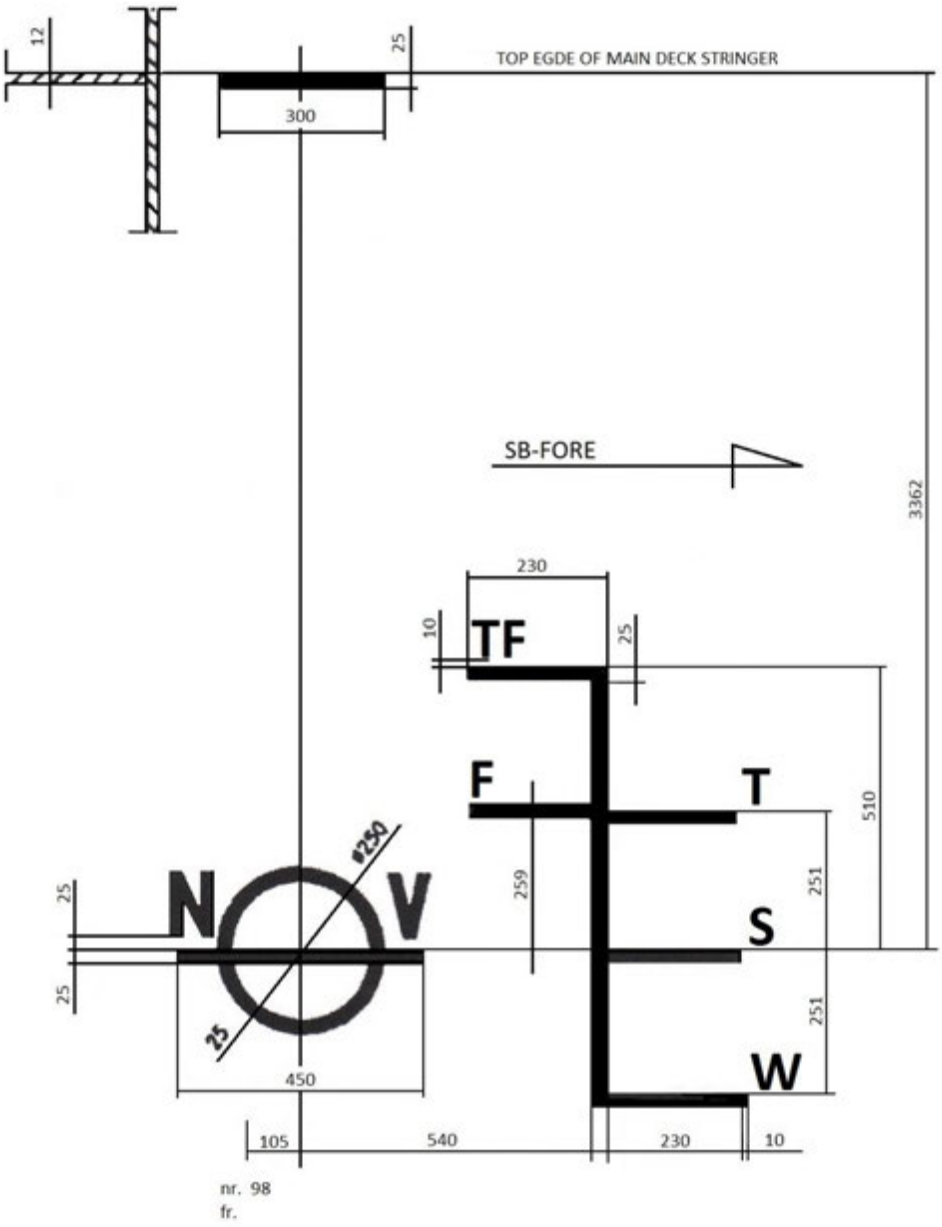
**SPEED AND CONSUMPION**

| | **Load** (%) | **Speed** (knots) | **Consumption** (tonn/24 h) |
|---|---|---|---|
| **Maximum** | 100 | **18,2** | **38,1** |
| **Service speed** | 90 | **16,8** | **33,7** |
| **Normal service speed** | 85 | **16,3** | **31,9** |

**STORES**

| **COMP.** | fr. – fr. | **VOL** ($m^3$) | **WT** (t) | **LCG** (m) | **VCG** (m) |
|---|---|---|---|---|---|
| Forward | | 300,0 | | 167,80 | 17,00 |
| AFT | | 500,0 | | 14,80 | 17,00 |

**FREEBOARD MARK**

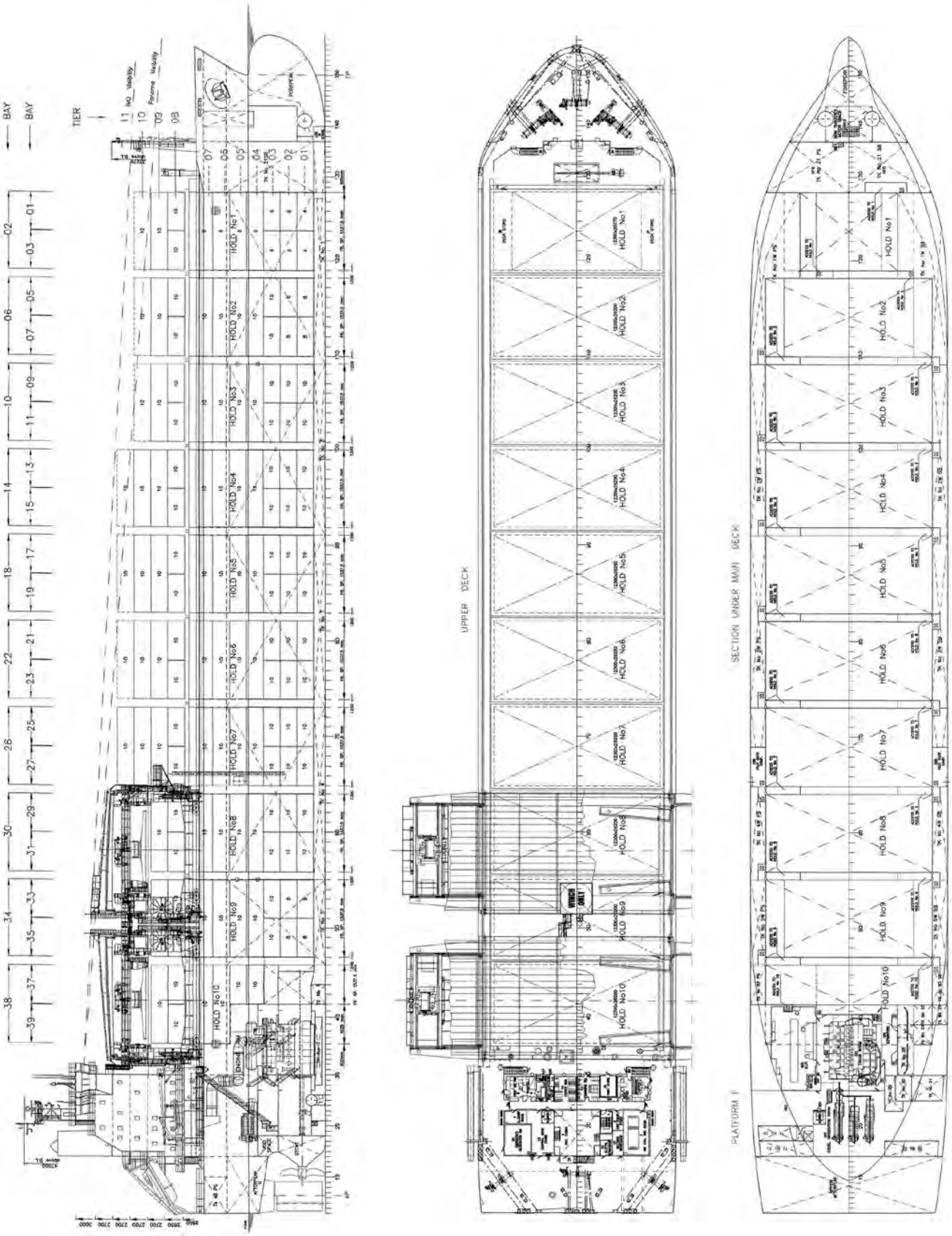



**LOADLINE DATA**

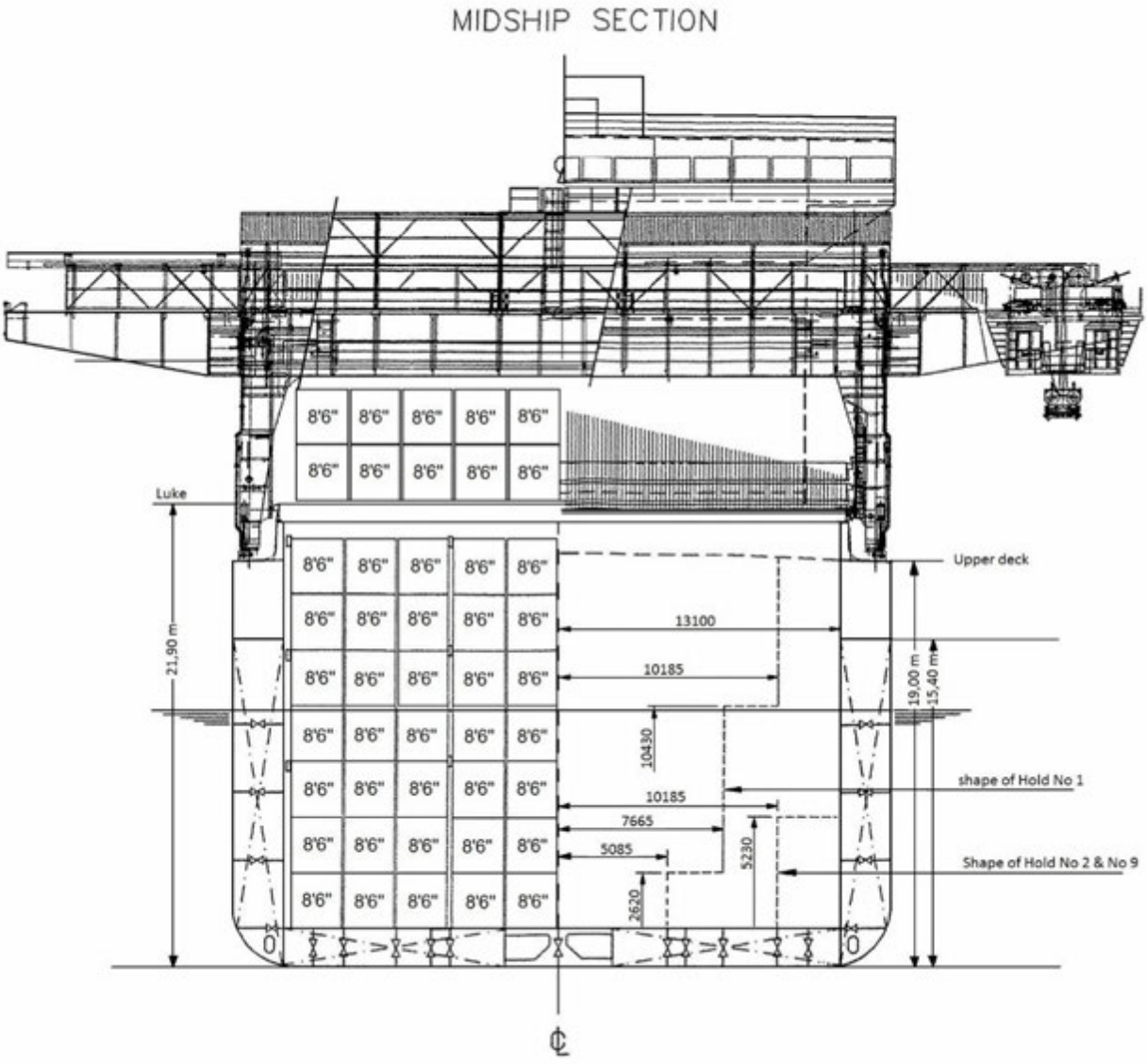
| | Freeboard | Draught | Deadweight | Displacement |
|---|---|---|---|---|
| Tropical F.W. | 2,852 | 12,560 | 40 755 | 54 471 |
| Fresh Water | 3,103 | 12,309 | 39 465 | 53 181 |
| **Tropical** | **3,111** | **12,301** | **40 755** | **54 471** |
| **Summer** | **3,362** | **12,050** | **39 465** | **53 181** |
| **Winter** | **3,613** | **11,799** | **38 181** | **51 897** |

**This draughts are maximum draughts above BL.**

## GENERAL ARRANGEMENTS



**MIDSHIP SECTION**



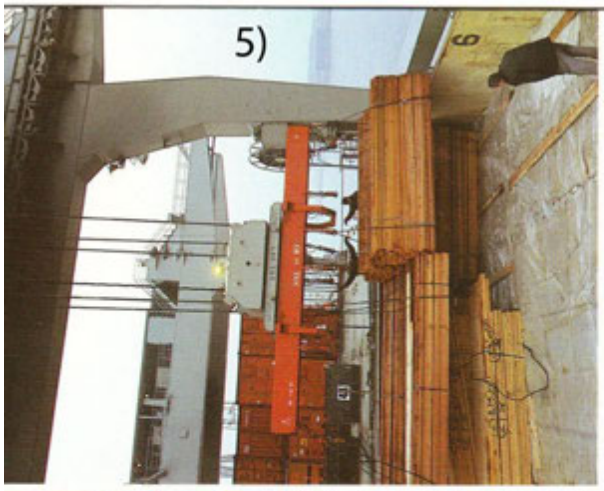

**GANTRY CRANES**

Gantry Crane No 1 : 40,0 t

Gantry Crane No 2 : 40,0 t

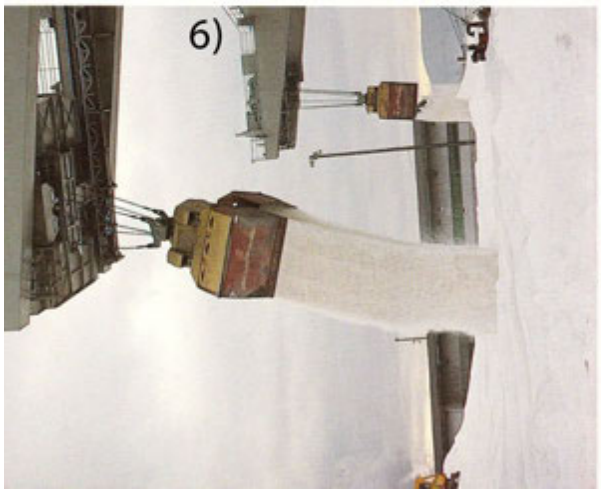
**CARGO HANDLING EQUIPMENT** :

1) 2 x 10 pad vacuum clamp 22,0 MT SWL, each pad 920 med mer diameter
2) 2 x 14 pad vacuum clamp 18,9 MT SWL, each pad 700 med mer diameter
3) 1 x 20' - 40' telescopic container spreader 30 MT SWL
4) 3 x Unihook semiautm. pulp frame 25 MT SWL with 16 adjustable hooks
5) 2 x Unihook semiautm. lumber frame 25 MT SWL with 14 hooks
6) 2 x electrical/hydraulic grab 15/13 $m^3$ 25 MT SWL







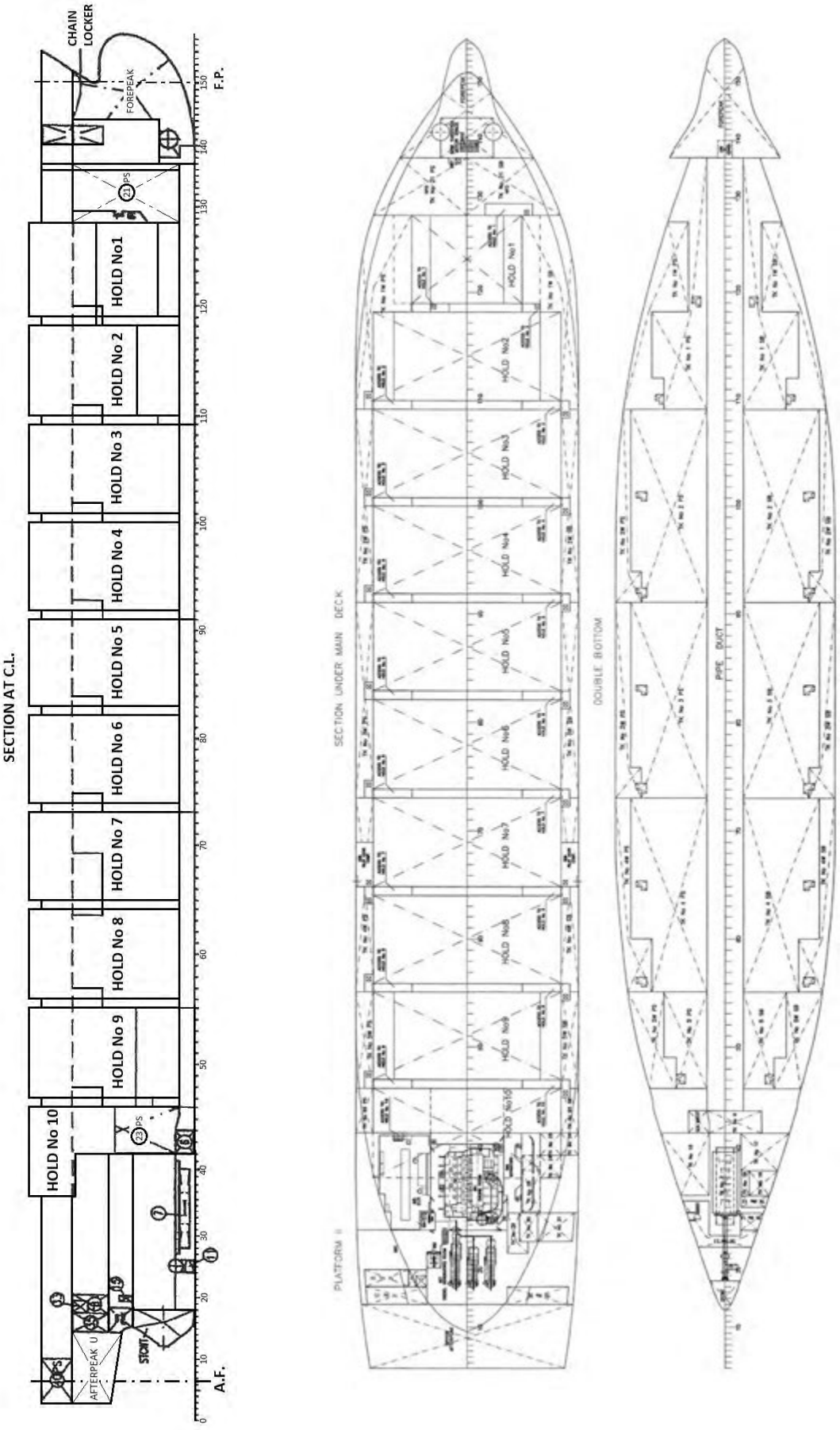


PART 2

# TANKS AND HOLDS PLAN

- Tanks and Hold plan
- List of Cargo Holds
- Hold No 10
- Permissible filling level of Hold No 10
- LCG for Various vol (WT) for Hold No 10
- Store Tanks capacities
- List of Stores 10 % and 100 %
- List of Water Ballast tanks
- Tables for VCG for various VOL (WT) for all tanks

## TANKS AND HOLD PLAN



# LIST OF CARGO HOLDS

| CARGO COMPARTMENT - GRAIN | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| COMPARTMENT | Fr. – fr. | VOL ($m^3$) | LCG (m) | VCG (m) | MVG ($m^4$) | Lenght (m) | Beam (m) | Area in hold ($m^2$) |
| Hold No. 1 + hatch 1 | 118 - 129 | 4017,0 | 151,28 | 12,37 | 455 | 12,30 | 20,37 | 250,551 |
| Hold No. 2 + hatch 2 | 109 – 119 | 5807,0 | 137,76 | 11,78 | 774 | 12,30 | 26,20 | 322,260 |
| Hold No. 3 + hatch 3 | 100 – 110 | 6181,0 | 124,26 | 11,34 | 774 | 12,30 | 26,20 | 322,260 |
| Hold No. 4 + hatch 4 | 91 – 101 | 6187,0 | 110,76 | 11,34 | 774 | 12,30 | 26,20 | 322,260 |
| Hold No. 5 + hatch 5 | 82 – 92 | 6187,0 | 97,26 | 11,34 | 774 | 12,30 | 26,20 | 322,260 |
| Hold No. 6 + hatch 6 | 73 - 83 | 6187,0 | 83,76 | 11,34 | 774 | 12,30 | 26,20 | 322,260 |
| Hold No. 7 + hatch 7 | 64 – 74 | 6187,0 | 70,26 | 11,34 | 774 | 12,30 | 26,20 | 322,260 |
| Hold No. 8 + hatch 8 | 55 – 65 | 6187,0 | 56,76 | 11,34 | 774 | 12,30 | 26,20 | 322,260 |
| Hold No. 9 + hatch 9 | 46 – 56 | 5812,0 | 43,27 | 11,78 | 774 | 12,30 | 26,20 | 322,260 |
| Hold No. 10 + hatch 10 | 35 – 47 | 2743,0 | 30,70 | 16,25 | 774 | 12,30 | 26,20 | 322,260 |
| **TOTAL** | | **55495,0** | **91,95** | **11,75** | **7421** | | | **3150,891** |
| Hold # 10 Aft | | | | | | 6,15 | 26,20 | 161,130 |
| Hold # 10 Fore | | | | | | 6,15 | 26,20 | 161,130 |

| CARGO COMPARTMENT - BALES | | | | | | | |
|---|---|---|---|---|---|---|---|
| COMPARTMENT | Fr. – fr. | VOL ($m^3$) | LCG (m) | VCG (m) | Lenght (m) | Beam (m) | Area in hold ($m^2$) |
| Hold No. 1 + hatch 1 | 119 - 127 | 3972,0 | 151,25 | 12,40 | 12,30 | 20,37 | 250,551 |
| Hold No. 2 + hatch 2 | 110 – 118 | 5780,0 | 137,75 | 11,80 | 12,30 | 26,20 | 322,260 |
| Hold No. 3 + hatch 3 | 101 – 109 | 6155,0 | 124,25 | 11,35 | 12,30 | 26,20 | 322,260 |
| Hold No. 4 + hatch 4 | 92 – 100 | 6155,0 | 110,75 | 11,35 | 12,30 | 26,20 | 322,260 |
| Hold No. 5 + hatch 5 | 83 – 91 | 6155,0 | 97,25 | 11,35 | 12,30 | 26,20 | 322,260 |
| Hold No. 6 + hatch 6 | 74 - 82 | 6155,0 | 83,75 | 11,35 | 12,30 | 26,20 | 322,260 |
| Hold No. 7 + hatch 7 | 65 – 73 | 6155,0 | 70,25 | 11,35 | 12,30 | 26,20 | 322,260 |
| Hold No. 8 + hatch 8 | 56 – 64 | 6155,0 | 56,75 | 11,35 | 12,30 | 26,20 | 322,260 |
| Hold No. 9 + hatch 9 | 47 – 55 | 5780,0 | 43,25 | 11,80 | 12,30 | 26,20 | 322,260 |
| Hold No. 10 + hatch 10 | 36 – 46 | 2735,0 | 30,70 | 16,25 | 12,30 | 26,20 | 322,260 |
| **TOTAL** | | **55197,0** | **91,91** | **11,76** | | | **3150,891** |
| Hold # 10 Aft | | | | | 6,15 | 26,20 | 161,130 |
| Hold # 10 Fore | | | | | 6,15 | 26,20 | 161,130 |

**Double bottom strength :**

Uniform loading : Holds 1 – 9 : 28,0 t/$m^2$

Hold 10 : 10,0 t/$m^2$

**Hatch covers :**

Uniform loading : Holds 1 – 10 : 3,0 t/$m^2$

Ten hatches fixed on the upper deck, open size:
No. 1 – 10 Hatch 12,66 x 26,60 m

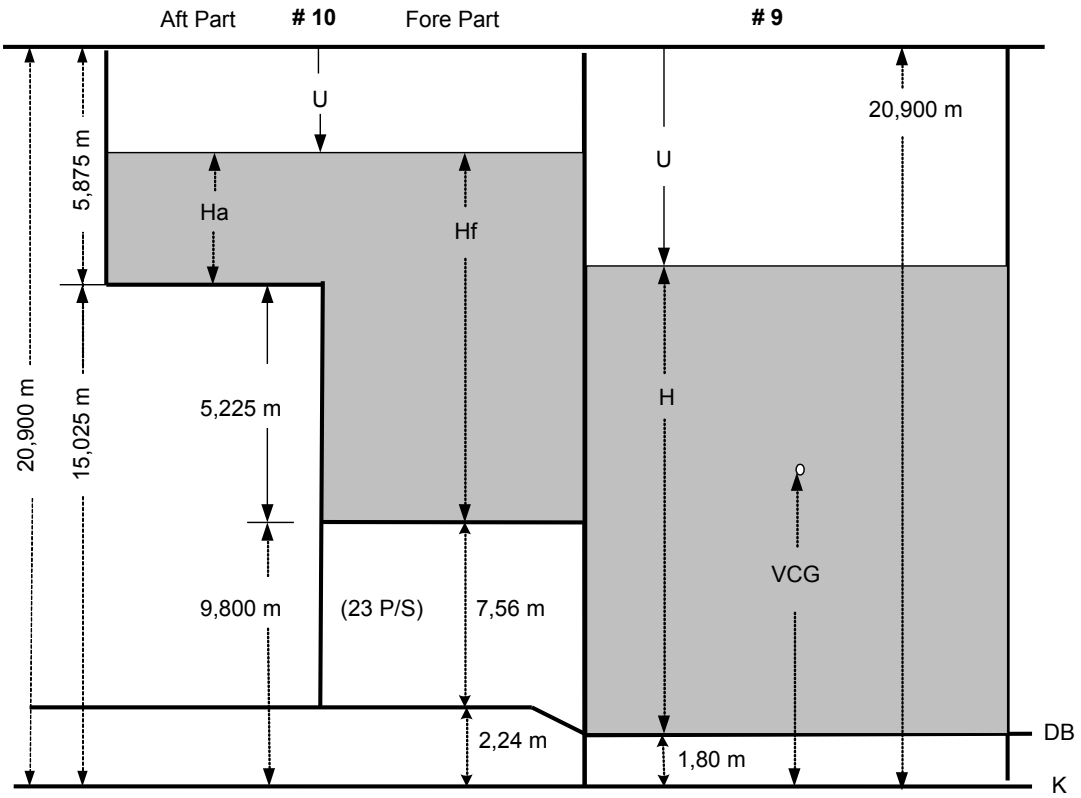
**HOLD No 10**

1. **Max. Load** : 10,00 t/m$^2$
   - Inner bottom is *not* strengthened for grab loading and discharging

2. **Dimensions of Hold No 10** : Height of bottom from Keel :

| | | |
|---|---|---|
| Fore Part | : | 9,800 m |
| Aft Part | : | 15,025 m |
| Top of Coaming | : | 20,900 m |
| $H_A$ max. | : | 5,875 m |
| $H_F$ max. | : | 11,100 m |

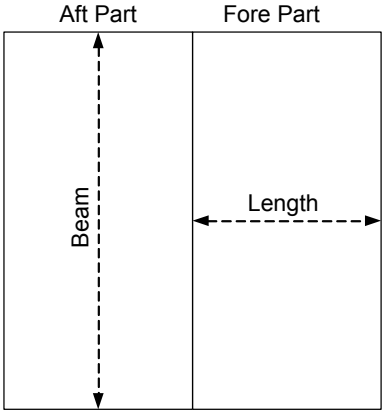
**Longitudal section** :




**Bottom View** :

3. **Data of Aft/Fore part of the Hold Bottom** :

Length : 6,150 m
Beam : 26,200 m
Area : 161,13 m$^2$

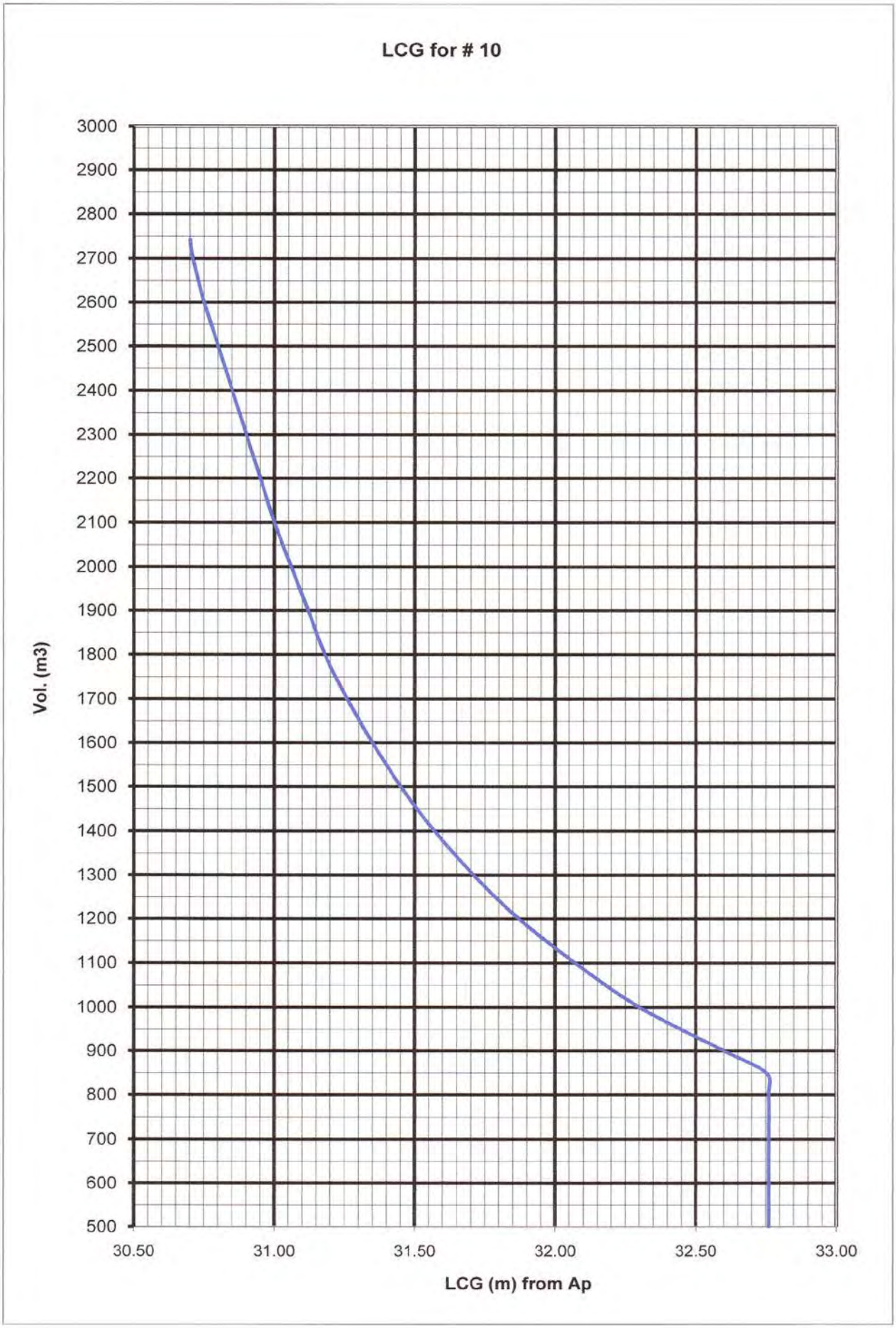


## PERMISSIBLE FILLING LEVEL OF HOLD No 10

| SG ($t/m^3$) | Mass (t) | Vol. ($m^3$) | $H_A$ (m) | $H_F$ (m) |
|---|---|---|---|---|
| 0.901 | 2,464 | 2,735 | 5.87 | 11.10 |
| 0.910 | 2,456 | 2,698 | 5.76 | 10.99 |
| 0.920 | 2,448 | 2,661 | 5.64 | 10.87 |
| 0.930 | 2,439 | 2,624 | 5.53 | 10.76 |
| 0.940 | 2,431 | 2,587 | 5.41 | 10.64 |
| 0.950 | 2,423 | 2,550 | 5.30 | 10.53 |
| 0.960 | 2,415 | 2,516 | 5.20 | 10.42 |
| 0.970 | 2,406 | 2,482 | 5.09 | 10.32 |
| 0.980 | 2,398 | 2,449 | 4.99 | 10.21 |
| 0.990 | 2,389 | 2,415 | 4.88 | 10.11 |
| 1.000 | 2,381 | 2,381 | 4.78 | 10.00 |
| 1.010 | 2,373 | 2,350 | 4.68 | 9.90 |
| 1.020 | 2,364 | 2,319 | 4.59 | 9.81 |
| 1.030 | 2,356 | 2,289 | 4.49 | 9.71 |
| 1.040 | 2,347 | 2,258 | 4.40 | 9.62 |
| 1.050 | 2,339 | 2,227 | 4.30 | 9.52 |
| 1.060 | 2,331 | 2,199 | 4.21 | 9.43 |
| 1.070 | 2,322 | 2,171 | 4.13 | 9.35 |
| 1.080 | 2,314 | 2,144 | 4.04 | 9.26 |
| 1.090 | 2,305 | 2,116 | 3.96 | 9.18 |
| 1.100 | 2,297 | 2,088 | 3.87 | 9.09 |
| 1.110 | 2,288 | 2,062 | 3.79 | 9.01 |
| 1.120 | 2,280 | 2,037 | 3.71 | 8.93 |
| 1.130 | 2,271 | 2,011 | 3.63 | 8.86 |
| 1.140 | 2,263 | 1,986 | 3.55 | 8.78 |
| 1.150 | 2,254 | 1,960 | 3.47 | 8.70 |
| 1.160 | 2,246 | 1,937 | 3.40 | 8.63 |
| 1.170 | 2,237 | 1,914 | 3.33 | 8.55 |
| 1.180 | 2,229 | 1,890 | 3.25 | 8.48 |
| 1.190 | 2,220 | 1,867 | 3.18 | 8.40 |
| 1.200 | 2,212 | 1,844 | 3.11 | 8.33 |
| 1.210 | 2,204 | 1,822 | 3.04 | 8.26 |
| 1.220 | 2,195 | 1,801 | 2.98 | 8.20 |
| 1.230 | 2,187 | 1,779 | 2.91 | 8.13 |
| 1.240 | 2,178 | 1,758 | 2.85 | 8.07 |
| 1.250 | 2,170 | 1,736 | 2.78 | 8.00 |
| 1.260 | 2,162 | 1,716 | 2.72 | 7.94 |
| 1.270 | 2,153 | 1,696 | 2.66 | 7.88 |
| 1.280 | 2,145 | 1,677 | 2.59 | 7.81 |
| 1.290 | 2,136 | 1,657 | 2.53 | 7.75 |
| 1.300 | 2,128 | 1,637 | 2.47 | 7.69 |
| 1.310 | 2,120 | 1,619 | 2.41 | 7.63 |
| 1.320 | 2,111 | 1,600 | 2.35 | 7.58 |
| 1.330 | 2,103 | 1,582 | 2.30 | 7.52 |
| 1.340 | 2,094 | 1,563 | 2.24 | 7.47 |
| 1.350 | 2,086 | 1,545 | 2.18 | 7.41 |
| 1.360 | 2,078 | 1,528 | 2.13 | 7.36 |
| 1.370 | 2,069 | 1,511 | 2.08 | 7.30 |
| 1.380 | 2,061 | 1,494 | 2.02 | 7.25 |
| 1.390 | 2,052 | 1,477 | 1.97 | 7.19 |
| 1.400 | 2,044 | 1,460 | 1.92 | 7.14 |
| 1.410 | 2,036 | 1,444 | 1.87 | 7.09 |
| 1.420 | 2,027 | 1,428 | 1.82 | 7.04 |
| 1.430 | 2,019 | 1,413 | 1.77 | 7.00 |
| 1.440 | 2,010 | 1,397 | 1.72 | 6.95 |
| 1.450 | 2,002 | 1,381 | 1.67 | 6.90 |

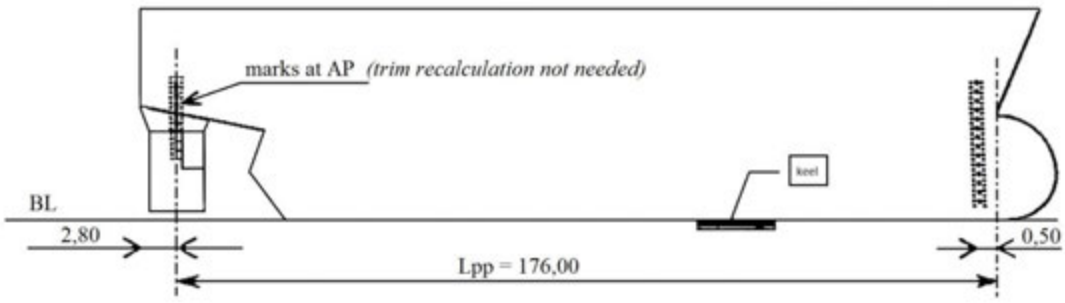
| SG ($t/m^3$) | Mass (t) | Vol. ($m^3$) | $H_A$ (m) | $H_F$ (m) |
|---|---|---|---|---|
| 1.450 | 2,002 | 1,381 | 1.67 | 6.90 |
| 1.460 | 1,994 | 1,366 | 1.62 | 6.85 |
| 1.470 | 1,985 | 1,351 | 1.58 | 6.81 |
| 1.480 | 1,977 | 1,336 | 1.53 | 6.76 |
| 1.490 | 1,968 | 1,321 | 1.49 | 6.72 |
| 1.500 | 1,960 | 1,306 | 1.44 | 6.67 |
| 1.510 | 1,952 | 1,292 | 1.40 | 6.63 |
| 1.520 | 1,943 | 1,278 | 1.36 | 6.58 |
| 1.530 | 1,935 | 1,265 | 1.31 | 6.54 |
| 1.540 | 1,926 | 1,251 | 1.27 | 6.49 |
| 1.550 | 1,918 | 1,237 | 1.23 | 6.45 |
| 1.560 | 1,910 | 1,224 | 1.19 | 6.41 |
| 1.570 | 1,901 | 1,211 | 1.15 | 6.37 |
| 1.580 | 1,893 | 1,198 | 1.11 | 6.33 |
| 1.590 | 1,884 | 1,185 | 1.07 | 6.29 |
| 1.600 | 1,876 | 1,172 | 1.03 | 6.25 |
| 1.610 | 1,868 | 1,161 | 1.00 | 6.22 |
| 1.620 | 1,859 | 1,151 | 0.97 | 6.18 |
| 1.630 | 1,851 | 1,140 | 0.93 | 6.15 |
| 1.640 | 1,842 | 1,130 | 0.90 | 6.12 |
| 1.650 | 1,834 | 1,119 | 0.87 | 6.09 |
| 1.660 | 1,825 | 1,109 | 0.84 | 6.05 |
| 1.670 | 1,817 | 1,098 | 0.80 | 6.02 |
| 1.680 | 1,808 | 1,088 | 0.77 | 5.99 |
| 1.690 | 1,800 | 1,077 | 0.74 | 5.96 |
| 1.700 | 1,791 | 1,067 | 0.71 | 5.92 |
| 1.710 | 1,783 | 1,056 | 0.68 | 5.89 |
| 1.720 | 1,775 | 1,046 | 0.64 | 5.86 |
| 1.730 | 1,766 | 1,035 | 0.61 | 5.83 |
| 1.740 | 1,758 | 1,025 | 0.58 | 5.79 |
| 1.750 | 1,749 | 1,014 | 0.55 | 5.76 |
| 1.760 | 1,741 | 1,004 | 0.52 | 5.73 |
| 1.770 | 1,732 | 993 | 0.48 | 5.70 |
| 1.780 | 1,724 | 983 | 0.45 | 5.66 |
| 1.790 | 1,715 | 972 | 0.42 | 5.63 |
| 1.800 | 1,707 | 962 | 0.39 | 5.60 |
| 1.810 | 1,699 | 951 | 0.35 | 5.57 |
| 1.820 | 1,690 | 941 | 0.32 | 5.53 |
| 1.830 | 1,682 | 930 | 0.29 | 5.50 |
| 1.840 | 1,673 | 920 | 0.26 | 5.47 |
| 1.850 | 1,665 | 909 | 0.23 | 5.44 |
| 1.860 | 1,656 | 899 | 0.19 | 5.40 |
| 1.870 | 1,648 | 888 | 0.16 | 5.37 |
| 1.880 | 1,639 | 878 | 0.13 | 5.34 |
| 1.890 | 1,631 | 867 | 0.10 | 5.31 |
| 1.900 | 1,622 | 857 | 0.06 | 5.27 |
| 1.910 | 1,614 | 846 | 0.03 | 5.24 |
| ***1.914*** | ***1,611*** | ***842*** | - | ***5.23*** |
| 2.050 | 1,611 | 786 | Aft part empty | 4.88 |
| 2.250 | 1,611 | 716 | | 4.44 |
| 2.450 | 1,611 | 658 | | 4.08 |
| 2.650 | 1,611 | 608 | | 3.77 |
| 2.850 | 1,611 | 565 | | 3.51 |
| 3.050 | 1,611 | 528 | | 3.28 |
| 3.250 | 1,611 | 496 | | 3.08 |
| 3.350 | 1,611 | 481 | | 2.99 |

## LCG FOR VARIOUS VOL (WT) FOR HOLD No 10



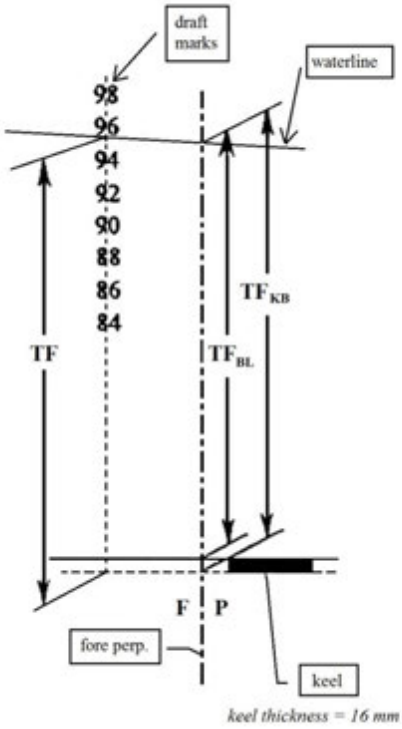
## RECALCULATIONS OF SHIP'S DRAUGHT

to obtain draught on marks having theoretical ones or vice versa




| TRIM | Correction of draught marks readings | |
|---|---|---|
| - by stern<br>+ by head | on perpendiculars above keel bottom | on perpendiculars above BL |
| | $\Delta TF_{KB}$ | $\Delta TF_{BL}$ |
| m | m | m |
| - 5,00 | -0,014 | -0,030 |
| - 4,50 | -0,013 | -0,029 |
| - 4,00 | -0,012 | -0,028 |
| - 3,50 | -0,010 | -0,026 |
| - 3,00 | - 0,009 | -0,025 |
| - 2,50 | - 0,007 | -0,023 |
| - 2,00 | - 0,006 | -0,022 |
| - 1,50 | - 0,004 | -0,020 |
| - 1,00 | - 0,003 | -0,019 |
| - 0,50 | - 0,001 | -0,017 |
| 0,50 | 0,001 | -0,015 |
| 1,00 | 0,003 | -0,013 |
| 1,50 | 0,004 | -0,012 |
| 2,00 | 0,006 | -0,010 |

**to obtain draughts on marks having theoretical ones**
**- signe of corrections to be changed to the opposite ones**




*keel thickness = 0,016 m*

**Explanations:**

**AP** - after perpendicular
**BL** - base line
**Lpp** - length between perpendiculars
$\Delta TF_{KB}$ - correction of fore draught: marks/fore perpendicular, keel including
$\Delta TF_{BL}$ - correction of fore draught: marks/fore perpendicular, keel excluding

### EXAMPLE:

If having theoretical draught even keel above BL.:

| | | | | | | |
|---|---|---|---|---|---|---|
| theoretical: | A | 10,000m | M | 10,000m | F | 10,000m |
| corr. | + | 0,016m | + | 0,016m | + | 0,016m |
| Reading draughts above keel: | A | 10,016m | M | 10,016m | F | 10,016m |

If reading draught forward and reading draught marks AP.(trim lm. by stern)

| | | | | | |
|---|---|---|---|---|---|
| reading marks on AP. | A | 9,000m | reading marks | F | 8,000m |
| corr. | | 0,000m | | - | 0,003m |
| Draughts on perp. above keel : | A | 9,000m | | F | 7,997m |

If having theoretical draughts perp. above BL. (trim 1m. by stern)

| | | | | | |
|---|---|---|---|---|---|
| theor. perp. above BL. | A | 9,000m | | F | 8,000m |
| corr. | + | 0,016m | | + | 0,019m |
| Reading on marks AP. and marks forw. : | A | 9,016m | | F | 8,019m |

If reading draught Forward and reading draught marks AP. (trim 1m. by stern)

| | | | | | |
|---|---|---|---|---|---|
| reading marks on AP. | A | 9,000m | reading marks | F | 8,000m |
| corr. | - | 0,016m | | - | 0,019m |
| Theor. draughts above BL. on perp. : | A | 8,984m | | F | 7,981m |

## STORES TANKS CAPACITIES

TCG : « + » to port from CL

| TANK No. | fr. – fr. | VOL ($m^3$) | WT (t) | LCG (m) | VCG (m) | TCG (m) |
|---|---|---|---|---|---|---|
| **Heavy Fuel Oil** | | **SG = 0.950 t/m³** | | | | |
| HFO 6 overflow | 42 – 44 | 49.8 | 47.3 | 31.30 | 1.12 | -1.40 |
| HFO 21 PS | 127 – 137 | 967.9 | 919.5 | 161.08 | 9.05 | 4.80 |
| HFO 21 SB | 127 – 137 | 922.4 | 876.3 | 161.35 | 8.85 | - 4.80 |
| HFO 23 PS | 42 – 46 | 417.3 | 396.4 | 32.87 | 7.59 | 9.81 |
| HFO 23 SB | 42 – 46 | 411.7 | 391.1 | 32.83 | 7.51 | -9.76 |
| HFO 29 settling | 23 – 30 | 80.5 | 76.5 | 15.46 | 14.66 | -6.81 |
| HFO 30 service | 25 - 30 | 64.4 | 61.2 | 16.66 | 14.58 | -8.54 |
| HFO 31 serv./settl. | 25 – 30 | 103.6 | 98.4 | 16.67 | 14.89 | -11.91 |
| **HFO TOTAL** | | **3017.6** | **2866.8** | **111.87** | **8.91** | |

| TANK No. | fr. – fr. | VOL ($m^3$) | WT (t) | LCG (m) | VCG (m) | TCG (m) |
|---|---|---|---|---|---|---|
| **Diesel oil** | | **SG = 0.850 t/m³** | | | | |
| DO 10 storage | 33 – 42 | 83.7 | 71.1 | 25.88 | 1.23 | 4.56 |
| DO 24 service | 39 -42 | 29.2 | 24.8 | 28.13 | 13.16 | -14.20 |
| DO 25 serv./settl. | 39 – 42 | 36.3 | 30.9 | 28.11 | 12.81 | -11.64 |
| **DO TOTAL** | | **149.2** | **126.8** | **26.86** | **6.39** | |

| TANK No. | fr. – fr. | VOL ($m^3$) | WT (t) | LCG (m) | VCG (m) | TCG (m) |
|---|---|---|---|---|---|---|
| **Lubricating /Cylinder Oil** | | **SG = 0.900 t/m³** | | | | |
| LO Total | 14 -40 | 127.8 | 115.0 | 11.09 | 11.04 | -14.25 |

| TANK No. | fr. – fr. | VOL ($m^3$) | WT (t) | LCG (m) | VCG (m) | TCG (m) |
|---|---|---|---|---|---|---|
| **Drains / Miscellany TK** | | **SG = 1.000 t/m³** | | | | |
| Drains Total | 14 -42 | 221.7 | 221.7 | 18.18 | 7.19 | -4.99 |

| TANK No. | fr. – fr. | VOL ($m^3$) | WT (t) | LCG (m) | VCG (m) | TCG (m) |
|---|---|---|---|---|---|---|
| **Fresh Water** | | **SG = 1.000 t/m³** | | | | |
| FW Boiler | 24 – 32 | 40.6 | 40.6 | 16.87 | 1.12 | -1.75 |
| FW 40 PS | 3 – 10 | 193.5 | 193.5 | 0.03 | 17.37 | 10.10 |
| FW 40 SB | 3 -10 | 193.5 | 193.5 | 0.03 | 17.37 | -10.10 |
| FW Stern Tube | 12 -18 | 48.7 | 48.7 | 7.72 | 3.33 | 0.00 |
| **FW TOTAL** | | **476.3** | **476.3** | **2.25** | **14.55** | |

NOTE – Maximum filling 100 %

## STORES

| COMP. | fr. – fr. | VOL ($m^3$) | WT (t) | LCG (m) | VCG (m) |
|---|---|---|---|---|---|
| Forward | | 300.0 | | 167.80 | 17.00 |
| Aft | | 500.0 | | 14.80 | 17.00 |

## LIST OF STORES 10% - ARRIVAL CONDITION

| Tank. No | Vol (m³) | Vekt (t) | Lcg (m) | L-mom (tm) | Vcg (m) | V-mom (tm) | Tcg (m) | Kr.mom (tm) | F.s.mom (tm) |
|---|---|---|---|---|---|---|---|---|---|
| 6 | 49,8 | 0,0 | | | | | | | 0 |
| 21PS | 871,2 | 0,0 | 161,08 | | | | | | 0 |
| 21SB | 774,8 | 0,0 | 161,35 | | | | | | 0 |
| 23PS | 408,9 | 0,0 | 32,87 | | | | | | 0 |
| 23SB | 403,5 | 97,8 | 32,83 | 3210,774 | 3,638 | 355,796 | -9,76 | -954,528 | 140 |
| 29 | 62,8 | 49,7 | 15,46 | 768,362 | 13,422 | 667,073 | -6,81 | -388,457 | 9 |
| 30 | 52,2 | 49,6 | 16,66 | 826,336 | 13,900 | 689,440 | -8,54 | -423,584 | 4 |
| 31 | 72,5 | 59,1 | 16,67 | 985,197 | 13,550 | 800,805 | -11,91 | -703,881 | 27 |
| Tot. Hfo | 2645,0 | 256,2 | | 5790,669 | | 2513,114 | | -2420,450 | 180 |
| 10 | 56,9 | 48,4 | 25,88 | 1252,592 | 0,894 | 43,270 | 4,56 | 220,704 | 89 |
| 24 | 20,5 | 14,4 | 28,13 | 405,072 | 12,193 | 175,579 | -14,20 | -204,480 | 3 |
| 25 | 25,1 | 21,3 | 28,11 | 598,743 | 12,124 | 258,241 | -11,64 | -247,932 | 5 |
| Tot. Do | 102,5 | 84,1 | | 2256,407 | | 477,090 | | -231,708 | 97 |
| Tot. Lo | | 50,0 | 11,09 | 554,500 | 11,040 | 552,000 | 7,08 | 354,000 | 0 |
| 11 | 32,0 | 32,0 | 16,87 | 539,840 | 0,898 | 28,736 | -1,75 | -56,000 | 100 |
| 40PS | 190,0 | 190,0 | 0,03 | 5,700 | 17,336 | 3293,840 | 10,10 | 1919,000 | 0 |
| 40PS | 70,0 | 70,0 | 0,03 | 2,100 | 16,134 | 1129,380 | 10,10 | 707,000 | 348 |
| Aft. L | 48,7 | 48,7 | 7,72 | 375,964 | 3,330 | 162,171 | 0,00 | 0,000 | 0 |
| Tot. Fw | 340,7 | 340,7 | | 923,604 | | 4614,127 | | 1156,000 | 535 |
| Tot. Drains | | 81,0 | 18,18 | 1472,000 | 7,190 | 582,390 | -4,99 | -404,190 | 0 |
| D.W. | | 812,0 | *(13,544)* | 10998,000 | *(10,762)* | 8738,721 | *(-1,904)* | -1546,348 | 725 |
| Lightships | | 13716,0 | 77,24 | 1059423,840 | 12,760 | 175016,160 | 0,030 | 411,480 | 0 |
| Displacement | | 14528,0 | *(73,680)* | 1070421,840 | *(12,648)* | 183754,881 | *(-0,078)* | -1134,868 | 725 |

## LIST OF STORES 100% - DEPARTURE CONDITION

| Tank. No | Vol (m³) | Vekt (t) | Lcg (m) | L-mom (tm) | Vcg (m) | V-mom (tm) | Tcg (m) | Kr.mom (tm) | F.s.mom (tm) |
|---|---|---|---|---|---|---|---|---|---|
| 21PS | 871,2 | 827,6 | 161,08 | 133309,808 | 8,40 | 6951,840 | 4,80 | 3972,480 | 811 |
| 21SB | 774,8 | 736,1 | 161,35 | 118769,735 | 7,79 | 5734,219 | -4,80 | -3533,280 | 700 |
| 23PS | 408,9 | 388,5 | 32,87 | 12769,995 | 7,47 | 2902,095 | 9,81 | 3811,185 | 7 |
| 23SB | 403,5 | 383,3 | 32,83 | 12583,739 | 7,39 | 2832,587 | -9,76 | -3741,008 | 7 |
| 29 | 62,8 | 59,7 | 15,46 | 922,962 | 13,87 | 828,039 | -6,81 | -406,557 | 9 |
| 30 | 52,2 | 49,6 | 16,66 | 826,336 | 13,90 | 689,440 | -8,54 | -423,584 | 4 |
| 31 | 72,5 | 68,9 | 16,67 | 1148,563 | 13,88 | 956,332 | -11,91 | -820,599 | 27 |
| Tot. Hfo | 2645,9 | 2513,7 | | 280331,138 | | 20894,552 | | -1141,363 | 1548 |
| 10 | 56,9 | 48,4 | 25,88 | 1252,592 | 0,89 | 43,076 | 4,56 | 220,704 | 89 |
| 24 | 20,5 | 17,4 | 28,13 | 489,114 | 12,48 | 217,152 | -14,20 | -247,080 | 3 |
| 25 | 25,1 | 21,3 | 28,11 | 598,743 | 12,12 | 258,156 | -11,64 | -247,932 | 5 |
| Tot. Do | 102,5 | 87,1 | | 2340,449 | | 518,384 | | -274,308 | 97 |
| Tot. Lo | | 69,0 | 11,09 | 765,210 | 11,04 | 761,760 | 7,08 | 488,520 | 0 |
| 11 | 32,0 | 32,0 | 16,87 | 539,840 | 0,90 | 28,800 | -1,75 | -56,000 | 100 |
| 40PS | 180,0 | 180,0 | 0,03 | 5,400 | 17,24 | 3103,200 | 10,10 | 1818,000 | 200 |
| 40SB | 193,5 | 0,0 | 0,03 | | | | | | |
| Aft. L | 48,7 | 48,7 | 7,72 | 375,964 | 3,33 | 162,171 | 0,00 | 0,000 | 0 |
| Tot. Fw | 260,7 | 260,7 | | 921,204 | | 3294,171 | | 1762,000 | 300 |
| Tot. Drains | | 30,0 | 18,18 | 545,400 | 7,19 | 215,700 | -4,99 | -149,700 | 0 |
| D.W. | | 2960,5 | *(96,235)* | 284904,000 | *(8,676)* | 25684,000 | *(0,231)* | 684,000 | 1962 |
| Lightships | | 13716,0 | 77,24 | 1059423,840 | 12,760 | 175016,160 | 0,030 | 411,480 | 0 |
| Displacement | | 16676,5 | *(80,612)* | 1344327,840 | *(12,035)* | 200700,160 | *(0,066)* | 1095,480 | 1962 |

# LIST OF BALLAST WATER TANKS

| **Water Ballast** | | | **SG = 1,025 t/m³** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TANK No. | | fr. – fr. | **VOL** ($m^3$) | **WT** (t) | **LCG** (m) | **L–mom** (tm) | **VCG** (m) | **V-Mom** (tm) | **TCG** (m) | **Kr. Mom** (tm) | **$I_T$** ($m^4$) | **$F_S$.M.** (tm) |
| FP | | 137 - 158 | 1066,0 | 1092,0 | 171,88 | 187692,96 | 7,75 | 8463,00 | 0,00 | 0,00 | 1174 | 1203 |
| 1 | P | 109 – 137 | 258,0 | 264,0 | 143,37 | 37849,68 | 0,94 | 248,16 | 5,30 | 1399,20 | 662 | 679 |
| 1 | S | 109 – 137 | 258,0 | 264,0 | 143,37 | 37849,68 | 0,94 | 248,16 | -5,30 | -1399,20 | 662 | 679 |
| 1 W | P | 109 – 137 | 1476,0 | 1513,0 | 145,12 | 219566,56 | 7,58 | 11468,54 | 11,14 | 16854,82 | 509 | 522 |
| 1 W | S | 110 – 127 | 1482,0 | 1519,0 | 145,07 | 220361,33 | 7,60 | 11544,40 | -11,14 | -16921,66 | 516 | 529 |
| 2 | P | 91 - 109 | 487,0 | 499,0 | 117,12 | 58442,88 | 0,90 | 449,10 | 7,66 | 3822,34 | 2500 | 2563 |
| 2 | S | 91 - 109 | 487,0 | 499,0 | 117,12 | 58442,88 | 0,90 | 449,10 | -7,66 | -3822,34 | 2500 | 2563 |
| 2 W | P | 91 - 109 | 892,0 | 914,0 | 116,68 | 106645,52 | 8,03 | 7339,42 | 14,25 | 13024,50 | 28 | 29 |
| 2 W | S | 91 - 109 | 892,0 | 914,0 | 116,54 | 106517,56 | 8,03 | 7339,42 | -14,25 | -13024,50 | 28 | 29 |
| 3 | P | 73 - 91 | 490,0 | 502,0 | 90,17 | 45265,34 | 0,90 | 451,80 | 7,69 | 3860,38 | 2500 | 2563 |
| 3 | S | 73 - 91 | 490,0 | 502,0 | 90,17 | 45265,34 | 0,90 | 451,80 | -7,69 | -3860,38 | 2500 | 2563 |
| 3 W | P | 73 - 91 | 915,0 | 938,0 | 89,91 | 84335,58 | 7,87 | 7382,06 | 14,26 | 13375,88 | 28 | 29 |
| 3 W | S | 73 - 91 | 915,0 | 938,0 | 89,77 | 84204,26 | 7,87 | 7382,06 | -14,26 | -13375,88 | 28 | 29 |
| 4 | P | 55 - 73 | 463,0 | 475,0 | 63,70 | 30257,50 | 0,90 | 427,50 | 7,48 | 3553,00 | 2285 | 2342 |
| 4 | S | 55 - 73 | 463,0 | 475,0 | 63,70 | 30257,50 | 0,90 | 427,50 | -7,48 | -3553,00 | 2285 | 2342 |
| 4 W | P | 55 - 73 | 833,0 | 854,0 | 62,85 | 53673,90 | 7,63 | 6516,02 | 14,16 | 12092,64 | 21 | 22 |
| 4 W | S | 55 - 73 | 833,0 | 854,0 | 62,85 | 53673,90 | 7,63 | 6516,02 | -14,16 | -12092,64 | 21 | 22 |
| 5 | P | 46 - 55 | 142,0 | 145,0 | 43,57 | 6317,65 | 0,90 | 130,50 | 5,70 | 826,50 | 336 | 344 |
| 5 | S | 46 - 55 | 142,0 | 145,0 | 42,57 | 6172,65 | 0,90 | 130,50 | -5,70 | -826,50 | 336 | 344 |
| 5 W | P | 46 - 55 | 543,0 | 557,0 | 43,11 | 24012,27 | 7,21 | 4015,97 | 12,76 | 7107,32 | 14 | 14 |
| 5 W | S | 46 - 55 | 543,0 | 557,0 | 42,99 | 23945,43 | 7,21 | 4015,97 | -12,76 | -7107,32 | 14 | 14 |
| AP | | .3 - 14 | 1038,0 | 1064,0 | 1,85 | 1968,40 | 13,03 | 13863,92 | 0,00 | 0,00 | 16536 | 16977 |
| **TOTAL** | | | **15108,0** | **15484,0** | **98,341** | **1522718,77** | **6,411** | **99260,92** | | **-66,84** | | **19424** |

NOTE – Maximum filling 100

# TANK DATA SIDUS

**HFO OVFL 6** (SG = 0,950 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 49,8 | 47,3 | 1,12 | 0 | 0 |
| 98 | 48,8 | 46,4 | 1,10 | 103 | 98 |
| 90 | 44,8 | 42,6 | 1,01 | 103 | 98 |
| 80 | 39,8 | 37,8 | 0,90 | 103 | 98 |
| 70 | 34,8 | 33,1 | 0,79 | 103 | 98 |
| 60 | 30,0 | 28,4 | 0,67 | 103 | 98 |
| 50 | 24,9 | 23,7 | 0,56 | 103 | 98 |
| 40 | 19,9 | 18,9 | 0,45 | 103 | 98 |
| 30 | 14,9 | 14,2 | 0,34 | 103 | 98 |
| 20 | 10,0 | 9,5 | 0,22 | 103 | 98 |
| 10 | 4,9 | 4,7 | 0,11 | 103 | 98 |
| 0 | | | | | |

**HFO SETTL 29** (SG = 0,950 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 80,5 | 76,5 | 14,66 | 0 | 0 |
| 98 | 78,8 | 74,9 | 14,58 | 9 | 9 |
| 90 | 72,4 | 68,8 | 14,29 | 9 | 9 |
| 80 | 64,4 | 61,2 | 13,94 | 9 | 9 |
| 70 | 56,3 | 53,5 | 13,59 | 9 | 9 |
| 60 | 48,3 | 45,9 | 13,25 | 9 | 9 |
| 50 | 40,2 | 38,2 | 12,91 | 9 | 9 |
| 40 | 32,2 | 30,6 | 12,57 | 9 | 9 |
| 30 | 24,1 | 22,9 | 12,23 | 9 | 9 |
| 20 | 16,1 | 15,3 | 11,88 | 9 | 9 |
| 10 | 8,0 | 7,6 | 11,51 | 6 | 6 |
| 0 | | | 10,90 | | |

**HFO STO 21P** (SG = 0,950 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 967,9 | 919,5 | 9,05 | 0 | 0 |
| 98 | 948,5 | 901,1 | 8,93 | 954 | 906 |
| 90 | 871,2 | 827,6 | 8,41 | 830 | 789 |
| 80 | 774,3 | 735,6 | 7,75 | 727 | 691 |
| 70 | 677,6 | 643,7 | 7,09 | 672 | 638 |
| 60 | 580,7 | 551,7 | 6,41 | 643 | 611 |
| 50 | 484,0 | 459,8 | 5,72 | 618 | 587 |
| 40 | 387,2 | 367,8 | 5,03 | 583 | 554 |
| 30 | 290,4 | 275,9 | 4,30 | 527 | 501 |
| 20 | 193,6 | 183,9 | 3,54 | 445 | 423 |
| 10 | 96,8 | 92,0 | 2,72 | 331 | 314 |
| 0 | | | 1,80 | | |

**HFO STO 21S** (SG = 0,950 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 922,4 | 876,3 | 8,85 | 0 | 0 |
| 98 | 904,0 | 858,8 | 8,72 | 931 | 884 |
| 90 | 830,2 | 788,7 | 8,18 | 794 | 754 |
| 80 | 737,9 | 701,0 | 7,52 | 682 | 648 |
| 70 | 645,7 | 613,4 | 6,86 | 609 | 579 |
| 60 | 553,5 | 525,8 | 6,18 | 584 | 555 |
| 50 | 461,2 | 438,1 | 5,52 | 563 | 535 |
| 40 | 368,9 | 350,5 | 4,85 | 547 | 520 |
| 30 | 276,7 | 262,9 | 4,16 | 515 | 489 |
| 20 | 184,5 | 175,3 | 3,44 | 439 | 417 |
| 10 | 92,2 | 87,6 | 2,67 | 326 | 310 |
| 0 | | | 1,80 | | |

**HFO STO 23P** (SG = 0,950 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 417,3 | 396,4 | 7,59 | 0 | 0 |
| 98 | 408,9 | 388,5 | 7,44 | 7 | 7 |
| 90 | 375,6 | 356,8 | 6,88 | 7 | 7 |
| 80 | 333,8 | 317,1 | 6,36 | 211 | 200 |
| 70 | 292,1 | 277,5 | 5,93 | 414 | 393 |
| 60 | 250,4 | 237,9 | 5,48 | 351 | 333 |
| 50 | 208,6 | 198,2 | 5,00 | 285 | 271 |
| 40 | 166,9 | 158,6 | 4,50 | 224 | 213 |
| 30 | 125,2 | 118,9 | 3,96 | 168 | 160 |
| 20 | 83,5 | 79,3 | 3,38 | 123 | 117 |
| 10 | 41,7 | 39,6 | 2,74 | 89 | 85 |
| 0 | | | 1,80 | | |

**HFO STO 23S** (SG = 0,950 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 411,7 | 391,1 | 7,51 | 0 | 0 |
| 98 | 403,5 | 383,3 | 7,36 | 7 | 7 |
| 90 | 370,5 | 352,0 | 6,81 | 6 | 6 |
| 80 | 329,4 | 312,9 | 6,31 | 383 | 364 |
| 70 | 288,2 | 273,8 | 5,89 | 407 | 387 |
| 60 | 247,1 | 234,7 | 5,44 | 345 | 328 |
| 50 | 205,9 | 195,6 | 4,96 | 281 | 267 |
| 40 | 164,6 | 156,4 | 4,47 | 221 | 210 |
| 30 | 123,5 | 117,3 | 3,94 | 167 | 159 |
| 20 | 82,3 | 78,2 | 3,36 | 122 | 116 |
| 10 | 41,2 | 39,1 | 2,74 | 89 | 85 |
| 0 | | | 1,80 | | |

**HFO SERV 30** (SG = 0,950 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 64,4 | 61,2 | 14,58 | 0 | 0 |
| 98 | 63,2 | 60,0 | 14,51 | 4 | 4 |
| 90 | 58,0 | 55,1 | 14,22 | 4 | 4 |
| 80 | 51,5 | 48,9 | 13,86 | 4 | 4 |
| 70 | 45,1 | 42,8 | 13,52 | 4 | 4 |
| 60 | 38,6 | 36,7 | 13,19 | 5 | 5 |
| 50 | 32,2 | 30,6 | 12,87 | 5 | 5 |
| 40 | 25,8 | 24,5 | 12,54 | 5 | 5 |
| 30 | 19,4 | 18,4 | 12,21 | 5 | 5 |
| 20 | 12,8 | 12,2 | 11,88 | 5 | 5 |
| 10 | 6,4 | 6,1 | 11,53 | 5 | 5 |
| 0 | | | 10,90 | | |

**HFO SET/SERV 31** (SG = 0,950 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 103,6 | 98,4 | 14,89 | 0 | 0 |
| 98 | 101,6 | 96,5 | 14,82 | 31 | 29 |
| 90 | 93,3 | 88,6 | 14,56 | 29 | 28 |
| 80 | 82,8 | 78,7 | 14,22 | 29 | 28 |
| 70 | 72,5 | 68,9 | 13,89 | 28 | 27 |
| 60 | 62,2 | 59,1 | 13,55 | 27 | 26 |
| 50 | 51,8 | 49,2 | 13,23 | 34 | 32 |
| 40 | 41,5 | 39,4 | 12,87 | 31 | 29 |
| 30 | 31,1 | 29,5 | 12,47 | 22 | 21 |
| 20 | 20,7 | 19,7 | 12,02 | 13 | 12 |
| 10 | 10,3 | 9,8 | 11,45 | 5 | 5 |
| 0 | | | 10,60 | | |

**DO STO 10** (SG = 0,850 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 83,6 | 71,1 | 1,23 | 0 | 0 |
| 98 | 82,0 | 69,7 | 1,20 | 124 | 105 |
| 90 | 75,3 | 64,0 | 1,13 | 119 | 101 |
| 80 | 66,9 | 56,9 | 1,02 | 113 | 96 |
| 70 | 58,6 | 49,8 | 0,92 | 106 | 90 |
| 60 | 50,2 | 42,7 | 0,81 | 99 | 84 |
| 50 | 41,9 | 35,6 | 0,69 | 91 | 77 |
| 40 | 33,5 | 28,5 | 0,58 | 80 | 68 |
| 30 | 25,1 | 21,3 | 0,46 | 69 | 59 |
| 20 | 16,7 | 14,2 | 0,33 | 55 | 47 |
| 10 | 8,4 | 7,1 | 0,18 | 39 | 33 |
| 0 | | | | | |

**DO SET/SERV TANK 25** (SG = 0,850 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 36,4 | 30,9 | 12,81 | 0 | 0 |
| 98 | 35,5 | 30,2 | 12,77 | 6 | 5 |
| 90 | 32,7 | 27,8 | 12,59 | 6 | 5 |
| 80 | 29,1 | 24,7 | 12,37 | 6 | 5 |
| 70 | 25,4 | 21,6 | 12,15 | 6 | 5 |
| 60 | 21,8 | 18,5 | 11,92 | 6 | 5 |
| 50 | 18,1 | 15,4 | 11,70 | 6 | 5 |
| 40 | 14,5 | 12,3 | 11,48 | 6 | 5 |
| 30 | 10,9 | 9,3 | 11,26 | 6 | 5 |
| 20 | 7,3 | 6,2 | 11,04 | 6 | 5 |
| 10 | 3,6 | 3,1 | 10,82 | 6 | 5 |
| 0 | | | 10,60 | | |

**DO SERVICE TANK 24** (SG = 0,850 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 29,2 | 24,8 | 13,16 | 0 | 0 |
| 98 | 28,6 | 24,3 | 13,11 | 4 | 3 |
| 90 | 26,2 | 22,3 | 12,93 | 4 | 3 |
| 80 | 23,4 | 19,9 | 12,71 | 4 | 3 |
| 70 | 20,5 | 17,4 | 12,47 | 4 | 3 |
| 60 | 17,5 | 14,9 | 12,24 | 4 | 3 |
| 50 | 14,6 | 12,4 | 12,00 | 2 | 2 |
| 40 | 11,6 | 9,9 | 11,75 | 2 | 2 |
| 30 | 8,7 | 7,4 | 11,48 | 2 | 2 |
| 20 | 5,9 | 5,0 | 11,22 | 2 | 2 |
| 10 | 2,9 | 2,5 | 10,92 | 1 | 1 |
| 0 | | | 10,60 | | |

**FW TANK 11** (SG = 1,000 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 40,6 | 40,6 | 1,12 | 0 | 0 |
| 98 | 39,8 | 39,8 | 1,09 | 81 | 81 |
| 90 | 36,5 | 36,5 | 1,01 | 81 | 81 |
| 80 | 32,5 | 32,5 | 0.91 | 96 | 96 |
| 70 | 28,4 | 28,4 | 0,81 | 128 | 128 |
| 60 | 24,4 | 24,4 | 0,72 | 154 | 154 |
| 50 | 20,3 | 20,3 | 0,63 | 156 | 156 |
| 40 | 16,2 | 16,2 | 0,53 | 141 | 141 |
| 30 | 12,2 | 12,2 | 0,42 | 123 | 123 |
| 20 | 8,1 | 8,1 | 0,31 | 99 | 99 |
| 10 | 4,1 | 4,1 | 0,18 | 69 | 69 |
| 0 | | | | | |

**FW TANK 40 P/S** (SG = 1,000 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 193,5 | 193,5 | 17,37 | 0 | 0 |
| 98 | 189,6 | 189,6 | 17,33 | 87 | 87 |
| 90 | 174,2 | 174,2 | 17,18 | 420 | 420 |
| 80 | 154,8 | 154,8 | 16,99 | 410 | 410 |
| 70 | 135,4 | 135,4 | 16,80 | 398 | 398 |
| 60 | 116,1 | 116,1 | 16,61 | 385 | 385 |
| 50 | 96,8 | 96,8 | 16,42 | 371 | 371 |
| 40 | 77,4 | 77,4 | 16,21 | 355 | 355 |
| 30 | 58,0 | 58,0 | 16,02 | 337 | 337 |
| 20 | 38,7 | 38,7 | 15,81 | 318 | 318 |
| 10 | 19,4 | 19,4 | 15,61 | 297 | 297 |
| 0 | | | 15,40 | | |

**FW TANK AFT L** (SG = 1,000 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 48,7 | 48,7 | 3,33 | 0 | 0 |
| 98 | 47,7 | 47,7 | 3,25 | 1 | 1 |
| 90 | 43,8 | 43,8 | 2,95 | 1 | 1 |
| 80 | 39,0 | 39,0 | 2,65 | 2 | 2 |
| 70 | 34,1 | 34,1 | 2,40 | 4 | 4 |
| 60 | 29,2 | 29,2 | 2,15 | 6 | 6 |
| 50 | 24,4 | 24,4 | 1,91 | 6 | 6 |
| 40 | 19,5 | 19,5 | 1,65 | 9 | 9 |
| 30 | 14,6 | 14,6 | 1,38 | 9 | 9 |
| 20 | 9,7 | 9,7 | 1,07 | 7 | 7 |
| 10 | 4,9 | 4,9 | 0,68 | 4 | 4 |
| 0 | | | | | |

**WB FOREPEAK** (SG = 1,025 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 1065,6 | 1092,2 | 7,75 | 0 | 0 |
| 98 | 1044,3 | 1070,4 | 7,59 | 1518 | 1556 |
| 90 | 959,0 | 983,0 | 6,97 | 884 | 906 |
| 80 | 852,5 | 873,8 | 6,30 | 632 | 648 |
| 70 | 746,0 | 764,6 | 5,69 | 906 | 929 |
| 60 | 639,3 | 655,3 | 5,11 | 1095 | 1122 |
| 50 | 532,8 | 546,1 | 4,52 | 1189 | 1219 |
| 40 | 426,2 | 436,9 | 3,91 | 1175 | 1204 |
| 30 | 319,7 | 327,7 | 3,27 | 1025 | 1051 |
| 20 | 213,1 | 218,4 | 2,57 | 754 | 773 |
| 10 | 106,5 | 109,2 | 1,73 | 369 | 378 |
| 0 | | | 0,26 | | |

**WB AFTPEAK** (SG = 1,025 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 1038,2 | 1064,2 | 13,03 | 0 | 0 |
| 98 | 1017,5 | 1042,9 | 12,98 | 16563 | 16977 |
| 90 | 934,3 | 957,7 | 12,79 | 15879 | 16276 |
| 80 | 830,5 | 851,3 | 12,55 | 14922 | 15295 |
| 70 | 726,7 | 744,9 | 12,30 | 13839 | 14185 |
| 60 | 622,9 | 638,5 | 12,03 | 12620 | 12936 |
| 50 | 519,1 | 532,1 | 11,76 | 11245 | 11526 |
| 40 | 415,3 | 425,7 | 11,47 | 9663 | 9905 |
| 30 | 311,4 | 319,2 | 11,15 | 7825 | 8021 |
| 20 | 207,6 | 212,8 | 10,81 | 5664 | 5806 |
| 10 | 103,8 | 106,4 | 10,38 | 3020 | 3096 |
| 0 | | | 9,08 | | |

**WB 1P** (SG = 1,025 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 257,8 | 264,2 | 0,94 | 0 | 0 |
| 98 | 252,7 | 259,0 | 0,92 | 662 | 679 |
| 90 | 232,0 | 237,8 | 0,86 | 660 | 677 |
| 80 | 206,2 | 211,4 | 0,77 | 658 | 674 |
| 70 | 180,5 | 185,0 | 0,68 | 655 | 671 |
| 60 | 154,6 | 158,5 | 0,60 | 653 | 669 |
| 50 | 128,9 | 132,1 | 0,50 | 651 | 667 |
| 40 | 103,1 | 105,7 | 0,41 | 645 | 661 |
| 30 | 77,4 | 79,3 | 0,32 | 638 | 654 |
| 20 | 51,8 | 52,8 | 0,22 | 596 | 611 |
| 10 | 25,8 | 26,4 | 0,11 | 522 | 535 |
| 0 | | | | | |

**WB 1S** (SG = 1,025 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 257,8 | 264,2 | 0,94 | 0 | 0 |
| 98 | 252,7 | 259,0 | 0,92 | 662 | 679 |
| 90 | 232,0 | 237,8 | 0,86 | 660 | 677 |
| 80 | 206,2 | 211,4 | 0,77 | 658 | 674 |
| 70 | 180,5 | 185,0 | 0,68 | 655 | 671 |
| 60 | 154,6 | 158,5 | 0,60 | 653 | 669 |
| 50 | 128,9 | 132,1 | 0,50 | 651 | 667 |
| 40 | 103,1 | 105,7 | 0,41 | 645 | 661 |
| 30 | 77,4 | 79,3 | 0,32 | 638 | 654 |
| 20 | 51,8 | 52,8 | 0,22 | 596 | 611 |
| 10 | 25,8 | 26,4 | 0,11 | 522 | 535 |
| 0 | | | | | |

**WB WT 1P** (SG = 1,025 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 1476,2 | 1513,1 | 7,58 | 0 | 0 |
| 98 | 1446,6 | 1482,8 | 7,42 | 185 | 190 |
| 90 | 1327,8 | 1361,0 | 6,81 | 173 | 177 |
| 80 | 1181,0 | 1210,5 | 6,08 | 509 | 522 |
| 70 | 1033,4 | 1059,2 | 5,37 | 493 | 505 |
| 60 | 885,8 | 907,9 | 4,65 | 461 | 473 |
| 50 | 738,1 | 756,6 | 3,99 | 426 | 437 |
| 40 | 590,4 | 605,2 | 3,34 | 418 | 428 |
| 30 | 442,8 | 453,9 | 2,70 | 382 | 392 |
| 20 | 295,2 | 302,6 | 2,04 | 822 | 843 |
| 10 | 147,6 | 151,3 | 1,28 | 611 | 626 |
| 0 | | | | | |

**WB WT 1S** (SG = 1,025 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 1481,6 | 1518,8 | 7,60 | 0 | 0 |
| 98 | 1452,2 | 1488,5 | 7,45 | 186 | 191 |
| 90 | 1333,7 | 1367,0 | 6,83 | 174 | 178 |
| 80 | 1185,5 | 1215,1 | 6,10 | 516 | 529 |
| 70 | 1037,3 | 1063,2 | 5,39 | 493 | 505 |
| 60 | 889,1 | 911,3 | 4,67 | 462 | 474 |
| 50 | 740,9 | 759,4 | 4,00 | 427 | 438 |
| 40 | 592,7 | 607,5 | 3,35 | 418 | 428 |
| 30 | 444,6 | 455,7 | 2,70 | 363 | 372 |
| 20 | 296,4 | 303,8 | 2,05 | 823 | 844 |
| 10 | 148,2 | 151,9 | 1,28 | 612 | 627 |
| 0 | | | | | |

**WB 2P/S** (SG = 1,025 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 486,9 | 499,1 | 0,90 | 0 | 0 |
| 98 | 477,2 | 489,1 | 0,88 | 2492 | 2554 |
| 90 | 438,2 | 449,2 | 0,81 | 2492 | 2554 |
| 80 | 389,6 | 399,3 | 0,72 | 2492 | 2554 |
| 70 | 340,9 | 349,4 | 0,63 | 2492 | 2554 |
| 60 | 292,1 | 299,4 | 0,54 | 2492 | 2554 |
| 50 | 243,4 | 249,5 | 0,45 | 2492 | 2554 |
| 40 | 194,7 | 199,6 | 0,36 | 2502 | 2565 |
| 30 | 146,0 | 149,7 | 0,27 | 2511 | 2574 |
| 20 | 97,3 | 99,8 | 0,18 | 2478 | 2540 |
| 10 | 48,7 | 49,9 | 0,09 | 2369 | 2428 |
| 0 | | | | | |

**WB WT 2P/S** (SG = 1,025 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 891,6 | 913,9 | 8,03 | 0 | 0 |
| 98 | 873,3 | 895,6 | 7,88 | 28 | 29 |
| 90 | 802,4 | 822,5 | 7,29 | 28 | 29 |
| 80 | 713,3 | 731,1 | 6,57 | 28 | 29 |
| 70 | 624,1 | 639,7 | 5,86 | 31 | 32 |
| 60 | 534,9 | 548,3 | 5,15 | 31 | 32 |
| 50 | 445,8 | 456,9 | 4,43 | 31 | 32 |
| 40 | 356,7 | 365,6 | 3,71 | 31 | 32 |
| 30 | 267,5 | 274,2 | 2,98 | 30 | 31 |
| 20 | 178,3 | 182,8 | 2,22 | 29 | 30 |
| 10 | 89,2 | 91,4 | 1,39 | 22 | 23 |
| 0 | | | | | |

**WB 3P/S** (SG = 1,025 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 489,6 | 501,8 | 0,90 | 0 | 0 |
| 98 | 479,8 | 491,8 | 0,88 | 2491 | 2553 |
| 90 | 440,7 | 451,7 | 0,81 | 2492 | 2554 |
| 80 | 391,7 | 401,5 | 0,72 | 2492 | 2554 |
| 70 | 342,7 | 351,3 | 0,63 | 2492 | 2554 |
| 60 | 293,8 | 301,1 | 0,54 | 2492 | 2554 |
| 50 | 244,8 | 250,9 | 0,45 | 2492 | 2554 |
| 40 | 195,8 | 200,7 | 0,36 | 2506 | 2569 |
| 30 | 146,9 | 150,6 | 0,27 | 2527 | 2590 |
| 20 | 98,0 | 100,4 | 0,18 | 2527 | 2590 |
| 10 | 49,0 | 50,2 | 0,09 | 2496 | 2558 |
| 0 | | | | | |

**WB WT 3P/S** (SG = 1,025 t/m³)27

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 914,9 | 937,8 | 7,87 | 0 | 0 |
| 98 | 896,6 | 919,0 | 7,72 | 28 | 29 |
| 90 | 823,4 | 844,0 | 7,12 | 28 | 29 |
| 80 | 731,9 | 750,2 | 6,39 | 28 | 29 |
| 70 | 640,4 | 656,4 | 5,66 | 31 | 32 |
| 60 | 549,0 | 562,7 | 4,94 | 31 | 32 |
| 50 | 457,5 | 468,9 | 4,21 | 31 | 32 |
| 40 | 366,0 | 375,1 | 3,49 | 31 | 32 |
| 30 | 274,4 | 281,3 | 2,75 | 31 | 32 |
| 20 | 183,0 | 187,6 | 2,01 | 31 | 32 |
| 10 | 91,5 | 93,8 | 1,23 | 25 | 26 |
| 0 | | | | | |

**WB 4P/S** (SG = 1,025 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 463,3 | 474,9 | 0.90 | 0 | 0 |
| 98 | 454,0 | 465,4 | 0,88 | 2280 | 2337 |
| 90 | 417,0 | 427,4 | 0,81 | 2280 | 2337 |
| 80 | 370,6 | 379,9 | 0,72 | 2280 | 2337 |
| 70 | 324,3 | 332,4 | 0,63 | 2280 | 2337 |
| 60 | 278,0 | 284,9 | 0,54 | 2280 | 2337 |
| 50 | 231,6 | 237,4 | 0,45 | 2280 | 2337 |
| 40 | 185,4 | 190,0 | 0,35 | 2280 | 2347 |
| 30 | 139,0 | 142,5 | 0,27 | 2305 | 2363 |
| 20 | 92,7 | 95,0 | 0,18 | 2300 | 2357 |
| 10 | 46,3 | 47,5 | 0,09 | 2245 | 2301 |
| 0 | | | | | |

**WB WT 4P/S** (SG = 1,025 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 833,0 | 853,8 | 7,63 | 0 | 0 |
| 98 | 816,3 | 836,7 | 7,47 | 21 | 22 |
| 90 | 749,7 | 768,4 | 6,87 | 21 | 22 |
| 80 | 666,4 | 683,1 | 6,16 | 21 | 22 |
| 70 | 583,1 | 597,7 | 5,49 | 31 | 32 |
| 60 | 499,8 | 512,3 | 4,82 | 31 | 32 |
| 50 | 416,5 | 426,9 | 4,14 | 31 | 32 |
| 40 | 333,2 | 341,5 | 3,43 | 30 | 31 |
| 30 | 249,9 | 256,1 | 2,72 | 29 | 30 |
| 20 | 166,6 | 170,8 | 1,98 | 25 | 26 |
| 10 | 83,3 | 85,4 | 1,15 | 24 | 25 |
| 0 | | | | | |

**WB 5P** (SG = 1,025 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 141,7 | 145,2 | 0,90 | 0 | 0 |
| 98 | 138,8 | 142,3 | 0,88 | 336 | 344 |
| 90 | 127,5 | 130,7 | 0,81 | 336 | 344 |
| 80 | 113,4 | 116,2 | 0,72 | 336 | 344 |
| 70 | 99,2 | 101,7 | 0,63 | 336 | 344 |
| 60 | 85,0 | 87,1 | 0,54 | 337 | 345 |
| 50 | 70,8 | 72,6 | 0,45 | 337 | 345 |
| 40 | 56,7 | 58,1 | 0,36 | 337 | 345 |
| 30 | 42,5 | 43,6 | 0,27 | 337 | 345 |
| 20 | 28,3 | 29,0 | 0,18 | 337 | 345 |
| 10 | 14,1 | 14,5 | 0,09 | 335 | 343 |
| 0 | | | | | |

**WB 5S** (SG = 1,025 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 141,7 | 145,2 | 0,90 | 0 | 0 |
| 98 | 138,8 | 142,3 | 0,88 | 336 | 344 |
| 90 | 127,5 | 130,7 | 0,81 | 336 | 344 |
| 80 | 113,4 | 116,2 | 0,72 | 336 | 344 |
| 70 | 99,2 | 101,7 | 0,63 | 336 | 344 |
| 60 | 85,0 | 87,1 | 0,54 | 337 | 345 |
| 50 | 70,8 | 72,6 | 0,45 | 337 | 345 |
| 40 | 56,7 | 58,1 | 0,36 | 337 | 345 |
| 30 | 42,5 | 43,6 | 0,27 | 337 | 345 |
| 20 | 28,3 | 29,0 | 0,18 | 337 | 345 |
| 10 | 14,1 | 14,5 | 0,09 | 335 | 343 |
| 0 | | | | | |

**WB WT 5P** (SG = 1,025 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 543,3 | 556,9 | 7,21 | 0 | 0 |
| 98 | 532,4 | 545,7 | 7,04 | 14 | 14 |
| 90 | 489,0 | 501,2 | 6,40 | 14 | 14 |
| 80 | 434,6 | 445,5 | 5,63 | 14 | 14 |
| 70 | 380,3 | 389,8 | 4,89 | 14 | 14 |
| 60 | 326,0 | 334,1 | 4,22 | 10 | 10 |
| 50 | 271,6 | 278,4 | 3,64 | 103 | 106 |
| 40 | 217,4 | 222,8 | 3,05 | 83 | 85 |
| 30 | 163,0 | 167,1 | 2,41 | 67 | 69 |
| 20 | 108,7 | 111,4 | 1,69 | 45 | 46 |
| 10 | 54,3 | 55,7 | 0,97 | 91 | 93 |
| 0 | | | | | |

**WB WT 5S** (SG = 1,025 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 543,3 | 556,9 | 6,93 | 0 | 0 |
| 98 | 532,4 | 545,7 | 6,77 | 14 | 14 |
| 90 | 489,0 | 501,2 | 6,13 | 14 | 14 |
| 80 | 434,6 | 445,4 | 5,37 | 15 | 15 |
| 70 | 380,3 | 389,8 | 4,65 | 14 | 14 |
| 60 | 326,0 | 334,1 | 3,98 | 9 | 9 |
| 50 | 271,6 | 278,4 | 3,41 | 100 | 102 |
| 40 | 217,4 | 222,8 | 2,80 | 79 | 81 |
| 30 | 163,0 | 167,1 | 2,15 | 58 | 59 |
| 20 | 108,7 | 111,4 | 1,44 | 35 | 36 |
| 10 | 54,3 | 55,7 | 0,81 | 104 | 107 |
| 0 | | | | | |

**LO TANK** (SG = 0,900 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 127,8 | 115,0 | 11,04 | 0 | 0 |
| 98 | 125,2 | 112,7 | 11,04 | 0 | 0 |
| 90 | 115,0 | 103,5 | 11,04 | 0 | 0 |
| 80 | 102,2 | 92,0 | | | |
| 70 | 89,4 | 80,5 | | | |
| 60 | 76,7 | 69,0 | | | |
| 50 | 63,9 | 57,5 | | | |
| 40 | 51,1 | 46,0 | | | |
| 30 | 38,3 | 34,5 | | | |
| 20 | 25,6 | 23,0 | | | |
| 10 | 12,8 | 11,5 | | | |
| 0 | | | | | |

**MISC TANK** (SG = 1,000 t/m³)

| Fill (%) | VOL. (m³) | WT (t) | VCG (m) | I PROD (m⁴) | Fs.M. (tm) |
|---|---|---|---|---|---|
| 100 | 221,7 | 221,7 | 7,19 | 0 | 0 |
| 98 | 217,3 | 217,3 | 7,19 | 0 | 0 |
| 90 | 199,5 | 199,5 | 7,19 | 0 | 0 |
| 80 | 177,4 | 177,4 | | | |
| 70 | 155,2 | 155,2 | | | |
| 60 | 133,0 | 133,0 | | | |
| 50 | 110,8 | 110,8 | | | |
| 40 | 88,7 | 88,7 | | | |
| 30 | 66,5 | 66,5 | | | |
| 20 | 44,3 | 44,3 | | | |
| 10 | 22,2 | 22,2 | | | |
| 0 | | | | | |

PART 3

# GRAIN LOADING PLAN

Tables for VCG for various VOL of cargo

**LIST OF SYMBOLS**

| | |
|---|---|
| H…… | Hold filling measured from double bottom (DB) |
| U…….. | Ullage, hold filling measured from top of hatch coaming |
| VOL…. | Volume of cargo in hold |
| VCG…. | Height of centre of mass in hold above Keel |
| MVG…. | Volumetric heeling moment due to transverse grain shifting |

# Hold No 1

| H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19.10 | 0.00 | 4017 | 12.37 | 481 | 15.10 | 4.00 | 3015 | 10.20 | 4427 | 11.10 | 8.00 | 2010 | 7.85 | 3307 | 7.10 | 12.00 | 1185 | 5.68 | 2165 | 3.10 | 16.00 | 419 | 3.44 | 1241 |
| 19.00 | 0.10 | 3992 | 12.32 | 481 | 15.00 | 4.10 | 2990 | 10.15 | 4446 | 11.00 | 8.10 | 1985 | 7.79 | 3273 | 7.00 | 12.10 | 1166 | 5.63 | 2138 | 3.00 | 16.10 | 400 | 3.38 | 1213 |
| 18.90 | 0.20 | 3967 | 12.27 | 473 | 14.90 | 4.20 | 2965 | 10.09 | 4459 | 10.90 | 8.20 | 1959 | 7.73 | 3239 | 6.90 | 12.20 | 1146 | 5.58 | 2111 | 2.90 | 16.20 | 382 | 3.31 | 1186 |
| 18.80 | 0.30 | 3942 | 12.21 | 698 | 14.80 | 4.30 | 2939 | 10.03 | 4466 | 10.80 | 8.30 | 1934 | 7.66 | 3205 | 6.80 | 12.30 | 1127 | 5.52 | 2086 | 2.80 | 16.30 | 363 | 3.24 | 1158 |
| 18.70 | 0.40 | 3917 | 12.16 | 910 | 14.70 | 4.40 | 2914 | 9.98 | 4466 | 10.70 | 8.40 | 1909 | 7.59 | 3171 | 6.70 | 12.40 | 1107 | 5.47 | 2061 | 2.70 | 16.40 | 346 | 3.18 | 1130 |
| 18.60 | 0.50 | 3892 | 12.11 | 1111 | 14.60 | 4.50 | 2889 | 9.92 | 4460 | 10.60 | 8.50 | 1884 | 7.53 | 3137 | 6.60 | 12.50 | 1088 | 5.42 | 2038 | 2.60 | 16.50 | 330 | 3.11 | 1101 |
| 18.50 | 0.60 | 3867 | 12.05 | 1301 | 14.50 | 4.60 | 2864 | 9.87 | 4446 | 10.50 | 8.60 | 1859 | 7.47 | 3103 | 6.50 | 12.60 | 1069 | 5.36 | 2017 | 2.50 | 16.60 | 315 | 3.05 | 1072 |
| 18.40 | 0.70 | 3841 | 12.00 | 1481 | 14.40 | 4.70 | 2839 | 9.81 | 4426 | 10.40 | 8.70 | 1836 | 7.41 | 3072 | 6.40 | 12.70 | 1049 | 5.31 | 1999 | 2.40 | 16.70 | 301 | 3.00 | 1044 |
| 18.30 | 0.80 | 3816 | 11.95 | 1652 | 14.30 | 4.80 | 2814 | 9.75 | 4399 | 10.30 | 8.80 | 1815 | 7.36 | 3044 | 6.30 | 12.80 | 1030 | 5.26 | 1982 | 2.30 | 16.80 | 289 | 2.95 | 1015 |
| 18.20 | 0.90 | 3791 | 11.89 | 1816 | 14.20 | 4.90 | 2789 | 9.70 | 4368 | 10.20 | 8,90 | 1795 | 7.30 | 3018 | 6.20 | 12.90 | 1011 | 5.20 | 1967 | 2.20 | 16.90 | 276 | 2.90 | 986 |
| 18.10 | 1.00 | 3766 | 11.84 | 1973 | 14.10 | 5.00 | 2764 | 9.64 | 4337 | 10.10 | 9.00 | 1776 | 7.25 | 2992 | 6.10 | 13.00 | 992 | 5.15 | 1952 | 2.10 | 17.00 | 263 | 2.85 | 956 |
| 18.00 | 1.10 | 3741 | 11.78 | 2125 | 14.00 | 5.10 | 2739 | 9.58 | 4303 | 10.00 | 9.10 | 1757 | 7.20 | 2965 | 6.00 | 13.10 | 972 | 5.10 | 1938 | 2.00 | 17.10 | 251 | 2.80 | 926 |
| 17.90 | 1.20 | 3716 | 11.73 | 2270 | 13.90 | 5.20 | 2714 | 9.53 | 4269 | 9.90 | 9.20 | 1737 | 7.15 | 2939 | 5.90 | 13.20 | 953 | 5.04 | 1924 | 1.90 | 17.20 | 238 | 2.75 | 894 |
| 17.80 | 1.30 | 3691 | 11.68 | 2409 | 13.80 | 5.30 | 2689 | 9.47 | 4234 | 9.80 | 9.30 | 1717 | 7.10 | 2912 | 5.80 | 13.30 | 934 | 4.99 | 1911 | 1.80 | 17.30 | 226 | 2.70 | 861 |
| 17.70 | 1.40 | 3666 | 11.62 | 2542 | 13.70 | 5.40 | 2664 | 9.41 | 4200 | 9.70 | 9.40 | 1698 | 7.05 | 2885 | 5.70 | 13.40 | 915 | 4.94 | 1898 | 1.70 | 17.40 | 213 | 2.65 | 826 |
| 17.60 | 1.50 | 3641 | 11.57 | 2670 | 13.60 | 5.50 | 2639 | 9.35 | 4165 | 9.60 | 9.50 | 1678 | 6.99 | 2857 | 5.60 | 13.50 | 896 | 4.88 | 1885 | 1.60 | 17.50 | 201 | 2.60 | 789 |
| 17.50 | 1.60 | 3616 | 11.52 | 2793 | 13.50 | 5.60 | 2614 | 9.30 | 4130 | 9.50 | 9.60 | 1658 | 6.94 | 2830 | 5.50 | 13.60 | 876 | 4.83 | 1871 | 1.50 | 17.60 | 188 | 2.55 | 749 |
| 17.40 | 1.70 | 3591 | 11.46 | 2911 | 13.40 | 5.70 | 2588 | 9.24 | 4095 | 9.40 | 9.70 | 1638 | 6.89 | 2803 | 5.40 | 13.70 | 857 | 4.78 | 1854 | 1.40 | 17.70 | 176 | 2.50 | 709 |
| 17.30 | 1.80 | 3566 | 11.41 | 3023 | 13.30 | 5.80 | 2563 | 9.18 | 4060 | 9.30 | 9.80 | 1618 | 6.84 | 2775 | 5.30 | 13.80 | 838 | 4.72 | 1833 | 1.30 | 17.80 | 163 | 2.45 | 667 |
| 17.20 | 1.90 | 3541 | 11.35 | 3130 | 13.20 | 5.90 | 2538 | 9.12 | 4025 | 9.20 | 9.90 | 1599 | 6.79 | 2748 | 5.20 | 13.90 | 819 | 4.67 | 1809 | 1.20 | 17.90 | 151 | 2.40 | 624 |
| 17.10 | 2.00 | 3516 | 11.30 | 3233 | 13.10 | 6.00 | 2513 | 9.06 | 3991 | 9.10 | 10.00 | 1579 | 6.73 | 2720 | 5.10 | 14.00 | 800 | 4.61 | 1784 | 1.10 | 18.00 | 138 | 2.35 | 578 |
| 17.00 | 2.10 | 3491 | 11.24 | 3331 | 13.00 | 6.10 | 2488 | 9.01 | 3956 | 9.00 | 10.10 | 1559 | 6.68 | 2692 | 5.00 | 14.10 | 781 | 4.56 | 1758 | 1.00 | 18.10 | 125 | 2.30 | 532 |
| 16.90 | 2.20 | 3466 | 11.19 | 3425 | 12.90 | 6.20 | 2463 | 8.95 | 3921 | 8.90 | 10.20 | 1540 | 6.63 | 2665 | 4.90 | 14.20 | 762 | 4.50 | 1731 | 0.90 | 18.20 | 113 | 2.25 | 483 |
| 16.80 | 2.30 | 3441 | 11.14 | 3514 | 12.80 | 6.30 | 2438 | 8.89 | 3887 | 8.80 | 10.30 | 1520 | 6.58 | 2637 | 4.80 | 14.30 | 743 | 4.45 | 1704 | 0.80 | 18.30 | 100 | 2.20 | 434 |
| 16.70 | 2.40 | 3416 | 11.08 | 3598 | 12.70 | 6.40 | 2412 | 8.83 | 3853 | 8.70 | 10.40 | 1500 | 6.53 | 2609 | 4.70 | 14.40 | 724 | 4.39 | 1677 | 0.70 | 18.40 | 88 | 2.15 | 382 |
| 16.60 | 2.50 | 3390 | 11.03 | 3679 | 12.60 | 6.50 | 2387 | 8.77 | 3818 | 8.60 | 10.50 | 1480 | 6.47 | 2581 | 4.60 | 14.50 | 705 | 4.34 | 1650 | 0.60 | 18.50 | 75 | 2.10 | 330 |
| 16.50 | 2.60 | 3365 | 10.97 | 3755 | 12.50 | 6.60 | 2362 | 8.71 | 3784 | 8.50 | 10.60 | 1461 | 6.42 | 2553 | 4.50 | 14.60 | 686 | 4.28 | 1623 | 0.50 | 18.60 | 63 | 2.05 | 276 |
| 16.40 | 2.70 | 3340 | 10.92 | 3828 | 12.40 | 6.70 | 2337 | 8.65 | 3750 | 8.40 | 10.70 | 1441 | 6.37 | 2525 | 4.40 | 14.70 | 667 | 4.23 | 1595 | 0.40 | 18.70 | 50 | 2.00 | 221 |
| 16.30 | 2.80 | 3315 | 10.86 | 3896 | 12.30 | 6.80 | 2312 | 8.59 | 3716 | 8.30 | 10.80 | 1421 | 6.32 | 2498 | 4.30 | 14.80 | 648 | 4.17 | 1568 | 0.30 | 18.80 | 38 | 1.95 | 167 |
| 16.20 | 2.90 | 3290 | 10.81 | 3960 | 12.20 | 6.90 | 2287 | 8.53 | 3682 | 8.20 | 10.90 | 1401 | 6.26 | 2470 | 4.20 | 14.90 | 629 | 4.11 | 1541 | 0.20 | 18.90 | 25 | 1.90 | 111 |
| 16.10 | 3.00 | 3265 | 10.75 | 4021 | 12.10 | 7.00 | 2261 | 8.47 | 3648 | 8.10 | 11.00 | 1382 | 6.21 | 2442 | 4.10 | 15.00 | 610 | 4.05 | 1513 | 0.10 | 19.00 | 13 | 1.85 | 56 |
| 16.00 | 3.10 | 3240 | 10.70 | 4078 | 12.00 | 7.10 | 2236 | 8.41 | 3614 | 8.00 | 11.10 | 1362 | 6.16 | 2414 | 4.00 | 15.10 | 591 | 4.00 | 1486 | 0.00 | 19.10 | 0 | 1.80 | 0 |
| 15.90 | 3.20 | 3215 | 10.64 | 4131 | 11.90 | 7.20 | 2211 | 8.35 | 3580 | 7.90 | 11.20 | 1342 | 6.11 | 2386 | 3.90 | 15.20 | 571 | 3.94 | 1459 | | | | | |
| 15.80 | 3.30 | 3190 | 10.59 | 4180 | 11.80 | 7.30 | 2186 | 8.29 | 3546 | 7.80 | 11.30 | 1322 | 6.05 | 2359 | 3.80 | 15.30 | 552 | 3.88 | 1432 | | | | | |
| 15.70 | 3.40 | 3165 | 10.53 | 4226 | 11.70 | 7.40 | 2161 | 8.23 | 3512 | 7.70 | 11.40 | 1303 | 6.00 | 2331 | 3.70 | 15.40 | 534 | 3.82 | 1404 | | | | | |
| 15.60 | 3.50 | 3140 | 10.48 | 4268 | 11.60 | 7.50 | 2136 | 8.17 | 3478 | 7.60 | 11.50 | 1283 | 5.95 | 2303 | 3.60 | 15.50 | 515 | 3.76 | 1377 | | | | | |
| 15.50 | 3.60 | 3115 | 10.42 | 4307 | 11.50 | 7.60 | 2111 | 8.10 | 3444 | 7.50 | 11.60 | 1263 | 5.89 | 2275 | 3.50 | 15.60 | 496 | 3.70 | 1350 | | | | | |
| 15.40 | 3.70 | 3090 | 1037 | 4342 | 11.40 | 7.70 | 2085 | 8.04 | 3409 | 7.40 | 11.70 | 1244 | 5.84 | 2248 | 3.40 | 15.70 | 477 | 3.64 | 1323 | | | | | |
| 15.30 | 3.80 | 3065 | 10.31 | 4374 | 11.30 | 7.80 | 2060 | 7.98 | 3375 | 7.30 | 11.80 | 1224 | 5.79 | 2220 | 3.30 | 15.80 | 458 | 3.57 | 1295 | | | | | |
| 15.20 | 3.90 | 3040 | 10.26 | 4403 | 11.20 | 7.90 | 2035 | 7.92 | 3341 | 7.20 | 11.90 | 1205 | 5.74 | 2193 | 3.20 | 15.90 | 438 | 3.51 | 1268 | | | | | |

# Hold No 2

| H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19.10 | 0.00 | 5807 | 11.78 | 811 | 15.10 | 4.00 | 4518 | 9.75 | 8713 | 11.10 | 8.00 | 3229 | 7.69 | 9654 | 7.10 | 12.00 | 1932 | 5.55 | 7833 | 3.10 | 16.00 | 778 | 3.35 | 5110 |
| 19.00 | 0.10 | 5774 | 11.73 | 811 | 15.00 | 4.10 | 4485 | 9.70 | 8801 | 11.00 | 8.10 | 3196 | 7.64 | 9646 | 7.00 | 12.10 | 1899 | 5.49 | 7780 | 3.00 | 16.10 | 753 | 3.30 | 4997 |
| 18.90 | 0.20 | 5742 | 11.68 | 818 | 14.90 | 4.20 | 4453 | 9.65 | 8884 | 10.90 | 8.20 | 3164 | 7.59 | 9634 | 6.90 | 12.20 | 1867 | 5.43 | 7727 | 2.90 | 16.20 | 728 | 3.25 | 4880 |
| 18.80 | 0.30 | 5710 | 11.63 | 1202 | 14.80 | 4.30 | 4421 | 9.60 | 8963 | 10.80 | 8.30 | 3132 | 7.54 | 9617 | 6.80 | 12.30 | 1834 | 5.38 | 7673 | 2.80 | 16.30 | 703 | 3.20 | 4760 |
| 18.70 | 0.40 | 5678 | 11.58 | 1568 | 14.70 | 4.40 | 4389 | 9.55 | 9037 | 10.70 | 8.40 | 3100 | 7.49 | 9596 | 6.70 | 12.40 | 1801 | 5.32 | 7620 | 2.70 | 16.40 | 677 | 3.15 | 4637 |
| 18.60 | 0.50 | 5645 | 11.53 | 1917 | 14.60 | 4.50 | 4356 | 9.50 | 9106 | 10.60 | 8.50 | 3067 | 7.43 | 9571 | 6.60 | 12.50 | 1768 | 5.26 | 7566 | 2.60 | 16.50 | 652 | 3.10 | 4510 |
| 18.50 | 0.60 | 5613 | 11.48 | 2251 | 14.50 | 4.60 | 4324 | 9.44 | 9171 | 10.50 | 8.60 | 3035 | 7.38 | 9541 | 6.50 | 12.60 | 1735 | 5.20 | 7512 | 2.50 | 16.60 | 627 | 3.05 | 4381 |
| 18.40 | 0.70 | 5581 | 11.43 | 2570 | 14.40 | 4.70 | 4292 | 9.39 | 9232 | 10.40 | 8.70 | 3003 | 7.33 | 9507 | 6.40 | 12.70 | 1703 | 5.14 | 7459 | 2.40 | 16.70 | 602 | 3.00 | 4248 |
| 18.30 | 0.80 | 5549 | 11.38 | 2875 | 14.30 | 4.80 | 4260 | 9.34 | 9288 | 10.30 | 8.80 | 2971 | 7.28 | 9469 | 6.30 | 12.80 | 1670 | 5.08 | 7405 | 2.30 | 16.80 | 577 | 2.95 | 4111 |
| 18.20 | 0.90 | 5517 | 11.33 | 3170 | 14.20 | 4.90 | 4228 | 9.29 | 9340 | 10.20 | 8,90 | 2938 | 7.22 | 9427 | 6.20 | 12.90 | 1637 | 5.02 | 7351 | 2.20 | 16.90 | 552 | 2.90 | 3971 |
| 18.10 | 1.00 | 5484 | 11.28 | 3455 | 14.10 | 5.00 | 4195 | 9.24 | 9389 | 10.10 | 9.00 | 2906 | 7.17 | 9382 | 6.10 | 13.00 | 1604 | 4.96 | 7297 | 2.10 | 17.00 | 527 | 2.85 | 3826 |
| 18.00 | 1.10 | 5452 | 11.22 | 3732 | 14.00 | 5.10 | 4163 | 9.19 | 9432 | 10.00 | 9.10 | 2874 | 7.12 | 9333 | 6.00 | 13.10 | 1571 | 4.90 | 7243 | 2.00 | 17.10 | 502 | 2.80 | 3678 |
| 17.90 | 1.20 | 5420 | 11.17 | 4000 | 13.90 | 5.20 | 4131 | 9.14 | 9472 | 9.90 | 9.20 | 2841 | 7.07 | 9282 | 5.90 | 13.20 | 1539 | 4.84 | 7189 | 1.90 | 17.20 | 477 | 2.75 | 3525 |
| 17.80 | 1.30 | 5388 | 11.12 | 4259 | 13.80 | 5.30 | 4099 | 9.09 | 9508 | 9.80 | 9.30 | 2809 | 7.01 | 9232 | 5.80 | 13.30 | 1506 | 4.78 | 7134 | 1.80 | 17.30 | 452 | 2.70 | 3369 |
| 17.70 | 1.40 | 5355 | 11.07 | 4509 | 13.70 | 5.40 | 4066 | 9.03 | 9540 | 9.70 | 9.40 | 2777 | 6.96 | 9180 | 5.70 | 13.40 | 1473 | 4.72 | 7079 | 1.70 | 17.40 | 426 | 2.65 | 3208 |
| 17.60 | 1.50 | 5323 | 11.02 | 4752 | 13.60 | 5.50 | 4034 | 8.98 | 9568 | 9.60 | 9.50 | 2744 | 6.91 | 9129 | 5.60 | 13.50 | 1440 | 4.66 | 7023 | 1.60 | 17.50 | 401 | 2.60 | 3043 |
| 17.50 | 1.60 | 5291 | 10.97 | 4987 | 13.50 | 5.60 | 4002 | 8.93 | 9590 | 9.50 | 9.60 | 2712 | 6.86 | 9077 | 5.50 | 13.60 | 1407 | 4.59 | 6966 | 1.50 | 17.60 | 376 | 2.55 | 2875 |
| 17.40 | 1.70 | 5259 | 10.92 | 5214 | 13.40 | 5.70 | 3970 | 8.88 | 9609 | 9.40 | 9.70 | 2680 | 6.80 | 9026 | 5.40 | 13.70 | 1375 | 4.52 | 6910 | 1.40 | 17.70 | 351 | 2.50 | 2704 |
| 17.30 | 1.80 | 5227 | 10.87 | 5434 | 13.30 | 5.80 | 3938 | 8.83 | 9623 | 9.30 | 9.80 | 2647 | 6.75 | 8974 | 5.30 | 13.80 | 1342 | 4.46 | 6853 | 1.30 | 17.80 | 326 | 2.45 | 2532 |
| 17.20 | 1.90 | 5194 | 10.82 | 5647 | 13.20 | 5.90 | 3905 | 8.78 | 9633 | 9.20 | 9.90 | 2615 | 6.70 | 8923 | 5.20 | 13.90 | 1310 | 4.41 | 6797 | 1.20 | 17.90 | 301 | 2.40 | 2358 |
| 17.10 | 2.00 | 5162 | 10.77 | 5853 | 13.10 | 6.00 | 3873 | 8.73 | 9640 | 9.10 | 10.00 | 2583 | 6.64 | 8871 | 5.10 | 14.00 | 1283 | 4.36 | 6741 | 1.10 | 18.00 | 276 | 2.35 | 2183 |
| 17.00 | 2.10 | 5130 | 10.72 | 6052 | 13.00 | 6.10 | 3841 | 8.68 | 9644 | 9.00 | 10.10 | 2550 | 6.59 | 8820 | 5.00 | 14.10 | 1258 | 4.31 | 6686 | 1.00 | 18.10 | 251 | 2.30 | 2008 |
| 16.90 | 2.20 | 5098 | 10.67 | 6244 | 12.90 | 6.20 | 3809 | 8.62 | 9646 | 8.90 | 10.20 | 2518 | 6.54 | 8768 | 4.90 | 14.20 | 1234 | 4.26 | 6629 | 0.90 | 18.20 | 226 | 2.25 | 1833 |
| 16.80 | 2.30 | 5065 | 10.62 | 6430 | 12.80 | 6.30 | 3776 | 8.57 | 9647 | 8.80 | 10.30 | 2486 | 6.48 | 8717 | 4.80 | 14.30 | 1209 | 4.21 | 6573 | 0.80 | 18.30 | 201 | 2.20 | 1658 |
| 16.70 | 2.40 | 5033 | 10.56 | 6609 | 12.70 | 6.40 | 3744 | 8.52 | 9648 | 8.70 | 10.40 | 2454 | 6.43 | 8665 | 4.70 | 14.40 | 1184 | 4.16 | 6515 | 0.70 | 18.40 | 176 | 2.15 | 1482 |
| 16.60 | 2.50 | 5001 | 10.51 | 6783 | 12.60 | 6.50 | 3712 | 8.47 | 9649 | 8.60 | 10.50 | 2421 | 6.38 | 8614 | 4.60 | 14.50 | 1159 | 4.11 | 6452 | 0.60 | 18.50 | 150 | 2.10 | 1302 |
| 16.50 | 2.60 | 4969 | 10.46 | 6950 | 12.50 | 6.60 | 3680 | 8.42 | 9650 | 8.50 | 10.60 | 2389 | 6.32 | 8562 | 4.50 | 14.60 | 1133 | 4.06 | 6383 | 0.50 | 18.60 | 125 | 2.05 | 1118 |
| 16.40 | 2.70 | 4937 | 10.41 | 7111 | 12.40 | 6.70 | 3647 | 8.37 | 9650 | 8.40 | 10.70 | 2357 | 6.27 | 8511 | 4.40 | 14.70 | 1108 | 4.01 | 6309 | 0.40 | 18.70 | 100 | 2.00 | 928 |
| 16.30 | 2.80 | 4904 | 10.36 | 7266 | 12.30 | 6.80 | 3615 | 8.32 | 9650 | 8.30 | 10.80 | 2324 | 6.21 | 8459 | 4.30 | 14.80 | 1082 | 3.95 | 6233 | 0.30 | 18.80 | 75 | 1.95 | 723 |
| 16.20 | 2.90 | 4872 | 10.31 | 7416 | 12.20 | 6.90 | 3583 | 8.26 | 9651 | 8.20 | 10.90 | 2292 | 6.16 | 8407 | 4.20 | 14.90 | 1057 | 3.90 | 6154 | 0.20 | 18.90 | 50 | 1.90 | 499 |
| 16.10 | 3.00 | 4840 | 10.26 | 7561 | 12.10 | 7.00 | 3551 | 8.21 | 9652 | 8.10 | 11.00 | 2260 | 6.11 | 8356 | 4.10 | 15.00 | 1031 | 3.85 | 6074 | 0.10 | 19.00 | 25 | 1.85 | 257 |
| 16.00 | 3.10 | 4808 | 10.21 | 7700 | 12.00 | 7.10 | 3519 | 8.16 | 9653 | 8.00 | 11.10 | 2227 | 6.05 | 8304 | 4.00 | 15.10 | 1006 | 3.80 | 5992 | 0.00 | 19.10 | 0 | 1.80 | 0 |
| 15.90 | 3.20 | 4775 | 10.16 | 7833 | 11.90 | 7.20 | 3486 | 8.11 | 9654 | 7.90 | 11.20 | 2194 | 6.00 | 8252 | 3.90 | 15.20 | 981 | 3.75 | 5906 | | | | | |
| 15.80 | 3.30 | 4743 | 10.11 | 7961 | 11.80 | 7.30 | 3454 | 8.06 | 9655 | 7.80 | 11.30 | 2162 | 5.94 | 8200 | 3.80 | 15.30 | 955 | 3.70 | 5818 | | | | | |
| 15.70 | 3.40 | 4711 | 10.06 | 8084 | 11.70 | 7.40 | 3422 | 8.01 | 9656 | 7.70 | 11.40 | 2129 | 5.88 | 9147 | 3.70 | 15.40 | 930 | 3.65 | 5727 | | | | | |
| 15.60 | 3.50 | 4679 | 10.01 | 8202 | 11.60 | 7.50 | 3390 | 7.95 | 9658 | 7.60 | 11.50 | 2096 | 5.83 | 8095 | 3.60 | 15.50 | 905 | 3.60 | 5632 | | | | | |
| 15.50 | 3.60 | 4646 | 9.95 | 8314 | 11.50 | 7.60 | 3357 | 7.90 | 9659 | 7.50 | 11.60 | 2063 | 5.77 | 8043 | 3.50 | 15.60 | 879 | 3.55 | 5534 | | | | | |
| 15.40 | 3.70 | 4614 | 9.90 | 8421 | 11.40 | 7.70 | 3325 | 7.85 | 9660 | 7.40 | 11.70 | 2031 | 5.72 | 7991 | 3.40 | 15.70 | 854 | 3.50 | 5433 | | | | | |
| 15.30 | 3.80 | 4582 | 9.85 | 8523 | 11.30 | 7.80 | 3293 | 7.80 | 9660 | 7.30 | 11.80 | 1998 | 5.66 | 7938 | 3.30 | 15.80 | 829 | 3.45 | 5328 | | | | | |
| 15.20 | 3.90 | 4550 | 9.80 | 8621 | 11.20 | 7.90 | 3261 | 7.75 | 9658 | 7.20 | 11.90 | 1965 | 5.60 | 7886 | 3.20 | 15.90 | 803 | 3.40 | 5221 | | | | | |

# Hold No 3

| H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19.10 | 0.00 | 6181 | 11.34 | 811 | 15.10 | 4.00 | 4893 | 9.34 | 8759 | 11.10 | 8.00 | 3603 | 7.35 | 9722 | 7.10 | 12.00 | 2305 | 5.36 | 9758 | 3.10 | 16.00 | 1000 | 3.35 | 7736 |
| 19.00 | 0.10 | 6149 | 11.29 | 811 | 15.00 | 4.10 | 4860 | 9.29 | 8846 | 11.00 | 8.10 | 3571 | 7.30 | 9723 | 7.00 | 12.10 | 2272 | 5.31 | 9758 | 3.00 | 16.10 | 968 | 3.30 | 7593 |
| 18.90 | 0.20 | 6116 | 11.24 | 863 | 14.90 | 4.20 | 4827 | 9.24 | 8929 | 10.90 | 8.20 | 3538 | 7.26 | 9724 | 6.90 | 12.20 | 2240 | 5.26 | 9759 | 2.90 | 16.20 | 935 | 3.25 | 7444 |
| 18.80 | 0.30 | 6084 | 11.19 | 1248 | 14.80 | 4.30 | 4795 | 9.19 | 9008 | 10.80 | 8.30 | 3506 | 7.21 | 9725 | 6.80 | 12.30 | 2207 | 5.21 | 9759 | 2.80 | 16.30 | 903 | 3.20 | 7291 |
| 18.70 | 0.40 | 6052 | 11.14 | 1614 | 14.70 | 4.40 | 4763 | 9.14 | 9082 | 10.70 | 8.40 | 3474 | 7.16 | 9726 | 6.70 | 12.40 | 2174 | 5.16 | 9759 | 2.70 | 16.40 | 871 | 3.15 | 7132 |
| 18.60 | 0.50 | 6020 | 11.09 | 1962 | 14.60 | 4.50 | 4731 | 9.09 | 9151 | 10.60 | 8.50 | 3442 | 7.11 | 9727 | 6.60 | 12.50 | 2141 | 5.11 | 9759 | 2.60 | 16.50 | 839 | 3.10 | 6968 |
| 18.50 | 0.60 | 5987 | 11.04 | 2296 | 14.50 | 4.60 | 4698 | 9.04 | 9216 | 10.50 | 8.60 | 3409 | 7.06 | 9728 | 6.50 | 12.60 | 2109 | 5.06 | 9759 | 2.50 | 16.60 | 806 | 3.05 | 6797 |
| 18.40 | 0.70 | 5955 | 10.99 | 2615 | 14.40 | 4.70 | 4666 | 8.99 | 9276 | 10.40 | 8.70 | 3377 | 7.01 | 9729 | 6.40 | 12.70 | 2076 | 5.01 | 9759 | 2.40 | 16.70 | 774 | 3.00 | 6621 |
| 18.30 | 0.80 | 5923 | 10.94 | 2921 | 14.30 | 4.80 | 4634 | 8.94 | 9332 | 10.30 | 8.80 | 3345 | 6.96 | 9730 | 6.30 | 12.80 | 2043 | 4.96 | 9760 | 2.30 | 16.80 | 742 | 2.95 | 6439 |
| 18.20 | 0.90 | 5891 | 10.89 | 3215 | 14.20 | 4.90 | 4602 | 8.89 | 9383 | 10.20 | 8,90 | 3313 | 6.91 | 9731 | 6.20 | 12.90 | 2010 | 4.91 | 9760 | 2.20 | 16.90 | 710 | 2.90 | 6251 |
| 18.10 | 1.00 | 5859 | 10.84 | 3501 | 14.10 | 5.00 | 4570 | 8.85 | 9430 | 10.10 | 9.00 | 3280 | 6.86 | 9732 | 6.10 | 13.00 | 1978 | 4.86 | 9758 | 2.10 | 17.00 | 677 | 2.85 | 6057 |
| 18.00 | 1.10 | 5826 | 10.79 | 3778 | 14.00 | 5.10 | 4537 | 8.80 | 9473 | 10.00 | 9.10 | 3248 | 6.81 | 9733 | 6.00 | 13.10 | 1945 | 4.81 | 9755 | 2.00 | 17.10 | 645 | 2.80 | 5856 |
| 17.90 | 1.20 | 5794 | 10.74 | 4045 | 13.90 | 5.20 | 4505 | 8.75 | 9512 | 9.90 | 9.20 | 3216 | 6.76 | 9734 | 5.90 | 13.20 | 1912 | 4.76 | 9749 | 1.90 | 17.20 | 613 | 2.75 | 5649 |
| 17.80 | 1.30 | 5762 | 10.69 | 4304 | 13.80 | 5.30 | 4473 | 8.70 | 9547 | 9.80 | 9.30 | 3184 | 6.71 | 9735 | 5.80 | 13.30 | 1879 | 4.71 | 9738 | 1.80 | 17.30 | 581 | 2.70 | 5435 |
| 17.70 | 1.40 | 5730 | 10.64 | 4555 | 13.70 | 5.40 | 4441 | 8.65 | 9579 | 9.70 | 9.40 | 3152 | 6.66 | 9736 | 5.70 | 13.40 | 1847 | 4.66 | 9724 | 1.70 | 17.40 | 548 | 2.65 | 5215 |
| 17.60 | 1.50 | 5697 | 10.59 | 4798 | 13.60 | 5.50 | 4408 | 8.60 | 9606 | 9.60 | 9.50 | 3119 | 6.61 | 9737 | 5.60 | 13.50 | 1814 | 4.61 | 9706 | 1.60 | 17.50 | 516 | 2.60 | 4987 |
| 17.50 | 1.60 | 5665 | 10.54 | 5033 | 13.50 | 5.60 | 4376 | 8.55 | 9629 | 9.50 | 9.60 | 3087 | 6.56 | 9737 | 5.50 | 13.60 | 1781 | 4.56 | 9683 | 1.50 | 17.60 | 484 | 2.55 | 4752 |
| 17.40 | 1.70 | 5633 | 10.49 | 5260 | 13.40 | 5.70 | 4344 | 8.50 | 9647 | 9.40 | 9.70 | 3055 | 6.51 | 9738 | 5.40 | 13.70 | 1749 | 4.51 | 9655 | 1.40 | 17.70 | 452 | 2.50 | 4509 |
| 17.30 | 1.80 | 5601 | 10.44 | 5479 | 13.30 | 5.80 | 4312 | 8.45 | 9662 | 9.30 | 9.80 | 3022 | 6.46 | 9739 | 5.30 | 13.80 | 1716 | 4.46 | 9623 | 1.30 | 17.80 | 419 | 2.45 | 4258 |
| 17.20 | 1.90 | 5569 | 10.39 | 5692 | 13.20 | 5.90 | 4279 | 8.40 | 9674 | 9.20 | 9.90 | 2990 | 6.41 | 9740 | 5.20 | 13.90 | 1683 | 4.41 | 9586 | 1.20 | 17.90 | 387 | 2.40 | 3999 |
| 17.10 | 2.00 | 5536 | 10.34 | 5898 | 13.10 | 6.00 | 4247 | 8.35 | 9681 | 9.10 | 10.00 | 2957 | 6.36 | 9741 | 5.10 | 14.00 | 1651 | 4.36 | 9546 | 1.10 | 18.00 | 355 | 2.35 | 3731 |
| 17.00 | 2.10 | 5504 | 10.29 | 6097 | 13.00 | 6.10 | 4215 | 8.30 | 9686 | 9.00 | 10.10 | 2925 | 6.31 | 9742 | 5.00 | 14.10 | 1618 | 4.31 | 9501 | 1.00 | 18.10 | 323 | 2.30 | 3454 |
| 16.90 | 2.20 | 5472 | 10.24 | 6289 | 12.90 | 6.20 | 4183 | 8.25 | 9689 | 8.90 | 10.20 | 2892 | 6.26 | 9743 | 4.90 | 14.20 | 1585 | 4.26 | 9451 | 0.90 | 18.20 | 290 | 2.25 | 3168 |
| 16.80 | 2.30 | 5440 | 10.19 | 6475 | 12.80 | 6.30 | 4151 | 8.20 | 9691 | 8.80 | 10.30 | 2860 | 6.21 | 9744 | 4.80 | 14.30 | 1553 | 4.20 | 9397 | 0.80 | 18.30 | 258 | 2.20 | 2873 |
| 16.70 | 2.40 | 5407 | 10.14 | 6654 | 12.70 | 6.40 | 4118 | 8.15 | 9693 | 8.70 | 10.40 | 2827 | 6.16 | 9745 | 4.70 | 14.40 | 1520 | 4.15 | 9339 | 0.70 | 18.40 | 226 | 2.15 | 2568 |
| 16.60 | 2.50 | 5375 | 10.09 | 6828 | 12.60 | 6.50 | 4086 | 8.10 | 9695 | 8.60 | 10.50 | 2795 | 6.11 | 9746 | 4.60 | 14.50 | 1487 | 4.10 | 9276 | 0.60 | 18.50 | 193 | 2.10 | 2248 |
| 16.50 | 2.60 | 5343 | 10.04 | 6995 | 12.50 | 6.60 | 4054 | 8.05 | 9697 | 8.50 | 10.60 | 2763 | 6.06 | 9747 | 4.50 | 14.60 | 1455 | 4.05 | 9207 | 0.50 | 18.60 | 161 | 2.05 | 1914 |
| 16.40 | 2.70 | 5311 | 9.99 | 7156 | 12.40 | 6.70 | 4022 | 8.00 | 9699 | 8.40 | 10.70 | 2730 | 6.01 | 9748 | 4.40 | 14.70 | 1422 | 4.00 | 9134 | 0.40 | 18.70 | 129 | 2.00 | 1565 |
| 16.30 | 2.80 | 5279 | 9.94 | 7312 | 12.30 | 6.80 | 3989 | 7.95 | 9701 | 8.30 | 10.80 | 2698 | 5.96 | 9748 | 4.30 | 14.80 | 1390 | 3.95 | 9056 | 0.30 | 18.80 | 97 | 1.95 | 1199 |
| 16.20 | 2.90 | 5246 | 9.89 | 7462 | 12.20 | 6.90 | 3957 | 7.90 | 9703 | 8.20 | 10.90 | 2665 | 5.91 | 9749 | 4.20 | 14.90 | 1357 | 3.90 | 8973 | 0.20 | 18.90 | 64 | 1.90 | 815 |
| 16.10 | 3.00 | 5214 | 9.84 | 7606 | 12.10 | 7.00 | 3925 | 7.85 | 9705 | 8.10 | 11.00 | 2633 | 5.86 | 9750 | 4.10 | 15.00 | 1325 | 3.85 | 8886 | 0.10 | 19.00 | 32 | 1.85 | 414 |
| 16.00 | 3.10 | 5182 | 9.79 | 7745 | 12.00 | 7.10 | 3893 | 7.80 | 9707 | 8.00 | 11.10 | 2600 | 5.81 | 9751 | 4.00 | 15.10 | 1292 | 3.80 | 8793 | 0.00 | 19.10 | 0 | 1.80 | 0 |
| 15.90 | 3.20 | 5150 | 9.74 | 7878 | 11.90 | 7.20 | 3861 | 7.75 | 9709 | 7.90 | 11.20 | 2568 | 5.76 | 9752 | 3.90 | 15.20 | 1260 | 3.75 | 8695 | | | | | |
| 15.80 | 3.30 | 5117 | 9.69 | 8006 | 11.80 | 7.30 | 3828 | 7.70 | 9710 | 7.80 | 11.30 | 2535 | 5.71 | 9753 | 3.80 | 15.30 | 1227 | 3.70 | 8592 | | | | | |
| 15.70 | 3.40 | 5085 | 9.64 | 8129 | 11.70 | 7.40 | 3796 | 7.65 | 9712 | 7.70 | 11.40 | 2502 | 5.66 | 9754 | 3.70 | 15.40 | 1195 | 3.65 | 8485 | | | | | |
| 15.60 | 3.50 | 5053 | 9.59 | 8247 | 11.60 | 7.50 | 3764 | 7.60 | 9714 | 7.60 | 11.50 | 2469 | 5.61 | 9755 | 3.60 | 15.50 | 1162 | 3.60 | 8373 | | | | | |
| 15.50 | 3.60 | 5021 | 9.54 | 8359 | 11.50 | 7.60 | 3732 | 7.55 | 9716 | 7.50 | 11.60 | 2436 | 5.56 | 9756 | 3.50 | 15.60 | 1130 | 3.55 | 8255 | | | | | |
| 15.40 | 3.70 | 4988 | 9.49 | 8466 | 11.40 | 7.70 | 3699 | 7.50 | 9717 | 7.40 | 11.70 | 2404 | 5.51 | 9757 | 3.40 | 15.70 | 1097 | 3.50 | 8133 | | | | | |
| 15.30 | 3.80 | 4956 | 9.44 | 8568 | 11.30 | 7.80 | 3667 | 7.45 | 9719 | 7.30 | 11.80 | 2371 | 5.46 | 9757 | 3.30 | 15.80 | 1065 | 3.45 | 8005 | | | | | |
| 15.20 | 3.90 | 4924 | 9.39 | 8666 | 11.20 | 7.90 | 3635 | 7.40 | 9721 | 7.20 | 11.90 | 2338 | 5.41 | 9758 | 3.20 | 15.90 | 1032 | 3.40 | 7873 | | | | | |

# Hold No 4, 5, 6, 7, 8

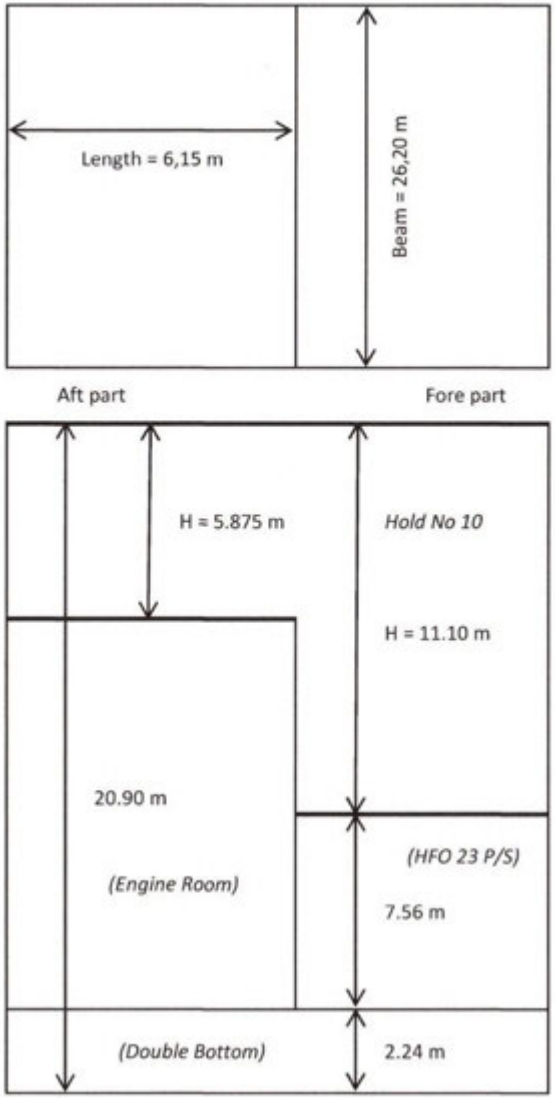
| H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19.10 | 0.00 | 6187 | 11.34 | 811 | 15.10 | 4.00 | 4898 | 9.34 | 8826 | 11.10 | 8.00 | 3609 | 7.36 | 9789 | 7.10 | 12.00 | 2305 | 5.36 | 9826 | 3.10 | 16.00 | 1000 | 3.35 | 7740 |
| 19.00 | 0.10 | 6155 | 11.29 | 811 | 15.00 | 4.10 | 4866 | 9.30 | 8914 | 11.00 | 8.10 | 3577 | 7.31 | 9791 | 7.00 | 12.10 | 2272 | 5.31 | 9826 | 3.00 | 16.10 | 968 | 3.30 | 7597 |
| 18.90 | 0.20 | 6123 | 11.24 | 931 | 14.90 | 4.20 | 4834 | 9.25 | 8997 | 10.90 | 8.20 | 3545 | 7.26 | 9792 | 6.90 | 12.20 | 2239 | 5.26 | 9826 | 2.90 | 16.20 | 935 | 3.25 | 7448 |
| 18.80 | 0.30 | 6090 | 11.19 | 1315 | 14.80 | 4.30 | 4801 | 9.20 | 9076 | 10.80 | 8.30 | 3512 | 7.21 | 9793 | 6.80 | 12.30 | 2207 | 5.21 | 9826 | 2.80 | 16.30 | 903 | 3.20 | 7294 |
| 18.70 | 0.40 | 6058 | 11.14 | 1681 | 14.70 | 4.40 | 4769 | 9.15 | 9149 | 10.70 | 8.40 | 3480 | 7.16 | 9794 | 6.70 | 12.40 | 2174 | 5.16 | 9826 | 2.70 | 16.40 | 871 | 3.15 | 7134 |
| 18.60 | 0.50 | 6026 | 11.09 | 2029 | 14.60 | 4.50 | 4737 | 9.10 | 9219 | 10.60 | 8.50 | 3448 | 9.11 | 9795 | 6.60 | 12.50 | 2141 | 5.11 | 9827 | 2.60 | 16.50 | 839 | 3.10 | 6969 |
| 18.50 | 0.60 | 5994 | 11.04 | 2363 | 14.50 | 4.60 | 4705 | 9.05 | 9284 | 10.50 | 8.60 | 3416 | 7.06 | 9796 | 6.50 | 12.60 | 2108 | 5.06 | 9827 | 2.50 | 16.60 | 806 | 3.05 | 6797 |
| 18.40 | 0.70 | 5961 | 10.99 | 2683 | 14.40 | 4.70 | 4672 | 9.00 | 9344 | 10.40 | 8.70 | 3383 | 7.01 | 9797 | 6.40 | 12.70 | 2075 | 5.01 | 9827 | 2.40 | 16.70 | 774 | 3.00 | 6620 |
| 18.30 | 0.80 | 5929 | 10.94 | 2988 | 14.30 | 4.80 | 4640 | 8.95 | 9399 | 10.30 | 8.80 | 3351 | 6.97 | 9798 | 6.30 | 12.80 | 2043 | 4.96 | 9827 | 2.30 | 16.80 | 742 | 2.95 | 6438 |
| 18.20 | 0.90 | 5897 | 10.89 | 3283 | 14.20 | 4.90 | 4608 | 8.90 | 9450 | 10.20 | 8,90 | 3319 | 6.92 | 9798 | 6.20 | 12.90 | 2010 | 4.91 | 9826 | 2.20 | 16.90 | 710 | 2.90 | 6250 |
| 18.10 | 1.00 | 5865 | 10.84 | 3568 | 14.10 | 5.00 | 4576 | 8.85 | 9498 | 10.10 | 9.00 | 3287 | 6.87 | 9799 | 6.10 | 13.00 | 1977 | 4.86 | 8724 | 2.10 | 17.00 | 677 | 2.85 | 6055 |
| 18.00 | 1.10 | 5833 | 10.79 | 3845 | 14.00 | 5.10 | 4544 | 8.80 | 9541 | 10.00 | 9.10 | 3255 | 6.82 | 9800 | 6.00 | 13.10 | 1944 | 4.81 | 9820 | 2.00 | 17.10 | 645 | 2.80 | 5855 |
| 17.90 | 1.20 | 5800 | 10.74 | 4113 | 13.90 | 5.20 | 4511 | 8.75 | 9579 | 9.90 | 9.20 | 3222 | 6.77 | 9801 | 5.90 | 13.20 | 1912 | 4.76 | 9811 | 1.90 | 17.20 | 613 | 2.75 | 5648 |
| 17.80 | 1.30 | 5768 | 10.69 | 4372 | 13.80 | 5.30 | 4479 | 8.70 | 9614 | 9.80 | 9.30 | 3190 | 6.72 | 9802 | 5.80 | 13.30 | 1879 | 4.71 | 9799 | 1.80 | 17.30 | 581 | 2.70 | 5435 |
| 17.70 | 1.40 | 5736 | 10.64 | 4622 | 13.70 | 5.40 | 4447 | 8.65 | 9646 | 9.70 | 9.40 | 3158 | 6.67 | 9803 | 5.70 | 13.40 | 1846 | 4.66 | 9782 | 1.70 | 17.40 | 548 | 2.65 | 5215 |
| 17.60 | 1.50 | 5704 | 10.59 | 4865 | 13.60 | 5.50 | 4415 | 8.60 | 9673 | 9.60 | 9.50 | 3125 | 6.62 | 9804 | 5.60 | 13.50 | 1813 | 4.61 | 9761 | 1.60 | 17.50 | 516 | 2.60 | 4987 |
| 17.50 | 1.60 | 5671 | 10.54 | 5100 | 13.50 | 5.60 | 4382 | 8.55 | 9696 | 9.50 | 9.60 | 3093 | 6.57 | 9805 | 5.50 | 13.60 | 1781 | 4.56 | 9735 | 1.50 | 17.60 | 484 | 2.55 | 4752 |
| 17.40 | 1.70 | 5639 | 10.49 | 5327 | 13.40 | 5.70 | 4350 | 8.50 | 9715 | 9.40 | 9.70 | 3060 | 6.52 | 9806 | 5.40 | 13.70 | 1748 | 4.51 | 9704 | 1.40 | 17.70 | 452 | 2.50 | 4509 |
| 17.30 | 1.80 | 5607 | 10.44 | 5547 | 13.30 | 5.80 | 4318 | 8.45 | 9730 | 9.30 | 9.80 | 3027 | 6.47 | 9807 | 5.30 | 13.80 | 1715 | 4.46 | 9669 | 1.30 | 17.80 | 419 | 2.45 | 4258 |
| 17.20 | 1.90 | 5575 | 10.39 | 5759 | 13.20 | 5.90 | 4286 | 8.40 | 9741 | 9.20 | 9.90 | 2994 | 6.42 | 9808 | 5.20 | 13.90 | 1683 | 4.41 | 9629 | 1.20 | 17.90 | 387 | 2.40 | 3999 |
| 17.10 | 2.00 | 5543 | 10.34 | 5966 | 13.10 | 6.00 | 4253 | 8.35 | 9749 | 9.10 | 10.00 | 2961 | 6.37 | 9809 | 5.10 | 14.00 | 1650 | 4.36 | 9585 | 1.10 | 18.00 | 355 | 2.35 | 3731 |
| 17.00 | 2.10 | 5510 | 10.29 | 6165 | 13.00 | 6.10 | 4221 | 8.30 | 9754 | 9.00 | 10.10 | 2929 | 6.32 | 9810 | 5.00 | 14.10 | 1617 | 4.30 | 8537 | 1.00 | 18.10 | 323 | 2.30 | 3454 |
| 16.90 | 2.20 | 5479 | 10.24 | 6357 | 12.90 | 6.20 | 4189 | 8.25 | 9757 | 8.90 | 10.20 | 2896 | 6.27 | 9810 | 4.90 | 14.20 | 1585 | 4.25 | 9484 | 0.90 | 18.20 | 290 | 2.25 | 3168 |
| 16.80 | 2.30 | 5446 | 10.19 | 6542 | 12.80 | 6.30 | 4157 | 8.20 | 9759 | 8.80 | 10.30 | 2863 | 6.22 | 9811 | 4.80 | 14.30 | 1552 | 4.20 | 9426 | 0.80 | 18.30 | 258 | 2.20 | 2873 |
| 16.70 | 2.40 | 5414 | 10.14 | 6722 | 12.70 | 6.40 | 4125 | 8.15 | 9761 | 8.70 | 10.40 | 2830 | 6.17 | 9812 | 4.70 | 14.40 | 1519 | 4.15 | 9365 | 0.70 | 18.40 | 226 | 2.15 | 2568 |
| 16.60 | 2.50 | 5381 | 10.09 | 6895 | 12.60 | 6.50 | 4092 | 8.10 | 9763 | 8.60 | 10.50 | 2797 | 6.12 | 9813 | 4.60 | 14.50 | 1487 | 4.10 | 9299 | 0.60 | 18.50 | 193 | 2.10 | 2248 |
| 16.50 | 2.60 | 5349 | 10.04 | 7063 | 12.50 | 6.60 | 4060 | 8.05 | 9765 | 8.50 | 10.60 | 2764 | 6.07 | 9814 | 4.50 | 14.60 | 1454 | 4.05 | 9228 | 0.50 | 18.60 | 161 | 2.05 | 1914 |
| 16.40 | 2.70 | 5317 | 9.99 | 7224 | 12.40 | 6.70 | 4028 | 8.00 | 9767 | 8.40 | 10.70 | 2732 | 6.02 | 9815 | 4.40 | 14.70 | 1422 | 4.00 | 9153 | 0.40 | 18.70 | 129 | 2.00 | 1565 |
| 16.30 | 2.80 | 5285 | 9.94 | 7379 | 12.30 | 6.80 | 3996 | 7.95 | 9768 | 8.30 | 10.80 | 2699 | 5.97 | 9816 | 4.30 | 14.80 | 1389 | 3.95 | 9073 | 0.30 | 18.80 | 97 | 1.95 | 1199 |
| 16.20 | 2.90 | 5253 | 9.89 | 7529 | 12.20 | 6.90 | 3963 | 7.91 | 9770 | 8.20 | 10.90 | 2666 | 5.92 | 9817 | 4.20 | 14.90 | 1356 | 3.90 | 8988 | 0.20 | 18.90 | 64 | 1.90 | 815 |
| 16.10 | 3.00 | 5220 | 9.84 | 7674 | 12.10 | 7.00 | 3931 | 7.86 | 9772 | 8.10 | 11.00 | 2633 | 5.87 | 9818 | 4.10 | 15.00 | 1324 | 3.85 | 8899 | 0.10 | 19.00 | 32 | 1.85 | 414 |
| 16.00 | 3.10 | 5188 | 9.79 | 7812 | 12.00 | 7.10 | 3899 | 7.81 | 9774 | 8.00 | 11.10 | 2600 | 5.82 | 9819 | 4.00 | 15.10 | 1291 | 3.80 | 8806 | 0.00 | 19.10 | 0 | 1.80 | 0 |
| 15.90 | 3.20 | 5156 | 9.74 | 7945 | 11.90 | 7.20 | 3867 | 7.76 | 9776 | 7.90 | 11.20 | 2567 | 5.77 | 9820 | 3.90 | 15.20 | 1259 | 3.75 | 8708 | | | | | |
| 15.80 | 3.30 | 5124 | 9.69 | 8073 | 11.80 | 7.30 | 3835 | 7.71 | 9778 | 7.80 | 11.30 | 2535 | 5.72 | 9821 | 3.80 | 15.30 | 1226 | 3.70 | 8603 | | | | | |
| 15.70 | 3.40 | 5091 | 9.64 | 8196 | 11.70 | 7.40 | 3802 | 7.66 | 9780 | 7.70 | 11.40 | 2502 | 5.66 | 9821 | 3.70 | 15.40 | 1194 | 3.65 | 8495 | | | | | |
| 15.60 | 3.50 | 5059 | 9.59 | 8314 | 11.60 | 7.50 | 3770 | 7.61 | 9781 | 7.60 | 11.50 | 2469 | 5.61 | 9822 | 3.60 | 15.50 | 1162 | 3.60 | 8382 | | | | | |
| 15.50 | 3.60 | 5027 | 9.54 | 8426 | 11.50 | 7.60 | 3738 | 7.56 | 9783 | 7.50 | 11.60 | 2436 | 5.56 | 9823 | 3.50 | 15.60 | 1129 | 3.55 | 8263 | | | | | |
| 15.40 | 3.70 | 4995 | 9.49 | 8534 | 11.40 | 7.70 | 3706 | 7.51 | 9785 | 7.40 | 11.70 | 2403 | 5.51 | 9824 | 3.40 | 15.70 | 1097 | 3.50 | 8140 | | | | | |
| 15.30 | 3.80 | 4962 | 9.44 | 8636 | 11.30 | 7.80 | 3673 | 7.46 | 9787 | 7.30 | 11.80 | 2370 | 5.46 | 9825 | 3.30 | 15.80 | 1064 | 3.45 | 8012 | | | | | |
| 15.20 | 3.90 | 4930 | 9.39 | 8734 | 11.20 | 7.90 | 3641 | 7.41 | 9799 | 7.20 | 11.90 | 2338 | 5.41 | 9825 | 3.20 | 15.90 | 1032 | 3.40 | 7879 | | | | | |

# Hold No 9

| H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19.10 | 0.00 | 5812 | 11.78 | 811 | 15.10 | 4.00 | 4523 | 9.75 | 8826 | 11.10 | 8.00 | 3234 | 7.70 | 9780 | 7.10 | 12.00 | 1930 | 5.55 | 7932 | 3.10 | 16.00 | 778 | 3.35 | 5141 |
| 19.00 | 0.10 | 5780 | 11.73 | 811 | 15.00 | 4.10 | 4491 | 9.70 | 8914 | 11.00 | 8.10 | 3202 | 7.65 | 9772 | 7.00 | 12.10 | 1897 | 5.49 | 7879 | 3.00 | 16.10 | 753 | 3.30 | 5026 |
| 18.90 | 0.20 | 5748 | 11.68 | 931 | 14.90 | 4.20 | 4459 | 9.65 | 8997 | 10.90 | 8.20 | 3170 | 7.60 | 9761 | 6.90 | 12.20 | 1864 | 5.43 | 7826 | 2.90 | 16.20 | 728 | 3.25 | 4907 |
| 18.80 | 0.30 | 5716 | 11.63 | 1315 | 14.80 | 4.30 | 4426 | 9.60 | 9076 | 10.80 | 8.30 | 3137 | 7.55 | 9755 | 6.80 | 12.30 | 1832 | 5.38 | 7772 | 2.80 | 16.30 | 702 | 3.20 | 4785 |
| 18.70 | 0.40 | 5683 | 11.58 | 1681 | 14.70 | 4.40 | 4394 | 9.55 | 9150 | 10.70 | 8.40 | 3105 | 7.49 | 9722 | 6.70 | 12.40 | 1799 | 5.32 | 7718 | 2.70 | 16.40 | 677 | 3.15 | 4659 |
| 18.60 | 0.50 | 5651 | 11.53 | 2030 | 14.60 | 4.50 | 4362 | 9.50 | 9219 | 10.60 | 8.50 | 3073 | 7.44 | 9696 | 6.60 | 12.50 | 1766 | 5.26 | 7664 | 2.60 | 16.50 | 652 | 3.10 | 4530 |
| 18.50 | 0.60 | 5619 | 11.48 | 2363 | 14.50 | 4.60 | 4330 | 9.45 | 9284 | 10.50 | 8.60 | 3041 | 7.39 | 9665 | 6.50 | 12.60 | 1733 | 5.20 | 7610 | 2.50 | 16.60 | 627 | 3.05 | 4397 |
| 18.40 | 0.70 | 5587 | 11.43 | 2683 | 14.40 | 4.70 | 4298 | 9.40 | 9344 | 10.40 | 8.70 | 3009 | 7.34 | 9630 | 6.40 | 12.70 | 1700 | 5.14 | 7556 | 2.40 | 16.70 | 602 | 3.00 | 4261 |
| 18.30 | 0.80 | 5554 | 11.38 | 2988 | 14.30 | 4.80 | 4265 | 9.35 | 9399 | 10.30 | 8.80 | 2976 | 7.29 | 9592 | 6.30 | 12.80 | 1668 | 5.08 | 7501 | 2.30 | 16.80 | 577 | 2.95 | 4122 |
| 18.20 | 0.90 | 5522 | 11.33 | 3283 | 14.20 | 4.90 | 4233 | 9.29 | 9451 | 10.20 | 8,90 | 2944 | 7.23 | 9549 | 6.20 | 12.90 | 1635 | 5.02 | 7447 | 2.20 | 16.90 | 552 | 2.90 | 3979 |
| 18.10 | 1.00 | 5490 | 11.28 | 3568 | 14.10 | 5.00 | 4201 | 9.24 | 9498 | 10.10 | 9.00 | 2912 | 7.18 | 9504 | 6.10 | 13.00 | 1602 | 4.96 | 7392 | 2.10 | 17.00 | 527 | 2.85 | 3833 |
| 18.00 | 1.10 | 5458 | 11.23 | 3845 | 14.00 | 5.10 | 4169 | 9.19 | 9541 | 10.00 | 9.10 | 2880 | 7.13 | 9455 | 6.00 | 13.10 | 1569 | 4.90 | 7337 | 2.00 | 17.10 | 502 | 2.80 | 3683 |
| 17.90 | 1.20 | 5425 | 11.17 | 4113 | 13.90 | 5.20 | 4136 | 9.14 | 9580 | 9.90 | 9.20 | 2847 | 7.08 | 9404 | 5.90 | 13.20 | 1537 | 4.84 | 7282 | 1.90 | 17.20 | 477 | 2.75 | 3529 |
| 17.80 | 1.30 | 5393 | 11.12 | 4372 | 13.80 | 5.30 | 4104 | 9.09 | 9615 | 9.80 | 9.30 | 2815 | 7.03 | 9353 | 5.80 | 13.30 | 1504 | 4.78 | 7225 | 1.80 | 17.30 | 452 | 2.70 | 3371 |
| 17.70 | 1.40 | 5361 | 11.07 | 4622 | 13.70 | 5.40 | 4072 | 9.04 | 9646 | 9.70 | 9.40 | 2783 | 6.97 | 9301 | 5.70 | 13.40 | 1471 | 4.72 | 7168 | 1.70 | 17.40 | 426 | 2.65 | 3210 |
| 17.60 | 1.50 | 5329 | 11.02 | 4865 | 13.60 | 5.50 | 4040 | 8.99 | 9674 | 9.60 | 9.50 | 2751 | 6.92 | 9249 | 5.60 | 13.50 | 1438 | 4.66 | 7109 | 1.60 | 17.50 | 401 | 2.60 | 3044 |
| 17.50 | 1.60 | 5297 | 10.97 | 5100 | 13.50 | 5.60 | 4008 | 8.94 | 9696 | 9.50 | 9.60 | 2718 | 6.87 | 9196 | 5.50 | 13.60 | 1405 | 4.59 | 7051 | 1.50 | 17.60 | 376 | 2.55 | 2876 |
| 17.40 | 1.70 | 5264 | 10.92 | 5327 | 13.40 | 5.70 | 3975 | 8.89 | 9715 | 9.40 | 9.70 | 2685 | 6.81 | 9144 | 5.40 | 13.70 | 1373 | 4.52 | 6993 | 1.40 | 17.70 | 351 | 2.50 | 2705 |
| 17.30 | 1.80 | 5232 | 10.87 | 5547 | 13.30 | 5.80 | 3943 | 8.83 | 9730 | 9.30 | 9.80 | 2652 | 6.76 | 9091 | 5.30 | 13.80 | 1340 | 4.46 | 6934 | 1.30 | 17.80 | 326 | 2.45 | 2533 |
| 17.20 | 1.90 | 5200 | 10.82 | 5760 | 13.20 | 5.90 | 3911 | 8.78 | 9741 | 9.20 | 9.90 | 2620 | 6.71 | 9039 | 5.20 | 13.90 | 1308 | 4.41 | 6876 | 1.20 | 17.90 | 301 | 2.40 | 2359 |
| 17.10 | 2.00 | 5168 | 10.77 | 5966 | 13.10 | 6.00 | 3879 | 8.73 | 9749 | 9.10 | 10.00 | 2587 | 6.65 | 8987 | 5.10 | 14.00 | 1281 | 4.36 | 6818 | 1.10 | 18.00 | 276 | 2.35 | 2184 |
| 17.00 | 2.10 | 5135 | 10.72 | 6165 | 13.00 | 6.10 | 3846 | 8.68 | 9754 | 9.00 | 10.10 | 2554 | 6.60 | 8934 | 5.00 | 14.10 | 1256 | 4.31 | 6759 | 1.00 | 18.10 | 251 | 2.30 | 2009 |
| 16.90 | 2.20 | 5103 | 10.67 | 6357 | 12.90 | 6.20 | 3814 | 8.63 | 9757 | 8.90 | 10.20 | 2521 | 6.54 | 8882 | 4.90 | 14.20 | 1232 | 4.26 | 6701 | 0.90 | 18.20 | 226 | 2.25 | 1834 |
| 16.80 | 2.30 | 5071 | 10.62 | 6542 | 12.80 | 6.30 | 3782 | 8.58 | 9759 | 8.80 | 10.30 | 2488 | 6.49 | 8829 | 4.80 | 14.30 | 1207 | 4.21 | 6643 | 0.80 | 18.30 | 201 | 2.20 | 1659 |
| 16.70 | 2.40 | 5039 | 10.57 | 6722 | 12.70 | 6.40 | 3750 | 8.53 | 9761 | 8.70 | 10.40 | 2455 | 6.44 | 8777 | 4.70 | 14.40 | 1182 | 4.15 | 6583 | 0.70 | 18.40 | 176 | 2.15 | 1482 |
| 16.60 | 2.50 | 5007 | 10.52 | 6895 | 12.60 | 6.50 | 3717 | 8.48 | 9763 | 8.60 | 10.50 | 2422 | 6.38 | 8725 | 4.60 | 14.50 | 1157 | 4.10 | 6517 | 0.60 | 18.50 | 150 | 2.10 | 1302 |
| 16.50 | 2.60 | 4974 | 10.47 | 7063 | 12.50 | 6.60 | 3685 | 8.42 | 9765 | 8.50 | 10.60 | 2390 | 6.33 | 8672 | 4.50 | 14.60 | 1131 | 4.05 | 6446 | 0.50 | 18.60 | 125 | 2.05 | 1118 |
| 16.40 | 2.70 | 4942 | 10.41 | 7224 | 12.40 | 6.70 | 3653 | 8.37 | 9767 | 8.40 | 10.70 | 2357 | 6.27 | 8620 | 4.40 | 14.70 | 1106 | 4.00 | 6370 | 0.40 | 18.70 | 100 | 2.00 | 928 |
| 16.30 | 2.80 | 4910 | 10.36 | 7379 | 12.30 | 6.80 | 3621 | 8.32 | 9768 | 8.30 | 10.80 | 2324 | 6.22 | 8568 | 4.30 | 14.80 | 1080 | 3.95 | 6291 | 0.30 | 18.80 | 75 | 1.95 | 723 |
| 16.20 | 2.90 | 4878 | 10.31 | 7529 | 12.20 | 6.90 | 3589 | 8.27 | 9770 | 8.20 | 10.90 | 2291 | 6.16 | 8515 | 4.20 | 14.90 | 1055 | 3.90 | 6210 | 0.20 | 18.90 | 50 | 1.90 | 499 |
| 16.10 | 3.00 | 4845 | 10.26 | 7674 | 12.10 | 7.00 | 3556 | 8.22 | 9772 | 8.10 | 11.00 | 2258 | 6.11 | 8463 | 4.10 | 15.00 | 1030 | 3.85 | 6127 | 0.10 | 19.00 | 25 | 1.85 | 257 |
| 16.00 | 3.10 | 4813 | 10.21 | 7813 | 12.00 | 7.10 | 3524 | 8.17 | 9774 | 8.00 | 11.10 | 2225 | 6.05 | 8410 | 4.00 | 15.10 | 1004 | 3.80 | 6042 | 0.00 | 19.10 | 0 | 1.80 | 0 |
| 15.90 | 3.20 | 4781 | 10.16 | 7946 | 11.90 | 7.20 | 3492 | 8.12 | 9776 | 7.90 | 11.20 | 2193 | 6.00 | 8358 | 3.90 | 15.20 | 979 | 3.75 | 5955 | | | | | |
| 15.80 | 3.30 | 4749 | 10.11 | 8073 | 11.80 | 7.30 | 3460 | 8.06 | 9778 | 7.80 | 11.30 | 2160 | 5.94 | 8305 | 3.80 | 15.30 | 954 | 3.70 | 5964 | | | | | |
| 15.70 | 3.40 | 4717 | 10.06 | 8197 | 11.70 | 7.40 | 3427 | 8.01 | 9780 | 7.70 | 11.40 | 2127 | 5.89 | 8252 | 3.70 | 15.40 | 929 | 3.65 | 5770 | | | | | |
| 15.60 | 3.50 | 4684 | 10.01 | 8315 | 11.60 | 7.50 | 3395 | 7.96 | 9782 | 7.60 | 11.50 | 2094 | 5.83 | 8199 | 3.60 | 15.50 | 903 | 3.60 | 5673 | | | | | |
| 15.50 | 3.60 | 4652 | 9.96 | 8427 | 11.50 | 7.60 | 3363 | 7.91 | 9784 | 7.50 | 11.60 | 2061 | 5.77 | 8146 | 3.50 | 15.60 | 878 | 3.55 | 5573 | | | | | |
| 15.40 | 3.70 | 4620 | 9.91 | 8534 | 11.40 | 7.70 | 3331 | 7.86 | 9785 | 7.40 | 11.70 | 2028 | 5.72 | 8092 | 3.40 | 15.70 | 853 | 3.50 | 5469 | | | | | |
| 15.30 | 3.80 | 4588 | 9.86 | 8636 | 11.30 | 7.80 | 3299 | 7.81 | 9786 | 7.30 | 11.80 | 1996 | 5.66 | 8039 | 3.30 | 15.80 | 828 | 3.45 | 5363 | | | | | |
| 15.20 | 3.90 | 4555 | 9.80 | 8734 | 11.20 | 7.90 | 3266 | 7.75 | 9784 | 7.20 | 11.90 | 1963 | 5.60 | 7986 | 3.20 | 15.90 | 803 | 3.40 | 5254 | | | | | |

# Hold No 10

| H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) | H (m) | U (m) | VOL. ($m^3$) | VCG (m) | MVG ($m^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18.66 | 0.00 | 2743 | 16.25 | 811 | 14.66 | 4.00 | 1452 | 13.89 | 7617 | 10.66 | 8.00 | 505 | 11.35 | 4347 |
| 18.56 | 0.10 | 2710 | 16.19 | 811 | 14.56 | 4.10 | 1420 | 13.82 | 7621 | 10.56 | 8.10 | 489 | 11.30 | 4241 |
| 18.46 | 0.20 | 2678 | 16.14 | 888 | 14.46 | 4.20 | 1388 | 13.75 | 7617 | 10.46 | 8.20 | 472 | 11.25 | 4134 |
| 18.36 | 0.30 | 2646 | 16.08 | 1269 | 14.36 | 4.30 | 1355 | 13.68 | 7607 | 10.36 | 8.30 | 456 | 11.20 | 4025 |
| 18.26 | 0.40 | 2614 | 16.03 | 1631 | 14.26 | 4.40 | 1323 | 13.61 | 7589 | 10.26 | 8.40 | 440 | 11.15 | 3914 |
| 18.16 | 0.50 | 2581 | 15.97 | 1973 | 14.16 | 4.50 | 1291 | 13.54 | 7563 | 10.16 | 8.50 | 424 | 11.10 | 3801 |
| 18.06 | 0.60 | 2549 | 15.92 | 2303 | 14.06 | 4.60 | 1259 | 13.47 | 7528 | 10.06 | 8.60 | 408 | 11.05 | 3686 |
| 17.96 | 0.70 | 2517 | 15.86 | 2622 | 13.96 | 4.70 | 1226 | 13.40 | 7483 | 9.96 | 8.70 | 391 | 11.00 | 3568 |
| 17.86 | 0.80 | 2485 | 15.80 | 2929 | 13.86 | 4.80 | 1194 | 13.32 | 7427 | 9.86 | 8.80 | 375 | 10.95 | 3448 |
| 17.76 | 0.90 | 2453 | 15.75 | 3225 | 13.76 | 4.90 | 1162 | 13.25 | 7359 | 9.76 | 8,90 | 359 | 10.90 | 3326 |
| 17.66 | 1.00 | 2420 | 15.69 | 3512 | 13.66 | 5.00 | 1129 | 13.17 | 7279 | 9.66 | 9.00 | 342 | 10.85 | 3203 |
| 17.56 | 1.10 | 2388 | 15.64 | 3789 | 13.56 | 5.10 | 1097 | 13.09 | 7188 | 9.56 | 9.10 | 326 | 10.80 | 3078 |
| 17.46 | 1.20 | 2356 | 15.58 | 4057 | 13.46 | 5.20 | 1065 | 13.01 | 7086 | 9.46 | 9.20 | 309 | 10.75 | 2951 |
| 17.36 | 1.30 | 2324 | 15.52 | 4316 | 13.36 | 5.30 | 1033 | 12.93 | 6976 | 9.36 | 9.30 | 293 | 10.70 | 2823 |
| 17.26 | 1.40 | 2291 | 15.47 | 4567 | 13.26 | 5.40 | 1000 | 12.85 | 6860 | 9.26 | 9.40 | 277 | 10.65 | 2693 |
| 17.16 | 1.50 | 2259 | 15.41 | 4807 | 13.16 | 5.50 | 968 | 12.76 | 6736 | 9.16 | 9.50 | 260 | 10.60 | 2561 |
| 17.06 | 1.60 | 2227 | 15.35 | 5037 | 13.06 | 5.60 | 936 | 12.66 | 6602 | 9.06 | 9.60 | 244 | 10.55 | 2428 |
| 16.96 | 1.70 | 2195 | 15.30 | 5255 | 12.96 | 5.70 | 903 | 12.56 | 6460 | 8.96 | 9.70 | 228 | 10.50 | 2293 |
| 16.86 | 1.80 | 2162 | 15.24 | 5463 | 12.86 | 5.80 | 871 | 12.47 | 6325 | 8.86 | 9.80 | 211 | 10.45 | 2158 |
| 16.76 | 1.90 | 2130 | 15.18 | 5658 | 12.76 | 5.90 | 843 | 12.40 | 6220 | 8.76 | 9.90 | 195 | 10.40 | 2022 |
| 16.66 | 2.00 | 2098 | 15.12 | 5844 | 12.66 | 6.00 | 826 | 12.34 | 6135 | 8.66 | 10.00 | 179 | 10.35 | 1884 |
| 16.56 | 2.10 | 2066 | 15.06 | 6019 | 12.56 | 6.10 | 811 | 12.29 | 6057 | 8.56 | 10.10 | 163 | 10.30 | 1742 |
| 16.46 | 2.20 | 2033 | 15.01 | 6183 | 12.46 | 6.20 | 795 | 12.24 | 5981 | 8.46 | 10.20 | 146 | 10.25 | 1597 |
| 16.36 | 2.30 | 2001 | 14.95 | 6338 | 12.36 | 6.30 | 779 | 12.19 | 5903 | 8.36 | 10.30 | 130 | 10.20 | 1446 |
| 16.26 | 2.40 | 1969 | 14.89 | 6483 | 12.26 | 6.40 | 763 | 12.14 | 5823 | 8.26 | 10.40 | 114 | 10.15 | 1289 |
| 16.16 | 2.50 | 1936 | 14.83 | 6619 | 12.16 | 6.50 | 746 | 12.09 | 5742 | 8.16 | 10.50 | 97 | 10.10 | 1127 |
| 16.06 | 2.60 | 1904 | 14.77 | 6745 | 12.06 | 6.60 | 730 | 12.04 | 5660 | 8.06 | 10.60 | 81 | 10.05 | 961 |
| 15.96 | 2.70 | 1872 | 14.71 | 6863 | 11.96 | 6.70 | 714 | 11.99 | 5576 | 7.96 | 10.70 | 65 | 10.00 | 789 |
| 15.86 | 2.80 | 1840 | 14.65 | 6971 | 11.86 | 6.80 | 698 | 11.95 | 5491 | 7.86 | 10.80 | 49 | 9.95 | 607 |
| 15.76 | 2.90 | 1807 | 14.59 | 7070 | 11.76 | 6.90 | 682 | 11.90 | 5404 | 7.76 | 10.90 | 32 | 9.90 | 416 |
| 15.66 | 3.00 | 1775 | 14.53 | 7161 | 11.66 | 7.00 | 666 | 11.85 | 5316 | 7.66 | 11.00 | 16 | 9.85 | 212 |
| 15.56 | 3.10 | 1743 | 17.46 | 7243 | 11.56 | 7.10 | 650 | 11.80 | 5226 | 7.56 | 11.10 | 0 | 9.80 | 0 |
| 15.46 | 3.20 | 1710 | 14.40 | 7317 | 11.46 | 7.20 | 634 | 11.75 | 5134 | | | | | |
| 15.36 | 3.30 | 1678 | 14.34 | 7382 | 11.36 | 7.30 | 618 | 11.70 | 5042 | | | | | |
| 15.26 | 3.40 | 1646 | 14.28 | 7439 | 11.26 | 7.40 | 601 | 11.65 | 4947 | | | | | |
| 15.16 | 3.50 | 1614 | 14.21 | 7488 | 11.16 | 7.50 | 585 | 11.60 | 4851 | | | | | |
| 15.06 | 3.60 | 1581 | 14.15 | 7529 | 11.06 | 7.60 | 569 | 11.55 | 4754 | | | | | |
| 14.96 | 3.70 | 1549 | 14.09 | 7563 | 10.96 | 7.70 | 553 | 11.50 | 4654 | | | | | |
| 14.86 | 3.80 | 1517 | 14.02 | 7588 | 10.86 | 7.80 | 537 | 11.45 | 4554 | | | | | |
| 14.76 | 3.90 | 1485 | 13.95 | 7606 | 10.76 | 7.90 | 521 | 11.40 | 4451 | | | | | |



PART 4

# CONTAINER STOWAGE PLAN

**SIZES OF CONTAINERS**

ISO TEU : L x B x H = 20' x 8' x 8'6''

ISO FEU : L x B x H = 40' x 8' x 8'6''

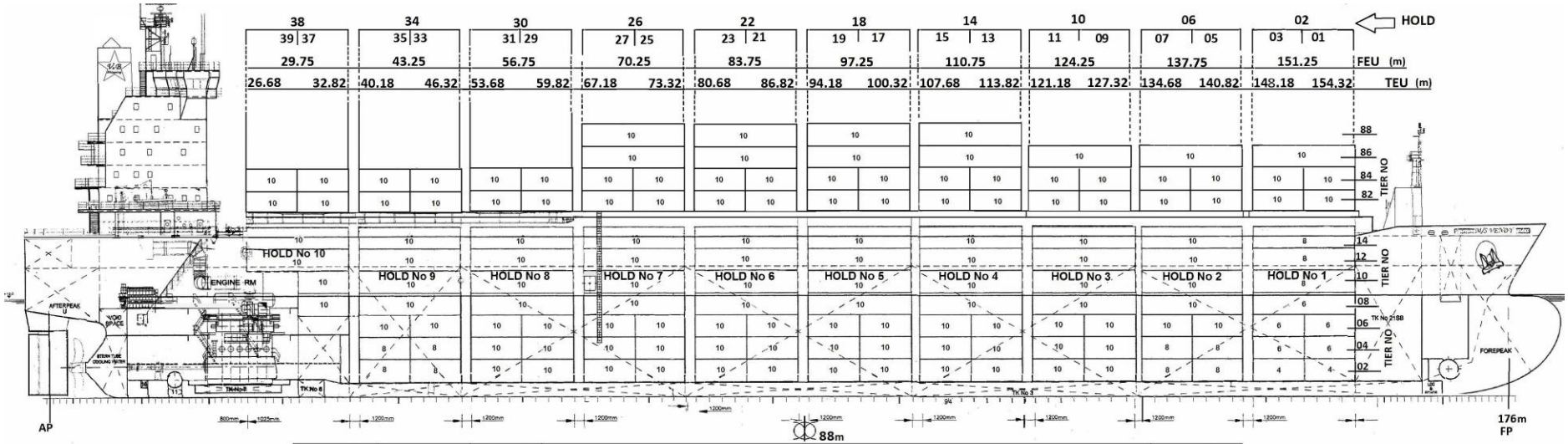
**CONTAINER STACK LOAD**

**Holds No 1, 2, 5, 6, 9**

3 Tiers TEU / 23,0 t + 4 Tiers FEU / 30,0 t
or
7 Tiers FEU / 30,5 t

**Hold No 3, 4, 7, 8, 10**

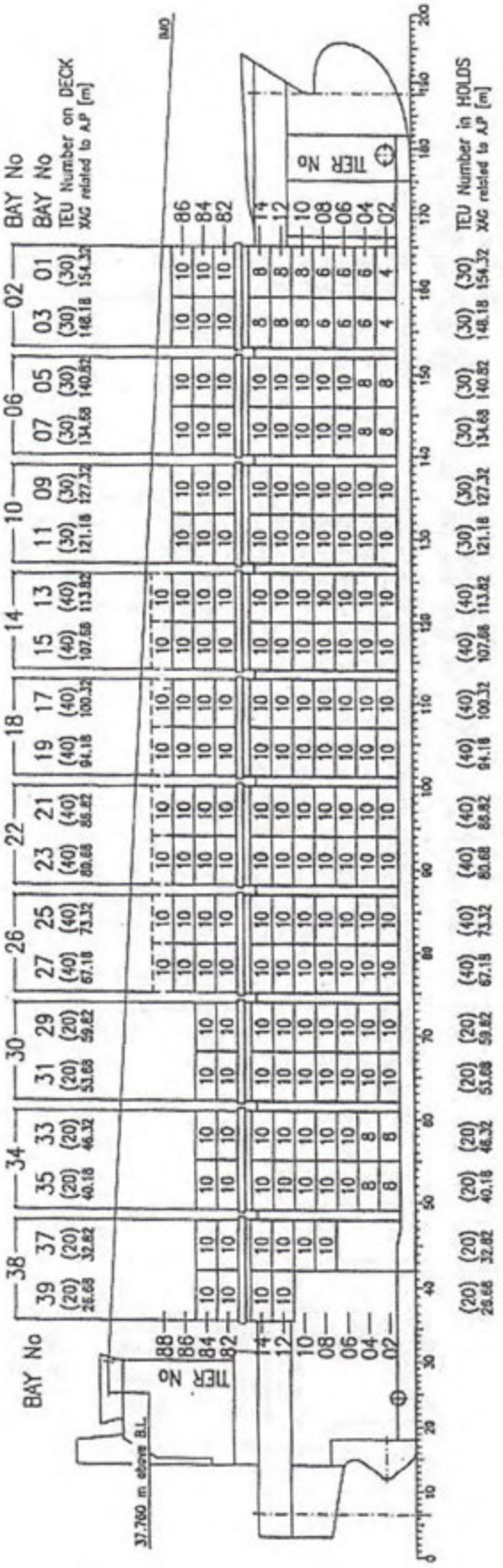
3 Tiers TEU / 69,0 t
3 Tiers FEU / 91,5 t
1 Tier FEU + 2 Tiers TEU = 107,0 t

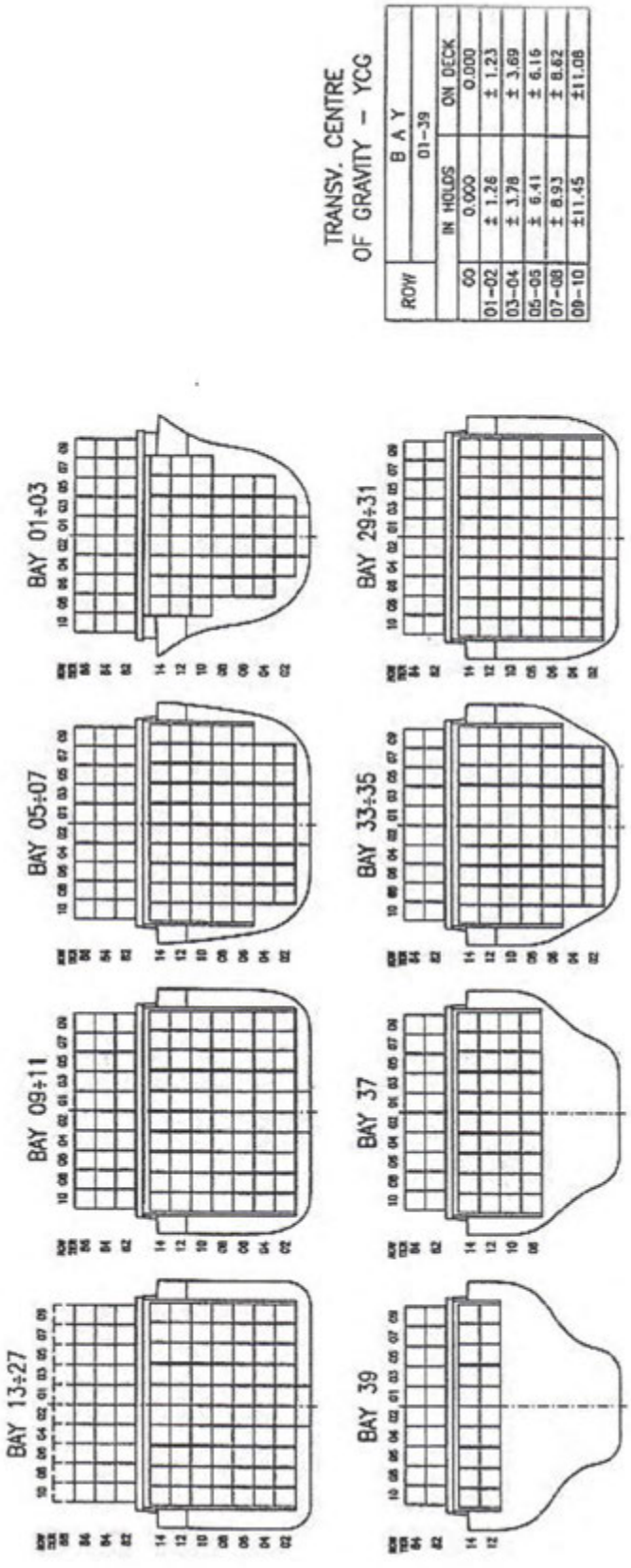



| Total XAG Related To AP [m] (Felles LCG) | Item | Number of 20' Cont. Per tier | VERTICAL CENTER OF GRAVITY ABOVE BL – ZKG [m] (cont height = 8 ½', ZKG assumed at 45% of cont. height) | | | | | | | | Total ZKG Above BL [m] (Felles VCG) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | BAY 39 | BAY 37 | BAY 33-35 | BAY 29-31 | BAY 13-27 | BAY 09-11 | BAY 05-07 | BAY 01-03 | | |
| **90.50** | TIER 88 | 80 | — | — | — | — | 30.84 | — | — | — | **30.84** | ON DECK |
| **110.75** | TIER 86 | 140 | — | — | — | — | 28.22 | 28.22 | 28.22 | 28.22 | **28.22** | |
| **90.50** | TIER 84 | 200 | 25.60 | 25.60 | 25.60 | 25.60 | 25.60 | 25.60 | 25.60 | 25.60 | **25.60** | |
| **90.50** | TIER 82 | 200 | 22.98 | 22.98 | 22.98 | 22.98 | 22.98 | 22.98 | 22.98 | 22.98 | **22.98** | |
| **95.07** | ON DECK | 620 | 24.29 | 24.29 | 24.29 | 24.29 | 26.91 | 25.60 | 25.60 | 25.60 | **26.02** | |
| **89.26** | TIER 14 | 196 | 18.63 | 18.63 | 18.63 | 18.63 | 18.63 | 18.63 | 18.63 | 18.63 | **18.63** | IN HOLDS |
| **89.26** | TIER 12 | 196 | 16.03 | 16.03 | 16.03 | 16.03 | 16.03 | 16.03 | 16.03 | 16.03 | **16.03** | |
| **92.62** | TIER 10 | 186 | — | 13.43 | 13.43 | 13.43 | 13.43 | 13.43 | 13.43 | 13.43 | **13.43** | |
| **91.34** | TIER 08 | 182 | — | 10.82 | 10.82 | 10.82 | 10.82 | 10.82 | 10.82 | 10.82 | **10.82** | |
| **94.74** | TIER 06 | 172 | — | — | 8.22 | 8.22 | 8.22 | 8.22 | 8.22 | 8.22 | **8.22** | |
| **94.95** | TIER 04 | 164 | — | — | 5.62 | 5.62 | 5.62 | 5.62 | 5.62 | 5.62 | **5.62** | |
| **93.54** | TIER 02 | 160 | — | — | 3.01 | 3.01 | 3.01 | 3.01 | 3.01 | 3.01 | **3.01** | |
| **92.10** | IN HOLD | 1256 | 17.33 | 14.73 | 10.82 | 10.82 | 10.82 | 10.82 | 10.82 | 10.82 | **11.21** | |
| **93.08** | TOTAL | 1876 | 20.81 | 19.51 | 17.56 | 17.56 | 18.87 | 18.21 | 18.21 | 18.21 | **16.11** | |

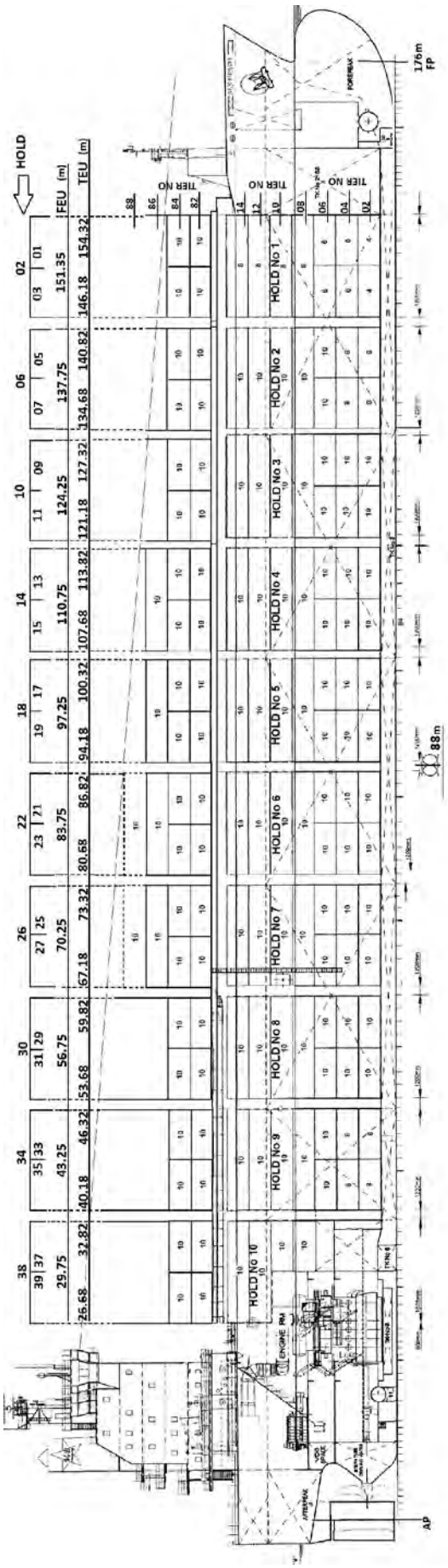
**CONTAINERS PLAN (BAY-PLANS)** **20' CONTAINERS**

IMO Visibility Rules - TEU Containers



PANAMA CANAL Visibility Rules



# PART 5

# HYDROSTATICS

(TABLES)

## LIST OF SYMBOLS

$d_m$ (m)……mean draugt (moulded), at midtship, above Base Line (BL)
DISP (t)……displscement (total)
TPC (t/cm).....change of displacement by 1 cm of draught
$KM_T$ (m)..... height of initial transverse metacentre above K
LCB (m).....longitudinal centre of buoyancy from Ap
$LCF_⊗$ (m).....longitudinal centre of flotation from midship ("+" forward)
MTC (tm/cm).....moment to change trim one centimetre
$VOL_m$ ($m^3$).....moulded volume of displacement
KB (m).....vertical centre of buoyancy above K
$A_{WL}$ ($m^2$).....waterplan area
$L_{WL}$ (m).....waterplan length
$A_M$ ($m^2$).....midship section area
$A_{WS}$ ($m^2$).....wetted surface area
$I_T$ ($m^4$)..... waterplane transverse moment of inertia
$I_L$ (m).....waterplane longitudinal moment of inertia
$KM_L$ (m).....longitudinal metacentre height, above Keel
$C_B$ ( - ).....block coefficient
$C_W$ ( - ).....waterplane coefficient
$C_M$ ( - ).....midship section coefficient

| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3,00 | 11 470 | 41,65 | 25,01 | 91,27 | 4,29 | 386,77 | 11 135 | 1,56 | 4 063,1 | 174,14 | 89,1 | 4612,1 | 262 403 | 6 641 040 | 595,04 | 0,680 | 0,753 | 0,958 |
| 3,10 | 11 886 | 41,82 | 24,36 | 91,31 | 4,22 | 390,95 | 11 540 | 1,61 | 4 079,6 | 174,42 | 92,2 | 4653,0 | 263 817 | 6 712 977 | 580,51 | 0,682 | 0,754 | 0,959 |
| 3,20 | 12 305 | 41,92 | 23,75 | 91,34 | 4,28 | 393,06 | 11 948 | 1,66 | 4 090,0 | 174,56 | 95,3 | 4694,9 | 265 148 | 6 749 117 | 563,88 | 0,684 | 0,756 | 0,960 |
| 3,30 | 12 724 | 42,03 | 23,18 | 91,38 | 4,36 | 395,32 | 12 357 | 1,72 | 4 100,7 | 174,68 | 98,4 | 4737,7 | 266 437 | 6 787 888 | 548,51 | 0,686 | 0,757 | 0,962 |
| 3,40 | 13 145 | 42,14 | 22,64 | 91,41 | 4,44 | 397,66 | 12 767 | 1,77 | 4 111,5 | 174,81 | 101,5 | 4774,7 | 267 692 | 6 828 051 | 534,19 | 0,688 | 0,759 | 0,963 |
| 3,50 | 13 567 | 42,25 | 22,14 | 91,44 | 4,52 | 399,92 | 13 179 | 1,82 | 4 121,9 | 174,93 | 104,6 | 4812,5 | 268 905 | 6 866 871 | 520,61 | 0,690 | 0,760 | 0,964 |
| 3,60 | 13 990 | 42,35 | 21,66 | 91,48 | 4,61 | 402,12 | 13 591 | 1,87 | 4 132,0 | 175,04 | 107,7 | 4850,1 | 270 079 | 6 904 628 | 507,74 | 0,692 | 0,761 | 0,965 |
| 3,70 | 14 414 | 42,45 | 21,21 | 91,51 | 4,69 | 404,27 | 14 004 | 1,92 | 4 141,9 | 175,15 | 110,8 | 4887,7 | 271 223 | 6 941 629 | 495,54 | 0,694 | 0,763 | 0,966 |
| 3,80 | 14 839 | 42,55 | 20,79 | 91,55 | 4,78 | 406,40 | 14 418 | 1,98 | 4 151,7 | 175,26 | 113,9 | 4925,1 | 272 343 | 6 978 103 | 483,97 | 0,695 | 0,764 | 0,967 |
| 3,90 | 15 266 | 42,65 | 20,39 | 91,59 | 4,86 | 408,50 | 14 834 | 2,03 | 4 161,3 | 175,37 | 117,0 | 4963,8 | 273 435 | 7 014 209 | 472,99 | 0,697 | 0,766 | 0,968 |
| 4,00 | 15 693 | 42,75 | 20,01 | 91,62 | 4,95 | 410,60 | 15 251 | 2,08 | 4 170,8 | 175,47 | 120,1 | 8002,7 | 274 515 | 7 050 319 | 462,57 | 0,699 | 0,767 | 0,969 |
| 4,10 | 16 122 | 42,85 | 19,65 | 91,66 | 5,04 | 412,72 | 15 668 | 2,13 | 4 180,4 | 175,57 | 123,2 | 5041,9 | 275 563 | 7 086 758 | 452,69 | 0,700 | 0,769 | 0,970 |
| 4,20 | 16 551 | 42,95 | 19,32 | 91,70 | 5,15 | 414,91 | 16 087 | 2,18 | 4 190,1 | 175,66 | 126,3 | 5088,0 | 276 614 | 7 124 320 | 443,39 | 0,702 | 0,771 | 0,970 |
| 4,30 | 16 980 | 43,06 | 19,00 | 91,73 | 5,27 | 417,36 | 16 505 | 2,24 | 4 200,8 | 175,47 | 129,4 | 5126,8 | 277 659 | 7 166 403 | 434,83 | 0,703 | 0,773 | 0,971 |
| 4,40 | 17 411 | 43,22 | 18,70 | 91,77 | 5,47 | 421,75 | 16 294 | 2,29 | 4 217,1 | 175,48 | 132,5 | 5167,9 | 278 755 | 7 241 687 | 428,62 | 0,705 | 0,775 | 0,971 |
| 4,50 | 17 844 | 43,30 | 18,41 | 91,81 | 5,50 | 423,32 | 17 346 | 2,34 | 4 224,6 | 175,50 | 135,6 | 5204,9 | 279 737 | 7 268 677 | 419,88 | 0,706 | 0,777 | 0,972 |
| 4,60 | 18 277 | 43,38 | 18,14 | 91,85 | 5,54 | 424,88 | 17 768 | 2,39 | 4 232,0 | 175,51 | 138,7 | 5241,9 | 280 695 | 7 295 572 | 411,54 | 0,708 | 0,778 | 0,973 |
| 4,70 | 18 711 | 43,45 | 17,88 | 91,89 | 5,57 | 426,47 | 18 191 | 2,45 | 4 239,4 | 175,51 | 141,8 | 5278,8 | 281 646 | 7 322 733 | 403,59 | 0,709 | 0,779 | 0,973 |
| 4,80 | 19 146 | 43,53 | 17,63 | 91,93 | 5,59 | 428,04 | 18 615 | 2,50 | 4 246,7 | 175,52 | 144,9 | 5315,6 | 282 574 | 7 349 691 | 395,97 | 0,711 | 0,781 | 0,974 |
| 4,90 | 19 582 | 43,60 | 17,39 | 91,97 | 5,61 | 429,61 | 19 040 | 2,56 | 4 254,0 | 175,52 | 148,0 | 5352,4 | 283 498 | 7 376 716 | 388,69 | 0,712 | 0,782 | 0,974 |
| 5,00 | 20 018 | 43,68 | 17,17 | 92,00 | 5,63 | 431,18 | 19 465 | 2,61 | 4 261,1 | 175,52 | 151,1 | 5389,2 | 284 409 | 7 403 641 | 381,70 | 0,714 | 0,783 | 0,975 |
| 5,10 | 20 455 | 43,75 | 16,95 | 92,04 | 5,64 | 432,74 | 19 891 | 2,66 | 4 268,2 | 175,51 | 154,2 | 5425,9 | 285 299 | 7 430 425 | 374,99 | 0,715 | 0,784 | 0,975 |
| 5,20 | 20 893 | 43,82 | 16,75 | 92,07 | 5,65 | 434,30 | 20 318 | 2,71 | 4 275,2 | 175,50 | 157,3 | 5462,6 | 286 189 | 7 457 316 | 368,56 | 0,716 | 0,786 | 0,976 |
| 5,30 | 21 332 | 43,89 | 16,56 | 92,11 | 5,66 | 435,86 | 20 745 | 2,77 | 4 282,2 | 175,50 | 160,4 | 5499,3 | 287 061 | 7 484 114 | 362,38 | 0,718 | 0,787 | 0,976 |
| 5,40 | 21 771 | 43,96 | 16,37 | 92,14 | 5,66 | 437,44 | 21 173 | 2,82 | 4 289,2 | 175,49 | 163,5 | 5536,0 | 287 934 | 7 511 138 | 356,45 | 0,719 | 0,789 | 0,977 |
| 5,50 | 22 208 | 44,03 | 16,20 | 92,18 | 5,66 | 438,93 | 21 600 | 2,87 | 4 295,9 | 175,48 | 166,6 | 5571,2 | 288 789 | 7 536 739 | 350,72 | 0,720 | 0,790 | 0,977 |
| 5,60 | 22 649 | 44,10 | 16,01 | 92,21 | 5,65 | 440,53 | 22 029 | 2,92 | 4 302,8 | 175,46 | 169,7 | 5607,8 | 289 648 | 7 564 178 | 345,24 | 0,721 | 0,791 | 0,977 |
| 5,70 | 23 090 | 44,17 | 15,87 | 92,23 | 5,64 | 442,12 | 22 459 | 2,97 | 4 309,7 | 175,44 | 172,8 | 5644,4 | 290 489 | 7 591 570 | 339,97 | 0,722 | 0,792 | 0,978 |
| 5,80 | 23 532 | 44,24 | 15,71 | 92,26 | 5,62 | 443,73 | 22 890 | 3,03 | 4 316,5 | 175,42 | 175,9 | 5681,0 | 291 334 | 7 619 209 | 334,90 | 0,724 | 0,794 | 0,978 |
| 5,90 | 23 975 | 44,31 | 15,57 | 92,29 | 5,6 | 445,36 | 23 322 | 3,08 | 4 323,4 | 175,40 | 179,0 | 5717,8 | 292 170 | 7 647 101 | 330,01 | 0,725 | 0,795 | 0,979 |
| 6,00 | 24 418 | 44,39 | 15,43 | 92,31 | 5,58 | 447,00 | 23 754 | 3,13 | 4 330,3 | 175,38 | 182,1 | 5754,5 | 293 008 | 7 675 306 | 325,31 | 0,726 | 0,796 | 0,979 |
| 6,10 | 24 862 | 44,46 | 15,29 | 92,33 | 5,56 | 448,64 | 24 186 | 3,18 | 4 337,1 | 175,36 | 185,2 | 5791,2 | 293 830 | 7 703 505 | 320,77 | 0,727 | 0,797 | 0,979 |
| 6,20 | 25 307 | 44,53 | 15,17 | 92,36 | 5,53 | 450,31 | 24 620 | 3,23 | 4 344,0 | 175,33 | 188,3 | 5828,0 | 294 660 | 7 732 106 | 316,40 | 0,728 | 0,799 | 0,980 |
| 6,30 | 25 753 | 44,60 | 15,05 | 92,38 | 5,49 | 451,98 | 25 054 | 3,29 | 4 350,9 | 175,31 | 191,4 | 5864,8 | 295 487 | 7 760 882 | 312,18 | 0,729 | 0,800 | 0,980 |
| 6,40 | 26 199 | 44,67 | 14,93 | 92,40 | 5,46 | 453,67 | 25 489 | 3,34 | 4 357,8 | 175,28 | 194,5 | 5901,6 | 296 305 | 7 789 920 | 308,11 | 0,730 | 0,802 | 0,981 |
| 6,50 | 26 646 | 44,74 | 14,82 | 92,41 | 5,42 | 455,39 | 25 925 | 3,39 | 4 364,8 | 175,26 | 197,6 | 5938,6 | 297 128 | 7 819 354 | 304,18 | 0,731 | 0,803 | 0,981 |
| 6,60 | 27 093 | 44,81 | 14,71 | 92,43 | 5,37 | 457,12 | 26 361 | 3,44 | 4 371,7 | 175,24 | 200,7 | 5975,5 | 297 944 | 7 849 078 | 300,39 | 0,732 | 0,804 | 0,981 |
| 6,70 | 27 542 | 44,88 | 14,61 | 92,44 | 5,32 | 458,87 | 26 798 | 3,49 | 4 378,7 | 175,22 | 203,8 | 6012,6 | 298 763 | 7 879 183 | 296,72 | 0,733 | 0,806 | 0,981 |
| 6,80 | 27 992 | 44,95 | 14,51 | 92,45 | 5,27 | 460,65 | 27 237 | 3,55 | 4 385,7 | 175,20 | 206,9 | 6049,7 | 299 579 | 7 909 628 | 293,18 | 0,734 | 0,807 | 0,982 |
| 6,90 | 28 443 | 45,03 | 14,42 | 92,46 | 5,22 | 462,45 | 27 676 | 3,60 | 4 392,8 | 175,18 | 210,0 | 6087,0 | 300 397 | 7 940 678 | 289,76 | 0,735 | 0,809 | 0,982 |

| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7,00 | 28 894 | 45,10 | 14,34 | 92,47 | 5,16 | 464,28 | 28 116 | 3,65 | 4 399,9 | 175,17 | 213,1 | 6124,3 | 301 218 | 7 971 975 | 286,45 | 0,736 | 0,810 | 0,982 |
| 7,01 | 28 940 | 45,11 | 14,33 | 92,47 | 5,15 | 464,46 | 28 160 | 3,66 | 4 400,6 | 175,17 | 213,4 | 6128,0 | 301 300 | 7 975 131 | 286,13 | 0,736 | 0,810 | 0,982 |
| 7,02 | 28 985 | 45,11 | 14,32 | 92,47 | 5,14 | 464,65 | 28 204 | 3,66 | 4 401,3 | 175,17 | 213,7 | 6131,8 | 301 382 | 7 978 287 | 285,81 | 0,736 | 0,810 | 0,982 |
| 7,03 | 29 030 | 45,12 | 14,31 | 92,47 | 5,14 | 464,83 | 28 248 | 3,67 | 4 202,1 | 175,17 | 214,0 | 6135,5 | 301 464 | 7 981 443 | 285,49 | 0,736 | 0,810 | 0,982 |
| 7,04 | 29 075 | 45,13 | 14,30 | 92,48 | 5,13 | 465,02 | 28 292 | 3,67 | 4 402,8 | 175,17 | 214,3 | 6139,3 | 301 546 | 7 984 599 | 285,17 | 0,736 | 0,811 | 0,982 |
| 7,05 | 29 121 | 45,14 | 14,29 | 92,48 | 5,13 | 465,20 | 28 337 | 3,68 | 4 403,5 | 175,17 | 214,7 | 6143,0 | 301 629 | 7 987 756 | 284,85 | 0,737 | 0,811 | 0,982 |
| 7,06 | 29 166 | 45,14 | 14,28 | 92,48 | 5,12 | 465,39 | 28 381 | 3,68 | 4 404,2 | 175,16 | 215,0 | 6146,7 | 301 711 | 7 990 912 | 284,52 | 0,737 | 0,811 | 0,982 |
| 7,07 | 29 211 | 45,15 | 14,28 | 92,48 | 5,11 | 465,57 | 28 425 | 3,69 | 4 404,9 | 175,16 | 215,3 | 6150,5 | 301 793 | 7 994 068 | 284,20 | 0,737 | 0,811 | 0,982 |
| 7,08 | 29 256 | 45,16 | 14,27 | 92,48 | 5,11 | 465,75 | 28 469 | 3,69 | 4 405,7 | 175,16 | 215,6 | 6154,2 | 301 875 | 7 997 224 | 283,88 | 0,737 | 0,811 | 0,982 |
| 7,09 | 29 302 | 45,17 | 14,26 | 92,48 | 5,10 | 465,94 | 28 513 | 3,70 | 4 406,4 | 175,16 | 215,9 | 6158,0 | 301 957 | 8 000 380 | 283,56 | 0,737 | 0,811 | 0,982 |
| 7,10 | 29 347 | 45,17 | 14,25 | 92,48 | 5,09 | 466,11 | 28 557 | 3,70 | 4 407,1 | 175,16 | 216,2 | 6161,7 | 302 039 | 8 003 536 | 283,24 | 0,737 | 0,811 | 0,982 |
| 7,11 | 29 392 | 45,18 | 14,24 | 92,48 | 5,09 | 466,30 | 28 601 | 3,71 | 4 407,8 | 175,16 | 216,5 | 6165,4 | 302 122 | 8 006 777 | 282,93 | 0,737 | 0,812 | 0,982 |
| 7,12 | 29 437 | 45,19 | 14,24 | 92,48 | 5,08 | 466,49 | 28 645 | 3,71 | 4 408,5 | 175,16 | 216,8 | 6169,1 | 302 204 | 8 010 018 | 282,63 | 0,737 | 0,812 | 0,982 |
| 7,13 | 29 482 | 45,19 | 14,23 | 92,48 | 5,07 | 466,68 | 28 689 | 3,72 | 4 409,3 | 175,16 | 217,1 | 6172,9 | 302 287 | 8 013 260 | 282,32 | 0,737 | 0,812 | 0,982 |
| 7,14 | 28 528 | 45,20 | 14,22 | 92,48 | 5,07 | 466,87 | 28 733 | 3,72 | 4 410,0 | 175,16 | 217,4 | 6176,6 | 302 369 | 8 016 501 | 282,01 | 0,737 | 0,812 | 0,982 |
| 7,15 | 29 573 | 45,21 | 14,21 | 92,48 | 5,06 | 467,05 | 28 778 | 3,73 | 4 410,7 | 175,16 | 217,8 | 6180,3 | 302 452 | 8 019 742 | 281,71 | 0,738 | 0,812 | 0,982 |
| 7,16 | 29 618 | 45,22 | 14,20 | 92,48 | 5,05 | 467,24 | 28 822 | 3,73 | 4 411,4 | 175,15 | 218,1 | 6184,0 | 302 534 | 8 022 983 | 281,40 | 0,738 | 0,812 | 0,982 |
| 7,17 | 29 663 | 45,22 | 14,20 | 92,49 | 5,05 | 467,43 | 28 866 | 3,74 | 4 412,1 | 175,15 | 218,4 | 6187,7 | 302 617 | 8 026 224 | 281,09 | 0,738 | 0,812 | 0,982 |
| 7,18 | 29 708 | 45,23 | 14,19 | 92,49 | 5,04 | 467,62 | 28 910 | 3,74 | 4 412,9 | 175,15 | 218,7 | 6191,5 | 302 699 | 8 029 466 | 280,78 | 0,738 | 0,813 | 0,982 |
| 7,19 | 29 754 | 45,24 | 14,18 | 92,49 | 5,03 | 467,81 | 28 954 | 3,75 | 4 413,6 | 175,15 | 219,0 | 6195,2 | 302 782 | 8 032 707 | 280,48 | 0,738 | 0,813 | 0,982 |
| 7,20 | 29 799 | 45,25 | 14,17 | 92,49 | 5,02 | 468,00 | 28 998 | 3,75 | 4 414,3 | 175,15 | 219,3 | 6198,9 | 302 864 | 8 035 948 | 280,17 | 0,738 | 0,813 | 0,982 |
| 7,21 | 29 844 | 45,25 | 14,16 | 92,49 | 5,02 | 468,20 | 29 042 | 3,76 | 4 415,0 | 175,15 | 219,6 | 6202,6 | 302 947 | 8 039 266 | 279,87 | 0,738 | 0,813 | 0,982 |
| 7,22 | 29 889 | 45,26 | 14,16 | 92,49 | 5,01 | 468,39 | 29 086 | 3,76 | 4 415,8 | 175,15 | 219,9 | 6206,4 | 303 031 | 8 042 584 | 279,58 | 0,738 | 0,813 | 0,982 |
| 7,23 | 29 935 | 45,27 | 14,15 | 92,49 | 5,00 | 468,58 | 29 130 | 3,77 | 4 416,5 | 175,15 | 220,2 | 6210,1 | 303 114 | 8 045 902 | 279,28 | 0,738 | 0,813 | 0,982 |
| 7,24 | 29 980 | 45,28 | 14,14 | 92,49 | 5,00 | 468,77 | 29 174 | 3,77 | 4 417,3 | 175,15 | 220,5 | 6213,9 | 303 198 | 8 049 220 | 278,99 | 0,738 | 0,813 | 0,982 |
| 7,25 | 30 025 | 45,28 | 14,13 | 92,49 | 4,99 | 468,96 | 29 219 | 3,78 | 4 418,0 | 175,15 | 220,9 | 6217,6 | 303 281 | 8 052 538 | 278,69 | 0,739 | 0,814 | 0,983 |
| 7,26 | 30 070 | 45,29 | 14,13 | 92,49 | 4,98 | 469,16 | 29 263 | 3,79 | 4 418,7 | 175,15 | 221,2 | 6221,3 | 303 364 | 8 055 856 | 278,39 | 0,739 | 0,814 | 0,983 |
| 7,27 | 30 116 | 45,30 | 14,12 | 92,49 | 4,97 | 469,35 | 29 307 | 3,79 | 4 419,5 | 175,15 | 221,5 | 6225,1 | 303 448 | 8 059 174 | 278,10 | 0,739 | 0,814 | 0,983 |
| 7,28 | 30 161 | 45,31 | 14,11 | 92,49 | 4,97 | 469,54 | 29 351 | 3,80 | 4 420,2 | 175,15 | 221,8 | 6228,8 | 303 531 | 8 062 492 | 277,80 | 0,739 | 0,814 | 0,983 |
| 7,29 | 30 206 | 45,31 | 14,10 | 92,50 | 4,96 | 469,74 | 29 395 | 3,80 | 4 421,0 | 175,15 | 222,1 | 6232,6 | 303 615 | 8 065 810 | 277,51 | 0,739 | 0,814 | 0,983 |
| 7,30 | 30 252 | 45,32 | 14,10 | 92,50 | 4,95 | 469,93 | 29 439 | 3,81 | 4 421,7 | 175,15 | 222,4 | 6236,3 | 303 698 | 8 069 128 | 288,21 | 0,739 | 0,814 | 0,983 |
| 7,31 | 30 297 | 45,33 | 14,09 | 92,50 | 4,94 | 470,13 | 29 483 | 3,81 | 4 422,5 | 175,15 | 222,7 | 6240,1 | 303 782 | 8 072 529 | 286,93 | 0,739 | 0,814 | 0,983 |
| 7,32 | 30 342 | 45,34 | 14,08 | 92,50 | 4,93 | 470,33 | 29 527 | 3,82 | 4 423,2 | 175,15 | 223,0 | 6243,8 | 303 866 | 8 075 929 | 276,64 | 0,739 | 0,814 | 0,983 |
| 7,33 | 30 388 | 45,35 | 14,08 | 92,50 | 4,93 | 470,52 | 29 572 | 3,82 | 4 424,0 | 175,15 | 223,3 | 6247,6 | 303 951 | 8 079 330 | 276,36 | 0,739 | 0,815 | 0,983 |
| 7,34 | 30 433 | 45,35 | 14,07 | 92,50 | 4,92 | 470,72 | 29 616 | 3,83 | 4 424,7 | 175,15 | 223,6 | 6251,3 | 304 035 | 8 082 730 | 276,07 | 0,739 | 0,815 | 0,983 |
| 7,35 | 30 478 | 45,36 | 14,06 | 92,50 | 4,91 | 470,92 | 29 660 | 3,83 | 4 425,5 | 175,16 | 224,0 | 6255,1 | 304 119 | 8 086 131 | 275,79 | 0,740 | 0,815 | 0,983 |
| 7,36 | 30 524 | 45,37 | 14,05 | 92,50 | 4,90 | 471,12 | 29 704 | 3,84 | 4 426,2 | 175,16 | 224,3 | 6258,8 | 304 203 | 8 089 532 | 275,50 | 0,740 | 0,815 | 0,983 |
| 7,37 | 30 569 | 45,38 | 14,05 | 92,50 | 4,90 | 471,31 | 29 748 | 3,84 | 4 427,0 | 175,16 | 224,6 | 6262,6 | 304 287 | 8 092 932 | 275,22 | 0,740 | 0,815 | 0,983 |
| 7,38 | 30 615 | 45,38 | 14,04 | 92,50 | 4,89 | 471,51 | 29 793 | 3,85 | 4 427,7 | 175,16 | 224,9 | 6266,3 | 304 372 | 8 096 333 | 274,93 | 0,740 | 0,815 | 0,983 |
| 7,39 | 30 660 | 45,39 | 14,03 | 92,50 | 4,88 | 471,71 | 29 837 | 3,85 | 4 428,5 | 175,16 | 225,2 | 6270,1 | 304 456 | 8 099 733 | 274,65 | 0,740 | 0,815 | 0,983 |

| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7,40 | 30 705 | 45,40 | 14,03 | 92,50 | 4,87 | 471,92 | 29 881 | 3,86 | 4 429,2 | 175,16 | 225,5 | 6273,8 | 304 540 | 8 103 134 | 274,36 | 0,740 | 0,816 | 0,983 |
| 7,41 | 30 751 | 45,41 | 14,02 | 92,50 | 4,86 | 472,12 | 29 925 | 3,86 | 4 430,0 | 175,16 | 225,8 | 6277,6 | 304 626 | 8 106 630 | 274,09 | 0,740 | 0,816 | 0,983 |
| 7,42 | 30 796 | 45,41 | 14,01 | 92,50 | 4,85 | 472,32 | 29 970 | 3,87 | 4 430,7 | 175,16 | 226,1 | 6281,3 | 304 711 | 8 110 127 | 273,81 | 0,740 | 0,816 | 0,983 |
| 7,43 | 30 842 | 45,42 | 14,00 | 92,50 | 4,85 | 472,52 | 30 014 | 3,87 | 4 431,5 | 175,16 | 226,4 | 6285,1 | 304 797 | 8 113 623 | 273,54 | 0,740 | 0,816 | 0,983 |
| 7,44 | 30 887 | 45,43 | 14,00 | 92,50 | 4,84 | 47272 | 30 058 | 3,88 | 4 432,2 | 175,16 | 226,7 | 6288,9 | 304 882 | 8 117 120 | 273,26 | 0,740 | 0,816 | 0,983 |
| 7,45 | 30 932 | 45,44 | 13,99 | 92,50 | 4,83 | 472,93 | 30 103 | 3,88 | 4 433,0 | 175,17 | 227,1 | 6292,7 | 304 968 | 8 120 616 | 272,99 | 0,741 | 0,816 | 0,983 |
| 7,46 | 30 978 | 45,45 | 13,98 | 92,50 | 4,82 | 473,13 | 30 147 | 3,89 | 4 433,8 | 175,17 | 227,4 | 6296,4 | 305 053 | 8 124 112 | 272,71 | 0,741 | 0,816 | 0,983 |
| 7,47 | 31 023 | 45,45 | 13,98 | 92,51 | 4,81 | 473,34 | 30 191 | 3,89 | 4 434,5 | 175,17 | 227,7 | 6300,2 | 305 139 | 8 127 609 | 272,44 | 0,741 | 0,817 | 0,983 |
| 7,48 | 31 069 | 45,46 | 13,97 | 92,51 | 4,80 | 473,54 | 30 235 | 3,90 | 4 435,3 | 175,17 | 228,0 | 6304,0 | 305 224 | 8 131 105 | 272,16 | 0,741 | 0,817 | 0,983 |
| 7,49 | 31 114 | 45,47 | 13,96 | 92,51 | 4,80 | 473,75 | 30 280 | 3,90 | 4 436,0 | 175,17 | 228,3 | 6307,7 | 305 310 | 8 134 602 | 271,89 | 0,741 | 0,817 | 0,983 |
| 7,50 | 31 160 | 45,48 | 13,96 | 92,51 | 4,79 | 473,95 | 30 324 | 3,91 | 4 436,8 | 175,17 | 228,6 | 6311,5 | 305 395 | 8 138 098 | 271,61 | 0,741 | 0,817 | 0,983 |
| 7,51 | 31 205 | 45,49 | 13,95 | 92,51 | 4,78 | 474,16 | 30 368 | 3,92 | 4 437,6 | 175,17 | 228,9 | 6315,3 | 305 482 | 8 141 696 | 271,35 | 0,741 | 0,817 | 0,983 |
| 7,52 | 31 251 | 45,49 | 13,94 | 92,51 | 4,77 | 474,37 | 30 413 | 3,92 | 4 438,4 | 175,17 | 229,2 | 6319,1 | 305 568 | 8 145 294 | 271,08 | 0,741 | 0,817 | 0,983 |
| 7,53 | 31 296 | 45,50 | 13,94 | 92,51 | 4,76 | 474,57 | 30 457 | 3,93 | 4 439,2 | 175,17 | 229,5 | 6322,8 | 305 655 | 8 148 892 | 270,82 | 0,741 | 0,817 | 0,983 |
| 7,54 | 31 342 | 45,51 | 13,93 | 92,51 | 4,75 | 474,78 | 30 502 | 3,93 | 4 440,0 | 175,17 | 229,8 | 6326,6 | 305 741 | 8 152 490 | 270,56 | 0,741 | 0,818 | 0,983 |
| 7,55 | 31 387 | 45,52 | 13,93 | 92,51 | 4,74 | 474,99 | 30 546 | 3,94 | 4 440,8 | 175,18 | 230,2 | 6330,4 | 305 828 | 8 156 088 | 270,30 | 0,742 | 0,818 | 0,983 |
| 7,56 | 31 433 | 45,53 | 13,92 | 92,51 | 4,73 | 475,20 | 30 590 | 3,94 | 4 441,5 | 175,18 | 230,5 | 6334,2 | 305 914 | 8 159 686 | 270,03 | 0,742 | 0,818 | 0,983 |
| 7,57 | 31 478 | 45,53 | 13,91 | 92,51 | 4,72 | 475,41 | 30 635 | 3,95 | 4 442,3 | 175,18 | 230,8 | 6338,0 | 306 001 | 8 163 284 | 269,77 | 0,742 | 0,818 | 0,983 |
| 7,58 | 31 524 | 45,54 | 13,91 | 92,51 | 4,72 | 475,62 | 30 679 | 3,95 | 4 443,1 | 175,18 | 231,1 | 6341,7 | 306 087 | 8 166 882 | 269,51 | 0,742 | 0,818 | 0,983 |
| 7,59 | 31 569 | 45,55 | 13,9 | 92,51 | 4,71 | 475,83 | 30 724 | 3,96 | 4 443,9 | 175,18 | 231,4 | 6345,5 | 306 174 | 8 170 480 | 269,24 | 0,742 | 0,818 | 0,983 |
| 7,60 | 31 615 | 45,56 | 13,89 | 92,51 | 4,70 | 476,05 | 30 768 | 3,96 | 4 444,7 | 175,18 | 231,7 | 6349,3 | 306 260 | 8 174 078 | 268,98 | 0,742 | 0,818 | 0,983 |
| 7,61 | 31 660 | 45,57 | 13,89 | 92,51 | 4,69 | 476,26 | 30 812 | 3,97 | 4 445,5 | 175,18 | 232,0 | 6353,1 | 306 348 | 8 177 732 | 268,73 | 0,742 | 0,819 | 0,983 |
| 7,62 | 31 706 | 45,57 | 13,88 | 92,51 | 4,68 | 476,47 | 30 857 | 3,97 | 4 446,3 | 175,18 | 232,3 | 6357,0 | 306 436 | 8 181 387 | 268,47 | 0,742 | 0,819 | 0,983 |
| 7,63 | 31 752 | 45,58 | 13,87 | 92,51 | 4,67 | 476,69 | 30 901 | 3,98 | 4 447,1 | 175,19 | 232,6 | 6360,8 | 306 525 | 8 185 041 | 268,22 | 0,742 | 0,819 | 0,983 |
| 7,64 | 31 797 | 45,59 | 13,87 | 92,51 | 4,66 | 476,90 | 30 946 | 3,98 | 4 447,9 | 175,19 | 232,9 | 6364,6 | 306 613 | 8 188 695 | 267,96 | 0,742 | 0,819 | 0,983 |
| 7,65 | 31 843 | 45,60 | 13,86 | 92,51 | 4,65 | 477,12 | 30 990 | 3,99 | 4 448,7 | 175,19 | 233,3 | 6368,5 | 603 701 | 8 192 350 | 267,71 | 0,743 | 0,819 | 0,983 |
| 7,66 | 31 888 | 45,61 | 13,86 | 92,51 | 4,64 | 477,34 | 31 034 | 3,99 | 4 449,4 | 175,19 | 233,6 | 6372,3 | 306 789 | 8 196 004 | 267,45 | 0,743 | 0,819 | 0,983 |
| 7,67 | 31 934 | 45,62 | 13,85 | 92,51 | 4,63 | 477,56 | 31 079 | 4,00 | 4 450,2 | 175,19 | 233,9 | 6376,1 | 306 877 | 8 199 658 | 267,20 | 0,743 | 0,819 | 0,983 |
| 7,68 | 31 980 | 45,62 | 13,84 | 92,51 | 4,62 | 477,78 | 31 123 | 4,00 | 4 451,0 | 175,20 | 234,2 | 6379,9 | 306 966 | 8 202 312 | 266,94 | 0,743 | 0,820 | 0,983 |
| 7,69 | 32 025 | 45,63 | 13,84 | 92,51 | 4,61 | 477,96 | 31 168 | 4,01 | 4 451,8 | 175,20 | 234,5 | 6383,8 | 307 054 | 8 206 967 | 266,69 | 0,743 | 0,820 | 0,983 |
| 7,70 | 32 071 | 45,64 | 13,83 | 92,51 | 4,60 | 478,18 | 31 212 | 4,01 | 4 452,6 | 175,20 | 234,8 | 6387,6 | 307 142 | 8 210 621 | 266,43 | 0,743 | 0,820 | 0,983 |
| 7,71 | 32 116 | 45,65 | 13,83 | 92,51 | 4,59 | 478,39 | 31 257 | 4,02 | 4 453,4 | 175,20 | 235,1 | 6391,4 | 307 232 | 8 214 454 | 266,19 | 0,743 | 0,820 | 0,983 |
| 7,72 | 32 162 | 45,66 | 13,82 | 92,51 | 4,58 | 478,61 | 31 301 | 4,02 | 4 454,2 | 175,20 | 235,4 | 6395,3 | 307 321 | 8 218 286 | 265,95 | 0,743 | 0,820 | 0,983 |
| 7,73 | 32 208 | 45,66 | 13,82 | 92,51 | 4,57 | 478,84 | 31 346 | 4,03 | 4 455,1 | 175,21 | 235,7 | 6399,1 | 307 411 | 8 222 119 | 265,70 | 0,743 | 0,820 | 0,983 |
| 7,74 | 32 253 | 45,67 | 13,81 | 92,51 | 4,56 | 479,06 | 31 390 | 4,03 | 4 455,9 | 175,21 | 236,0 | 6402,9 | 307 500 | 8 225 952 | 265,46 | 0,743 | 0,820 | 0,983 |
| 7,75 | 32 299 | 45,68 | 13,80 | 92,51 | 4,55 | 479,28 | 31 435 | 4,04 | 4 456,7 | 175,21 | 236,4 | 6406,8 | 307 590 | 8 229 785 | 265,22 | 0,744 | 0,821 | 0,984 |
| 7,76 | 32 345 | 45,69 | 13,80 | 92,51 | 4,54 | 479,51 | 31 479 | 4,05 | 4 457,5 | 175,21 | 236,7 | 6410,6 | 307 680 | 8 233 617 | 264,98 | 0,744 | 0,821 | 0,984 |
| 7,77 | 32 390 | 45,70 | 13,79 | 92,51 | 4,53 | 479,73 | 31 524 | 4,05 | 4 458,3 | 175,21 | 237,0 | 6414,4 | 307 769 | 8 237 450 | 264,74 | 0,744 | 0,821 | 0,984 |
| 7,78 | 32 436 | 45,71 | 13,79 | 92,51 | 4,52 | 479,96 | 31 568 | 4,06 | 4 459,2 | 175,22 | 237,3 | 6418,2 | 307 859 | 8 241 283 | 264,49 | 0,744 | 0,821 | 0,984 |
| 7,79 | 32 482 | 45,71 | 13,78 | 92,51 | 4,51 | 480,18 | 31 613 | 4,06 | 4 460,0 | 175,22 | 237,6 | 6422,1 | 307 948 | 8 245 115 | 264,25 | 0,744 | 0,821 | 0,984 |

| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7,80 | 32 528 | 45,72 | 13,78 | 92,51 | 4,50 | 480,41 | 31 657 | 4,07 | 4 460,8 | 175,22 | 237,9 | 6425,9 | 308 038 | 8 248 948 | 264,01 | 0,744 | 0,821 | 0,984 |
| 7,81 | 32 573 | 45,73 | 13,77 | 92,51 | 4,49 | 480,64 | 31 702 | 4,07 | 4 461,6 | 175,22 | 238,2 | 6429,7 | 308 129 | 8 252 910 | 263,78 | 0,744 | 0,821 | 0,984 |
| 7,82 | 32 619 | 45,74 | 13,76 | 92,51 | 4,48 | 480,86 | 31 746 | 4,08 | 4 462,5 | 175,23 | 238,5 | 6433,6 | 308 221 | 8 256 872 | 263,54 | 0,744 | 0,821 | 0,984 |
| 7,83 | 32 665 | 45,75 | 13,76 | 92,51 | 4,47 | 481,09 | 31 791 | 4,08 | 4 463,3 | 175,23 | 238,8 | 6437,4 | 308 312 | 8 260 834 | 263,31 | 0,744 | 0,822 | 0,984 |
| 7,84 | 32 711 | 45,76 | 13,75 | 92,51 | 4,46 | 481,33 | 31 835 | 4,09 | 4 464,2 | 175,23 | 239,1 | 6441,3 | 308 404 | 8 264 796 | 263,08 | 0,744 | 0,822 | 0,984 |
| 7,85 | 32 756 | 45,77 | 13,75 | 92,51 | 4,45 | 481,56 | 31 880 | 4,09 | 4 465,0 | 175,24 | 239,5 | 6445,1 | 308 495 | 8 268 759 | 262,85 | 0,745 | 0,822 | 0,984 |
| 7,86 | 32 802 | 45,77 | 13,74 | 92,51 | 4,44 | 481,79 | 31 925 | 4,10 | 4 465,8 | 175,24 | 239,8 | 6448,9 | 308 586 | 8 272 721 | 262,61 | 0,745 | 0,822 | 0,984 |
| 7,87 | 32 848 | 45,78 | 13,74 | 92,51 | 4,43 | 482,02 | 31 969 | 4,10 | 4 466,7 | 175,24 | 240,1 | 6452,8 | 308 678 | 8 276 683 | 262,38 | 0,745 | 0,822 | 0,984 |
| 7,88 | 32 894 | 45,79 | 13,73 | 92,51 | 4,42 | 482,25 | 32 014 | 4,11 | 4 467,5 | 175,24 | 240,4 | 6456,6 | 308 769 | 8 280 645 | 262,15 | 0,745 | 0,822 | 0,984 |
| 7,89 | 32 939 | 45,80 | 13,73 | 92,51 | 4,40 | 482,48 | 32 058 | 4,11 | 4 468,4 | 172,25 | 240,7 | 6460,5 | 308 861 | 8 284 607 | 261,91 | 0,745 | 0,822 | 0,984 |
| 7,90 | 32 985 | 45,81 | 13,72 | 92,51 | 4,39 | 482,71 | 32 103 | 4,12 | 4 469,2 | 172,25 | 241,0 | 6464,3 | 308 952 | 8 288 569 | 261,68 | 0,745 | 0,823 | 0,984 |
| 7,91 | 33 031 | 45,82 | 13,72 | 92,51 | 4,38 | 482,95 | 32 148 | 4,12 | 4 470,1 | 172,25 | 241,3 | 6468,2 | 309 045 | 8 292 644 | 261,46 | 0,745 | 0,823 | 0,984 |
| 7,92 | 33 077 | 45,83 | 13,71 | 92,51 | 4,37 | 483,18 | 32 192 | 4,13 | 4 470,9 | 175,26 | 241,6 | 6472,0 | 309 139 | 8 296 719 | 261,23 | 0,745 | 0,823 | 0,984 |
| 7,93 | 33 123 | 45,84 | 13,71 | 92,51 | 4,36 | 483,42 | 32 237 | 4,13 | 4 471,8 | 175,26 | 241,9 | 6475,9 | 309 232 | 8 300 794 | 261,01 | 0,745 | 0,823 | 0,984 |
| 7,94 | 33 169 | 45,84 | 13,70 | 92,51 | 4,35 | 483,66 | 32 282 | 4,14 | 4 472,6 | 175,27 | 242,2 | 6479,7 | 309 326 | 8 304 869 | 260,79 | 0,745 | 0,823 | 0,984 |
| 7,95 | 33 214 | 45,85 | 13,70 | 92,51 | 4,34 | 483,89 | 32 327 | 4,14 | 4 473,5 | 175,27 | 242,6 | 6483,6 | 309 419 | 8 308 944 | 260,57 | 0,746 | 0,823 | 0,984 |
| 7,96 | 33 260 | 45,86 | 13,69 | 92,51 | 4,33 | 484,13 | 32 371 | 4,15 | 4 474,4 | 175,27 | 242,9 | 6487,5 | 309 512 | 8 313 018 | 260,34 | 0,746 | 0,823 | 0,984 |
| 7,97 | 33 306 | 45,87 | 13,69 | 92,51 | 4,32 | 484,37 | 32 416 | 4,15 | 4 475,2 | 175,28 | 243,2 | 6491,3 | 309 606 | 8 317 093 | 260,12 | 0,746 | 0,824 | 0,984 |
| 7,98 | 33 352 | 45,88 | 13,68 | 92,51 | 4,30 | 484,61 | 32 461 | 4,16 | 4 476,1 | 175,28 | 243,5 | 6495,2 | 309 699 | 8 321 168 | 259,90 | 0,746 | 0,824 | 0,984 |
| 7,99 | 33 398 | 45,89 | 13,68 | 92,51 | 4,29 | 484,84 | 32 505 | 4,16 | 4 476,9 | 175,29 | 243,8 | 6499,0 | 309 793 | 8 325 243 | 259,67 | 0,746 | 0,824 | 0,984 |
| 8,00 | 33 444 | 45,90 | 13,67 | 92,51 | 4,28 | 485,09 | 32 550 | 4,17 | 4 477,8 | 175,29 | 244,1 | 6502,9 | 309 886 | 8 329 318 | 259,45 | 0,746 | 0,824 | 0,984 |
| 8,01 | 33 490 | 45,91 | 13,67 | 92,51 | 4,27 | 485,33 | 32 595 | 4,18 | 4 478,7 | 175,29 | 244,4 | 6506,8 | 309 980 | 8 333 469 | 259,24 | 0,746 | 0,824 | 0,984 |
| 8,02 | 33 536 | 45,92 | 13,66 | 92,51 | 4,26 | 485,57 | 32 640 | 4,18 | 4 479,5 | 175,30 | 244,7 | 6510,7 | 310 074 | 8 337 620 | 259,02 | 0,746 | 0,824 | 0,984 |
| 8,03 | 33 582 | 45,92 | 13,66 | 92,51 | 4,25 | 485,81 | 32 684 | 4,19 | 4 480,4 | 175,30 | 245,0 | 6514,5 | 310 168 | 8 341 771 | 258,81 | 0,746 | 0,824 | 0,984 |
| 8,04 | 33 628 | 45,93 | 13,65 | 92,51 | 4,23 | 486,05 | 32 729 | 4,19 | 4 481,3 | 175,31 | 245,3 | 6518,4 | 310 262 | 8 345 922 | 258,59 | 0,746 | 0,825 | 0,984 |
| 8,05 | 33 673 | 45,94 | 13,65 | 92,51 | 4,22 | 486,29 | 32 774 | 4,20 | 4 482,2 | 175,31 | 245,7 | 6522,3 | 310 357 | 8 350 073 | 258,38 | 0,746 | 0,825 | 0,985 |
| 8,06 | 33 719 | 45,95 | 13,64 | 92,51 | 4,21 | 486,53 | 32 819 | 4,20 | 4 483,0 | 175,31 | 246,0 | 6526,2 | 310 451 | 8 354 224 | 258,16 | 0,746 | 0,825 | 0,985 |
| 8,07 | 33 765 | 45,96 | 13,64 | 92,51 | 4,20 | 486,77 | 32 864 | 4,21 | 4 483,9 | 175,32 | 246,3 | 6530,1 | 310 545 | 8 358 375 | 257,95 | 0,747 | 0,825 | 0,985 |
| 8,08 | 33 811 | 45,97 | 13,63 | 92,51 | 4,19 | 487,02 | 32 908 | 4,21 | 4 484,8 | 175,32 | 246,6 | 6533,9 | 310 639 | 8 362 526 | 257,73 | 0,747 | 0,825 | 0,985 |
| 8,09 | 33 857 | 45,98 | 13,63 | 92,51 | 4,17 | 487,26 | 32 953 | 4,22 | 4 485,6 | 175,33 | 246,9 | 6537,8 | 310 733 | 8 366 677 | 257,52 | 0,747 | 0,825 | 0,985 |
| 8,10 | 33 903 | 45,99 | 13,62 | 92,51 | 4,16 | 487,51 | 32 998 | 4,22 | 4 486,5 | 175,33 | 247,2 | 6541,7 | 310 827 | 8 370 828 | 257,30 | 0,747 | 0,825 | 0,985 |
| 8,11 | 33 949 | 46,00 | 13,62 | 92,51 | 4,15 | 487,75 | 33 043 | 4,23 | 4 487,4 | 175,33 | 247,5 | 6545,6 | 310 923 | 8 375 081 | 257,09 | 0,747 | 0,826 | 0,985 |
| 8,12 | 33 995 | 46,00 | 13,61 | 92,50 | 4,14 | 488,00 | 33 088 | 4,23 | 4 488,3 | 175,34 | 247,8 | 6549,5 | 311 019 | 8 379 335 | 256,89 | 0,747 | 0,826 | 0,985 |
| 8,13 | 34 041 | 46,01 | 13,61 | 92,50 | 4,13 | 488,24 | 33 133 | 4,24 | 4 489,2 | 175,34 | 248,1 | 6553,4 | 311 115 | 8 383 588 | 256,68 | 0,747 | 0,826 | 0,985 |
| 8,14 | 34 087 | 46,02 | 13,61 | 92,50 | 4,11 | 488,49 | 33 178 | 4,25 | 4 490,1 | 175,35 | 248,4 | 6557,3 | 311 211 | 8 387 841 | 256,47 | 0,747 | 0,826 | 0,985 |
| 8,15 | 34 133 | 46,03 | 13,60 | 92,50 | 4,10 | 488,73 | 33 223 | 4,25 | 4 491,0 | 175,35 | 248,8 | 6561,2 | 311 307 | 8 392 095 | 256,27 | 0,747 | 0,826 | 0,985 |
| 8,16 | 34 179 | 46,04 | 13,60 | 92,50 | 4,09 | 488,98 | 33 267 | 4,26 | 4 491,8 | 175,35 | 249,1 | 6565,1 | 311 402 | 8 396 348 | 256,06 | 0,747 | 0,826 | 0,985 |
| 8,17 | 34 226 | 46,05 | 13,59 | 92,50 | 4,08 | 489,23 | 33 312 | 4,26 | 4 492,7 | 175,36 | 249,4 | 6569,0 | 311 498 | 8 400 601 | 255,85 | 0,747 | 0,826 | 0,985 |
| 8,18 | 34 272 | 46,06 | 13,59 | 92,50 | 4,07 | 489,48 | 33 357 | 4,27 | 4 493,6 | 175,36 | 249,7 | 6572,9 | 311 594 | 8 404 854 | 255,64 | 0,747 | 0,827 | 0,985 |
| 8,19 | 34 318 | 46,07 | 13,58 | 92,50 | 4,05 | 489,73 | 33 402 | 4,27 | 4 494,5 | 175,37 | 250,0 | 6576,8 | 311 690 | 8 409 108 | 255,44 | 0,748 | 0,827 | 0,985 |

| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,20 | 34 364 | 46,08 | 13,58 | 92,50 | 4,04 | 489,98 | 33 447 | 4,28 | 4 495,4 | 175,37 | 250,3 | 6580,7 | 311 786 | 8 413 361 | 255,23 | 0,748 | 0,827 | 0,985 |
| 8,21 | 34 410 | 46,09 | 13,57 | 92,50 | 4,03 | 490,23 | 33 492 | 4,28 | 4 496,3 | 175,38 | 250,6 | 6584,6 | 311 884 | 8 417 760 | 255,03 | 0,748 | 0,827 | 0,985 |
| 8,22 | 34 456 | 46,10 | 13,57 | 92,50 | 4,02 | 490,49 | 33 537 | 4,29 | 4 497,2 | 175,38 | 250,9 | 6588,6 | 311 981 | 8 422 158 | 254,83 | 0,748 | 0,827 | 0,985 |
| 8,23 | 34 502 | 46,11 | 13,57 | 92,50 | 4,00 | 490,74 | 33 582 | 4,29 | 4 498,1 | 175,39 | 251,2 | 6592,5 | 312 079 | 8 426 557 | 254,64 | 0,748 | 0,827 | 0,985 |
| 8,24 | 34 548 | 46,11 | 13,56 | 92,50 | 3,99 | 491,00 | 33 627 | 4,30 | 4 499,0 | 175,39 | 251,5 | 6596,4 | 312 176 | 8 430 955 | 254,44 | 0,748 | 0,827 | 0,985 |
| 8,25 | 34 594 | 46,12 | 13,56 | 92,50 | 3,98 | 491,25 | 33 672 | 4,31 | 4 500,0 | 175,40 | 251,9 | 6600,4 | 312 274 | 8 435 354 | 254,24 | 0,748 | 0,828 | 0,985 |
| 8,26 | 34 640 | 46,13 | 13,55 | 92,50 | 3,96 | 491,51 | 33 716 | 4,31 | 4 500,9 | 175,41 | 251,2 | 6604,3 | 312 371 | 8 439 753 | 254,04 | 0,748 | 0,828 | 0,985 |
| 8,27 | 34 687 | 46,14 | 13,55 | 92,50 | 3,95 | 491,77 | 33 761 | 4,32 | 4 501,8 | 175,41 | 250,5 | 6608,2 | 312 469 | 8 444 151 | 253,84 | 0,748 | 0,828 | 0,985 |
| 8,28 | 34 733 | 46,15 | 13,55 | 92,49 | 3,94 | 492,02 | 33 806 | 4,32 | 4 502,7 | 175,42 | 249,8 | 6612,1 | 312 566 | 8 448 550 | 253,65 | 0,748 | 0,828 | 0,985 |
| 8,29 | 34 779 | 46,16 | 13,54 | 92,49 | 3,93 | 492,29 | 33 851 | 4,33 | 4 503,6 | 175,42 | 249,1 | 6616,1 | 312 664 | 8 452 948 | 253,45 | 0,748 | 0,828 | 0,985 |
| 8,30 | 34 825 | 46,17 | 13,54 | 92,49 | 3,91 | 492,54 | 33 896 | 4,33 | 4 504,5 | 175,43 | 248,4 | 6620,0 | 312 761 | 8 457 347 | 253,25 | 0,748 | 0,828 | 0,985 |
| 8,31 | 34 871 | 46,18 | 13,53 | 92,49 | 3,90 | 492,80 | 33 941 | 4,34 | 4 505,4 | 175,44 | 247,7 | 6624,0 | 312 861 | 8 461 876 | 253,06 | 0,748 | 0,828 | 0,985 |
| 8,32 | 34 917 | 46,19 | 13,53 | 92,49 | 3,89 | 493,07 | 33 986 | 4,34 | 4 506,4 | 175,44 | 247,0 | 6628,0 | 312 961 | 8 466 406 | 252,87 | 0,749 | 0,828 | 0,985 |
| 8,33 | 34 964 | 46,20 | 13,52 | 92,49 | 3,87 | 493,33 | 34 031 | 4,35 | 4 507,3 | 175,45 | 246,3 | 6631,9 | 313 060 | 8 470 935 | 252,68 | 0,749 | 0,829 | 0,985 |
| 8,34 | 35 010 | 46,21 | 13,52 | 92,49 | 3,86 | 493,59 | 34 076 | 4,35 | 4 508,2 | 175,45 | 245,6 | 6635,9 | 313 160 | 8 475 465 | 252,49 | 0,749 | 0,829 | 0,985 |
| 8,35 | 35 056 | 46,22 | 13,52 | 92,49 | 3,85 | 493,85 | 34 122 | 4,36 | 4 509,2 | 175,46 | 255,0 | 6639,9 | 313 260 | 8 479 994 | 252,31 | 0,749 | 0,829 | 0,985 |
| 8,36 | 35 102 | 46,23 | 13,51 | 92,49 | 3,83 | 494,12 | 34 167 | 4,36 | 4 510,1 | 175,47 | 255,3 | 6643,9 | 313 360 | 8 484 523 | 252,12 | 0,749 | 0,829 | 0,985 |
| 8,37 | 35 149 | 46,24 | 13,51 | 92,49 | 3,82 | 494,38 | 34 212 | 4,37 | 4 511,0 | 175,47 | 255,6 | 6647,9 | 313 460 | 8 489 053 | 251,93 | 0,749 | 0,829 | 0,985 |
| 8,38 | 35 195 | 46,25 | 13,51 | 92,49 | 3,81 | 494,65 | 34 257 | 4,38 | 4 511,9 | 175,48 | 255,9 | 6651,8 | 313 559 | 8 493 582 | 251,74 | 0,749 | 0,829 | 0,985 |
| 8,39 | 35 241 | 46,26 | 13,50 | 92,49 | 3,79 | 494,91 | 34 302 | 4,38 | 4 512,9 | 175,48 | 256,2 | 6655,8 | 313 659 | 8 498 112 | 251,55 | 0,749 | 0,829 | 0,985 |
| 8,40 | 35 287 | 46,27 | 13,50 | 92,48 | 3,78 | 495,18 | 34 347 | 4,39 | 4 513,8 | 175,49 | 256,5 | 6659,8 | 313 759 | 8 502 641 | 251,36 | 0,749 | 0,830 | 0,985 |
| 8,41 | 35 334 | 46,28 | 13,49 | 92,48 | 3,77 | 495,45 | 34 392 | 4,39 | 4 514,8 | 175,50 | 256,8 | 6663,8 | 313 861 | 8 507 391 | 251,18 | 0,749 | 0,830 | 0,985 |
| 8,42 | 35 380 | 46,29 | 13,49 | 92,48 | 3,75 | 495,72 | 34 437 | 4,40 | 4 515,7 | 175,50 | 257,1 | 6667,8 | 313 963 | 8 512 141 | 251,00 | 0,749 | 0,830 | 0,985 |
| 8,43 | 35 426 | 46,30 | 13,49 | 92,48 | 3,74 | 496,00 | 34 482 | 4,40 | 4 516,7 | 175,51 | 257,4 | 6671,9 | 314 065 | 8 516 891 | 250,83 | 0,749 | 0,830 | 0,985 |
| 8,44 | 35 473 | 46,31 | 13,48 | 92,48 | 3,72 | 496,27 | 34 527 | 4,41 | 4 517,7 | 175,52 | 257,7 | 6675,9 | 314 167 | 8 521 641 | 250,65 | 0,750 | 0,830 | 0,985 |
| 8,45 | 35 519 | 46,32 | 13,48 | 92,48 | 3,71 | 496,54 | 34 573 | 4,41 | 4 518,7 | 175,53 | 258,1 | 6679,9 | 314 270 | 8 526 392 | 250,47 | 0,750 | 0,830 | 0,985 |
| 8,46 | 35 565 | 46,33 | 13,48 | 92,48 | 3,70 | 496,82 | 34 618 | 4,42 | 4 519,6 | 175,53 | 258,4 | 6683,9 | 314 372 | 8 531 142 | 250,29 | 0,750 | 0,830 | 0,985 |
| 8,47 | 35 612 | 46,34 | 13,47 | 92,48 | 3,68 | 497,10 | 34 663 | 4,42 | 4 520,6 | 175,54 | 258,7 | 6687,9 | 314 474 | 8 535 892 | 250,11 | 0,750 | 0,831 | 0,985 |
| 8,48 | 35 658 | 46,35 | 13,47 | 92,48 | 3,67 | 497,38 | 34 708 | 4,43 | 4 521,6 | 175,55 | 259,0 | 6692,0 | 314 576 | 8 540 642 | 249,94 | 0,750 | 0,831 | 0,985 |
| 8,49 | 35 704 | 46,36 | 13,47 | 92,48 | 3,65 | 497,66 | 34 753 | 4,43 | 4 522,5 | 175,55 | 259,3 | 6696,0 | 314 678 | 8 545 392 | 249,76 | 0,750 | 0,831 | 0,985 |
| 8,50 | 35 751 | 46,37 | 13,46 | 92,47 | 3,64 | 497,95 | 34 798 | 4,44 | 4 523,5 | 175,56 | 259,6 | 6700,0 | 314 780 | 8 550 142 | 249,58 | 0,750 | 0,831 | 0,985 |
| 8,51 | 35 797 | 46,38 | 13,46 | 92,47 | 3,62 | 498,24 | 34 843 | 4,45 | 4 524,5 | 175,57 | 259,9 | 6704,1 | 314 884 | 8 555 188 | 249,41 | 0,750 | 0,831 | 0,985 |
| 8,52 | 35 843 | 46,39 | 13,45 | 92,47 | 3,61 | 498,53 | 34 889 | 4,45 | 4 525,5 | 175,58 | 260,2 | 6708,1 | 314 989 | 8 560 234 | 249,25 | 0,750 | 0,831 | 0,985 |
| 8,53 | 35 890 | 46,40 | 13,45 | 92,47 | 3,59 | 498,82 | 34 934 | 4,46 | 4 526,5 | 175,58 | 260,5 | 6712,2 | 315 093 | 8 565 280 | 249,08 | 0,750 | 0,831 | 0,985 |
| 8,54 | 35 936 | 46,41 | 13,45 | 92,47 | 3,58 | 499,11 | 34 979 | 4,46 | 4 527,5 | 175,59 | 260,8 | 6716,3 | 315 198 | 8 570 326 | 248,91 | 0,750 | 0,832 | 0,985 |
| 8,55 | 35 983 | 46,42 | 13,44 | 92,47 | 3,56 | 499,40 | 35 025 | 4,47 | 4 528,6 | 175,60 | 261,2 | 6720,4 | 315 302 | 8 575 373 | 248,75 | 0,751 | 0,832 | 0,985 |
| 8,56 | 36 029 | 46,43 | 13,44 | 92,47 | 3,55 | 499,70 | 35 070 | 4,47 | 4 529,6 | 175,61 | 261,5 | 6724,4 | 315 406 | 8 580 419 | 248,58 | 0,751 | 0,832 | 0,985 |
| 8,57 | 36 076 | 46,44 | 13,44 | 92,47 | 3,53 | 499,99 | 35 115 | 4,48 | 4 530,6 | 175,62 | 261,8 | 6728,5 | 315 511 | 8 585 465 | 248,41 | 0,751 | 0,832 | 0,985 |
| 8,58 | 36 122 | 46,45 | 13,43 | 92,47 | 3,52 | 500,29 | 35 160 | 4,48 | 4 531,6 | 175,62 | 262,1 | 6732,6 | 315 615 | 8 590 511 | 248,24 | 0,751 | 0,832 | 0,985 |
| 8,59 | 36 168 | 46,46 | 13,43 | 92,46 | 3,50 | 500,59 | 35 206 | 4,49 | 4 532,6 | 175,63 | 262,4 | 6736,6 | 315 720 | 8 595 557 | 248,08 | 0,751 | 0,832 | 0,985 |

| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8,60 | 36 215 | 46,47 | 13,43 | 92,46 | 3,48 | 500,89 | 35 251 | 4,49 | 4 533,6 | 175,64 | 262,7 | 6740,7 | 315 824 | 8 600 603 | 247,91 | 0,751 | 0,833 | 0,985 |
| 8,61 | 36 261 | 46,48 | 13,43 | 92,46 | 3,47 | 501,19 | 35 296 | 4,50 | 4 534,7 | 175,65 | 263,0 | 6744,8 | 315 932 | 8 606 015 | 247,76 | 0,751 | 0,833 | 0,985 |
| 8,62 | 36 308 | 46,49 | 13,42 | 92,46 | 3,45 | 501,52 | 35 342 | 4,50 | 4 535,7 | 175,66 | 263,3 | 6749,0 | 316 039 | 8 611 427 | 247,61 | 0,751 | 0,833 | 0,985 |
| 8,63 | 36 354 | 46,50 | 13,42 | 92,46 | 3,44 | 501,83 | 35 387 | 4,51 | 4 536,8 | 175,67 | 263,6 | 6753,1 | 316 147 | 8 616 839 | 247,45 | 0,751 | 0,833 | 0,985 |
| 8,64 | 36 401 | 46,51 | 13,42 | 92,46 | 3,42 | 502,14 | 35 432 | 4,51 | 4 537,9 | 175,68 | 263,9 | 6757,2 | 316 254 | 8 622 251 | 247,30 | 0,751 | 0,833 | 0,985 |
| 8,65 | 36 447 | 46,52 | 13,41 | 92,46 | 3,40 | 502,45 | 35 478 | 4,52 | 4 539,0 | 175,69 | 264,3 | 6761,4 | 316 362 | 8 627 664 | 247,15 | 0,752 | 0,833 | 0,985 |
| 8,66 | 36 494 | 46,54 | 13,41 | 92,45 | 3,39 | 502,76 | 35 523 | 4,52 | 4 540,0 | 175,70 | 264,6 | 6765,5 | 316 469 | 8 633 076 | 247,00 | 0,752 | 0,834 | 0,985 |
| 8,67 | 36 541 | 46,55 | 13,41 | 92,45 | 3,37 | 503,08 | 35 568 | 4,53 | 4 541,1 | 175,71 | 264,9 | 6769,6 | 316 577 | 8 638 488 | 246,85 | 0,752 | 0,834 | 0,985 |
| 8,68 | 36 587 | 46,56 | 13,40 | 92,45 | 3,35 | 503,40 | 35 613 | 4,53 | 4 542,2 | 175,72 | 265,2 | 6773,7 | 316 684 | 8 643 900 | 246,69 | 0,752 | 0,834 | 0,985 |
| 8,69 | 36 634 | 46,57 | 13,40 | 92,45 | 3,34 | 503,72 | 35 659 | 4,54 | 4 543,2 | 175,73 | 265,5 | 6777,9 | 316 792 | 8 649 312 | 246,54 | 0,752 | 0,834 | 0,985 |
| 8,70 | 36 680 | 46,58 | 13,40 | 92,45 | 3,32 | 504,04 | 35 704 | 4,54 | 4 544,3 | 175,74 | 265,8 | 6782,0 | 316 899 | 8 654 724 | 246,39 | 0,752 | 0,834 | 0,985 |
| 8,71 | 36 727 | 46,59 | 13,39 | 92,45 | 3,30 | 504,36 | 35 750 | 4,55 | 4 545,4 | 175,75 | 266,1 | 6786,2 | 317 010 | 8 660 485 | 246,25 | 0,752 | 0,834 | 0,985 |
| 8,72 | 36 773 | 46,60 | 13,39 | 92,45 | 3,29 | 504,69 | 35 795 | 4,55 | 4 546,6 | 175,76 | 266,4 | 6790,4 | 317 120 | 8 666 246 | 246,11 | 0,752 | 0,835 | 0,985 |
| 8,73 | 36 820 | 46,61 | 13,39 | 92,44 | 3,27 | 505,02 | 35 841 | 4,56 | 4 547,7 | 175,77 | 266,7 | 6794,6 | 317 231 | 8 672 008 | 245,97 | 0,752 | 0,835 | 0,985 |
| 8,74 | 36 867 | 46,62 | 13,39 | 92,44 | 3,25 | 505,35 | 35 886 | 4,56 | 4 548,8 | 175,78 | 267,0 | 6798,8 | 317 342 | 8 677 769 | 245,83 | 0,752 | 0,835 | 0,985 |
| 8,75 | 36 913 | 46,64 | 13,38 | 92,44 | 3,23 | 505,68 | 35 932 | 4,57 | 4 550,0 | 175,80 | 267,4 | 6803,0 | 317 453 | 8 683 530 | 245,70 | 0,753 | 0,835 | 0,986 |
| 8,76 | 36 960 | 46,65 | 13,38 | 92,44 | 3,22 | 506,02 | 35 977 | 4,58 | 4 551,1 | 175,81 | 267,7 | 6807,2 | 317 563 | 8 689 291 | 245,56 | 0,753 | 0,835 | 0,986 |
| 8,77 | 37 007 | 46,66 | 13,38 | 92,44 | 3,20 | 506,36 | 36 023 | 4,58 | 4 552,2 | 175,82 | 268,0 | 6811,4 | 317 674 | 8 695 052 | 245,42 | 0,753 | 0,835 | 0,986 |
| 8,78 | 37 053 | 46,67 | 13,38 | 92,44 | 3,18 | 506,70 | 36 068 | 4,59 | 4 553,3 | 175,83 | 268,3 | 6815,6 | 317 785 | 8 700 814 | 245,28 | 0,753 | 0,835 | 0,986 |
| 8,79 | 37 100 | 46,68 | 13,37 | 92,44 | 3,16 | 507,05 | 36 114 | 4,59 | 4 554,5 | 175,84 | 268,6 | 6819,8 | 317 895 | 8 706 575 | 245,14 | 0,753 | 0,836 | 0,986 |
| 8,80 | 37 147 | 46,69 | 13,37 | 92,43 | 3,14 | 507,39 | 36 159 | 4,60 | 4 555,6 | 175,85 | 268,9 | 6824,0 | 318 006 | 8 712 336 | 245,00 | 0,753 | 0,836 | 0,986 |
| 8,81 | 37 193 | 46,71 | 13,37 | 92,43 | 3,12 | 507,74 | 36 205 | 4,60 | 4 556,8 | 175,87 | 269,2 | 6828,3 | 318 121 | 8 718 641 | 244,88 | 0,753 | 0,836 | 0,986 |
| 8,82 | 37 240 | 46,72 | 13,36 | 92,43 | 3,10 | 508,10 | 36 250 | 4,61 | 4 558,0 | 175,88 | 269,5 | 6832,6 | 318 236 | 8 724 947 | 244,76 | 0,753 | 0,836 | 0,986 |
| 8,83 | 37 287 | 46,73 | 13,36 | 92,43 | 3,09 | 508,46 | 26 298 | 4,61 | 4 559,2 | 175,90 | 269,8 | 6836,9 | 318 351 | 8 731 252 | 244,63 | 0,753 | 0,836 | 0,986 |
| 8,84 | 37 337 | 46,74 | 13,36 | 92,43 | 3,07 | 508,82 | 26 341 | 4,62 | 4 560,4 | 175,91 | 270,1 | 6841,2 | 318 466 | 8 737 558 | 244,51 | 0,753 | 0,836 | 0,986 |
| 8,85 | 37 380 | 46,76 | 13,36 | 92,43 | 3,05 | 509,18 | 36 387 | 4,62 | 4 561,7 | 175,93 | 270,5 | 6845,5 | 318 581 | 8 743 863 | 244,39 | 0,754 | 0,837 | 0,986 |
| 8,86 | 37 427 | 46,77 | 13,35 | 92,42 | 3,03 | 509,55 | 36 432 | 4,63 | 4 562,9 | 175,94 | 270,8 | 6849,7 | 318 695 | 8 750 168 | 244,27 | 0,754 | 0,837 | 0,986 |
| 8,87 | 37 474 | 46,78 | 13,35 | 92,42 | 3,01 | 509,92 | 36 478 | 4,63 | 4 564,1 | 175,96 | 271,1 | 6854,0 | 318 810 | 8 756 474 | 244,15 | 0,754 | 0,837 | 0,986 |
| 8,88 | 37 521 | 46,79 | 13,35 | 92,42 | 2,99 | 510,30 | 36 523 | 4,64 | 4 563,3 | 175,97 | 271,4 | 6858,3 | 318 925 | 8 762 779 | 244,02 | 0,754 | 0,837 | 0,986 |
| 8,89 | 37 567 | 46,81 | 13,35 | 92,42 | 2,97 | 510,68 | 36 569 | 4,64 | 4 566,5 | 175,99 | 271,7 | 6862,6 | 319 040 | 8 769 085 | 243,90 | 0,754 | 0,837 | 0,986 |
| 8,90 | 37 614 | 46,82 | 13,35 | 92,42 | 2,95 | 511,07 | 36 614 | 4,65 | 4 567,7 | 176,00 | 272,0 | 6866,9 | 319 155 | 8 775 390 | 243,78 | 0,754 | 0,837 | 0,986 |
| 8,91 | 37 661 | 46,83 | 13,34 | 92,41 | 2,93 | 511,46 | 36 660 | 4,65 | 4 569,0 | 176,02 | 272,3 | 6871,3 | 319 275 | 8 782 503 | 243,68 | 0,754 | 0,838 | 0,986 |
| 8,92 | 37 708 | 46,85 | 13,34 | 92,41 | 2,90 | 511,85 | 36 705 | 4,66 | 4 570,4 | 176,04 | 272,6 | 6875,7 | 319 394 | 8 789 616 | 243,58 | 0,754 | 0,838 | 0,986 |
| 8,93 | 37 755 | 46,86 | 13,34 | 92,41 | 2,88 | 512,25 | 36 751 | 4,66 | 4 571,7 | 176,06 | 272,9 | 6880,1 | 319 514 | 8 796 730 | 243,49 | 0,754 | 0,838 | 0,986 |
| 8,94 | 37 802 | 46,87 | 13,34 | 92,41 | 2,86 | 512,66 | 36 797 | 4,67 | 4 573,1 | 176,08 | 273,2 | 6884,5 | 319 633 | 8 803 843 | 243,39 | 0,754 | 0,838 | 0,986 |
| 8,95 | 37 849 | 46,89 | 13,33 | 92,41 | 2,84 | 513,07 | 36 843 | 4,67 | 4 574,4 | 176,10 | 273,6 | 6889,0 | 319 753 | 8 810 956 | 243,29 | 0,755 | 0,838 | 0,986 |
| 8,96 | 37 895 | 46,90 | 13,33 | 92,40 | 2,82 | 513,49 | 36 888 | 4,68 | 4 575,7 | 176,11 | 273,9 | 6893,4 | 319 873 | 8 818 069 | 243,19 | 0,755 | 0,838 | 0,986 |
| 8,97 | 37 942 | 46,91 | 13,33 | 92,40 | 2,80 | 513,91 | 36 934 | 4,68 | 4 577,1 | 176,13 | 274,2 | 6897,8 | 319 992 | 8 825 182 | 243,09 | 0,755 | 0,839 | 0,986 |
| 8,98 | 37 989 | 46,93 | 13,33 | 92,40 | 2,77 | 514,34 | 36 980 | 4,69 | 4 578,4 | 176,15 | 274,5 | 6902,2 | 320 112 | 8 832 296 | 243,00 | 0,755 | 0,839 | 0,986 |
| 8,99 | 38 036 | 46,94 | 13,33 | 92,40 | 2,75 | 514,77 | 37 025 | 4,69 | 4 579,8 | 176,17 | 274,8 | 6906,6 | 320 231 | 8 839 409 | 242,90 | 0,755 | 0,839 | 0,986 |

| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9,00 | 38 083 | 46,96 | 13,32 | 92,40 | 2,73 | 515,21 | 37 071 | 4,70 | 4 581,1 | 176,19 | 275,1 | 6911,0 | 320 351 | 8 846 522 | 242,80 | 0,755 | 0,839 | 0,986 |
| 9,01 | 38 130 | 46,97 | 13,32 | 92,39 | 2,70 | 515,64 | 37 117 | 4,71 | 4 582,7 | 176,23 | 275,4 | 6915,7 | 320 474 | 8 855 163 | 242,75 | 0,755 | 0,839 | 0,986 |
| 9,02 | 38 177 | 46,98 | 13,32 | 92,39 | 2,68 | 516,08 | 37 163 | 4,71 | 4 584,3 | 176,26 | 275,7 | 6920,3 | 320 597 | 8 863 804 | 242,69 | 0,755 | 0,839 | 0,986 |
| 9,03 | 38 224 | 47,00 | 13,32 | 92,39 | 2,66 | 516,52 | 37 208 | 4,72 | 4 585,8 | 176,30 | 276,0 | 6925,0 | 320 720 | 8 872 445 | 242,64 | 0,755 | 0,839 | 0,986 |
| 9,04 | 38 271 | 47,01 | 13,32 | 92,39 | 2,63 | 516,96 | 37 254 | 4,72 | 4 587,3 | 176,33 | 276,3 | 6929,7 | 320 843 | 8 881 086 | 242,58 | 0,755 | 0,839 | 0,986 |
| 9,05 | 38 318 | 47,03 | 13,31 | 92,39 | 2,61 | 517,40 | 37 300 | 4,73 | 4 588,9 | 176,37 | 276,7 | 6934,4 | 320 966 | 8 889 727 | 242,53 | 0,756 | 0,839 | 0,986 |
| 9,06 | 38 365 | 47,04 | 13,31 | 92,38 | 2,59 | 517,84 | 37 346 | 4,73 | 4 590,4 | 176,40 | 277,0 | 6939,0 | 321 088 | 8 898 368 | 242,47 | 0,756 | 0,839 | 0,986 |
| 9,07 | 38 412 | 47,06 | 13,31 | 92,38 | 2,56 | 518,28 | 37 392 | 4,74 | 4 592,0 | 176,44 | 277,3 | 6943,7 | 321 211 | 8 907 009 | 242,42 | 0,756 | 0,839 | 0,986 |
| 9,08 | 38 459 | 47,08 | 13,31 | 92,38 | 2,52 | 519,21 | 37 437 | 4,74 | 4 593,5 | 176,47 | 277,6 | 6948,4 | 321 334 | 8 915 650 | 242,36 | 0,756 | 0,839 | 0,986 |
| 9,09 | 38 506 | 47,10 | 13,31 | 92,38 | 2,49 | 519,72 | 37 483 | 4,75 | 4 595,1 | 176,51 | 277,9 | 6953,0 | 321 457 | 8 924 291 | 242,31 | 0,756 | 0,840 | 0,986 |
| 9,10 | 38 553 | 47,11 | 13,30 | 92,38 | 2,46 | 520,24 | 37 529 | 4,75 | 4 596,6 | 176,54 | 278,2 | 6957,7 | 321 580 | 8 932 932 | 242,25 | 0,756 | 0,840 | 0,986 |
| 9,11 | 38 600 | 47,13 | 13,30 | 92,37 | 2,44 | 520,76 | 37 575 | 4,76 | 4 598,3 | 176,60 | 278,5 | 6962,5 | 321 707 | 8 942 384 | 242,22 | 0,756 | 0,840 | 0,986 |
| 9,12 | 38 647 | 47,15 | 13,30 | 92,37 | 2,41 | 521,29 | 37 621 | 4,76 | 4 599,9 | 176,66 | 278,8 | 6967,2 | 321 835 | 8 951 835 | 242,18 | 0,756 | 0,840 | 0,986 |
| 9,13 | 38 694 | 47,16 | 13,30 | 92,37 | 2,38 | 521,83 | 37 667 | 4,77 | 4 601,6 | 176,72 | 279,1 | 6972,0 | 321 962 | 8 961 287 | 242,15 | 0,756 | 0,840 | 0,986 |
| 9,14 | 38 741 | 47,18 | 13,30 | 92,37 | 2,35 | 522,37 | 37 713 | 4,78 | 4 603,3 | 176,78 | 279,4 | 6976,8 | 322 090 | 8 970 738 | 242,12 | 0,756 | 0,840 | 0,986 |
| 9,15 | 38 789 | 47,20 | 13,30 | 92,36 | 2,33 | 522,92 | 37 759 | 4,78 | 4 605,0 | 176,84 | 279,8 | 6981,6 | 322 217 | 8 980 190 | 242,09 | 0,757 | 0,840 | 0,986 |
| 9,16 | 38 836 | 47,22 | 13,29 | 92,36 | 2,30 | 523,48 | 37 805 | 4,79 | 4 606,6 | 176,90 | 280,1 | 6986,3 | 322 344 | 8 989 641 | 242,05 | 0,757 | 0,840 | 0,986 |
| 9,17 | 38 883 | 47,23 | 13,29 | 92,36 | 2,27 | 524,04 | 37 851 | 4,79 | 4 608,3 | 176,96 | 280,4 | 6991,1 | 322 472 | 8 999 093 | 242,02 | 0,757 | 0,840 | 0,986 |
| 9,18 | 38 930 | 47,25 | 13,29 | 92,36 | 2,24 | 524,60 | 37 897 | 4,80 | 4 610,0 | 177,02 | 280,7 | 6995,9 | 322 599 | 9 008 544 | 241,99 | 0,757 | 0,840 | 0,986 |
| 9,19 | 38 978 | 47,27 | 13,29 | 92,35 | 2,21 | 525,17 | 37 943 | 4,80 | 4 611,6 | 177,08 | 281,0 | 7000,6 | 322 727 | 9 017 996 | 241,95 | 0,757 | 0,840 | 0,986 |
| 9,20 | 39 025 | 47,29 | 13,29 | 92,35 | 2,18 | 525,75 | 37 989 | 4,81 | 4 613,3 | 177,14 | 281,3 | 7005,4 | 322 854 | 9 027 447 | 241,92 | 0,757 | 0,840 | 0,986 |
| 9,21 | 39 072 | 47,30 | 13,29 | 92,35 | 2,15 | 526,32 | 38 035 | 4,81 | 4 615,1 | 177,20 | 281,6 | 7010,2 | 322 986 | 9 037 621 | 241,91 | 0,757 | 0,840 | 0,986 |
| 9,22 | 39 120 | 47,32 | 13,28 | 92,35 | 2,12 | 526,91 | 38 081 | 4,82 | 4 616,8 | 177,26 | 281,9 | 7015,0 | 323 117 | 9 047 794 | 241,89 | 0,757 | 0,840 | 0,986 |
| 9,23 | 39 167 | 47,34 | 13,28 | 92,34 | 2,09 | 527,49 | 38 127 | 4,82 | 4 618,6 | 177,32 | 282,2 | 7019,8 | 323 249 | 9 057 968 | 241,88 | 0,757 | 0,840 | 0,986 |
| 9,24 | 39 214 | 47,36 | 13,28 | 92,34 | 2,06 | 528,08 | 38 173 | 4,83 | 4 620,4 | 177,38 | 282,5 | 7024,6 | 323 380 | 9 068 142 | 241,86 | 0,757 | 0,840 | 0,986 |
| 9,25 | 39 261 | 47,38 | 13,28 | 92,34 | 2,03 | 528,66 | 38 220 | 4,84 | 4 622,2 | 177,44 | 282,9 | 7029,4 | 323 512 | 9 078 316 | 241,85 | 0,758 | 0,841 | 0,987 |
| 9,26 | 39 309 | 47,39 | 13,28 | 92,34 | 2,00 | 529,26 | 38 266 | 4,84 | 4 623,9 | 177,49 | 283,2 | 7034,2 | 323 643 | 9 088 489 | 241,83 | 0,758 | 0,841 | 0,987 |
| 9,27 | 39 356 | 47,41 | 13,28 | 92,33 | 1,97 | 529,86 | 38 312 | 4,85 | 4 625,7 | 177,55 | 283,5 | 7039,0 | 323 775 | 9 098 663 | 241,82 | 0,758 | 0,841 | 0,987 |
| 9,28 | 39 404 | 47,43 | 13,28 | 92,33 | 1,94 | 530,46 | 38 358 | 4,85 | 4 627,5 | 177,61 | 283,8 | 7043,8 | 323 906 | 9 108 837 | 241,80 | 0,758 | 0,841 | 0,987 |
| 9,29 | 39 451 | 47,45 | 13,27 | 92,33 | 1,90 | 531,06 | 38 404 | 4,86 | 4 629,2 | 177,67 | 284,1 | 7048,6 | 324 038 | 9 119 010 | 241,79 | 0,758 | 0,841 | 0,987 |
| 9,30 | 39 498 | 47,47 | 13,27 | 92,32 | 1,87 | 531,67 | 38 450 | 4,86 | 4 631,0 | 177,73 | 284,4 | 7053,4 | 324 169 | 9 129 184 | 241,77 | 0,758 | 0,841 | 0,987 |
| 9,31 | 39 546 | 47,49 | 13,27 | 92,32 | 1,84 | 532,28 | 38 496 | 4,87 | 4 632,8 | 177,79 | 284,7 | 7058,4 | 324 303 | 9 139 680 | 241,76 | 0,758 | 0,841 | 0,987 |
| 9,32 | 39 593 | 47,50 | 13,27 | 92,32 | 1,81 | 532,89 | 38 543 | 4,87 | 4 634,6 | 177,85 | 285,0 | 7063,4 | 324 438 | 9 150 176 | 241,75 | 0,758 | 0,841 | 0,987 |
| 9,33 | 39 641 | 47,52 | 13,27 | 92,32 | 1,78 | 533,51 | 38 589 | 4,88 | 4 636,4 | 177,91 | 285,3 | 7068,4 | 324 572 | 9 160 672 | 241,75 | 0,758 | 0,841 | 0,987 |
| 9,34 | 39 688 | 47,54 | 13,27 | 92,31 | 1,75 | 534,12 | 38 636 | 4,88 | 4 638,2 | 177,97 | 285,6 | 7073,4 | 324 707 | 9 171 168 | 241,74 | 0,758 | 0,841 | 0,987 |
| 9,35 | 39 736 | 47,56 | 13,27 | 92,31 | 1,72 | 534,73 | 38 682 | 4,89 | 4 640,1 | 178,03 | 286,0 | 7078,5 | 324 841 | 9 181 664 | 241,73 | 0,759 | 0,841 | 0,987 |
| 9,36 | 39 784 | 47,58 | 13,27 | 92,31 | 1,68 | 535,34 | 37 728 | 4,89 | 4 641,9 | 178,08 | 286,3 | 7083,5 | 324 975 | 9 192 160 | 241,72 | 0,759 | 0,841 | 0,987 |
| 9,37 | 39 831 | 47,6 | 13,26 | 92,30 | 1,65 | 535,95 | 38 775 | 4,90 | 4 643,7 | 178,14 | 286,6 | 7088,5 | 325 110 | 9 202 656 | 241,71 | 0,759 | 0,841 | 0,987 |
| 9,38 | 39 879 | 47,62 | 13,26 | 92,30 | 1,62 | 536,56 | 38 821 | 4,91 | 4 645,5 | 178,20 | 286,9 | 7093,5 | 325 244 | 9 213 152 | 241,71 | 0,759 | 0,841 | 0,987 |
| 9,39 | 39 926 | 47,63 | 13,26 | 92,30 | 1,59 | 537,17 | 38 868 | 4,91 | 4 647,3 | 178,26 | 287,2 | 7098,5 | 325 379 | 9 223 648 | 241,70 | 0,759 | 0,841 | 0,987 |

| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9,40 | 39 974 | 47,65 | 13,26 | 92,29 | 1,56 | 537,78 | 38 914 | 4,92 | 4 649,1 | 178,32 | 287,5 | 7103,5 | 325 513 | 9 234 144 | 241,69 | 0,759 | 0,841 | 0,987 |
| 9,41 | 40 022 | 47,67 | 13,26 | 92,29 | 1,53 | 538,40 | 38 961 | 4,92 | 4 650,9 | 178,38 | 287,8 | 7108,5 | 325 650 | 9 244 840 | 241,69 | 0,759 | 0,841 | 0,987 |
| 9,42 | 40 070 | 47,69 | 13,26 | 92,29 | 1,50 | 539,01 | 39 007 | 4,93 | 4 652,8 | 178,44 | 288,1 | 7113,5 | 325 788 | 9 255 536 | 241,68 | 0,759 | 0,842 | 0,987 |
| 9,43 | 40 117 | 47,71 | 13,26 | 92,28 | 1,46 | 539,63 | 39 054 | 4,93 | 4 654,6 | 178,50 | 288,4 | 7118,5 | 325 925 | 9 266 232 | 241,68 | 0,759 | 0,842 | 0,987 |
| 9,44 | 40 165 | 47,73 | 13,26 | 92,28 | 1,43 | 540,25 | 39 100 | 4,94 | 4 656,5 | 178,56 | 288,7 | 7123,5 | 326 063 | 9 276 928 | 241,68 | 0,759 | 0,842 | 0,987 |
| 9,45 | 40 213 | 47,75 | 13,26 | 92,28 | 1,40 | 540,87 | 39 147 | 4,94 | 4 658,3 | 178,62 | 289,1 | 7128,5 | 326 200 | 9 287 624 | 241,68 | 0,760 | 0,842 | 0,987 |
| 9,46 | 40 260 | 47,77 | 13,25 | 92,27 | 1,37 | 541,50 | 39 193 | 4,95 | 4 660,1 | 178,67 | 289,4 | 7135,5 | 326 337 | 9 298 320 | 241,67 | 0,760 | 0,842 | 0,987 |
| 9,47 | 40 308 | 47,79 | 13,25 | 92,27 | 1,34 | 542,13 | 39 240 | 4,95 | 4 662,0 | 178,73 | 289,7 | 7138,5 | 326 475 | 9 309 016 | 241,67 | 0,760 | 0,842 | 0,987 |
| 9,48 | 40 356 | 47,80 | 13,25 | 92,27 | 1,30 | 542,76 | 39 286 | 4,96 | 4 663,8 | 178,79 | 290,0 | 7143,5 | 326 612 | 9 319 712 | 241,67 | 0,760 | 0,842 | 0,987 |
| 9,49 | 40 404 | 47,82 | 13,25 | 92,26 | 1,27 | 543,39 | 39 333 | 4,96 | 4 665,7 | 178,85 | 290,3 | 7148,5 | 326 750 | 9 330 408 | 241,66 | 0,760 | 0,842 | 0,987 |
| 9,50 | 40 452 | 47,84 | 13,25 | 92,26 | 1,24 | 544,01 | 39 379 | 4,97 | 4 667,5 | 178,91 | 290,6 | 7153,5 | 326 887 | 9 341 104 | 241,66 | 0,760 | 0,842 | 0,987 |
| 9,51 | 40 500 | 47,86 | 13,25 | 92,26 | 1,21 | 544,64 | 39 426 | 4,98 | 4 669,4 | 178,97 | 290,9 | 7158,5 | 327 027 | 9 351 999 | 241,66 | 0,760 | 0,842 | 0,987 |
| 9,52 | 40 547 | 47,88 | 13,25 | 92,25 | 1,17 | 545,27 | 39 472 | 4,98 | 4 671,2 | 179,03 | 291,2 | 7163,5 | 327 167 | 9 362 894 | 241,66 | 0,760 | 0,842 | 0,987 |
| 9,53 | 40 595 | 47,90 | 13,25 | 92,25 | 1,14 | 545,91 | 39 519 | 4,99 | 4 673,1 | 179,08 | 291,5 | 7168,6 | 327 307 | 9 373 790 | 241,66 | 0,760 | 0,842 | 0,987 |
| 9,54 | 40 643 | 47,92 | 13,25 | 92,24 | 1,11 | 546,54 | 39 566 | 4,99 | 4 674,9 | 179,14 | 291,8 | 7173,6 | 327 447 | 9 384 685 | 241,66 | 0,760 | 0,842 | 0,987 |
| 9,55 | 40 691 | 47,94 | 13,25 | 92,24 | 1,08 | 547,18 | 39 613 | 5,00 | 4 676,8 | 179,20 | 292,2 | 7178,6 | 327 588 | 9 395 580 | 241,67 | 0,761 | 0,842 | 0,987 |
| 9,56 | 40 739 | 47,96 | 13,25 | 92,24 | 1,04 | 547,81 | 39 659 | 5,00 | 4 678,7 | 179,26 | 292,5 | 7183,6 | 327 728 | 9 406 475 | 241,67 | 0,761 | 0,842 | 0,987 |
| 9,57 | 40 787 | 47,98 | 13,24 | 92,23 | 1,01 | 548,45 | 39 706 | 5,01 | 4 680,5 | 179,32 | 292,8 | 7188,6 | 327 868 | 9 417 370 | 241,67 | 0,761 | 0,842 | 0,987 |
| 9,58 | 40 835 | 47,99 | 13,24 | 92,23 | 0,98 | 549,08 | 39 753 | 5,01 | 4 682,4 | 179,37 | 293,1 | 7193,7 | 328 008 | 9 428 266 | 241,67 | 0,761 | 0,842 | 0,987 |
| 9,59 | 40 883 | 48,01 | 13,24 | 92,23 | 0,94 | 549,72 | 39 799 | 5,02 | 4 684,2 | 179,43 | 293,4 | 7198,7 | 328 148 | 9 439 161 | 241,67 | 0,761 | 0,843 | 0,987 |
| 9,60 | 40 931 | 48,03 | 13,24 | 92,22 | 0,91 | 550,36 | 39 846 | 5,02 | 4 686,1 | 179,49 | 293,7 | 7203,7 | 328 288 | 9 450 056 | 241,67 | 0,761 | 0,843 | 0,987 |
| 9,61 | 40 979 | 48,05 | 13,24 | 92,22 | 0,88 | 551,00 | 39 893 | 5,03 | 4 688,0 | 179,55 | 294,0 | 7208,8 | 328 430 | 9 461 356 | 241,68 | 0,761 | 0,843 | 0,987 |
| 9,62 | 41 027 | 48,07 | 13,24 | 92,21 | 0,85 | 551,66 | 39 940 | 5,03 | 4 689,9 | 179,61 | 294,3 | 7213,9 | 328 573 | 9 472 656 | 241,69 | 0,761 | 0,843 | 0,987 |
| 9,63 | 41 075 | 48,09 | 13,24 | 92,21 | 0,81 | 552,31 | 39 987 | 5,04 | 4 691,8 | 179,66 | 294,6 | 7218,9 | 328 715 | 9 483 955 | 241,70 | 0,761 | 0,843 | 0,987 |
| 9,64 | 41 123 | 48,11 | 13,24 | 92,21 | 0,78 | 552,97 | 40 034 | 5,05 | 4 693,7 | 179,72 | 294,9 | 7224,0 | 328 857 | 9 495 255 | 241,71 | 0,761 | 0,843 | 0,987 |
| 9,65 | 41 172 | 48,13 | 13,24 | 92,20 | 0,74 | 553,63 | 40 081 | 5,05 | 4 695,7 | 179,78 | 295,3 | 7229,1 | 329 000 | 9 506 555 | 241,72 | 0,762 | 0,843 | 0,987 |
| 9,66 | 41 220 | 48,15 | 13,24 | 92,20 | 0,71 | 554,29 | 40 127 | 5,06 | 4 697,6 | 179,84 | 295,6 | 7234,2 | 329 142 | 9 517 855 | 271,73 | 0,762 | 0,843 | 0,987 |
| 9,67 | 41 268 | 48,17 | 13,24 | 92,19 | 0,68 | 554,96 | 40 174 | 5,06 | 4 699,5 | 179,90 | 295,9 | 7239,3 | 329 284 | 9 529 155 | 241,74 | 0,762 | 0,843 | 0,987 |
| 9,68 | 41 316 | 48,19 | 13,24 | 92,19 | 0,64 | 555,63 | 40 221 | 5,07 | 4 701,4 | 179,95 | 296,2 | 7244,3 | 329 426 | 9 540 454 | 241,75 | 0,762 | 0,843 | 0,987 |
| 9,69 | 41 364 | 48,21 | 13,24 | 92,19 | 0,61 | 556,29 | 40 268 | 5,07 | 4 703,3 | 180,01 | 296,5 | 7249,4 | 329 569 | 9 551 754 | 241,76 | 0,762 | 0,843 | 0,987 |
| 9,70 | 41 412 | 48,23 | 13,24 | 92,18 | 0,57 | 556,94 | 40 315 | 5,08 | 4 705,2 | 180,07 | 296,8 | 7254,5 | 329 711 | 9 563 054 | 241,77 | 0,762 | 0,843 | 0,987 |
| 9,71 | 41 461 | 48,25 | 13,24 | 92,18 | 0,54 | 557,59 | 40 362 | 5,08 | 4 707,1 | 180,13 | 297,1 | 7259,6 | 329 855 | 9 574 191 | 241,78 | 0,762 | 0,843 | 0,987 |
| 9,72 | 41 509 | 48,27 | 13,23 | 92,17 | 0,51 | 558,24 | 40 409 | 5,09 | 4 708,9 | 180,19 | 297,4 | 7264,7 | 329 999 | 9 585 327 | 241,78 | 0,762 | 0,843 | 0,987 |
| 9,73 | 41 557 | 48,29 | 13,23 | 92,17 | 0,47 | 558,89 | 40 456 | 5,09 | 4 710,8 | 180,24 | 297,7 | 7269,7 | 330 143 | 9 596 464 | 241,79 | 0,762 | 0,843 | 0,987 |
| 9,74 | 41 605 | 48,31 | 13,23 | 92,16 | 0,44 | 559,55 | 40 503 | 5,10 | 4 712,7 | 180,30 | 298,0 | 7274,8 | 330 287 | 9 607 600 | 241,79 | 0,762 | 0,843 | 0,987 |
| 9,75 | 41 654 | 48,32 | 13,23 | 92,16 | 0,41 | 560,18 | 40 551 | 5,11 | 4 714,6 | 180,36 | 298,4 | 7279,9 | 330 432 | 9 618 737 | 241,80 | 0,763 | 0,844 | 0,987 |
| 9,76 | 41 702 | 48,34 | 13,23 | 92,16 | 0,37 | 560,83 | 40 598 | 5,11 | 4 716,4 | 180,42 | 298,7 | 7285,0 | 330 576 | 9 629 873 | 241,80 | 0,763 | 0,844 | 0,987 |
| 9,77 | 41 750 | 48,36 | 13,23 | 92,15 | 0,34 | 561,48 | 40 645 | 5,12 | 4 718,3 | 180,48 | 299,0 | 7290,1 | 330 720 | 9 647 040 | 241,81 | 0,763 | 0,844 | 0,987 |
| 9,78 | 41 799 | 48,38 | 13,23 | 92,15 | 0,31 | 562,13 | 40 692 | 5,12 | 4 720,2 | 180,53 | 299,3 | 7295,1 | 330 864 | 9 652 146 | 241,81 | 0,763 | 0,844 | 0,987 |
| 9,79 | 41 847 | 48,40 | 13,23 | 92,14 | 0,27 | 562,77 | 40 739 | 5,13 | 4 722,0 | 180,59 | 299,6 | 7300,2 | 331 008 | 9 663 283 | 241,82 | 0,763 | 0,844 | 0,987 |

| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9,80 | 41 896 | 48,42 | 13,23 | 92,14 | 0,24 | 563,42 | 40 786 | 5,13 | 4 723,9 | 180,65 | 299,9 | 7305,3 | 331 152 | 9 674 419 | 241,82 | 0,763 | 0,844 | 0,987 |
| 9,81 | 41 944 | 48,44 | 13,23 | 92,13 | 0,21 | 564,07 | 40 833 | 5,14 | 4 725,8 | 180,71 | 300,2 | 7310,4 | 331 298 | 9 685 517 | 241,82 | 0,763 | 0,844 | 0,987 |
| 9,82 | 41 993 | 48,46 | 13,23 | 92,13 | 0,17 | 564,73 | 40 881 | 5,14 | 4 727,6 | 180,76 | 300,5 | 7315,5 | 331 444 | 9 696 615 | 241,83 | 0,763 | 0,844 | 0,987 |
| 9,83 | 42 041 | 48,48 | 13,23 | 92,12 | 0,14 | 565,38 | 40 928 | 5,15 | 4 729,5 | 180,82 | 300,8 | 7320,5 | 331 591 | 9 707 713 | 241,83 | 0,763 | 0,844 | 0,987 |
| 9,84 | 42 089 | 48,50 | 13,23 | 92,12 | 0,11 | 566,02 | 40 975 | 5,15 | 4 731,4 | 180,88 | 301,1 | 7325,6 | 331 737 | 9 718 811 | 241,83 | 0,763 | 0,844 | 0,987 |
| 9,85 | 42 138 | 48,52 | 13,23 | 92,11 | 0,07 | 566,67 | 41 023 | 5,16 | 4 733,3 | 180,94 | 301,5 | 7330,7 | 331 883 | 9 729 909 | 241,84 | 0,764 | 0,844 | 0,987 |
| 9,86 | 42 187 | 48,54 | 13,23 | 92,11 | 0,04 | 567,31 | 41 070 | 5,16 | 4 735,1 | 180,99 | 301,8 | 7335,8 | 330 029 | 9 741 007 | 241,84 | 0,764 | 0,844 | 0,987 |
| 9,87 | 42 235 | 48,55 | 13,23 | 92,11 | 0,01 | 567,96 | 41 117 | 5,17 | 4 737,0 | 181,05 | 302,1 | 7340,9 | 332 175 | 9 752 105 | 241,84 | 0,764 | 0,844 | 0,987 |
| 9,88 | 42 284 | 48,57 | 13,23 | 92,10 | -0,03 | 568,60 | 41 164 | 5,18 | 4 738,9 | 181,11 | 302,4 | 7345,9 | 332 322 | 9 763 203 | 241,84 | 0,764 | 0,844 | 0,987 |
| 9,89 | 42 332 | 48,59 | 13,23 | 92,10 | -0,06 | 569,25 | 41 212 | 5,18 | 4 740,4 | 181,16 | 302,7 | 7351,0 | 332 468 | 9 774 301 | 241,85 | 0,764 | 0,844 | 0,987 |
| 9,90 | 42 381 | 48,61 | 13,23 | 92,09 | -0,09 | 569,89 | 41 259 | 5,19 | 4 742,6 | 181,22 | 303,0 | 7356,1 | 332 614 | 9 785 399 | 241,85 | 0,764 | 0,844 | 0,987 |
| 9,91 | 42 429 | 48,63 | 13,23 | 92,09 | -0,12 | 570,52 | 41 307 | 5,19 | 4 744,5 | 181,28 | 303,3 | 7361,2 | 332 763 | 9 796 640 | 241,86 | 0,764 | 0,844 | 0,987 |
| 9,92 | 42 478 | 48,65 | 13,23 | 92,08 | -0,16 | 571,16 | 41 354 | 5,20 | 4 746,4 | 181,33 | 303,6 | 7366,3 | 332 912 | 9 807 881 | 241,86 | 0,764 | 0,845 | 0,987 |
| 9,93 | 42 527 | 48,67 | 13,23 | 92,08 | -0,19 | 571,80 | 41 402 | 5,20 | 4 748,2 | 181,39 | 303,9 | 7371,4 | 333 062 | 9 819 122 | 241,87 | 0,764 | 0,845 | 0,987 |
| 9,94 | 42 575 | 48,69 | 13,23 | 92,07 | -0,22 | 572,44 | 41 449 | 5,21 | 4 750,1 | 181,44 | 304,2 | 7376,5 | 333 211 | 9 830 363 | 241,87 | 0,764 | 0,845 | 0,987 |
| 9,95 | 42 624 | 48,71 | 13,23 | 92,07 | -0,26 | 573,10 | 41 497 | 5,21 | 4 752,0 | 181,50 | 304,6 | 7381,7 | 333 360 | 9 841 605 | 241,88 | 0,765 | 0,845 | 0,987 |
| 9,96 | 42 673 | 48,73 | 13,23 | 92,06 | -0,29 | 573,77 | 41 544 | 5,22 | 4 753,9 | 181,56 | 304,9 | 7386,8 | 333 509 | 9 852 846 | 241,88 | 0,765 | 0,845 | 0,987 |
| 9,97 | 42 722 | 48,75 | 13,23 | 92,06 | -0,33 | 574,43 | 41 592 | 5,22 | 4 755,8 | 181,61 | 305,2 | 7391,9 | 333 658 | 9 864 087 | 241,89 | 0,765 | 0,845 | 0,987 |
| 9,98 | 42 770 | 48,77 | 13,23 | 92,05 | -0,36 | 575,11 | 41 639 | 5,23 | 4 757,6 | 181,67 | 305,5 | 7397,0 | 333 808 | 9 875 328 | 241,89 | 0,765 | 0,845 | 0,987 |
| 9,99 | 42 819 | 48,79 | 13,23 | 92,05 | -0,40 | 575,78 | 41 687 | 5,23 | 4 759,5 | 181,72 | 305,8 | 7402,1 | 333 957 | 9 886 569 | 241,90 | 0,765 | 0,845 | 0,987 |
| 10,00 | 42 868 | 48,90 | 13,23 | 92,04 | -0,43 | 576,43 | 41 734 | 5,24 | 4 761,4 | 181,78 | 306,1 | 7407,2 | 334 106 | 9 897 810 | 241,90 | 0,765 | 0,845 | 0,987 |
| 10,01 | 42 917 | 48,82 | 13,23 | 92,04 | -0,46 | 577,10 | 41 782 | 5,25 | 4 763,3 | 181,84 | 306,4 | 7412,3 | 334 256 | 9 909 001 | 241,90 | 0,765 | 0,845 | 0,987 |
| 10,02 | 42 966 | 48,84 | 13,23 | 92,03 | -0,50 | 577,77 | 41 829 | 5,25 | 4 765,1 | 181,89 | 306,7 | 7417,4 | 334 406 | 9 920 191 | 241,91 | 0,765 | 0,845 | 0,987 |
| 10,03 | 43 014 | 48,86 | 13,23 | 92,03 | -0,53 | 578,42 | 41 877 | 5,26 | 4 767,0 | 181,95 | 307,0 | 7422,5 | 334 556 | 9 931 382 | 241,91 | 0,765 | 0,845 | 0,987 |
| 10,04 | 43 063 | 48,88 | 13,23 | 92,02 | -0,57 | 579,07 | 41 924 | 5,26 | 4 768,8 | 182,00 | 307,3 | 7427,6 | 334 706 | 9 942 572 | 241,91 | 0,765 | 0,845 | 0,987 |
| 10,05 | 43 112 | 48,90 | 13,23 | 92,02 | -0,60 | 579,71 | 41 972 | 5,27 | 4 770,7 | 182,06 | 307,7 | 7432,8 | 334 856 | 9 953 763 | 241,92 | 0,766 | 0,845 | 0,987 |
| 10,06 | 43 161 | 48,92 | 13,23 | 92,01 | -0,63 | 580,36 | 42 020 | 5,27 | 4 772,6 | 182,12 | 308,0 | 7437,9 | 335 006 | 9 964 954 | 241,92 | 0,766 | 0,845 | 0,987 |
| 10,07 | 43 210 | 48,94 | 13,23 | 92,01 | -0,67 | 581,01 | 42 067 | 5,28 | 4 774,4 | 182,17 | 308,3 | 7443,0 | 335 156 | 9 976 144 | 241,92 | 0,766 | 0,846 | 0,987 |
| 10,08 | 43 259 | 48,96 | 13,23 | 92,00 | -0,70 | 581,66 | 42 115 | 5,28 | 4 776,3 | 182,23 | 308,6 | 7448,1 | 335 306 | 9 987 335 | 241,92 | 0,766 | 0,846 | 0,987 |
| 10,09 | 43 308 | 48,98 | 13,23 | 91,99 | -0,73 | 582,30 | 42 162 | 5,29 | 4 778,1 | 182,28 | 308,9 | 7453,2 | 335 456 | 9 998 525 | 241,93 | 0,766 | 0,846 | 0,987 |
| 10,10 | 43 357 | 49,00 | 13,23 | 91,99 | -0,77 | 582,95 | 42 210 | 5,29 | 4 780,0 | 182,34 | 309,2 | 7458,3 | 335 606 | 10 009 716 | 241,93 | 0,766 | 0,846 | 0,987 |
| 10,11 | 43 406 | 49,01 | 13,23 | 91,98 | -0,80 | 583,60 | 42 258 | 5,30 | 4 781,9 | 182,40 | 309,5 | 7463,4 | 335 758 | 10 020 818 | 241,93 | 0,766 | 0,846 | 0,987 |
| 10,12 | 43 455 | 49,03 | 13,23 | 91,98 | -0,83 | 584,25 | 42 306 | 5,30 | 4 783,7 | 182,45 | 309,8 | 7468,5 | 335 909 | 10 031 919 | 241,93 | 0,766 | 0,846 | 0,987 |
| 10,13 | 43 504 | 49,05 | 13,23 | 91,97 | -0,87 | 584,89 | 42 353 | 5,31 | 4 785,6 | 182,51 | 310,1 | 7473,6 | 336 061 | 10 043 021 | 241,93 | 0,766 | 0,846 | 0,987 |
| 10,14 | 43 553 | 49,07 | 13,23 | 91,97 | -0,90 | 585,53 | 42 401 | 5,32 | 4 787,4 | 182,56 | 310,4 | 7478,7 | 336 212 | 10 054 122 | 241,93 | 0,766 | 0,846 | 0,987 |
| 10,15 | 43 602 | 49,09 | 13,23 | 91,96 | -0,93 | 586,18 | 42 449 | 5,32 | 4 789,3 | 182,62 | 310,8 | 7483,9 | 336 364 | 10 065 224 | 241,93 | 0,767 | 0,846 | 0,987 |
| 10,16 | 43 651 | 49,11 | 13,23 | 91,96 | -0,97 | 586,83 | 42 497 | 5,33 | 4 791,1 | 182,68 | 311,1 | 7489,0 | 336 516 | 10 076 326 | 241,93 | 0,767 | 0,846 | 0,987 |
| 10,17 | 43 700 | 19,13 | 13,23 | 91,95 | -1,00 | 587,48 | 42 545 | 5,33 | 4 793,0 | 182,73 | 311,4 | 7494,1 | 336 667 | 10 087 427 | 241,93 | 0,767 | 0,846 | 0,987 |
| 10,18 | 43 750 | 49,15 | 13,23 | 91,95 | -1,04 | 588,12 | 42 592 | 5,34 | 4 794,8 | 182,79 | 311,7 | 7499,2 | 336 819 | 10 098 529 | 241,93 | 0,767 | 0,846 | 0,987 |
| 10,19 | 43 799 | 49,17 | 13,23 | 91,94 | -1,07 | 588,77 | 42 640 | 5,34 | 4 796,7 | 182,84 | 312,0 | 7504,3 | 336 970 | 10 109 630 | 241,93 | 0,767 | 0,847 | 0,987 |

| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10,20 | 43 848 | 49,18 | 13,23 | 91,93 | -1,10 | 589,42 | 42 688 | 5,35 | 4 798,5 | 182,90 | 312,3 | 7509,4 | 337 122 | 10 120 732 | 241,93 | 0,767 | 0,847 | 0,987 |
| 10,21 | 43 897 | 49,20 | 13,23 | 91,93 | -1,14 | 590,06 | 42 736 | 5,35 | 4 800,3 | 182,96 | 312,6 | 7514,5 | 337 274 | 10 131 675 | 241,93 | 0,767 | 0,847 | 0,987 |
| 10,22 | 43 946 | 49,22 | 13,23 | 91,92 | -1,17 | 590,71 | 42 784 | 5,36 | 4 802,1 | 183,01 | 312,9 | 7519,6 | 337 426 | 10 142 618 | 241,92 | 0,767 | 0,847 | 0,987 |
| 10,23 | 43 996 | 49,24 | 13,23 | 91,92 | -1,20 | 591,35 | 42 832 | 5,36 | 4 803,9 | 183,07 | 313,2 | 7524,7 | 337 578 | 10 153 561 | 241,92 | 0,767 | 0,847 | 0,987 |
| 10,24 | 44 045 | 49,26 | 13,23 | 91,91 | -1,24 | 591,98 | 42 880 | 5,37 | 4 805,7 | 183,12 | 313,5 | 7529,8 | 337 730 | 10 164 504 | 241,91 | 0,767 | 0,847 | 0,987 |
| 10,25 | 44 094 | 49,28 | 13,23 | 91,91 | -1,27 | 592,62 | 42 929 | 5,38 | 4 807,6 | 183,18 | 313,9 | 7534,9 | 337 882 | 10 175 447 | 241,91 | 0,768 | 0,847 | 0,988 |
| 10,26 | 44 143 | 49,30 | 13,23 | 91,90 | -1,30 | 593,25 | 42 977 | 5,38 | 4 809,4 | 183,23 | 314,2 | 7539,9 | 338 034 | 10 186 389 | 241,91 | 0,768 | 0,847 | 0,988 |
| 10,27 | 44 193 | 49,32 | 13,23 | 91,89 | -1,33 | 593,88 | 43 025 | 5,39 | 4 811,2 | 183,29 | 314,5 | 7545,0 | 338 186 | 10 197 332 | 241,90 | 0,768 | 0,847 | 0,988 |
| 10,28 | 44 242 | 49,33 | 13,23 | 91,89 | -1,37 | 594,52 | 43 073 | 5,39 | 4 813,0 | 183,34 | 314,8 | 7550,1 | 338 338 | 10 208 275 | 241,90 | 0,768 | 0,847 | 0,988 |
| 10,29 | 44 291 | 49,35 | 13,23 | 91,88 | -1,40 | 595,15 | 43 121 | 5,40 | 4 814,8 | 183,40 | 315,1 | 7555,2 | 338 490 | 10 219 218 | 241,89 | 0,768 | 0,847 | 0,988 |
| 10,30 | 44 341 | 49,37 | 13,23 | 91,88 | -1,43 | 595,79 | 43 169 | 5,40 | 4 816,6 | 183,45 | 315,4 | 7560,3 | 338 642 | 10 230 161 | 241,89 | 0,768 | 0,847 | 0,988 |
| 10,31 | 44 390 | 49,39 | 13,23 | 91,87 | -1,47 | 596,43 | 43 217 | 5,41 | 4 818,4 | 183,50 | 315,7 | 7565,4 | 338 793 | 10 241 315 | 241,89 | 0,768 | 0,847 | 0,988 |
| 10,32 | 44 440 | 49,41 | 13,23 | 91,86 | -1,50 | 597,09 | 43 265 | 5,41 | 4 820,3 | 183,56 | 316,0 | 7570,6 | 338 945 | 10 252 469 | 241,89 | 0,768 | 0,848 | 0,988 |
| 10,33 | 44 489 | 49,43 | 13,23 | 91,86 | -1,53 | 597,74 | 43 314 | 5,42 | 4 822,1 | 183,61 | 316,3 | 7575,7 | 339 096 | 10 263 623 | 241,89 | 0,768 | 0,848 | 0,988 |
| 10,34 | 44 538 | 49,45 | 13,23 | 91,85 | -1,57 | 598,40 | 43 362 | 5,42 | 4 824,0 | 183,67 | 316,6 | 7580,8 | 339 248 | 10 274 777 | 241,89 | 0,768 | 0,848 | 0,988 |
| 10,35 | 44 588 | 49,47 | 13,23 | 91,85 | -1,60 | 599,06 | 43 410 | 5,43 | 4 825,8 | 183,72 | 317,0 | 7586,0 | 339 399 | 10 285 931 | 241,89 | 0,769 | 0,848 | 0,988 |
| 10,36 | 44 637 | 49,48 | 13,23 | 91,84 | -1,64 | 599,72 | 43 458 | 5,43 | 4 827,6 | 183,77 | 317,3 | 7591,1 | 339 550 | 10 297 084 | 241,88 | 0,769 | 0,848 | 0,988 |
| 10,37 | 44 687 | 49,50 | 13,23 | 91,83 | -1,67 | 600,37 | 43 506 | 5,44 | 4 829,5 | 183,83 | 317,6 | 7596,2 | 339 702 | 10 308 238 | 241,88 | 0,769 | 0,848 | 0,988 |
| 10,38 | 44 736 | 49,52 | 13,23 | 91,83 | -1,70 | 601,01 | 43 555 | 5,45 | 4 831,3 | 183,88 | 317,9 | 7601,3 | 339 853 | 10 319 392 | 241,88 | 0,769 | 0,848 | 0,988 |
| 10,39 | 44 786 | 49,54 | 13,23 | 91,82 | -1,74 | 601,65 | 43 603 | 5,45 | 4 833,2 | 183,94 | 318,2 | 7606,5 | 340 005 | 10 330 546 | 241,88 | 0,769 | 0,848 | 0,988 |
| 10,40 | 44 835 | 49,56 | 13,23 | 91,82 | -1,77 | 602,29 | 43 651 | 5,46 | 4 835,0 | 183,99 | 318,5 | 7611,6 | 340 156 | 10 341 700 | 241,88 | 0,769 | 0,848 | 0,988 |
| 10,41 | 44 885 | 49,58 | 13,23 | 91,81 | -1,80 | 602,92 | 63 699 | 5,46 | 4 836,8 | 184,02 | 318,8 | 7616,7 | 340 307 | 10 352 331 | 241,87 | 0,769 | 0,848 | 0,988 |
| 10,42 | 44 935 | 49,60 | 13,23 | 91,80 | -1,84 | 603,56 | 43 748 | 5,47 | 4 838,5 | 184,05 | 319,1 | 7621,7 | 340 458 | 10 362 963 | 241,85 | 0,769 | 0,848 | 0,988 |
| 10,43 | 44 984 | 49,61 | 13,23 | 91,80 | -1,87 | 604,19 | 43 796 | 5,47 | 4 840,3 | 184,08 | 319,4 | 7626,8 | 340 609 | 10 373 594 | 241,84 | 0,769 | 0,848 | 0,988 |
| 10,44 | 45 034 | 49,63 | 13,23 | 91,79 | -1,90 | 604,83 | 43 844 | 5,48 | 4 842,0 | 184,11 | 319,7 | 7631,9 | 340 760 | 10 384 226 | 241,83 | 0,769 | 0,849 | 0,988 |
| 10,45 | 45 083 | 49,65 | 13,23 | 91,79 | -1,93 | 605,46 | 43 893 | 5,48 | 4 843,8 | 184,14 | 320,1 | 7637,0 | 340 911 | 10 394 857 | 241,82 | 0,770 | 0,849 | 0,988 |
| 10,46 | 45 133 | 49,67 | 13,23 | 91,78 | -1,97 | 606,08 | 43 941 | 5,49 | 4 845,5 | 184,16 | 320,4 | 7642,0 | 341 062 | 10 405 488 | 241,80 | 0,770 | 0,849 | 0,988 |
| 10,47 | 45 183 | 49,69 | 13,23 | 91,77 | -2,00 | 606,69 | 43 989 | 5,49 | 4 847,3 | 184,19 | 320,7 | 7647,1 | 341 213 | 10 416 120 | 241,79 | 0,770 | 0,849 | 0,988 |
| 10,48 | 45 232 | 49,70 | 13,23 | 91,77 | -2,03 | 607,29 | 44 037 | 5,50 | 4 849,0 | 184,22 | 321,0 | 7652,2 | 341 364 | 10 426 751 | 241,78 | 0,770 | 0,849 | 0,988 |
| 10,49 | 45 282 | 49,72 | 13,23 | 91,76 | -2,06 | 607,89 | 44 086 | 5,50 | 4 850,8 | 184,25 | 321,3 | 7657,2 | 341 515 | 10 437 383 | 241,76 | 0,770 | 0,849 | 0,988 |
| 10,50 | 45 332 | 49,74 | 13,24 | 91,75 | -2,09 | 608,48 | 44 134 | 5,51 | 4 852,5 | 184,28 | 321,6 | 7662,3 | 341 666 | 10 448 014 | 241,75 | 0,770 | 0,849 | 0,988 |
| 10,51 | 45 382 | 49,76 | 13,24 | 91,75 | -2,12 | 609,05 | 44 183 | 5,52 | 4 854,1 | 184,27 | 321,9 | 7667,2 | 341 817 | 10 457 342 | 241,71 | 0,770 | 0,849 | 0,988 |
| 10,52 | 45 431 | 49,77 | 13,24 | 91,74 | -2,15 | 609,62 | 44 231 | 5,52 | 4 855,7 | 184,26 | 322,2 | 7672,1 | 341 967 | 10 466 671 | 241,66 | 0,770 | 0,850 | 0,988 |
| 10,53 | 45 481 | 47,79 | 13,24 | 91,73 | -2,18 | 610,18 | 44 280 | 5,53 | 4 857,2 | 184,26 | 322,5 | 7677,0 | 342 118 | 10 476 000 | 241,62 | 0,770 | 0,850 | 0,988 |
| 10,54 | 45 531 | 49,80 | 13,24 | 91,73 | -2,21 | 610,74 | 44 328 | 5,53 | 4 858,8 | 184,25 | 322,8 | 7681,9 | 342 269 | 10 485 328 | 241,58 | 0,770 | 0,850 | 0,988 |
| 10,55 | 45 581 | 49,82 | 13,24 | 91,72 | -2,24 | 611,29 | 44 377 | 5,54 | 4 860,4 | 184,24 | 323,2 | 7686,9 | 342 420 | 10 494 657 | 241,54 | 0,771 | 0,850 | 0,988 |
| 10,56 | 45 631 | 49,84 | 13,24 | 91,71 | -2,27 | 611,83 | 44 426 | 5,54 | 4 862,0 | 184,23 | 323,5 | 7691,8 | 342 570 | 10 503 985 | 241,49 | 0,771 | 0,851 | 0,988 |
| 10,57 | 45 680 | 49,85 | 13,24 | 91,71 | -2,30 | 612,36 | 44 474 | 5,55 | 4 863,6 | 184,22 | 323,8 | 7696,7 | 342 721 | 10 513 314 | 241,45 | 0,771 | 0,851 | 0,988 |
| 10,58 | 45 730 | 49,87 | 13,24 | 91,70 | -2,33 | 612,88 | 44 523 | 5,55 | 4 865,1 | 184,22 | 324,1 | 7701,6 | 342 872 | 10 522 642 | 241,41 | 0,771 | 0,851 | 0,988 |
| 10,59 | 45 780 | 49,88 | 13,24 | 91,69 | -2,36 | 613,40 | 44 571 | 5,56 | 4 866,7 | 184,21 | 324,4 | 7706,5 | 343 022 | 10 531 971 | 241,36 | 0,771 | 0,852 | 0,988 |

| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10,60 | 45 830 | 49,90 | 13,24 | 91,69 | -2,39 | 613,91 | 44 620 | 5,56 | 4 868,3 | 184,20 | 324,7 | 7711,4 | 343 173 | 10 541 299 | 241,32 | 0,771 | 0,852 | 0,988 |
| 10,61 | 45 880 | 49,91 | 13,24 | 91,68 | -2,41 | 614,41 | 44 669 | 5,57 | 4 869,7 | 184,19 | 325,0 | 7716,2 | 343 323 | 10 549 461 | 241,25 | 0,771 | 0,852 | 0,988 |
| 10,62 | 45 930 | 49,93 | 13,24 | 91,67 | -2,44 | 614,91 | 44 717 | 5,57 | 4 871,1 | 184,18 | 325,3 | 7720,9 | 343 472 | 10 557 622 | 241,18 | 0,771 | 0,852 | 0,988 |
| 10,63 | 45 980 | 49,94 | 13,24 | 91,67 | -2,47 | 615,40 | 44 766 | 5,58 | 4 872,5 | 184,17 | 325,6 | 7725,7 | 343 622 | 10 565 784 | 241,12 | 0,772 | 0,853 | 0,988 |
| 10,64 | 46 030 | 49,96 | 13,24 | 91,66 | -2,49 | 615,88 | 44 815 | 5,59 | 4 873,9 | 184,16 | 325,9 | 7730,4 | 343 772 | 10 573 945 | 241,05 | 0,772 | 0,853 | 0,988 |
| 10,65 | 46 080 | 49,97 | 13,24 | 91,65 | -2,52 | 616,36 | 44 864 | 5,59 | 4 875,4 | 184,16 | 326,3 | 7735,2 | 343 922 | 10 582 107 | 240,98 | 0,772 | 0,853 | 0,988 |
| 10,66 | 46 130 | 49,99 | 13,24 | 91,65 | -2,55 | 616,83 | 44 912 | 5,60 | 4 876,8 | 184,15 | 326,6 | 7740,0 | 344 071 | 10 590 268 | 240,91 | 0,772 | 0,853 | 0,988 |
| 10,67 | 46 180 | 50,00 | 13,24 | 91,64 | -2,57 | 617,30 | 44 961 | 5,60 | 4 878,2 | 184,14 | 326,9 | 7744,7 | 344 221 | 10 598 430 | 240,84 | 0,772 | 0,854 | 0,988 |
| 10,68 | 46 230 | 50,02 | 13,24 | 91,63 | -2,60 | 617,76 | 45 010 | 5,61 | 4 879,6 | 184,13 | 327,2 | 7749,5 | 344 371 | 10 606 591 | 240,78 | 0,772 | 0,854 | 0,988 |
| 10,69 | 46 280 | 50,03 | 13,24 | 91,63 | -2,62 | 618,22 | 45 058 | 5,61 | 4 881,0 | 184,12 | 327,5 | 7754,2 | 344 520 | 10 614 753 | 240,71 | 0,772 | 0,854 | 0,988 |
| 10,70 | 46 330 | 50,05 | 13,24 | 91,62 | -2,65 | 618,66 | 45 107 | 5,62 | 4 882,4 | 184,11 | 327,8 | 7759,0 | 344 670 | 10 622 914 | 240,64 | 0,772 | 0,855 | 0,988 |
| 10,71 | 46 380 | 50,06 | 13,25 | 91,61 | -2,68 | 619,11 | 45 156 | 5,62 | 4 883,7 | 184,10 | 328,1 | 7763,7 | 344 818 | 10 630 225 | 240,55 | 0,773 | 0,855 | 0,988 |
| 10,72 | 46 430 | 50,07 | 13,25 | 91,61 | -2,70 | 619,55 | 45 205 | 5,63 | 4 885,0 | 184,09 | 328,4 | 7768,3 | 344 967 | 10 637 536 | 240,47 | 0,773 | 0,855 | 0,988 |
| 10,73 | 46 480 | 50,09 | 13,25 | 91,60 | -2,73 | 619,99 | 45 253 | 5,63 | 4 886,3 | 184,08 | 328,7 | 7773,0 | 345 115 | 10 644 846 | 240,38 | 0,773 | 0,855 | 0,988 |
| 10,74 | 46 530 | 50,10 | 13,25 | 91,59 | -2,75 | 620,42 | 45 302 | 5,64 | 4 887,6 | 184,07 | 329,0 | 7777,7 | 345 264 | 10 652 157 | 240,30 | 0,773 | 0,856 | 0,988 |
| 10,75 | 46 580 | 50,11 | 13,25 | 91,59 | -2,77 | 620,84 | 45 351 | 5,65 | 4 888,9 | 184,07 | 329,4 | 7782,4 | 345 412 | 10 659 468 | 240,21 | 0,773 | 0,856 | 0,989 |
| 10,76 | 46 630 | 50,13 | 13,25 | 91,58 | -2,80 | 621,26 | 45 400 | 5,65 | 4 890,2 | 184,06 | 329,7 | 7787,0 | 345 560 | 10 666 779 | 240,12 | 0,773 | 0,856 | 0,989 |
| 10,77 | 46 681 | 50,14 | 13,25 | 91,57 | -2,82 | 621,68 | 45 449 | 5,66 | 4 891,5 | 184,05 | 330,0 | 7791,7 | 345 709 | 10 674 090 | 240,04 | 0,773 | 0,857 | 0,989 |
| 10,78 | 46 731 | 50,15 | 13,25 | 91,57 | -2,85 | 622,10 | 45 497 | 5,66 | 4 892,8 | 184,04 | 330,3 | 7796,4 | 345 857 | 10 681 400 | 239,95 | 0,773 | 0,857 | 0,989 |
| 10,79 | 46 781 | 50,17 | 13,25 | 91,56 | -2,87 | 622,51 | 45 546 | 5,67 | 4 894,1 | 184,03 | 330,6 | 7801,0 | 346 006 | 10 688 711 | 239,87 | 0,773 | 0,857 | 0,989 |
| 10,80 | 46 831 | 50,18 | 13,25 | 91,55 | -2,89 | 622,92 | 45 595 | 5,67 | 4 895,4 | 184,02 | 330,9 | 7805,7 | 346 154 | 10 696 022 | 239,78 | 0,774 | 0,857 | 0,989 |
| 10,81 | 46 881 | 50,19 | 13,25 | 91,55 | -2,92 | 623,33 | 45 644 | 5,68 | 4 896,6 | 184,01 | 331,2 | 7810,3 | 346 301 | 10 702 707 | 239,68 | 0,774 | 0,857 | 0,989 |
| 10,82 | 46 931 | 50,20 | 13,25 | 91,54 | -2,94 | 623,73 | 45 693 | 5,68 | 4 897,8 | 184,00 | 331,5 | 7814,9 | 346 449 | 10 709 392 | 239,58 | 0,774 | 0,858 | 0,989 |
| 10,83 | 46 982 | 50,22 | 13,25 | 91,53 | -2,96 | 624,12 | 45 742 | 5,69 | 4 899,0 | 183,99 | 331,8 | 7819,5 | 346 596 | 10 716 077 | 239,49 | 0,774 | 0,858 | 0,989 |
| 10,84 | 47 032 | 50,23 | 13,25 | 91,53 | -2,99 | 624,52 | 45 791 | 5,69 | 4 900,2 | 183,98 | 332,1 | 7824,1 | 346 744 | 10 722 762 | 239,39 | 0,774 | 0,859 | 0,989 |
| 10,85 | 47 082 | 50,24 | 13,25 | 91,52 | -3,01 | 654,91 | 45 840 | 5,70 | 4 901,5 | 183,97 | 332,5 | 7828,7 | 346 891 | 10 729 447 | 239,29 | 0,774 | 0,859 | 0,989 |
| 10,86 | 47 132 | 50,25 | 13,25 | 91,51 | -3,03 | 625,29 | 45 889 | 5,70 | 4 902,7 | 183,95 | 332,8 | 7833,2 | 347 038 | 10 736 132 | 239,19 | 0,774 | 0,859 | 0,989 |
| 10,87 | 47 183 | 50,27 | 13,25 | 91,50 | -3,06 | 625,68 | 45 938 | 5,71 | 4 903,9 | 183,94 | 333,1 | 7837,8 | 347 186 | 10 742 817 | 239,09 | 0,774 | 0,859 | 0,989 |
| 10,88 | 47 233 | 50,28 | 13,26 | 91,50 | -3,08 | 626,06 | 45 987 | 5,72 | 4 905,1 | 183,93 | 333,4 | 7842,4 | 347 333 | 10 749 502 | 239,00 | 0,775 | 0,860 | 0,989 |
| 10,89 | 47 283 | 50,29 | 13,26 | 91,49 | -3,10 | 626,44 | 46 036 | 5,72 | 4 906,3 | 183,92 | 333,7 | 7847,0 | 347 481 | 10 756 187 | 238,90 | 0,775 | 0,860 | 0,989 |
| 10,90 | 47 333 | 50,30 | 13,26 | 91,48 | -3,12 | 626,81 | 46 085 | 5,73 | 4 907,5 | 183,91 | 334,0 | 7851,6 | 347 628 | 10 762 872 | 238,80 | 0,775 | 0,860 | 0,989 |
| 10,91 | 47 384 | 50,31 | 13,26 | 91,48 | -3,14 | 627,19 | 46 134 | 5,73 | 4 908,6 | 183,90 | 334,3 | 7856,1 | 347 775 | 10 769 063 | 238,69 | 0,775 | 0,860 | 0,989 |
| 10,92 | 47 434 | 50,33 | 13,26 | 91,47 | -3,17 | 627,56 | 46 183 | 5,74 | 4 909,8 | 183,89 | 334,6 | 7860,7 | 347 923 | 10 775 254 | 238,59 | 0,775 | 0,861 | 0,989 |
| 10,93 | 47 484 | 50,34 | 13,26 | 91,46 | -3,19 | 627,92 | 46 232 | 5,74 | 4 910,9 | 183,87 | 334,9 | 7865,2 | 348 070 | 10 781 445 | 238,48 | 0,775 | 0,861 | 0,989 |
| 10,94 | 47 535 | 50,35 | 13,26 | 91,46 | -3,21 | 628,28 | 46 281 | 5,75 | 4 912,1 | 183,86 | 335,2 | 7869,7 | 348 217 | 10 787 636 | 238,37 | 0,775 | 0,861 | 0,989 |
| 10,95 | 47 585 | 50,36 | 13,26 | 91,45 | -3,23 | 628,65 | 46 331 | 5,75 | 4 913,2 | 183,85 | 335,6 | 7874,3 | 348 365 | 10 793 828 | 238,27 | 0,775 | 0,861 | 0,989 |
| 10,96 | 47 635 | 50,37 | 13,26 | 91,44 | -3,25 | 629,01 | 46 380 | 5,76 | 4 914,3 | 183,84 | 335,9 | 7878,8 | 348 512 | 10 800 019 | 238,16 | 0,776 | 0,862 | 0,989 |
| 10,97 | 47 686 | 50,38 | 13,26 | 91,43 | -3,28 | 629,37 | 46 429 | 5,76 | 4 915,5 | 183,83 | 336,2 | 7883,3 | 348 659 | 10 806 210 | 238,05 | 0,776 | 0,862 | 0,989 |
| 10,98 | 47 736 | 50,40 | 13,26 | 91,43 | -3,30 | 629,72 | 46 478 | 5,77 | 4 916,6 | 183,81 | 336,5 | 7887,8 | 348 806 | 10 812 401 | 237,94 | 0,776 | 0,862 | 0,989 |
| 10,99 | 47 787 | 50,41 | 13,26 | 91,42 | -3,32 | 630,08 | 46 527 | 5,77 | 4 917,8 | 183,80 | 336,8 | 7892,4 | 348 954 | 10 818 592 | 237,84 | 0,776 | 0,862 | 0,989 |

| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11,00 | 47 837 | 50,42 | 13,26 | 91,41 | -3,34 | 630,42 | 46 576 | 5,78 | 4 918,9 | 183,79 | 337,1 | 7896,9 | 349 101 | 10 824 783 | 237,73 | 0,776 | 0,863 | 0,989 |
| 11,01 | 47 887 | 50,43 | 13,26 | 91,41 | -3,36 | 630,76 | 46 625 | 5,79 | 4 920,0 | 183,78 | 337,4 | 7901,4 | 349 247 | 10 830 499 | 237,61 | 0,776 | 0,863 | 0,989 |
| 11,02 | 47 938 | 50,44 | 13,27 | 91,40 | -3,38 | 631,10 | 46 674 | 5,79 | 4 921,1 | 183,77 | 337,7 | 7905,9 | 349 392 | 10 836 216 | 237,50 | 0,776 | 0,863 | 0,989 |
| 11,03 | 47 988 | 50,45 | 13,27 | 91,39 | -3,40 | 631,44 | 46 723 | 5,80 | 4 922,1 | 183,75 | 338,0 | 7910,4 | 349 538 | 10 841 932 | 237,38 | 0,776 | 0,864 | 0,989 |
| 11,04 | 48 039 | 50,46 | 13,27 | 91,38 | -3,42 | 631,78 | 46 772 | 5,80 | 4 923,2 | 183,74 | 338,3 | 7914,9 | 349 684 | 10 847 648 | 237,27 | 0,776 | 0,864 | 0,989 |
| 11,05 | 48 089 | 50,47 | 13,27 | 91,38 | -3,44 | 632,12 | 46 822 | 5,81 | 4 924,3 | 183,73 | 338,7 | 7919,4 | 349 830 | 10 853 365 | 237,15 | 0,777 | 0,864 | 0,989 |
| 11,06 | 48 140 | 50,49 | 13,27 | 91,37 | -3,46 | 632,45 | 46 871 | 5,81 | 4 925,4 | 183,72 | 339,0 | 7923,8 | 349 975 | 10 859 081 | 237,03 | 0,777 | 0,864 | 0,989 |
| 11,07 | 48 190 | 50,50 | 13,27 | 91,36 | -3,48 | 632,78 | 46 920 | 5,82 | 4 926,5 | 183,71 | 339,3 | 7928,3 | 350 121 | 10 864 797 | 236,92 | 0,777 | 0,865 | 0,989 |
| 11,08 | 48 241 | 50,51 | 13,27 | 91,36 | -3,50 | 633,11 | 46 969 | 5,82 | 4 927,5 | 183,69 | 339,6 | 7932,8 | 350 267 | 10 870 513 | 236,80 | 0,777 | 0,865 | 0,989 |
| 11,09 | 48 291 | 50,52 | 13,27 | 91,35 | -3,52 | 633,43 | 47 018 | 5,83 | 4 928,6 | 183,68 | 339,9 | 7937,3 | 350 412 | 10 876 230 | 236,69 | 0,777 | 0,865 | 0,989 |
| 11,10 | 48 342 | 50,53 | 13,27 | 91,34 | -3,54 | 633,75 | 47 067 | 5,84 | 4 929,7 | 183,67 | 340,2 | 7941,8 | 350 558 | 10 881 946 | 236,57 | 0,777 | 0,865 | 0,989 |
| 11,11 | 48 392 | 50,54 | 13,27 | 91,33 | -3,56 | 634,07 | 47 116 | 5,84 | 4 930,7 | 183,66 | 340,5 | 7946,2 | 350 702 | 10 887 183 | 236,45 | 0,777 | 0,866 | 0,989 |
| 11,12 | 48 443 | 50,55 | 13,27 | 91,33 | -3,58 | 634,38 | 47 166 | 5,85 | 4 931,7 | 183,64 | 340,8 | 7950,7 | 350 847 | 10 892 420 | 236,32 | 0,777 | 0,866 | 0,989 |
| 11,13 | 48 493 | 50,56 | 13,27 | 91,32 | -3,60 | 634,69 | 47 215 | 5,85 | 4 932,7 | 183,63 | 341,1 | 7955,1 | 350 991 | 10 897 657 | 236,20 | 0,778 | 0,866 | 0,989 |
| 11,14 | 48 544 | 50,57 | 13,28 | 91,31 | -3,62 | 635,00 | 47 264 | 5,86 | 4 933,7 | 183,61 | 341,4 | 7959,5 | 351 136 | 10 902 894 | 236,08 | 0,778 | 0,866 | 0,989 |
| 11,15 | 48 594 | 50,58 | 13,28 | 91,30 | -3,64 | 635,31 | 47 314 | 5,86 | 4 934,7 | 183,60 | 341,8 | 7964,0 | 351 280 | 10 908 131 | 235,96 | 0,778 | 0,867 | 0,989 |
| 11,16 | 48 645 | 50,59 | 13,28 | 91,30 | -3,66 | 635,61 | 47 363 | 5,87 | 4 935,7 | 183,58 | 342,1 | 7968,4 | 351 424 | 10 913 367 | 235,83 | 0,778 | 0,867 | 0,989 |
| 11,17 | 48 696 | 50,60 | 13,28 | 91,29 | -3,68 | 635,92 | 47 412 | 5,88 | 4 936,7 | 183,57 | 342,4 | 7972,8 | 351 569 | 10 918 604 | 235,71 | 0,778 | 0,867 | 0,989 |
| 11,18 | 48 746 | 50,61 | 13,28 | 91,28 | -3,70 | 636,21 | 47 461 | 5,88 | 4 937,7 | 183,55 | 342,7 | 7977,2 | 351 713 | 10 923 841 | 235,59 | 0,778 | 0,867 | 0,989 |
| 11,19 | 48 797 | 50,62 | 13,28 | 91,28 | -3,72 | 636,51 | 47 511 | 5,89 | 4 938,7 | 183,54 | 343,0 | 7981,7 | 351 858 | 10 929 078 | 235,46 | 0,778 | 0,868 | 0,989 |
| 11,20 | 48 847 | 50,63 | 13,28 | 91,27 | -3,74 | 636,80 | 47 560 | 5,89 | 4 939,7 | 183,52 | 343,3 | 7986,1 | 352 002 | 10 934 315 | 235,34 | 0,778 | 0,868 | 0,989 |
| 11,21 | 48 898 | 50,64 | 13,28 | 91,26 | -3,76 | 637,09 | 47 609 | 5,90 | 4 940,6 | 183,51 | 343,6 | 7990,5 | 352 144 | 10 939 080 | 235,21 | 0,779 | 0,868 | 0,989 |
| 11,22 | 48 949 | 50,65 | 13,28 | 91,25 | -3,78 | 637,37 | 47 659 | 5,90 | 4 941,6 | 183,49 | 343,9 | 7994,9 | 352 286 | 10 943 846 | 235,08 | 0,779 | 0,868 | 0,989 |
| 11,23 | 48 999 | 50,66 | 13,28 | 91,25 | -3,80 | 637,66 | 47 708 | 5,91 | 4 942,5 | 183,48 | 344,2 | 7999,2 | 352 428 | 10 948 611 | 234,95 | 0,779 | 0,869 | 0,989 |
| 11,24 | 49 050 | 50,67 | 13,28 | 91,24 | -3,81 | 637,94 | 47 758 | 5,91 | 4 943,4 | 183,46 | 344,5 | 8003,6 | 352 570 | 10 953 377 | 234,82 | 0,779 | 0,869 | 0,989 |
| 11,25 | 49 101 | 50,68 | 13,28 | 91,23 | -3,83 | 638,23 | 47 807 | 5,92 | 4 944,4 | 183,45 | 344,9 | 8008,0 | 352 712 | 10 958 142 | 234,69 | 0,779 | 0,869 | 0,989 |
| 11,26 | 49 151 | 50,69 | 13,29 | 91,22 | -3,85 | 638,50 | 47 856 | 5,93 | 4 945,3 | 183,43 | 345,2 | 8012,4 | 352 853 | 10 962 907 | 234,55 | 0,779 | 0,869 | 0,989 |
| 11,27 | 49 202 | 50,70 | 13,29 | 91,22 | -3,87 | 638,77 | 47 906 | 5,93 | 4 946,2 | 183,42 | 345,5 | 8016,8 | 352 995 | 10 967 673 | 234,42 | 0,779 | 0,869 | 0,989 |
| 11,28 | 49 253 | 50,71 | 13,29 | 91,21 | -3,89 | 639,04 | 47 955 | 5,94 | 4 947,1 | 183,40 | 345,8 | 8021,1 | 353 137 | 10 972 438 | 234,29 | 0,779 | 0,870 | 0,989 |
| 11,29 | 49 303 | 50,72 | 13,29 | 91,20 | -3,91 | 639,31 | 48 005 | 5,94 | 4 948,1 | 183,39 | 346,1 | 8025,5 | 353 279 | 10 977 204 | 234,16 | 0,779 | 0,870 | 0,989 |
| 11,30 | 49 354 | 50,73 | 13,29 | 91,20 | -3,92 | 639,57 | 48 054 | 5,95 | 4 949,0 | 183,37 | 346,4 | 8029,9 | 353 421 | 10 981 969 | 234,03 | 0,780 | 0,870 | 0,989 |
| 11,31 | 49 405 | 50,74 | 13,29 | 91,19 | -3,94 | 639,84 | 48 104 | 5,95 | 4 949,9 | 183,35 | 346,7 | 8034,2 | 353 561 | 10 986 251 | 233,89 | 0,780 | 0,870 | 0,989 |
| 11,32 | 49 456 | 50,75 | 13,29 | 91,18 | -3,96 | 640,10 | 48 153 | 5,96 | 4 950,7 | 183,33 | 347,0 | 8038,6 | 353 700 | 10 990 532 | 233,75 | 0,780 | 0,871 | 0,989 |
| 11,33 | 49 506 | 50,75 | 13,29 | 91,17 | -3,98 | 640,35 | 48 203 | 5,96 | 4 951,6 | 183,32 | 347,3 | 8042,9 | 353 840 | 10 994 814 | 233,61 | 0,780 | 0,871 | 0,989 |
| 11,34 | 49 557 | 50,76 | 13,29 | 91,17 | -3,99 | 640,61 | 48 252 | 5,97 | 4 952,5 | 183,30 | 347,6 | 8047,2 | 353 980 | 10 999 096 | 233,47 | 0,780 | 0,871 | 0,989 |
| 11,35 | 49 608 | 50,77 | 13,29 | 91,16 | -4,01 | 640,86 | 48 302 | 5,98 | 4 953,4 | 183,28 | 348,0 | 8051,6 | 354 120 | 11 003 378 | 233,34 | 0,780 | 0,871 | 0,989 |
| 11,36 | 49 659 | 50,78 | 13,29 | 91,15 | -4,03 | 641,11 | 48 351 | 5,98 | 4 954,2 | 183,26 | 348,3 | 8055,9 | 354 259 | 11 007 659 | 233,20 | 0,780 | 0,872 | 0,989 |
| 11,37 | 49 709 | 50,79 | 13,30 | 91,14 | -4,05 | 641,36 | 48 401 | 5,99 | 4 955,1 | 183,24 | 348,6 | 8060,2 | 354 399 | 11 011 941 | 233,06 | 0,780 | 0,872 | 0,989 |
| 11,38 | 49 760 | 50,80 | 13,30 | 91,14 | -4,06 | 641,60 | 48 450 | 5,99 | 4 956,0 | 183,23 | 348,9 | 8064,5 | 354 539 | 11 016 223 | 232,92 | 0,781 | 0,872 | 0,989 |
| 11,39 | 49 811 | 50,81 | 13,30 | 91,13 | -4,08 | 641,84 | 48 500 | 6,00 | 4 956,8 | 183,21 | 349,2 | 8068,9 | 354 678 | 11 020 504 | 232,78 | 0,781 | 0,872 | 0,989 |

| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11,40 | 49 862 | 50,82 | 13,30 | 91,12 | -4,10 | 642,07 | 48 549 | 6,00 | 4 957,7 | 183,19 | 349,5 | 8073,2 | 354 818 | 11 024 786 | 232,64 | 0,781 | 0,873 | 0,989 |
| 11,41 | 49 913 | 50,82 | 13,30 | 91,11 | -4,12 | 642,31 | 48 599 | 6,01 | 4 958,5 | 183,17 | 349,8 | 8077,5 | 354 955 | 11 028 745 | 232,50 | 0,781 | 0,873 | 0,989 |
| 11,42 | 49 964 | 50,83 | 13,30 | 91,11 | -4,13 | 642,55 | 48 648 | 6,02 | 4 959,3 | 183,15 | 350,1 | 8081,8 | 355 093 | 11 032 705 | 232,35 | 0,781 | 0,873 | 0,989 |
| 11,43 | 50 014 | 50,84 | 13,30 | 91,10 | -4,15 | 642,78 | 48 698 | 6,02 | 4 960,1 | 183,13 | 350,4 | 8086,0 | 355 230 | 11 036 664 | 232,21 | 0,781 | 0,873 | 0,989 |
| 11,44 | 50 065 | 50,85 | 13,30 | 91,09 | -4,17 | 643,02 | 48 747 | 6,03 | 4 960,9 | 183,11 | 350,7 | 8090,3 | 355 368 | 11 040 624 | 232,07 | 0,781 | 0,874 | 0,989 |
| 11,45 | 50 116 | 50,86 | 13,30 | 91,09 | -4,18 | 643,25 | 48 797 | 6,03 | 4 961,8 | 183,09 | 351,1 | 8094,6 | 355 505 | 11 044 583 | 231,93 | 0,781 | 0,874 | 0,989 |
| 11,46 | 50 167 | 50,87 | 13,30 | 91,08 | -4,20 | 643,48 | 48 847 | 6,04 | 4 962,6 | 183,06 | 351,4 | 8098,9 | 355 642 | 11 048 542 | 231,78 | 0,782 | 0,874 | 0,989 |
| 11,47 | 50 218 | 50,88 | 13,30 | 91,07 | -4,22 | 643,70 | 48 896 | 6,04 | 4 963,4 | 183,04 | 351,7 | 8103,2 | 355 780 | 11 052 502 | 231,64 | 0,782 | 0,874 | 0,989 |
| 11,48 | 50 269 | 50,88 | 13,31 | 91,06 | -4,23 | 643,93 | 48 946 | 6,05 | 4 964,2 | 183,02 | 352,0 | 8107,4 | 355 917 | 11 056 461 | 231,50 | 0,782 | 0,875 | 0,989 |
| 11,49 | 50 320 | 50,89 | 13,31 | 91,06 | -4,25 | 644,15 | 48 995 | 6,05 | 4 965,0 | 183,00 | 352,3 | 8111,7 | 356 055 | 11 060 421 | 231,35 | 0,782 | 0,875 | 0,989 |
| 11,50 | 50 370 | 50,90 | 13,31 | 91,05 | -4,26 | 644,37 | 49 045 | 6,06 | 4 965,8 | 182,98 | 352,6 | 8116,0 | 356 192 | 11 064 380 | 231,21 | 0,782 | 0,875 | 0,989 |
| 11,51 | 50 421 | 50,91 | 13,31 | 91,04 | -4,28 | 644,59 | 49 095 | 6,07 | 4 966,6 | 182,96 | 352,9 | 8120,2 | 356 327 | 11 067 936 | 231,06 | 0,782 | 0,875 | 0,989 |
| 11,52 | 50 472 | 50,92 | 13,31 | 91,03 | -4,30 | 644,81 | 49 144 | 6,07 | 4 967,3 | 182,93 | 353,2 | 8124,5 | 356 461 | 11 071 493 | 230,91 | 0,782 | 0,876 | 0,989 |
| 11,53 | 50 523 | 50,92 | 13,31 | 91,03 | -4,31 | 645,02 | 49 194 | 6,08 | 4 968,1 | 182,91 | 353,5 | 5128,7 | 356 596 | 11 075 049 | 230,77 | 0,782 | 0,876 | 0,989 |
| 11,54 | 50 574 | 50,93 | 13,31 | 91,02 | -4,33 | 645,23 | 49 243 | 6,08 | 4 968,8 | 182,88 | 353,8 | 8132,9 | 356 730 | 11 078 606 | 230,62 | 0,782 | 0,876 | 0,989 |
| 11,55 | 50 625 | 50,94 | 13,31 | 91,01 | -4,34 | 645,44 | 49 293 | 6,09 | 4 969,6 | 182,86 | 354,2 | 8137,2 | 356 865 | 11 082 162 | 230,47 | 0,783 | 0,877 | 0,989 |
| 11,56 | 50 676 | 50,95 | 13,31 | 91,00 | -4,36 | 645,64 | 49 353 | 6,09 | 4 970,4 | 182,83 | 354,5 | 8141,4 | 357 000 | 11 085 718 | 230,32 | 0,783 | 0,877 | 0,989 |
| 11,57 | 50 727 | 50,95 | 13,31 | 91,00 | -4,38 | 645,85 | 49 392 | 6,10 | 4 971,1 | 182,81 | 354,8 | 8145,6 | 357 134 | 11 089 275 | 230,17 | 0,783 | 0,877 | 0,989 |
| 11,58 | 50 778 | 50,96 | 13,31 | 90,99 | -4,39 | 646,05 | 49 442 | 6,10 | 4 971,9 | 182,78 | 355,1 | 8149,8 | 357 269 | 11 092 831 | 230,03 | 0,783 | 0,877 | 0,989 |
| 11,59 | 50 829 | 50,97 | 13,32 | 90,98 | -4,41 | 646,25 | 49 491 | 6,11 | 4 972,6 | 182,76 | 355,4 | 8154,1 | 357 403 | 11 096 388 | 229,88 | 0,783 | 0,878 | 0,989 |
| 11,60 | 50 880 | 50,98 | 13,32 | 90,97 | -4,42 | 646,45 | 49 541 | 6,11 | 4 973,4 | 182,73 | 355,7 | 8158,3 | 357 538 | 11 099 944 | 229,73 | 0,783 | 0,878 | 0,989 |
| 11,61 | 50 931 | 50,98 | 13,32 | 90,97 | -4,44 | 646,64 | 49 591 | 6,12 | 4 974,1 | 182,70 | 356,0 | 8162,5 | 357 670 | 11 103 119 | 229,58 | 0,783 | 0,878 | 0,989 |
| 11,62 | 50 982 | 50,99 | 13,32 | 90,96 | -4,45 | 646,83 | 49 640 | 6,12 | 4 974,8 | 182,67 | 356,3 | 8166,7 | 357 803 | 11 106 294 | 229,42 | 0,783 | 0,879 | 0,989 |
| 11,63 | 51 033 | 51,00 | 13,32 | 90,95 | -4,47 | 647,02 | 49 690 | 6,13 | 4 975,5 | 182,63 | 356,6 | 8171,0 | 357 935 | 11 109 470 | 229,27 | 0,783 | 0,879 | 0,989 |
| 11,64 | 51 084 | 51,01 | 13,32 | 90,94 | -4,48 | 647,21 | 49 740 | 6,13 | 4 976,2 | 182,60 | 356,9 | 8175,2 | 358 067 | 11 112 645 | 229,12 | 0,783 | 0,879 | 0,989 |
| 11,65 | 51 135 | 51,01 | 13,32 | 90,94 | -4,50 | 647,39 | 49 790 | 6,14 | 4 976,6 | 182,57 | 357,3 | 8179,4 | 358 200 | 11 115 820 | 228,97 | 0,784 | 0,880 | 0,989 |
| 11,66 | 51 186 | 51,02 | 13,32 | 90,93 | -4,52 | 647,58 | 49 839 | 6,15 | 4 977,6 | 182,54 | 357,6 | 8183,6 | 358 332 | 11 118 995 | 228,81 | 0,784 | 0,880 | 0,989 |
| 11,67 | 51 237 | 51,03 | 13,32 | 90,92 | -4,53 | 647,76 | 49 889 | 6,15 | 4 978,3 | 182,51 | 357,9 | 8187,8 | 358 464 | 11 122 170 | 228,66 | 0,784 | 0,880 | 0,989 |
| 11,68 | 51 288 | 51,04 | 13,32 | 90,91 | -4,55 | 647,94 | 49 939 | 6,16 | 4 979,0 | 182,47 | 358,2 | 8192,1 | 358 596 | 11 125 346 | 228,51 | 0,784 | 0,880 | 0,989 |
| 11,69 | 51 339 | 51,04 | 13,33 | 90,91 | -4,56 | 648,12 | 49 988 | 6,16 | 4 979,7 | 182,44 | 358,5 | 8196,3 | 358 729 | 11 128 521 | 228,35 | 0,784 | 0,881 | 0,989 |
| 11,70 | 51 390 | 51,05 | 13,33 | 90,90 | -4,58 | 648,29 | 50 038 | 6,17 | 4 980,4 | 182,41 | 358,8 | 8200,5 | 358 861 | 11 131 696 | 228,20 | 0,784 | 0,881 | 0,989 |
| 11,71 | 51 441 | 51,06 | 13,33 | 90,89 | -4,59 | 648,47 | 50 088 | 6,18 | 4 981,1 | 182,36 | 359,1 | 8204,7 | 358 992 | 11 134 549 | 228,04 | 0,784 | 0,881 | 0,989 |
| 11,72 | 51 492 | 51,06 | 13,33 | 90,88 | -4,61 | 648,65 | 50 138 | 6,18 | 4 981,7 | 182,32 | 359,4 | 8208,9 | 359 122 | 11 137 402 | 227,89 | 0,784 | 0,882 | 0,989 |
| 11,73 | 51 543 | 51,07 | 13,33 | 90,88 | -4,62 | 648,82 | 50 187 | 6,19 | 4 982,4 | 182,27 | 359,7 | 8213,2 | 359 253 | 11 140 255 | 227,73 | 0,784 | 0,882 | 0,989 |
| 11,74 | 51 594 | 51,08 | 13,33 | 90,87 | -4,64 | 648,99 | 50 237 | 6,16 | 4 983,0 | 182,23 | 360,0 | 8217,4 | 359 384 | 11 143 108 | 227,57 | 0,784 | 0,882 | 0,989 |
| 11,75 | 51 645 | 51,08 | 13,33 | 90,86 | -4,65 | 649,15 | 50 287 | 6,20 | 4 983,7 | 182,18 | 360,4 | 8221,6 | 359 515 | 11 145 961 | 227,42 | 0,785 | 0,883 | 0,989 |
| 11,76 | 51 696 | 51,09 | 13,33 | 90,86 | -4,67 | 649,32 | 50 337 | 6,20 | 4 984,4 | 182,13 | 360,7 | 8225,8 | 359 645 | 11 148 814 | 227,26 | 0,785 | 0,883 | 0,989 |
| 11,77 | 51 747 | 51,10 | 13,33 | 90,85 | -4,68 | 649,48 | 50 387 | 6,21 | 4 985,0 | 182,09 | 361,0 | 8230,0 | 359 776 | 11 151 667 | 227,10 | 0,785 | 0,883 | 0,989 |
| 11,78 | 51 799 | 51,10 | 13,33 | 90,84 | -4,70 | 649,64 | 50 436 | 6,21 | 4 985,7 | 182,04 | 361,3 | 8234,3 | 359 907 | 11 154 520 | 226,94 | 0,785 | 0,883 | 0,989 |
| 11,79 | 51 850 | 51,11 | 13,34 | 90,83 | -4,71 | 649,80 | 50 486 | 6,22 | 4 986,3 | 182,00 | 361,6 | 8238,5 | 360 037 | 11 157 373 | 226,79 | 0,785 | 0,884 | 0,989 |

| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11,80 | 51 901 | 51,12 | 13,34 | 90,83 | -4,72 | 649,96 | 50 536 | 6,22 | 4 987,0 | 181,95 | 361,9 | 8242,7 | 360 168 | 11 160 226 | 226,63 | 0,785 | 0,884 | 0,989 |
| 11,81 | 51 952 | 51,12 | 13,34 | 90,82 | -4,74 | 650,11 | 50 586 | 6,23 | 4 987,6 | 181,68 | 362,2 | 8246,9 | 360 296 | 11 162 495 | 226,47 | 0,785 | 0,886 | 0,989 |
| 11,82 | 52 003 | 51,13 | 13,34 | 90,81 | -4,75 | 650,26 | 50 636 | 6,23 | 4 988,2 | 181,40 | 362,5 | 8251,1 | 360 424 | 11 164 764 | 226,30 | 0,785 | 0,887 | 0,989 |
| 11,83 | 52 054 | 51,14 | 13,34 | 90,80 | -4,77 | 650,40 | 50 686 | 6,24 | 4 988,7 | 181,13 | 362,8 | 8255,4 | 360 553 | 11 167 033 | 226,14 | 0,785 | 0,889 | 0,989 |
| 11,84 | 52 105 | 51,14 | 13,34 | 90,80 | -4,78 | 650,55 | 50 736 | 6,24 | 4 989,3 | 180,85 | 363,1 | 8259,6 | 360 681 | 11 169 302 | 225,97 | 0,785 | 0,890 | 0,989 |
| 11,85 | 52 156 | 51,15 | 13,34 | 90,79 | -4,80 | 650,69 | 50 786 | 6,25 | 4 989,9 | 180,58 | 363,5 | 8263,8 | 360 809 | 11 171 571 | 225,81 | 0,786 | 0,892 | 0,989 |
| 11,86 | 52 208 | 51,15 | 13,34 | 90,78 | -4,81 | 650,82 | 50 835 | 6,26 | 4 990,5 | 180,30 | 363,8 | 8268,0 | 360 937 | 11 173 840 | 225,64 | 0,786 | 0,893 | 0,989 |
| 11,87 | 52 259 | 51,16 | 13,34 | 90,77 | -4,83 | 650,95 | 50 885 | 6,26 | 4 991,1 | 180,03 | 364,1 | 8272,2 | 361 065 | 11 176 109 | 225,48 | 0,786 | 0,895 | 0,989 |
| 11,88 | 52 310 | 51,17 | 13,35 | 90,77 | -4,84 | 651,07 | 50 935 | 6,27 | 4 991,6 | 179,75 | 364,4 | 8276,5 | 361 194 | 11 178 378 | 225,31 | 0,786 | 0,896 | 0,989 |
| 11,89 | 52 361 | 51,17 | 13,35 | 90,76 | -4,86 | 651,18 | 50 985 | 6,27 | 4 992,2 | 179,48 | 364,7 | 8280,7 | 361 322 | 11 180 647 | 225,15 | 0,786 | 0,898 | 0,989 |
| 11,90 | 52 412 | 51,18 | 13,35 | 90,75 | -4,87 | 651,28 | 51 035 | 6,28 | 4 992,8 | 179,20 | 365,0 | 8284,9 | 361 450 | 11 182 916 | 224,98 | 0,786 | 0,899 | 0,989 |
| 11,91 | 52 463 | 51,18 | 13,35 | 90,74 | -4,89 | 651,31 | 51 085 | 6,29 | 4 993,6 | 179,16 | 365,3 | 8288,9 | 361 578 | 11 186 789 | 224,85 | 0,786 | 0,899 | 0,989 |
| 11,92 | 52 515 | 51,18 | 13,35 | 90,74 | -4,91 | 651,35 | 51 135 | 6,29 | 4 994,3 | 179,12 | 365,6 | 8292,9 | 361 706 | 11 190 662 | 224,72 | 0,786 | 0,900 | 0,989 |
| 11,93 | 52 566 | 51,20 | 13,35 | 90,73 | -4,91 | 651,77 | 51 185 | 6,30 | 4 995,1 | 179,08 | 365,9 | 8276,9 | 361 835 | 11 194 535 | 224,59 | 0,786 | 0,900 | 0,989 |
| 11,94 | 52 617 | 51,20 | 13,35 | 90,72 | -4,92 | 652,02 | 51 235 | 6,30 | 4 995,8 | 179,04 | 366,2 | 8300,9 | 361 963 | 11 198 408 | 224,46 | 0,786 | 0,900 | 0,989 |
| 11,95 | 52 668 | 51,21 | 13,35 | 90,71 | -4,93 | 652,28 | 51 285 | 6,31 | 4 996,6 | 179,00 | 366,6 | 8304,9 | 362 091 | 11 202 281 | 224,33 | 0,787 | 0,901 | 0,990 |
| 11,96 | 52 719 | 51,22 | 13,35 | 90,71 | -4,94 | 652,53 | 51 334 | 6,31 | 4 997,3 | 178,96 | 366,9 | 8308,9 | 362 219 | 11 206 154 | 224,19 | 0,787 | 0,901 | 0,990 |
| 11,97 | 52 771 | 51,23 | 13,36 | 90,70 | -4,95 | 652,78 | 51 384 | 6,32 | 4 998,1 | 178,92 | 367,2 | 8312,9 | 362 347 | 11 210 027 | 224,06 | 0,787 | 0,901 | 0,990 |
| 11,98 | 52 822 | 51,24 | 13,36 | 90,69 | -4,96 | 653,03 | 51 434 | 6,32 | 4 998,8 | 178,88 | 367,5 | 8316,9 | 362 476 | 11 213 900 | 223,93 | 0,787 | 0,901 | 0,990 |
| 11,99 | 52 873 | 51,25 | 13,36 | 90,68 | -4,97 | 653,29 | 51 484 | 6,33 | 4 999,6 | 178,84 | 367,8 | 8320,9 | 362 604 | 11 217 773 | 223,80 | 0,787 | 0,902 | 0,990 |
| 12,00 | 52 924 | 51,25 | 13,36 | 90,68 | -4,98 | 653,53 | 51 534 | 6,33 | 5 000,3 | 178,80 | 368,1 | 8324,9 | 362 732 | 11 221 646 | 223,67 | 0,787 | 0,902 | 0,990 |
| 12,01 | 52 976 | 51,26 | 13,36 | 90,67 | -4,99 | 653,78 | 51 584 | 6,34 | 5 001,1 | 178,79 | 368,4 | 8328,8 | 362 856 | 11 225 920 | 223,55 | 0,787 | 0,902 | 0,990 |
| 12,02 | 53 027 | 51,27 | 13,36 | 90,66 | -5,00 | 654,03 | 51 634 | 6,34 | 5 002,0 | 178,78 | 368,7 | 8332,7 | 362 980 | 11 230 193 | 223,43 | 0,787 | 0,902 | 0,990 |
| 12,03 | 53 078 | 51,28 | 13,36 | 90,65 | -5,01 | 654,28 | 51 684 | 6,35 | 5 002,7 | 178,77 | 369,0 | 8336,7 | 363 104 | 11 234 467 | 223,30 | 0,787 | 0,903 | 0,990 |
| 12,04 | 53 129 | 51,29 | 13,36 | 90,65 | -5,02 | 654,53 | 51 734 | 6,35 | 5 003,5 | 178,76 | 369,3 | 8340,6 | 363 228 | 11 238 740 | 223,18 | 0,787 | 0,903 | 0,990 |
| 12,05 | 53 181 | 51,29 | 13,36 | 90,64 | -5,03 | 654,78 | 51 784 | 6,36 | 5 004,3 | 178,75 | 369,7 | 8344,5 | 363 352 | 11 243 014 | 223,06 | 0,788 | 0,903 | 0,990 |
| 12,06 | 53 232 | 51,30 | 13,37 | 90,63 | -5,04 | 655,03 | 51 834 | 6,37 | 5 005,0 | 178,73 | 370,0 | 8348,4 | 363 476 | 11 247 288 | 222,94 | 0,788 | 0,903 | 0,990 |
| 12,07 | 53 283 | 51,31 | 13,37 | 90,63 | -5,05 | 655,28 | 51 884 | 6,37 | 5 005,8 | 178,72 | 370,3 | 8352,3 | 363 600 | 11 251 561 | 222,82 | 0,788 | 0,903 | 0,990 |
| 12,08 | 53 335 | 51,32 | 13,37 | 90,62 | -5,05 | 655,53 | 51 934 | 6,38 | 5 006,6 | 178,71 | 370,6 | 8356,3 | 363 724 | 11 255 835 | 222,69 | 0,788 | 0,904 | 0,990 |
| 12,09 | 53 386 | 51,33 | 13,37 | 90,61 | -5,06 | 655,77 | 51 984 | 6,38 | 5 007,4 | 178,70 | 370,9 | 8360,2 | 363 848 | 11 260 108 | 222,57 | 0,788 | 0,904 | 0,990 |
| 12,10 | 53 437 | 51,33 | 13,37 | 90,60 | -5,07 | 656,02 | 52 034 | 6,39 | 5 008,2 | 178,69 | 371,2 | 8364,1 | 363 972 | 11 264 382 | 222,45 | 0,788 | 0,904 | 0,990 |
| 12,11 | 53 489 | 51,34 | 13,37 | 90,60 | -5,08 | 656,27 | 52 084 | 6,40 | 5 009,0 | 178,68 | 371,5 | 6368,0 | 364 094 | 11 268 607 | 222,33 | 0,788 | 0,904 | 0,990 |
| 12,12 | 53 540 | 51,35 | 13,37 | 90,59 | -5,09 | 656,38 | 52 134 | 6,40 | 5 009,8 | 178,68 | 371,8 | 8371,9 | 364 216 | 11 272 833 | 222,21 | 0,788 | 0,904 | 0,990 |
| 12,13 | 53 591 | 51,36 | 13,37 | 90,58 | -5,10 | 656,76 | 52 184 | 6,41 | 5 010,5 | 178,67 | 372,1 | 8375,8 | 364 338 | 11 277 058 | 222,09 | 0,788 | 0,905 | 0,990 |
| 12,14 | 53 643 | 51,37 | 13,37 | 90,57 | -5,11 | 657,01 | 52 234 | 6,41 | 5 011,3 | 178,67 | 372,4 | 8379,7 | 364 460 | 11 281 284 | 221,97 | 0,788 | 0,905 | 0,990 |
| 12,15 | 53 694 | 51,37 | 13,38 | 90,57 | -5,11 | 657,26 | 52 284 | 6,42 | 5 012,1 | 178,66 | 372,8 | 8383,6 | 364 582 | 11 285 509 | 221,85 | 0,789 | 0,905 | 0,990 |
| 12,16 | 53 745 | 51,38 | 13,38 | 90,56 | -5,12 | 657,50 | 52 334 | 6,42 | 5 012,9 | 178,65 | 373,1 | 8387,4 | 364 704 | 11 289 734 | 221,73 | 0,789 | 0,905 | 0,990 |
| 12,17 | 53 797 | 51,39 | 13,38 | 90,55 | -5,13 | 657,75 | 52 384 | 6,43 | 5 013,7 | 178,65 | 373,4 | 8391,3 | 364 826 | 11 293 960 | 221,61 | 0,789 | 0,905 | 0,990 |
| 12,18 | 53 848 | 51,40 | 13,38 | 90,54 | -5,14 | 657,99 | 52 434 | 6,43 | 5 014,4 | 178,64 | 373,7 | 8395,2 | 364 948 | 11 298 185 | 221,49 | 0,789 | 0,906 | 0,990 |
| 12,19 | 53 900 | 51,41 | 13,38 | 90,54 | -5,15 | 658,24 | 52 484 | 6,44 | 5 015,2 | 178,64 | 374,0 | 8399,1 | 365 070 | 11 302 411 | 221,37 | 0,789 | 0,906 | 0,990 |

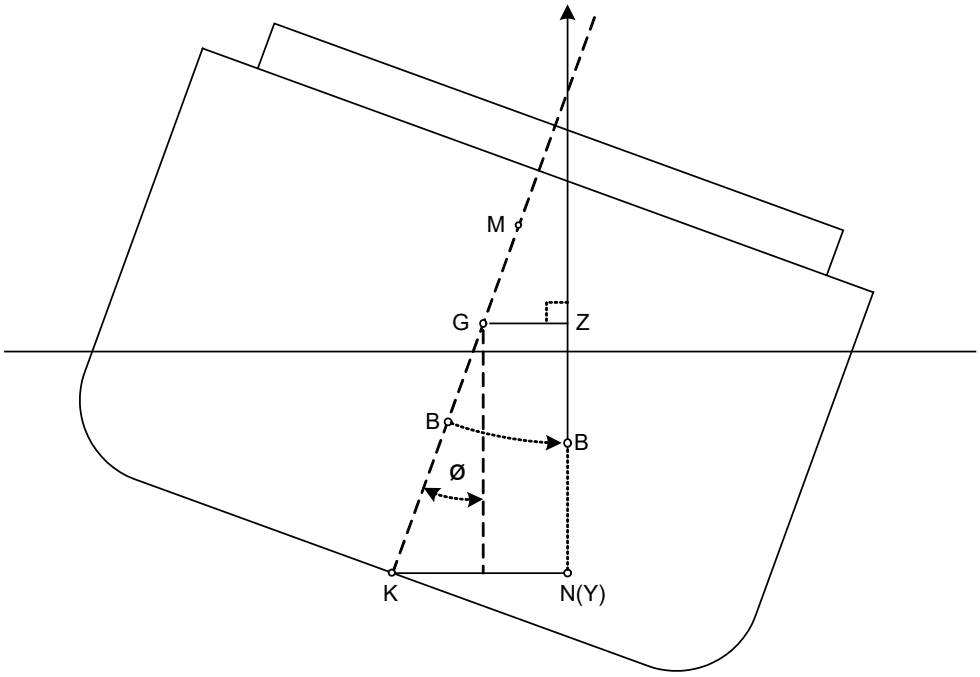
| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12,20 | 53 951 | 51,41 | 13,38 | 90,53 | -5,16 | 658,48 | 52 534 | 6,44 | 5 016,0 | 178,63 | 374,3 | 8403,0 | 365 192 | 11 306 636 | 221,25 | 0,789 | 0,906 | 0,990 |
| 12,21 | 54 002 | 51,42 | 13,38 | 90,52 | -5,17 | 658,60 | 52 584 | 6,45 | 5 016,8 | 178,63 | 374,6 | 8406,9 | 365 312 | 11 310 804 | 221,13 | 0,789 | 0,906 | 0,990 |
| 12,22 | 54 054 | 51,43 | 13,38 | 90,51 | -5,17 | 658,97 | 52 634 | 6,45 | 5 017,5 | 178,62 | 374,9 | 8410,7 | 365 432 | 11 314 971 | 221,01 | 0,789 | 0,906 | 0,990 |
| 12,23 | 54 105 | 51,44 | 13,39 | 90,51 | -5,18 | 659,22 | 52 685 | 6,46 | 5 018,3 | 178,62 | 375,2 | 8414,6 | 365 552 | 11 319 139 | 220,89 | 0,789 | 0,906 | 0,990 |
| 12,24 | 54 157 | 51,45 | 13,39 | 90,50 | -5,19 | 659,46 | 62 735 | 6,46 | 5 019,0 | 178,61 | 375,5 | 8418,5 | 365 672 | 11 323 306 | 220,77 | 0,789 | 0,906 | 0,990 |
| 12,25 | 54 208 | 51,45 | 13,39 | 90,49 | -5,19 | 659,70 | 52 785 | 6,47 | 5 019,8 | 178,61 | 375,9 | 8422,4 | 365 792 | 11 327 474 | 220,66 | 0,790 | 0,907 | 0,990 |
| 12,26 | 54 260 | 51,46 | 13,39 | 90,49 | -5,20 | 659,95 | 52 835 | 6,48 | 5 020,6 | 178,61 | 376,2 | 8426,2 | 365 911 | 11 331 641 | 220,54 | 0,790 | 0,907 | 0,990 |
| 12,27 | 54 311 | 51,47 | 13,39 | 90,48 | -5,21 | 660,19 | 52 885 | 6,48 | 5 021,3 | 178,60 | 376,5 | 8430,1 | 366 031 | 11 335 809 | 220,42 | 0,790 | 0,907 | 0,990 |
| 12,28 | 54 363 | 51,48 | 13,39 | 90,47 | -5,22 | 660,43 | 52 936 | 6,49 | 5 022,1 | 178,60 | 376,8 | 8434,0 | 366 151 | 11 339 976 | 220,3 | 0,790 | 0,907 | 0,990 |
| 12,29 | 54 414 | 51,48 | 13,39 | 90,46 | -5,22 | 660,67 | 52 986 | 6,49 | 5 022,8 | 178,59 | 377,1 | 8437,8 | 366 271 | 11 344 144 | 220,18 | 0,790 | 0,907 | 0,990 |
| 12,30 | 54 466 | 51,49 | 13,39 | 90,46 | -5,23 | 660,91 | 53 036 | 6,50 | 5 023,6 | 178,59 | 377,4 | 8441,7 | 366 391 | 11 348 311 | 220,06 | 0,790 | 0,907 | 0,990 |
| 12,31 | 54 517 | 51,50 | 13,39 | 90,45 | -5,24 | 661,15 | 53 086 | 6,51 | 5 024,3 | 178,59 | 377,7 | 8445,6 | 366 509 | 11 352 418 | 219,94 | 0,790 | 0,907 | 0,990 |
| 12,32 | 54 569 | 51,51 | 13,40 | 90,44 | -5,25 | 661,39 | 53 136 | 6,51 | 5 025,1 | 178,59 | 378,0 | 8449,4 | 366 627 | 11 356 525 | 219,82 | 0,790 | 0,907 | 0,990 |
| 12,33 | 54 620 | 51,51 | 13,40 | 90,43 | -5,26 | 661,51 | 53 187 | 6,52 | 5 025,8 | 178,59 | 378,3 | 8453,3 | 366 745 | 11 360 632 | 219,71 | 0,790 | 0,908 | 0,990 |
| 12,34 | 54 672 | 51,52 | 13,40 | 90,43 | -5,26 | 661,87 | 53 237 | 6,52 | 5 026,6 | 178,59 | 378,6 | 8457,1 | 366 863 | 11 364 739 | 219,59 | 0,790 | 0,908 | 0,990 |
| 12,35 | 54 723 | 51,53 | 13,40 | 90,42 | -5,27 | 662,11 | 53 287 | 6,53 | 5 027,3 | 178,59 | 379,0 | 8461,0 | 366 981 | 11 368 847 | 219,47 | 0,791 | 0,908 | 0,990 |
| 12,36 | 54 775 | 51,54 | 13,40 | 90,41 | -5,27 | 662,35 | 53 337 | 6,53 | 5 028,0 | 178,58 | 379,3 | 8464,9 | 367 099 | 11 372 954 | 219,35 | 0,791 | 0,908 | 0,990 |
| 12,37 | 54 826 | 51,55 | 13,40 | 90,41 | -5,28 | 662,59 | 53 387 | 6,54 | 5 028,8 | 178,58 | 379,6 | 8468,7 | 367 217 | 11 377 061 | 219,23 | 0,791 | 0,908 | 0,990 |
| 12,38 | 54 878 | 51,55 | 13,40 | 90,40 | -5,29 | 662,83 | 53 438 | 6,54 | 5 029,5 | 178,58 | 379,9 | 8472,6 | 367 335 | 11 381 168 | 219,12 | 0,791 | 0,909 | 0,990 |
| 12,39 | 54 929 | 51,56 | 13,40 | 90,39 | -5,30 | 663,06 | 53 488 | 6,55 | 5 030,3 | 178,58 | 380,2 | 8476,4 | 367 453 | 11 385 275 | 219,00 | 0,791 | 0,909 | 0,990 |
| 12,40 | 54 981 | 51,57 | 13,41 | 90,38 | -5,30 | 663,30 | 53 538 | 6,55 | 5 031,0 | 178,58 | 380,5 | 8480,3 | 367 571 | 11 389 382 | 218,88 | 0,791 | 0,909 | 0,990 |
| 12,41 | 55 032 | 51,58 | 13,41 | 90,38 | -5,31 | 663,54 | 53 588 | 6,56 | 5 031,7 | 178,58 | 380,8 | 8484,1 | 367 687 | 11 393 426 | 218,76 | 0,791 | 0,909 | 0,990 |
| 12,42 | 55 084 | 51,58 | 13,41 | 90,37 | -5,32 | 663,78 | 53 639 | 6,56 | 5 032,5 | 178,58 | 381,1 | 8488,0 | 367 802 | 11 397 470 | 218,65 | 0,791 | 0,909 | 0,990 |
| 12,43 | 55 136 | 51,59 | 13,41 | 90,36 | -5,32 | 664,01 | 63 689 | 6,57 | 5 033,2 | 178,58 | 381,4 | 8491,8 | 367 918 | 11 401 514 | 218,53 | 0,791 | 0,909 | 0,990 |
| 12,44 | 55 187 | 51,60 | 13,41 | 90,36 | -5,33 | 664,25 | 63 739 | 6,57 | 5 033,9 | 178,58 | 381,7 | 8495,7 | 368 033 | 11 405 558 | 218,41 | 0,791 | 0,909 | 0,990 |
| 12,45 | 55 239 | 51,61 | 13,41 | 90,35 | -5,33 | 664,49 | 53 790 | 6,58 | 5 034,7 | 178,58 | 382,1 | 8499,5 | 368 149 | 11 409 602 | 218,30 | 0,792 | 0,910 | 0,990 |
| 12,46 | 55 290 | 51,61 | 13,41 | 90,34 | -5,34 | 664,72 | 53 840 | 6,59 | 5 035,4 | 178,57 | 382,4 | 8503,3 | 368 265 | 11 413 646 | 218,18 | 0,792 | 0,910 | 0,990 |
| 12,47 | 55 342 | 51,62 | 13,41 | 90,33 | -5,35 | 664,96 | 53 890 | 6,59 | 5 036,1 | 178,57 | 382,7 | 8507,2 | 368 380 | 11 417 690 | 218,06 | 0,792 | 0,910 | 0,990 |
| 12,48 | 55 394 | 51,63 | 13,42 | 90,33 | -5,35 | 665,19 | 53 940 | 6,60 | 5 036,8 | 178,57 | 383,0 | 8511,0 | 368 496 | 11 421 734 | 217,94 | 0,792 | 0,910 | 0,990 |
| 12,49 | 55 445 | 51,64 | 13,42 | 90,32 | -5,36 | 665,42 | 53 991 | 6,60 | 5 037,6 | 178,57 | 383,3 | 8514,9 | 368 611 | 11 425 778 | 217,83 | 0,792 | 0,910 | 0,990 |
| 12,50 | 55 497 | 51,64 | 13,42 | 90,31 | -5,37 | 665,66 | 54 041 | 6,61 | 5 038,3 | 178,57 | 383,6 | 8518,7 | 368 727 | 11 429 822 | 217,71 | 0,792 | 0,910 | 0,990 |
| 12,51 | 55 549 | 51,65 | 13,42 | 90,31 | -5,37 | 665,89 | 54 091 | 6,62 | 5 039,0 | 178,57 | 383,9 | 8522,5 | 368 841 | 11 433 819 | 217,59 | 0,792 | 0,910 | 0,990 |
| 12,52 | 55 600 | 51,66 | 13,42 | 90,30 | -5,38 | 666,12 | 54 142 | 6,62 | 5 039,7 | 178,57 | 384,2 | 8526,3 | 368 955 | 11 437 815 | 217,48 | 0,792 | 0,910 | 0,990 |
| 12,53 | 55 652 | 51,67 | 13,42 | 90,29 | -5,38 | 666,36 | 54 192 | 6,63 | 5 040,5 | 178,57 | 384,5 | 8530,2 | 369 068 | 11 441 812 | 217,36 | 0,792 | 0,910 | 0,990 |
| 12,54 | 55 704 | 51,67 | 13,42 | 90,28 | -5,39 | 666,59 | 54 243 | 6,63 | 5 041,2 | 178,57 | 384,8 | 8534,0 | 369 182 | 11 445 808 | 217,25 | 0,792 | 0,910 | 0,990 |
| 12,55 | 55 755 | 51,68 | 13,42 | 90,28 | -5,40 | 666,82 | 54 293 | 6,64 | 5 041,9 | 178,57 | 385,2 | 8537,8 | 369 296 | 11 449 805 | 217,13 | 0,793 | 0,911 | 0,990 |
| 12,56 | 55 807 | 51,69 | 13,43 | 90,27 | -5,40 | 667,06 | 54 343 | 6,64 | 5 042,6 | 178,57 | 385,5 | 8541,6 | 369 410 | 11 453 802 | 217,01 | 0,793 | 0,911 | 0,990 |
| 12,57 | 55 859 | 51,69 | 13,43 | 90,26 | -5,41 | 667,29 | 54 394 | 6,65 | 5 043,3 | 178,57 | 385,8 | 8545,4 | 369 524 | 11 457 798 | 216,90 | 0,793 | 0,911 | 0,990 |
| 12,58 | 55 910 | 51,70 | 13,43 | 90,26 | -5,41 | 667,52 | 54 444 | 6,65 | 5 044,1 | 178,57 | 386,1 | 8549,3 | 369 637 | 11 461 795 | 216,78 | 0,793 | 0,911 | 0,990 |
| 12,59 | 55 962 | 51,71 | 13,43 | 90,25 | -5,42 | 667,75 | 54 495 | 6,66 | 5 044,8 | 178,57 | 386,4 | 8553,1 | 369 751 | 11 465 791 | 216,67 | 0,793 | 0,911 | 0,990 |

| $d_m$ (m) | DISP (t) | TPC (t/cm) | $KM_T$ (m) | LCB (m) | $LCF_R$ (m) | MTC (tm/cm) | $VOL_m$ ($m^3$) | KB (m) | $A_{WL}$ ($m^2$) | $L_{WL}$ (m) | $A_M$ ($m^2$) | $A_{WS}$ ($m^2$) | $I_T$ ($m^4$) | $I_L$ ($m^4$) | $KM_L$ (m) | $C_B$ (-) | $C_W$ (-) | $C_M$ (-) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12,60 | 56 014 | 51,72 | 13,43 | 90,24 | -5,43 | 667,98 | 54 545 | 6,66 | 5 045,5 | 178,57 | 386,7 | 8556,9 | 369 865 | 11 469 788 | 216,55 | 0,793 | 0,911 | 0,990 |
| 12,61 | 56 065 | 51,72 | 13,43 | 90,23 | -5,43 | 668,21 | 54 595 | 6,67 | 5 046,2 | 178,57 | 387,0 | 8560,7 | 369 976 | 11 473 726 | 216,44 | 0,793 | 0,911 | 0,990 |
| 12,62 | 56 117 | 51,73 | 13,43 | 90,23 | -5,44 | 668,44 | 54 646 | 6,67 | 5 046,9 | 178,57 | 387,3 | 8564,5 | 370 088 | 11 477 664 | 216,32 | 0,793 | 0,911 | 0,990 |
| 12,63 | 56 169 | 51,74 | 13,43 | 90,22 | -5,44 | 668,67 | 54 696 | 6,68 | 5 047,6 | 178,57 | 387,6 | 8568,3 | 370 199 | 11 481 602 | 216,21 | 0,793 | 0,912 | 0,990 |
| 12,64 | 56 221 | 51,75 | 13,44 | 90,21 | -5,45 | 668,90 | 54 747 | 6,68 | 5 048,3 | 178,57 | 387,9 | 8572,1 | 370 311 | 11 485 540 | 216,09 | 0,793 | 0,912 | 0,990 |
| 12,65 | 56 272 | 51,75 | 13,44 | 90,21 | -5,45 | 669,13 | 54 797 | 6,69 | 5 049,0 | 178,58 | 388,3 | 8576,0 | 370 422 | 11 489 478 | 215,98 | 0,794 | 0,912 | 0,990 |
| 12,66 | 56 324 | 51,76 | 13,44 | 90,20 | -5,46 | 669,36 | 54 847 | 6,70 | 5 049,7 | 178,58 | 388,6 | 8579,8 | 370 533 | 11 493 415 | 215,86 | 0,794 | 0,912 | 0,990 |
| 12,67 | 56 376 | 51,77 | 13,44 | 90,19 | -5,46 | 669,59 | 54 898 | 6,70 | 5 050,4 | 178,58 | 388,9 | 8573,6 | 370 645 | 11 497 353 | 215,75 | 0,794 | 0,912 | 0,990 |
| 12,68 | 56 428 | 51,77 | 13,44 | 90,18 | -5,47 | 669,82 | 54 948 | 6,71 | 5 051,1 | 178,58 | 389,2 | 8587,4 | 370 756 | 11 501 291 | 215,63 | 0,794 | 0,913 | 0,990 |
| 12,69 | 56 479 | 51,78 | 13,44 | 90,18 | -5,47 | 670,05 | 54 999 | 6,71 | 5 051,8 | 178,58 | 389,5 | 8591,2 | 370 868 | 11 505 229 | 215,52 | 0,794 | 0,913 | 0,990 |
| 12,70 | 56 531 | 51,79 | 13,44 | 90,17 | -5,48 | 670,28 | 55 049 | 6,72 | 5 052,5 | 178,58 | 389,8 | 8595,0 | 370 979 | 11 509 167 | 215,40 | 0,794 | 0,913 | 0,990 |
| 12,71 | 56 583 | 51,80 | 13,45 | 90,16 | -5,48 | 670,51 | 55 100 | 6,73 | 5 053,2 | 178,58 | 390,1 | 8598,8 | 371 088 | 11 513 054 | 215,29 | 0,794 | 0,913 | 0,990 |
| 12,72 | 56 635 | 51,80 | 13,45 | 90,16 | -5,49 | 670,73 | 55 150 | 6,73 | 5 053,9 | 178,58 | 390,4 | 8602,6 | 371 198 | 11 516 941 | 215,17 | 0,794 | 0,913 | 0,990 |
| 12,73 | 56 687 | 51,81 | 13,45 | 90,15 | -5,49 | 670,96 | 55 201 | 6,74 | 5 054,6 | 178,59 | 390,7 | 8606,4 | 371 307 | 11 520 829 | 215,06 | 0,794 | 0,913 | 0,990 |
| 12,74 | 56 738 | 51,82 | 13,45 | 90,14 | -5,50 | 671,19 | 55 251 | 6,74 | 5 055,3 | 178,59 | 391,0 | 8610,2 | 371 416 | 11 524 716 | 214,94 | 0,794 | 0,913 | 0,990 |
| 12,75 | 56 790 | 51,82 | 13,45 | 90,14 | -5,50 | 671,41 | 55 302 | 6,75 | 5 056,0 | 178,59 | 391,4 | 8614,0 | 371 526 | 11 528 603 | 214,83 | 0,795 | 0,914 | 0,990 |
| 12,76 | 56 842 | 51,83 | 13,45 | 90,13 | -5,51 | 671,64 | 55 352 | 6,75 | 5 056,6 | 178,59 | 391,7 | 8617,8 | 371 635 | 11 532 490 | 214,71 | 0,795 | 0,914 | 0,990 |
| 12,77 | 56 894 | 51,84 | 13,45 | 90,12 | -5,51 | 671,87 | 55 403 | 6,76 | 5 057,3 | 178,59 | 392,0 | 8621,6 | 371 744 | 11 536 377 | 214,60 | 0,795 | 0,914 | 0,990 |
| 12,78 | 56 946 | 51,85 | 13,45 | 90,11 | -5,52 | 672,09 | 55 453 | 6,76 | 5 058,0 | 178,60 | 392,3 | 8625,4 | 371 853 | 11 540 265 | 214,48 | 0,795 | 0,914 | 0,990 |
| 12,79 | 56 998 | 51,85 | 13,46 | 90,11 | -5,52 | 672,32 | 55 504 | 6,77 | 5 058,7 | 178,60 | 392,6 | 8629,2 | 371 963 | 11 544 152 | 214,37 | 0,795 | 0,914 | 0,990 |
| 12,80 | 57 049 | 51,86 | 13,46 | 90,10 | -5,53 | 672,54 | 55 554 | 6,77 | 5 059,4 | 178,60 | 392,9 | 8633,0 | 372 072 | 11 548 039 | 214,25 | 0,795 | 0,914 | 0,990 |
| 12,81 | 57 101 | 51,87 | 13,46 | 90,09 | -5,53 | 672,77 | 55 605 | 6,78 | 5 060,1 | 178,60 | 393,2 | 8636,8 | 372 179 | 11 551 785 | 214,14 | 0,795 | 0,914 | 0,990 |
| 12,82 | 57 153 | 51,87 | 13,46 | 90,09 | -5,54 | 672,99 | 55 655 | 6,78 | 5 060,7 | 178,61 | 393,5 | 8640,6 | 372 287 | 11 555 530 | 214,02 | 0,795 | 0,914 | 0,990 |
| 12,83 | 57 205 | 51,88 | 13,46 | 90,08 | -5,54 | 673,22 | 55 706 | 6,79 | 5 061,4 | 178,61 | 393,8 | 8644,4 | 372 394 | 11 559 276 | 213,91 | 0,796 | 0,914 | 0,990 |
| 12,84 | 57 257 | 51,89 | 13,46 | 90,07 | -5,55 | 673,38 | 55 756 | 6,79 | 5 062,1 | 178,61 | 394,1 | 8648,2 | 372 502 | 11 563 021 | 213,79 | 0,796 | 0,914 | 0,990 |
| 12,85 | 57 309 | 51,89 | 13,46 | 90,07 | -5,55 | 673,61 | 55 807 | 6,80 | 5 052,8 | 178,62 | 394,5 | 8652,0 | 372 609 | 11 566 767 | 213,68 | 0,796 | 0,915 | 0,990 |
| 12,86 | 57 361 | 51,90 | 13,47 | 90,06 | -5,56 | 673,83 | 55 858 | 6,81 | 5 063,4 | 178,62 | 394,8 | 8655,7 | 372 716 | 11 570 513 | 213,57 | 0,796 | 0,915 | 0,990 |
| 12,87 | 57 413 | 51,91 | 13,47 | 90,05 | -5,56 | 674,06 | 55 908 | 6,81 | 5 064,1 | 178,62 | 395,1 | 8659,5 | 372 824 | 11 574 258 | 213,45 | 0,796 | 0,915 | 0,990 |
| 12,88 | 57 464 | 51,91 | 13,47 | 90,05 | -5,56 | 674,28 | 55 959 | 6,82 | 5 064,8 | 178,62 | 395,4 | 8663,3 | 372 931 | 11 578 004 | 213,34 | 0,797 | 0,915 | 0,990 |
| 12,89 | 57 516 | 51,92 | 13,47 | 90,04 | -5,57 | 674,50 | 56 009 | 6,82 | 5 065,4 | 178,63 | 395,7 | 8667,1 | 373 039 | 11 581 749 | 213,22 | 0,797 | 0,915 | 0,990 |
| 12,90 | 57 568 | 51,93 | 13,47 | 90,03 | -5,57 | 674,72 | 56 060 | 6,83 | 5 066,1 | 178,63 | 396,0 | 8670,9 | 373 146 | 11 585 495 | 213,11 | 0,797 | 0,915 | 0,990 |
| 12,91 | 57 620 | 51,93 | 13,47 | 90,02 | -5,58 | 674,95 | 56 111 | 6,84 | 5 066,8 | 178,63 | 396,3 | 8674,7 | 373 251 | 11 589 291 | 213,00 | 0,797 | 0,915 | 0,990 |
| 12,92 | 57 672 | 51,94 | 13,47 | 90,02 | -5,58 | 675,17 | 56 161 | 6,84 | 5 067,4 | 178,64 | 396,6 | 8678,4 | 373 357 | 11 593 086 | 212,89 | 0,797 | 0,915 | 0,990 |
| 12,93 | 57 724 | 51,95 | 13,48 | 90,01 | -5,59 | 675,39 | 56 212 | 6,85 | 5 068,1 | 178,64 | 396,9 | 8682,2 | 373 462 | 11 596 882 | 212,77 | 0,797 | 0,915 | 0,990 |
| 12,94 | 57 776 | 51,96 | 13,48 | 90,00 | -5,59 | 675,61 | 56 263 | 6,85 | 5 068,8 | 178,65 | 397,2 | 8686,0 | 373 567 | 11 600 677 | 212,66 | 0,797 | 0,915 | 0,990 |
| 12,95 | 57 828 | 51,96 | 13,48 | 90,00 | -5,59 | 675,83 | 56 314 | 6,86 | 5 069,5 | 178,65 | 397,6 | 8689,8 | 373 673 | 11 604 473 | 212,55 | 0,798 | 0,916 | 0,990 |
| 12,96 | 57 880 | 51,97 | 13,48 | 89,99 | -5,60 | 676,05 | 56 364 | 6,86 | 5 070,1 | 178,65 | 397,9 | 8693,5 | 373 778 | 11 608 269 | 212,44 | 0,798 | 0,916 | 0,990 |
| 12,97 | 57 932 | 51,98 | 13,48 | 89,98 | -5,60 | 676,27 | 56 415 | 6,87 | 5 070,8 | 178,66 | 398,2 | 8697,3 | 373 883 | 11 612 064 | 212,33 | 0,798 | 0,916 | 0,990 |
| 12,98 | 57 984 | 51,98 | 13,48 | 89,98 | -5,60 | 676,49 | 56 466 | 6,87 | 5 071,5 | 178,66 | 398,5 | 8701,1 | 373 988 | 11 615 860 | 212,21 | 0,798 | 0,916 | 0,990 |
| 12,99 | 58 036 | 51,99 | 13,48 | 89,97 | -5,61 | 676,71 | 56 516 | 6,88 | 5 072,1 | 178,67 | 398,8 | 8704,8 | 374 094 | 11 619 655 | 212,10 | 0,798 | 0,916 | 0,990 |
| 13,00 | 58 088 | 52,00 | 13,48 | 89,96 | -5,61 | 676,93 | 56 567 | 6,88 | 5 072,8 | 178,67 | 399,1 | 8708,6 | 374 199 | 11 623 451 | 211,99 | 0,798 | 0,916 | 0,990 |

PART 6

# CROSS CURVES of STABILITY

## KN (KY) - TABLES




**NORMAL FORMULA TO BE USED :**

$$GZ = KN\ (KY) - KG_2 \times \sin Ø$$

| PHIH | 5° | 10° | 12° | 15° | 20° | 25° | 30° | 35° | 40° | 50° | 60° | 70° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DISP | | | | | KN (KY) | | | | | | | |
| Tonn | | | | | Meter | | | | | | | |
| 10 000 | 2,392 | 4,648 | 5,460 | 6,472 | 7,743 | 8,575 | 9,407 | 9,904 | 10,401 | 10,970 | 11,363 | 11,736 |
| 10 100 | 2,375 | 4,618 | 5,429 | 6,443 | 7,717 | | 9,389 | | 10,388 | 10,972 | 11,371 | 11,748 |
| 10 200 | 2,358 | 4,588 | 5,398 | 6,414 | 7,692 | | 9,373 | | 10,382 | 10,976 | 11,386 | 11,762 |
| 10 300 | 2,341 | 4,559 | 5,367 | 6,386 | 7,668 | | 9,358 | | 10,376 | 10,980 | 11,401 | 11,776 |
| 10 400 | 2,325 | 4,531 | 5,337 | 6,358 | 7,644 | | 9,342 | | 10,370 | 10,984 | 11,416 | 11,789 |
| 10 500 | 2,310 | 4,502 | 5,307 | 6,330 | 7,620 | | 9,326 | | 10,364 | 10,988 | 11,430 | 11,802 |
| 10 600 | 2,294 | 4,475 | 5,277 | 6,302 | 7,597 | | 9,311 | | 10,358 | 10,992 | 11,445 | 11,814 |
| 10 700 | 2,279 | 4,447 | 5,247 | 6,274 | 7,573 | | 9,296 | | 10,352 | 10,996 | 11,460 | 11,826 |
| 10 800 | 2,264 | 4,420 | 5,218 | 6,247 | 7,550 | | 9,281 | | 10,346 | 11,000 | 11,474 | 11,838 |
| 10 900 | 2,249 | 4,394 | 5,189 | 6,220 | 7,527 | | 9,266 | | 10,340 | 11,004 | 11,488 | 11,85 |
| 11 000 | 2,234 | 4,368 | 5,160 | 6,193 | 7,504 | | 9,251 | | 10,334 | 11,008 | 11,503 | 11,861 |
| 11 100 | 2,220 | 4,342 | 5,132 | 6,166 | 7,481 | | 9,236 | | 10,329 | 11,012 | 11,517 | 11,872 |
| 11 200 | 2,206 | 4,317 | 5,104 | 6,139 | 7,458 | | 9,221 | | 10,323 | 11,016 | 11,531 | 11,882 |
| 11 300 | 2,192 | 4,292 | 5,076 | 6,119 | 7,436 | | 9,207 | | 10,317 | 11,020 | 11,545 | 11,892 |
| 11 400 | 2,178 | 4,267 | 5,049 | 6,087 | 7,413 | | 9,192 | | 10,311 | 11,024 | 11,559 | 11,902 |
| 11 500 | 2,165 | 4,243 | 5,022 | 6,061 | 4,391 | | 9,178 | | 10,306 | 11,028 | 11,573 | 11,911 |
| 11 600 | 2,152 | 4,219 | 4,996 | 6,035 | 7,369 | | 9,164 | | 10,300 | 11,032 | 11,587 | 11,921 |
| 11 700 | 2,139 | 4,196 | 4,969 | 6,010 | 7,347 | | 9,146 | | 10,295 | 11,036 | 11,600 | 11,930 |
| 11 800 | 2,126 | 4,173 | 4,944 | 5,984 | 7,326 | | 9,135 | | 10,289 | 11,04 | 11,614 | 11,938 |
| 11 900 | 2,113 | 4,150 | 4,918 | 5,959 | 7,304 | | 9,121 | | 10,284 | 11,044 | 11,627 | 11,947 |
| 12 000 | 2,101 | 4,127 | 4,893 | 5,934 | 7,283 | | 9,108 | | 10,279 | 11,048 | 11,641 | 11,955 |
| 12 100 | 2,089 | 4,105 | 4,868 | 5,909 | 7,262 | | 9,094 | | 10,273 | 11,052 | 11,654 | 11,963 |
| 12 200 | 2,077 | 4,083 | 4,843 | 5,884 | 7,241 | | 9,080 | | 10,268 | 11,055 | 11,667 | 11,970 |
| 12 300 | 2,065 | 4,062 | 4,819 | 5,860 | 7,220 | | 9,067 | | 10,263 | 11,059 | 11,680 | 11,978 |
| 12 400 | 2,053 | 4,040 | 4,795 | 5,836 | 7,199 | | 9,053 | | 10,258 | 11,063 | 11,693 | 11,985 |
| 12 500 | 2,042 | 4,019 | 4,771 | 5,811 | 7,178 | | 9,040 | | 10,252 | 11,067 | 11,705 | 11,992 |
| 12 600 | 2,030 | 3,999 | 4,748 | 5,788 | 7,158 | | 9,027 | | 10,247 | 11,071 | 11,718 | 11,999 |
| 12 700 | 2,019 | 3,978 | 4,725 | 5,764 | 7,137 | | 9,014 | | 10,242 | 11,075 | 11,730 | 12,005 |
| 12 800 | 2,008 | 3,958 | 4,702 | 5,740 | 7,117 | | 9,001 | | 10,237 | 11,079 | 11,742 | 12,012 |
| 12 900 | 1,997 | 3,938 | 4,680 | 5,717 | 7,097 | | 8,988 | | 10,232 | 11,082 | 11,754 | 12,016 |
| 13 000 | 1,986 | 3,918 | 4,658 | 5,693 | 7,077 | | 8,975 | | 10,227 | 11,086 | 11,766 | 12,024 |
| 13 100 | 1,976 | 3,899 | 4,636 | 5,670 | 7,057 | | 8,962 | | 10,222 | 11,090 | 11,778 | 12,029 |
| 13 200 | 1,965 | 3,880 | 4,614 | 5,647 | 7,038 | | 8,950 | | 10,217 | 11,094 | 11,788 | 12,036 |
| 13 300 | 1,955 | 3,861 | 4,593 | 5,624 | 7,018 | | 8,937 | | 10,212 | 11,098 | 11,800 | 12,042 |
| 13 400 | 1,945 | 3,843 | 4,572 | 5,602 | 6,998 | | 8,924 | | 10,207 | 11,101 | 11,810 | 12,049 |
| 13 500 | 1,935 | 3,825 | 4,551 | 5,579 | 6,979 | | 8,912 | | 10,202 | 11,105 | 11,821 | 12,055 |
| 13 600 | 1,925 | 3,807 | 4,530 | 5,557 | 6,960 | | 8,900 | | 10,197 | 11,109 | 11,831 | 12,061 |
| 13 700 | 1,915 | 3,789 | 4,510 | 5,535 | 6,941 | | 8,887 | | 10,192 | 11,112 | 11,841 | 12,067 |
| 13 800 | 1,905 | 3,771 | 4,490 | 5,513 | 6,922 | | 8,875 | | 10,187 | 11,116 | 11,851 | 12,073 |
| 13 900 | 1,896 | 3,754 | 4,470 | 5,491 | 6,903 | | 8,863 | | 10,183 | 11,120 | 11,861 | 12,079 |
| 14 000 | 1,887 | 3,737 | 4,451 | 5,469 | 6,884 | | 8,851 | | 10,178 | 11,123 | 11,871 | 12,085 |
| 14 100 | 1,878 | 3,720 | 4,431 | 5,448 | 6,866 | | 8,839 | | 10,173 | 11,127 | 11,880 | 12,091 |
| 14 200 | 1,868 | 3,703 | 4,412 | 5,427 | 6,847 | | 8,827 | | 10,169 | 11,130 | 11,889 | 12,097 |
| 14 300 | 1,859 | 3,686 | 4,393 | 5,406 | 6,829 | | 8,816 | | 10,164 | 11,134 | 11,897 | 12,103 |
| 14 400 | 1,851 | 3,670 | 4,375 | 5,385 | 6,810 | | 8,804 | | 10,159 | 11,138 | 11,906 | 12,109 |
| 14 500 | 1,842 | 3,654 | 4,356 | 5,365 | 6,792 | | 8,792 | | 10,155 | 11,141 | 11,914 | 12,115 |
| 14 600 | 1,833 | 3,638 | 4,338 | 5,344 | 6,774 | | 8,781 | | 10,151 | 11,145 | 11,922 | 12,121 |
| 14 700 | 1,825 | 3,622 | 4,320 | 5,324 | 6,756 | | 8,769 | | 10,146 | 11,148 | 11,930 | 12,127 |
| 14 800 | 1,816 | 3,607 | 4,302 | 5,304 | 6,738 | | 8,758 | | 10,142 | 11,152 | 11,937 | 12,134 |
| 14 900 | 1,808 | 6,592 | 4,285 | 5,284 | 6,720 | | 8,746 | | 10,137 | 11,155 | 11,945 | 12,140 |
| 15 000 | 1,800 | 3,577 | 4,267 | 5,265 | 6,703 | | 8,735 | | 10,133 | 11,159 | 11,952 | 12,146 |

| PHIH | 5° | 10° | 12° | 15° | 20° | 25° | 30° | 35° | 40° | 50° | 60° | 70° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DISP | | | | | KN (KY) | | | | | | | |
| Tonn | | | | | Meter | | | | | | | |
| 15 100 | 1,792 | 3,562 | 4,250 | 5,245 | 6,685 | | 8,724 | | 10,129 | 11,162 | 11,959 | 12,152 |
| 15 200 | 1,784 | 3,547 | 4,233 | 5,226 | 6,668 | | 8,712 | | 10,124 | 11,166 | 11,965 | 12,158 |
| 15 300 | 1,776 | 3,532 | 4,217 | 5,207 | 6,65 | | 8,701 | | 10,120 | 11,169 | 11,720 | 12,165 |
| 15 400 | 1,768 | 3,518 | 4,200 | 5,188 | 6,633 | | 8,690 | | 10,116 | 11,173 | 11,978 | 12,171 |
| 15 500 | 1,761 | 3,504 | 4,184 | 5,170 | 6,616 | | 8,679 | | 10,112 | 11,176 | 11,984 | 12,177 |
| 15 600 | 1,753 | 3,490 | 4,168 | 5,151 | 6,599 | | 8,668 | | 10,107 | 11,180 | 11,990 | 12,183 |
| 15 700 | 1,746 | 3,476 | 4,152 | 5,133 | 6,582 | | 8,658 | | 10,103 | 11,183 | 11,996 | 12,189 |
| 15 800 | 1,739 | 3,462 | 4,136 | 5,115 | 6,565 | | 8,647 | | 10,099 | 11,186 | 12,002 | 12,196 |
| 15 900 | 1,731 | 3,448 | 4,120 | 5,097 | 6,548 | | 8,637 | | 10,095 | 11,190 | 12,007 | 12,202 |
| 16 000 | 1,724 | 3,435 | 4,105 | 5,080 | 6,532 | | 8,626 | | 10,091 | 11,193 | 12,012 | 12,208 |
| 16 100 | 1,717 | 3,422 | 4,090 | 5,062 | 6,515 | | 8,616 | | 10,087 | 11,196 | 12,017 | 12,214 |
| 16 200 | 1,710 | 3,409 | 4,075 | 5,045 | 6,499 | | 8,605 | | 10,083 | 11,200 | 12,022 | 12,220 |
| 16 300 | 1,703 | 3,396 | 4,060 | 5,028 | 6,482 | | 8,595 | | 10,079 | 11,203 | 12,027 | 12,226 |
| 16 400 | 1,697 | 3,383 | 4,045 | 5,011 | 6,466 | | 8,585 | | 10,075 | 11,206 | 12,031 | 12,232 |
| 16 500 | 1,690 | 3,370 | 4,030 | 4,994 | 6,450 | | 8,575 | | 10,072 | 11,209 | 12,036 | 12,237 |
| 16 600 | 1,683 | 3,358 | 4,016 | 4,977 | 6,434 | | 8,565 | | 10,068 | 11,212 | 12,04 | 12,232 |
| 16 700 | 1,677 | 3,346 | 4,002 | 4,961 | 6,418 | | 8,555 | | 10,064 | 11,216 | 12,044 | 12,249 |
| 16 800 | 1,670 | 3,333 | 3,988 | 4,945 | 6,402 | | 8,545 | | 10,060 | 11,219 | 12,048 | 12,255 |
| 16 900 | 1,664 | 3,321 | 3,974 | 4,928 | 6,386 | | 8,535 | | 10,057 | 11,222 | 12,052 | 12,260 |
| 17 000 | 1,658 | 3,309 | 3,960 | 4,913 | 6,370 | | 8,525 | | 10,053 | 11,225 | 12,056 | 12,266 |
| 17 100 | 1,652 | 3,298 | 3,946 | 4,897 | 6,355 | | 8,515 | | 10,049 | 11,229 | 12,060 | 12,271 |
| 17 200 | 1,645 | 3,286 | 3,933 | 4,881 | 6,339 | | 8,606 | | 10,046 | 11,232 | 12,063 | 12,277 |
| 17 300 | 1,639 | 3,275 | 3,919 | 4,866 | 6,323 | | 8,496 | | 10,042 | 11,235 | 12,066 | 12,282 |
| 17 400 | 1,633 | 3,263 | 3,906 | 4,850 | 6,308 | | 8,486 | | 10,038 | 11,238 | 12,070 | 12,287 |
| 17 500 | 1,627 | 3,252 | 3,893 | 4,835 | 6,293 | | 8,477 | | 10,035 | 11,241 | 12,073 | 12,292 |
| 17 600 | 1,622 | 3,241 | 3,880 | 4,820 | 6,277 | | 8,467 | | 10,031 | 11,245 | 12,076 | 12,297 |
| 17 700 | 1,616 | 3,230 | 3,868 | 4,805 | 6,262 | | 8,458 | | 10,028 | 11,248 | 12,079 | 12,303 |
| 17 800 | 1,610 | 3,219 | 3,855 | 4,791 | 6,247 | | 8,448 | | 10,024 | 11,251 | 12,082 | 12,307 |
| 17 900 | 1,605 | 3,208 | 3,842 | 4,776 | 6,232 | | 8,439 | | 10,021 | 11,254 | 12,084 | 12,312 |
| 18 000 | 1,599 | 3,197 | 3,830 | 4,762 | 6,217 | | 8,430 | | 10,018 | 11,257 | 12,087 | 12,317 |
| 18 100 | 1,594 | 3,187 | 3,818 | 4,748 | 6,203 | | 8,420 | | 10,014 | 11,260 | 12,089 | 12,322 |
| 18 200 | 1,588 | 3,176 | 3,806 | 4,733 | 6,188 | | 8,411 | | 10,011 | 11,264 | 12,092 | 12,327 |
| 18 300 | 1,583 | 3,166 | 3,794 | 4,719 | 6,173 | | 8,402 | | 10,007 | 11,267 | 12,094 | 12,331 |
| 18 400 | 1,577 | 3,156 | 3,782 | 4,706 | 6,159 | | 8,393 | | 10,004 | 11,270 | 12,096 | 12,336 |
| 18 500 | 1,572 | 3,146 | 3,770 | 4,692 | 6,144 | | 8,384 | | 10,001 | 11,273 | 12,098 | 12,340 |
| 18 600 | 1,567 | 3,136 | 3,759 | 4,678 | 6,130 | | 8,375 | | 9,998 | 11,277 | 12,100 | 12,345 |
| 18 700 | 1,562 | 3,126 | 3,747 | 4,665 | 6,115 | | 8,366 | | 9,994 | 11,280 | 12,102 | 12,349 |
| 18 800 | 1,557 | 3,116 | 3,736 | 4,652 | 6,101 | | 8,357 | | 9,991 | 11,283 | 12,104 | 12,353 |
| 18 900 | 1,552 | 3,107 | 3,725 | 4,639 | 6,087 | | 8,348 | | 9,988 | 11,286 | 12,106 | 12,357 |
| 19 000 | 1,547 | 3,097 | 3,714 | 4,626 | 6,073 | | 8,339 | | 9,985 | 11,289 | 12,108 | 12,361 |
| 19 100 | 1,542 | 3,088 | 3,703 | 4,613 | 6,059 | | 8,330 | | 9,982 | 11,292 | 12,109 | 12,365 |
| 19 200 | 1,537 | 3,078 | 3,692 | 4,600 | 6,045 | | 8,321 | | 9,979 | 11,295 | 12,111 | 12,369 |
| 19 300 | 1,532 | 3,069 | 3,681 | 4,587 | 6,031 | | 8,313 | | 9,976 | 11,298 | 12,112 | 12,373 |
| 19 400 | 1,528 | 3,060 | 3,670 | 4,575 | 6,017 | | 8,304 | | 9,973 | 11,301 | 12,114 | 12,376 |
| 19 500 | 1,523 | 3,051 | 3,660 | 4,562 | 6,004 | | 8,296 | | 9,970 | 11,304 | 12,115 | 12,380 |
| 19 600 | 1,518 | 3,042 | 3,649 | 4,550 | 5,990 | | 8,287 | | 9,967 | 11,307 | 12,116 | 12,384 |
| 19 700 | 1,514 | 3,033 | 3,639 | 4,538 | 5,977 | | 8,279 | | 9,964 | 11,309 | 12,117 | 12,387 |
| 19 800 | 1,509 | 3,024 | 3,629 | 4,526 | 5,963 | | 8,270 | | 9,961 | 11,312 | 12,119 | 12,390 |
| 19 900 | 1,505 | 3,016 | 3,619 | 4,514 | 5,950 | | 8,262 | | 9,958 | 11,315 | 12,120 | 12,394 |
| 20 000 | 1,500 | 3,007 | 3,609 | 4,502 | 5,937 | | 8,253 | | 9,955 | 11,317 | 12,121 | 12,397 |
| 20 100 | 1,496 | 2,999 | 3,599 | 4,491 | 5,924 | | 8,245 | | 9,952 | 11,320 | 12122 | 12,400 |

| PHIH | 5° | 10° | 12° | 15° | 20° | 25° | 30° | 35° | 40° | 50° | 60° | 70° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DISP | | | | | KN (KY) | | | | | | | |
| Tonn | | | | | Meter | | | | | | | |
| 20 200 | 1,492 | 2,990 | 3,589 | 4,479 | 5,911 | | 8,237 | | 9.949 | 11,322 | 12,123 | 12,403 |
| 20 300 | 1,487 | 2,982 | 3,579 | 4,468 | 5,898 | | 8,229 | | 9,947 | 11,324 | 12,125 | 12,406 |
| 20 400 | 1,483 | 2,974 | 3,570 | 4,456 | 5,885 | | 8,220 | | 9,944 | 11,327 | 12,126 | 12,409 |
| 20 500 | 1,479 | 2,966 | 3,560 | 4,445 | 5,873 | | 8,212 | | 9,941 | 11,329 | 12,127 | 12,412 |
| 20 600 | 1,475 | 2,957 | 3,551 | 4,434 | 5,860 | | 8,204 | | 9,938 | 11,331 | 12,128 | 12,414 |
| 20 700 | 1,471 | 2,950 | 3,541 | 4,423 | 5,848 | | 8,196 | | 9,936 | 11,333 | 12,129 | 12,417 |
| 20 800 | 1,467 | 2,942 | 3,532 | 4,412 | 5,835 | | 8,188 | | 9,933 | 11,335 | 12,130 | 12,419 |
| 20 900 | 1,463 | 2,934 | 3,523 | 4,401 | 5,823 | | 8,180 | | 9,930 | 11,337 | 12,131 | 12,422 |
| 21 000 | 1,459 | 2,926 | 3,514 | 4,390 | 5,811 | | 8,172 | | 9,928 | 11,339 | 12,132 | 12,424 |
| 21 100 | 1,455 | 2,918 | 3,505 | 4,380 | 5,799 | | 8,165 | | 9,925 | 11,340 | 12,133 | 12,426 |
| 21 200 | 1,451 | 2,910 | 3,496 | 4,369 | 5,787 | | 8,157 | | 9,922 | 11,342 | 12,134 | 12,429 |
| 21 300 | 1,448 | 2,903 | 3,487 | 4,359 | 5,775 | | 8,149 | | 9,920 | 11,344 | 12,135 | 12,431 |
| 21 400 | 1,444 | 2,896 | 3,479 | 4,349 | 5,763 | | 8,141 | | 9,917 | 11,345 | 12,136 | 12,433 |
| 21 500 | 1,440 | 2,889 | 3,470 | 4,338 | 5,751 | | 8,133 | | 9,915 | 11,347 | 12,138 | 12,435 |
| 21 600 | 1,436 | 2,881 | 3,462 | 4,328 | 5,740 | | 8,126 | | 9,912 | 11,348 | 12,139 | 12,437 |
| 21 700 | 1,433 | 2,874 | 3,453 | 4,318 | 5,728 | | 8,118 | | 9,910 | 11,350 | 12,140 | 12,438 |
| 21 800 | 1,429 | 2,867 | 3,445 | 4,308 | 5,717 | | 8,111 | | 9,907 | 11,351 | 12,141 | 12,440 |
| 21 900 | 1,426 | 2,860 | 3,437 | 4,299 | 5,706 | | 8,103 | | 9,905 | 11,353 | 12,142 | 12,442 |
| 22 000 | 1,422 | 2,853 | 3,428 | 4,289 | 5,695 | | 8,096 | | 9,902 | 11,354 | 12,143 | 12,443 |
| 22 100 | 1,419 | 2,846 | 3,420 | 4,279 | 5,683 | | 8,088 | | 9,900 | 11,355 | 12,144 | 12,445 |
| 22 200 | 1,415 | 2,840 | 3,412 | 4,270 | 5,672 | | 8,081 | | 9,897 | 11,356 | 12,145 | 12,446 |
| 22 300 | 1,412 | 2,833 | 3,404 | 4,260 | 5,661 | | 8,074 | | 9,895 | 11,357 | 12,146 | 12,447 |
| 22 400 | 1,408 | 2,826 | 3,397 | 4,251 | 5,651 | | 8,066 | | 9,893 | 11,358 | 12,148 | 12,449 |
| 22 500 | 1,405 | 2,820 | 3,389 | 4,242 | 5,640 | | 8,059 | | 9,890 | 11,359 | 12,149 | 12,450 |
| 22 600 | 1,402 | 2,813 | 3,381 | 4,233 | 5,629 | | 8,052 | | 9,888 | 11,360 | 12,150 | 12,451 |
| 22 700 | 1,399 | 2,807 | 3,374 | 4,223 | 5,619 | | 8,044 | | 9,886 | 11,361 | 12,151 | 12,452 |
| 22 800 | 1,395 | 2,800 | 3,366 | 4,214 | 5,608 | | 8,037 | | 9,883 | 11,361 | 12,152 | 12,453 |
| 22 900 | 1,392 | 2,794 | 3,359 | 4,206 | 5,598 | | 8,030 | | 9,881 | 11,362 | 12,153 | 12,454 |
| 23 000 | 1,389 | 2,788 | 3,351 | 4,197 | 5,588 | | 8,023 | | 9,879 | 11,363 | 12,154 | 12,455 |
| 23 100 | 1,386 | 2,782 | 3,344 | 4,188 | 5,577 | | 8,016 | | 9,877 | 11,363 | 12,156 | 12,456 |
| 23 200 | 1,383 | 2,776 | 3,337 | 4,180 | 5,567 | | 8,009 | | 9,874 | 11,363 | 12,157 | 12,457 |
| 23 300 | 1,380 | 2,770 | 3,330 | 4,171 | 5,557 | | 8,002 | | 9,872 | 11,364 | 12,158 | 12,458 |
| 23 400 | 1,377 | 2,764 | 3,323 | 4,163 | 5,547 | | 7,995 | | 9,870 | 11,364 | 12,159 | 12,458 |
| 23 500 | 1,374 | 2,758 | 3,316 | 4,154 | 5,537 | | 7,988 | | 9,868 | 11,464 | 12,160 | 12,459 |
| 23 600 | 1,371 | 2,752 | 3,309 | 4,146 | 5,528 | | 7,981 | | 9,866 | 11,364 | 12,161 | 12,459 |
| 23 700 | 1,368 | 2,746 | 3,302 | 4,138 | 5,518 | | 7,974 | | 9,864 | 11,364 | 12,162 | 12,460 |
| 23 800 | 1,365 | 2,740 | 3,295 | 4,129 | 5,509 | | 7,967 | | 9,862 | 11,364 | 12,163 | 12,460 |
| 23 900 | 1,362 | 2,735 | 3,288 | 4,121 | 5,499 | | 7,961 | | 9,860 | 11,363 | 12,164 | 12,461 |
| 24 000 | 1,359 | 2,729 | 3,282 | 4,113 | 5,490 | | 7,954 | | 9,858 | 11,363 | 12,165 | 12,461 |
| 24 100 | 1,357 | 2,723 | 3,275 | 4,105 | 5,480 | | 7,947 | | 9,856 | 11,363 | 12,166 | 12,461 |
| 24 200 | 1,354 | 2,718 | 3,268 | 4,098 | 5,471 | | 7,940 | | 9,854 | 11,362 | 12,167 | 12,461 |
| 24 300 | 1,351 | 2,713 | 3,262 | 4,090 | 5,462 | | 7,934 | | 9,852 | 11,362 | 12,168 | 12,462 |
| 24 400 | 1,348 | 2,707 | 3,256 | 4,082 | 5,453 | | 7,927 | | 9,850 | 11,361 | 12,169 | 12,461 |
| 24 500 | 1,346 | 2,702 | 3,249 | 4,074 | 5,443 | | 7,921 | | 9,848 | 11,360 | 12,170 | 12,461 |
| 24 600 | 1,343 | 2,697 | 3,243 | 4,067 | 5,434 | | 7,914 | | 9,846 | 11,360 | 12,171 | 12,461 |
| 24 700 | 1,341 | 2,691 | 3,237 | 4,059 | 5,426 | | 7,908 | | 9,844 | 11,359 | 12,172 | 12,461 |
| 24 800 | 1,338 | 2,686 | 3,231 | 4,052 | 5,417 | | 7,901 | | 9,842 | 11,358 | 12,173 | 12,461 |
| 24 900 | 1,335 | 2,681 | 3,225 | 4,045 | 5,408 | | 7,895 | | 9,840 | 11,357 | 12,173 | 12,461 |
| 25 000 | 1,333 | 2,676 | 3,219 | 4,037 | 5,399 | | 7,888 | | 9,838 | 11,356 | 12,174 | 12,460 |
| 25 100 | 1,330 | 2,671 | 3,213 | 4,030 | 5,391 | | 7,882 | | 9,837 | 11,355 | 12,175 | 12,460 |
| 25 200 | 1,328 | 2,666 | 3,207 | 4,023 | 5,382 | | 7,876 | | 9,835 | 11,354 | 12,176 | 12,460 |

| PHIH | 5° | 10° | 12° | 15° | 20° | 25° | 30° | 35° | 40° | 50° | 60° | 70° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DISP | | | | | KN (KY) | | | | | | | |
| Tonn | | | | | Meter | | | | | | | |
| 25 300 | 1,3250 | 2,6610 | 3,2010 | 4,0160 | 5,3740 | | 7,8690 | | 9,8330 | 11,3520 | 12,1760 | 12,4600 |
| 25 400 | 1,3230 | 2,6570 | 3,1950 | 4,0090 | 5,3650 | | 7,8630 | | 9,8310 | 11,3510 | 12,1770 | 12,4590 |
| 25 500 | 1,3210 | 2,6520 | 3,1900 | 4,0020 | 5,3570 | | 7,8570 | | 9,8300 | 11,3500 | 12,1780 | 12,4590 |
| 25 600 | 1,3180 | 2,6470 | 3,1840 | 3,9950 | 5,3490 | | 7,8510 | | 9,8280 | 11,3490 | 12,1780 | 12,4580 |
| 25 700 | 1,3160 | 2,6420 | 3,1780 | 3,9890 | 5,3410 | | 7,8440 | | 9,8260 | 11,3470 | 12,1790 | 12,4580 |
| 25 800 | 1,3140 | 2,6380 | 3,1730 | 3,9820 | 5,3320 | | 7,8380 | | 9,8240 | 11,3460 | 12,1790 | 12,4580 |
| 25 900 | 1,3110 | 2,6330 | 3,1670 | 3,9750 | 5,3240 | | 7,8320 | | 9,8230 | 11,3440 | 12,1800 | 12,4570 |
| 26 000 | 1,3090 | 2,6290 | 3,1620 | 3,9690 | 5,3170 | | 7,8260 | | 9,8210 | 11,3430 | 12,1800 | 12,4560 |
| 26 100 | 1,3070 | 2,6240 | 3,1570 | 3,9620 | 5,3090 | | 7,8200 | | 9,8190 | 11,3410 | 12,1810 | 12,4560 |
| 26 200 | 1,3050 | 2,6200 | 3,1510 | 3,9560 | 5,3010 | | 7,8140 | | 9,8180 | 11,3390 | 12.181 | 12.455 |
| 26 300 | 1,3020 | 2,6150 | 3,1460 | 3,9490 | 5,2930 | | 7,8080 | | 9,8160 | 11,3380 | 12,1820 | 12,4540 |
| 26 400 | 1,3000 | 2,6110 | 3,1410 | 3,9430 | 5,2850 | | 7,8020 | | 9,8150 | 11,3360 | 12,1820 | 12,4540 |
| 26 500 | 1,2980 | 2,6070 | 3,1360 | 3,9370 | 5,2780 | | 7,7960 | | 9,8130 | 11,3340 | 12,1820 | 12,4530 |
| 26 600 | 1,2960 | 2,6030 | 3,1310 | 3,9310 | 5,2700 | | 7,7900 | | 9,8110 | 11,3330 | 12,1830 | 12,4520 |
| 26 700 | 1,2940 | 2,5980 | 3,1260 | 3,9250 | 5,2630 | | 7,7840 | | 9,8100 | 11,3310 | 12,1830 | 12,4510 |
| 26 800 | 1,2920 | 2,5940 | 3,1210 | 3,9180 | 5,2550 | | 7,7780 | | 9,8080 | 11,3290 | 12,1830 | 12,4510 |
| 26 900 | 1,2900 | 2,5900 | 3,1160 | 3,9120 | 5,2480 | | 7,7720 | | 9,8070 | 11,3270 | 12,1830 | 12,4500 |
| 27 000 | 1,2880 | 2,5860 | 3,1110 | 3,9060 | 5,2410 | | 7,7670 | | 9,8050 | 11,3250 | 12,1830 | 12,4490 |
| 27 100 | 1,2860 | 2,5820 | 3,1060 | 3,9010 | 5,2340 | | 7,7610 | | 9,8040 | 11,3230 | 12,1830 | 12,4480 |
| 27 200 | 1,2840 | 2,5780 | 3,1020 | 3,8950 | 5,2260 | | 7,7550 | | 9,8020 | 11,3220 | 12,1830 | 12,4470 |
| 27 300 | 1,2810 | 2,5740 | 3,0970 | 3,8890 | 5,2190 | | 7,7490 | | 9,8010 | 11,3200 | 12,1830 | 12,4460 |
| 27 400 | 1,2790 | 2,5700 | 3,0920 | 3,8830 | 5,2120 | | 7,7440 | | 9,8000 | 11,3180 | 12,1830 | 12,4450 |
| 27 500 | 1,2780 | 2,5660 | 3,0870 | 3,8780 | 5,2050 | | 7,7380 | | 9,7980 | 11.316 | 12,1830 | 12,4440 |
| 27 600 | 1,2760 | 2,5620 | 3,0830 | 3,8720 | 5,1990 | | 7,7320 | | 9,7970 | 11,3140 | 12,1830 | 12,4430 |
| 27 700 | 1,2740 | 2,5590 | 3,0780 | 3,8660 | 5,1920 | | 7,7270 | | 9,7950 | 11,3120 | 12,1830 | 12,4420 |
| 27 800 | 1,2720 | 2,5550 | 3,0740 | 3,8610 | 5,1850 | | 7,7210 | | 9,7940 | 11,3100 | 12,1830 | 12,4410 |
| 27 900 | 1,2700 | 2,5510 | 3,0700 | 3,8550 | 5,1780 | | 7,7160 | | 9,7930 | 11.308 | 12,1820 | 12,4400 |
| 28 000 | 1,2680 | 2,5480 | 3,0650 | 3,8500 | 5,1720 | | 7,7100 | | 9,7910 | 11,3060 | 12,1820 | 12,4380 |
| 28 100 | 1,2660 | 2,5440 | 3,0610 | 3,8440 | 5,1650 | | 7,7050 | | 9,7900 | 11,3040 | 12,1820 | 12,4370 |
| 28 200 | 1,2650 | 2,5410 | 3,0570 | 3,8390 | 5,1580 | | 7,6990 | | 9,7890 | 11,3020 | 12,1810 | 12,4360 |
| 28 300 | 1,2630 | 2,5370 | 3,0530 | 3,8340 | 5,1520 | | 7,6940 | | 9,7870 | 11,3000 | 12,1810 | 12,4350 |
| 28 400 | 1,2610 | 2,5340 | 3,0480 | 3,8290 | 5,1450 | | 7,6890 | | 9,7860 | 11,2980 | 12,1810 | 12,4330 |
| 28 500 | 1,2590 | 2,5300 | 3,0440 | 3,8240 | 5,1390 | | 7,6830 | | 9,7850 | 11,2960 | 12,1800 | 12,4320 |
| 28 600 | 1,2580 | 2,5270 | 3,0400 | 3,8190 | 5,1330 | | 7,6780 | | 9,7840 | 11,2940 | 12,1800 | 12,4310 |
| 28 700 | 1,2560 | 2,5230 | 3,0360 | 3,8140 | 5,1270 | | 7,6730 | | 9,7820 | 11,2920 | 12,1790 | 12,4290 |
| 28 800 | 1,2540 | 2,5200 | 3,0320 | 3,8090 | 5,1200 | | 7,6670 | | 9,7810 | 11,2900 | 12,1780 | 12,4280 |
| 28 900 | 1,2530 | 2,5170 | 3,0280 | 3,8040 | 5,1140 | | 7,6620 | | 9,7800 | 11,2880 | 12,1780 | 12,4270 |
| 29 000 | 1,2510 | 2,5140 | 3,0240 | 3,7990 | 5,1080 | | 7,6570 | | 9,7790 | 11,2860 | 12,1770 | 12,4250 |
| 29 100 | 1,2490 | 2,5100 | 3,0210 | 3,7940 | 5,1020 | | 7,6520 | | 9,7770 | 11,2840 | 12,1760 | 12,4240 |
| 29 200 | 1,2480 | 2,5070 | 3,0170 | 3,7900 | 5,0960 | | 7,6460 | | 9,7760 | 11,2830 | 12,1760 | 12,4220 |
| 29 300 | 1,2460 | 2,5040 | 3,0130 | 3,7850 | 5,0910 | | 7,6410 | | 9,7750 | 11,2810 | 12,1750 | 12,4210 |
| 29 400 | 1,2450 | 2,5010 | 3,0090 | 3,7800 | 5,0850 | | 7,6360 | | 9,7730 | 11,2790 | 12,1740 | 12,4190 |
| 29 500 | 1,2430 | 2,4980 | 3,0060 | 3,7760 | 5,0790 | | 7,6310 | | 9,7720 | 11,2770 | 12,1730 | 12,4170 |
| 29 600 | 1,2420 | 2,4950 | 3,0020 | 3,7710 | 5,0730 | | 7,6260 | | 9,7710 | 11,2750 | 12,1720 | 12,4160 |
| 29 700 | 1,2400 | 2,4920 | 2,9980 | 3,7670 | 5,0680 | | 7,6210 | | 9,7700 | 11,2730 | 12,1710 | 12,4140 |
| 29 800 | 1,2390 | 2,4890 | 2,9950 | 3,7620 | 5,0620 | | 7,6160 | | 9,7690 | 11,2710 | 12,1700 | 12,4130 |
| 29 900 | 1,2370 | 2,4860 | 2,9910 | 3,7580 | 5,0560 | | 7,6110 | | 9,7680 | 11,2690 | 12,1690 | 12,4110 |
| 30 000 | 1,2360 | 2,4830 | 2,9980 | 3,7530 | 5,0510 | | 7,6060 | | 9,7660 | 11,2670 | 12,1680 | 12,4090 |
| 30 100 | 1,2340 | 2,4800 | 2,9840 | 3,7490 | 5,0460 | | 7,6010 | | 9,7650 | 11,2650 | 12,1670 | 12,4070 |
| 30 200 | 1,2330 | 2,4770 | 2,9810 | 3,7450 | 5,0400 | | 7,5960 | | 9,7640 | 11,2630 | 12,1660 | 12,4060 |
| 30 300 | 1,2310 | 2,4750 | 2,9780 | 3,7410 | 5,0350 | | 7,5910 | | 9,7630 | 11,2610 | 12,1650 | 12,4040 |

| PHIH | 5° | 10° | 12° | 15° | 20° | 25° | 30° | 35° | 40° | 50° | 60° | 70° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DISP | | | | | KN (KY) | | | | | | | |
| Tonn | | | | | Meter | | | | | | | |
| 30 400 | 1,230 | 2,472 | 2,974 | 3,737 | 5,030 | | 7,586 | | 9,762 | 11,259 | 12,163 | 12,402 |
| 30 500 | 1,229 | 2,469 | 2,971 | 3,732 | 5,024 | | 7,581 | | 9,760 | 11,258 | 12,162 | 12,400 |
| 30 600 | 1,227 | 2,466 | 2,968 | 3,728 | 5,019 | | 7,576 | | 9,759 | 11,256 | 12,161 | 12,398 |
| 30 700 | 1,226 | 2,464 | 2,965 | 3,724 | 5,014 | | 7,572 | | 9,758 | 11,254 | 12,160 | 12,397 |
| 30 800 | 1,225 | 2,461 | 2,961 | 3,720 | 5,009 | | 7,567 | | 9,756 | 11,252 | 12,158 | 12,395 |
| 30 900 | 1,223 | 2,458 | 2,958 | 3,716 | 5,004 | | 7,562 | | 9,755 | 11,250 | 12,157 | 12,393 |
| 31 000 | 1,222 | 2,456 | 2,955 | 3,713 | 4,999 | | 7,557 | | 9,753 | 11,248 | 12,155 | 12,391 |
| 31 100 | 1,221 | 2,453 | 2,952 | 3,709 | 4,994 | | 7,553 | | 9,752 | 11,247 | 12,154 | 12,389 |
| 31 200 | 1,220 | 2,451 | 2,949 | 3,705 | 4,989 | | 7,548 | | 9,751 | 11,245 | 12,152 | 12,387 |
| 31 300 | 1,218 | 2,448 | 2,946 | 3,701 | 4,984 | | 7,543 | | 9,749 | 11,243 | 12,151 | 12,385 |
| 31 400 | 1,217 | 2,446 | 2,943 | 3,698 | 4,980 | | 7,539 | | 9,747 | 11,241 | 12,149 | 12,383 |
| 31 500 | 1,216 | 2,443 | 2,940 | 3,694 | 4,975 | | 7,534 | | 9,746 | 11,239 | 12,148 | 12,381 |
| 31 600 | 1,215 | 2,441 | 2,937 | 3,690 | 4,970 | | 7,529 | | 9,744 | 11,238 | 12,146 | 12,379 |
| 31 700 | 1,213 | 2,439 | 2,934 | 3,687 | 4,966 | | 7,525 | | 9,743 | 11,236 | 12,145 | 12,377 |
| 31 800 | 1,212 | 2,436 | 2,932 | 3,683 | 4,961 | | 7,520 | | 9,741 | 11,234 | 12,143 | 12,375 |
| 31 900 | 1,211 | 2,434 | 2,929 | 3,680 | 4,956 | | 7,516 | | 9,739 | 11,232 | 12,141 | 12,373 |
| 32 000 | 1,210 | 2,432 | 2,926 | 3,676 | 4,952 | | 7,511 | | 9,738 | 11,231 | 12,139 | 12,371 |
| 32 100 | 1,209 | 2,429 | 2,923 | 3,673 | 4,948 | | 7,507 | | 9,736 | 11,229 | 12,138 | 12,369 |
| 32 200 | 1,208 | 2,427 | 2,921 | 3,669 | 4,943 | | 7,502 | | 9,734 | 11,227 | 12,136 | 12,367 |
| 32 300 | 1,207 | 2,425 | 2,918 | 3,666 | 4,939 | | 7,498 | | 9,732 | 11,226 | 12,134 | 12,365 |
| 32 400 | 1,206 | 2,423 | 2,915 | 3,663 | 4,935 | | 7,494 | | 9,730 | 11,224 | 12,132 | 12,362 |
| 32 500 | 1,204 | 2,421 | 2,913 | 3,660 | 4,930 | | 7,489 | | 9,729 | 11,222 | 12,130 | 12,360 |
| 32 600 | 1,203 | 2,419 | 2,910 | 3,656 | 4,926 | | 7,485 | | 9,727 | 11,221 | 12,128 | 12,358 |
| 32 700 | 1,202 | 2,416 | 2,908 | 3,653 | 4,922 | | 7,481 | | 9,725 | 11,219 | 12,127 | 12,356 |
| 32 800 | 1,201 | 2,414 | 2,905 | 3,650 | 4,918 | | 7,476 | | 9,723 | 11,217 | 12,125 | 12,354 |
| 32 900 | 1,200 | 2,412 | 2,903 | 3,647 | 4,914 | | 7,472 | | 9,721 | 11,216 | 12,123 | 12,351 |
| 33 000 | 1,199 | 2,410 | 2,900 | 3,644 | 4,910 | | 7,468 | | 9,719 | 11,214 | 12,121 | 12,349 |
| 33 100 | 1,198 | 2,408 | 2,898 | 3,641 | 4,906 | | 7,464 | | 9,717 | 11,212 | 12,119 | 12,347 |
| 33 200 | 1,197 | 2,406 | 2,896 | 3,638 | 4,902 | | 7,459 | | 9,714 | 11,211 | 12,117 | 12,345 |
| 33 300 | 1,196 | 2,404 | 2,893 | 3,635 | 4,898 | | 7,455 | | 9,712 | 11,209 | 12,114 | 12,342 |
| 33 400 | 1,195 | 2,403 | 2,891 | 3,632 | 4,894 | | 7,451 | | 9,710 | 11,207 | 12,112 | 12,340 |
| 33 500 | 1,194 | 2,401 | 2,889 | 3,629 | 4,890 | | 7,447 | | 9,708 | 11,206 | 12,110 | 12,338 |
| 33 600 | 1,193 | 2,399 | 2,887 | 3,626 | 4,886 | | 7,443 | | 9,706 | 11,204 | 12,108 | 12,335 |
| 33 700 | 1,193 | 2,397 | 2,884 | 3,624 | 4,883 | | 7,439 | | 9,703 | 11,202 | 12,106 | 12,333 |
| 33 800 | 1,192 | 2,395 | 2,882 | 3,621 | 4,879 | | 7,435 | | 9,701 | 11,201 | 12,104 | 12,331 |
| 33 900 | 1,191 | 2,393 | 2,880 | 3,618 | 4,875 | | 7,431 | | 9,699 | 11,199 | 12,101 | 12,328 |
| 34 000 | 1,190 | 2,392 | 2,878 | 3,616 | 4,872 | | 7,427 | | 9,696 | 11,197 | 12,099 | 12,326 |
| 34 100 | 1,189 | 2,390 | 2,876 | 3,613 | 4,868 | | 7,423 | | 9,694 | 11,196 | 12,097 | 12,324 |
| 34 200 | 1,188 | 2,388 | 2,874 | 3,610 | 4,864 | | 7,419 | | 9,691 | 11,194 | 12,095 | 12,321 |
| 34 300 | 1,187 | 2,387 | 2,872 | 3,608 | 4,861 | | 7,415 | | 9,689 | 11,192 | 12,092 | 12,319 |
| 34 400 | 1,187 | 2,385 | 2,870 | 3,605 | 4,858 | | 7,412 | | 9,687 | 11,191 | 12,090 | 12,317 |
| 34 500 | 1,186 | 2,383 | 2,868 | 3,603 | 4,854 | | 7,408 | | 9,684 | 11,189 | 12,088 | 12,314 |
| 34 600 | 1,185 | 2,382 | 2,866 | 3,600 | 4,851 | | 7,404 | | 9,681 | 11,187 | 12,085 | 12,312 |
| 34 700 | 1,184 | 2,380 | 2,864 | 3,598 | 4,847 | | 7,400 | | 9,679 | 11,185 | 12,083 | 12,309 |
| 34 800 | 1,184 | 2,378 | 2,862 | 3,595 | 4,844 | | 7,397 | | 9,676 | 11,184 | 12,080 | 12,307 |
| 34 900 | 1,183 | 2,377 | 2,860 | 3,593 | 4,841 | | 7,393 | | 9,673 | 11,182 | 12,078 | 12,304 |
| 35 000 | 1,182 | 2,375 | 2,858 | 3,591 | 4,838 | | 7,389 | | 9,671 | 11,180 | 12,076 | 12,302 |
| 35 100 | 1,181 | 2,374 | 2,856 | 3,588 | 4,834 | | 7,386 | | 9,668 | 11,178 | 12,073 | 12,299 |
| 35 200 | 1,181 | 2,372 | 2,855 | 3,586 | 4,831 | | 7,382 | | 9,665 | 11,176 | 12,071 | 12,297 |
| 35 300 | 1,180 | 2,371 | 2,853 | 3,584 | 4,828 | | 7,378 | | 9,663 | 11,175 | 12,068 | 12,294 |
| 35 400 | 1,179 | 2,370 | 2,851 | 3,582 | 4,825 | | 7,375 | | 9,660 | 11,173 | 12,066 | 12,292 |

| PHIH | 5° | 10° | 12° | 15° | 20° | 25° | 30° | 35° | 40° | 50° | 60° | 70° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DISP | | | | | KN (KY) | | | | | | | |
| Tonn | | | | | Meter | | | | | | | |
| 35 500 | 1,178 | 2,368 | 2,849 | 3,579 | 4,822 | | 7,371 | | 9,657 | 11,171 | 12,063 | 12,289 |
| 35 600 | 1,178 | 2,367 | 2,848 | 3,577 | 4,819 | | 7,368 | | 9,654 | 11,169 | 12,060 | 12,287 |
| 35 700 | 1,177 | 2,365 | 2,846 | 3,575 | 4,816 | | 7,365 | | 9,651 | 11,167 | 12,058 | 12,284 |
| 35 800 | 1,176 | 2,364 | 2,844 | 3,573 | 4,813 | | 7,361 | | 9,648 | 11,165 | 12,055 | 12,282 |
| 35 900 | 1,176 | 2,363 | 2,843 | 3,571 | 4,810 | | 7,358 | | 9,645 | 11,164 | 12,053 | 12,279 |
| 36 000 | 1,175 | 2,361 | 2,841 | 3,569 | 4,808 | | 7,354 | | 9,643 | 11,162 | 12,050 | 12,276 |
| 36 100 | 1,175 | 2,360 | 2,840 | 3,567 | 4,805 | | 7,351 | | 9,640 | 11,160 | 12,047 | 12,274 |
| 36 200 | 1,174 | 2,359 | 2,838 | 3,565 | 4,802 | | 7,348 | | 9,637 | 11,158 | 12,045 | 12,271 |
| 36 300 | 1,173 | 2,358 | 2,837 | 3,563 | 4,799 | | 7,344 | | 9,634 | 11,156 | 12,042 | 12,269 |
| 36 400 | 1,173 | 2,356 | 2,835 | 3,561 | 4,797 | | 7,341 | | 9,631 | 11,154 | 12,039 | 12,266 |
| 36 500 | 1,172 | 2,355 | 2,834 | 3,559 | 4,794 | | 7,338 | | 9,628 | 11,152 | 12,036 | 12,263 |
| 36 600 | 1,172 | 2,354 | 2,832 | 3,557 | 4,791 | | 7,335 | | 9,625 | 11,150 | 12,034 | 12,261 |
| 36 700 | 1,171 | 2,353 | 2,831 | 3,555 | 4,789 | | 7,332 | | 9,622 | 11,148 | 12,031 | 12,258 |
| 36 800 | 1,170 | 2,352 | 2,830 | 3,554 | 4,786 | | 7,329 | | 9,619 | 11,146 | 12,028 | 12,255 |
| 36 900 | 1,170 | 2,351 | 2,828 | 3,552 | 4,784 | | 7,325 | | 9,616 | 11,144 | 12,025 | 12,253 |
| 37 000 | 1,169 | 2,350 | 2,827 | 3,550 | 4,781 | | 7,322 | | 9,612 | 11,142 | 12,023 | 12,250 |
| 37 100 | 1,169 | 2,349 | 2,826 | 3,548 | 4,779 | | 7,319 | | 9,609 | 11,140 | 12,020 | 12,247 |
| 37 200 | 1,168 | 2,347 | 2,824 | 3,547 | 4,776 | | 7,316 | | 9,606 | 11,138 | 12,017 | 12,245 |
| 37 300 | 1,168 | 2,346 | 2,823 | 3,545 | 4,774 | | 7,313 | | 9,603 | 11,136 | 12,014 | 12,242 |
| 37 400 | 1,167 | 2,345 | 2,822 | 3,543 | 4,771 | | 7,310 | | 9,600 | 11,134 | 12,011 | 12,239 |
| 37 500 | 1,167 | 2,344 | 2,820 | 3,542 | 4,769 | | 7,307 | | 9,597 | 11,132 | 12,008 | 12,236 |
| 37 600 | 1,167 | 2,343 | 2,819 | 3,540 | 4,767 | | 7,305 | | 9,594 | 11,130 | 12,006 | 12,234 |
| 37 700 | 1,166 | 2,342 | 2,818 | 3,539 | 4,765 | | 7,302 | | 9,590 | 11,128 | 12,003 | 12,231 |
| 37 800 | 1,166 | 2,342 | 2,817 | 3,537 | 4,762 | | 7,288 | | 9,587 | 11,126 | 12,000 | 12,228 |
| 37 900 | 1,165 | 2,341 | 2,816 | 3,536 | 4,760 | | 7,296 | | 9,584 | 11,124 | 11,997 | 12,225 |
| 38 000 | 1,165 | 2,340 | 2,815 | 3,534 | 4,758 | | 7,293 | | 9,581 | 11,121 | 11,994 | 12,223 |
| 38 100 | 1,164 | 2,339 | 2,814 | 3,533 | 4,756 | | 7,291 | | 9,578 | 11,119 | 11,991 | 12,220 |
| 38 200 | 1,164 | 2,338 | 2,813 | 3,531 | 4,754 | | 7,288 | | 9,574 | 11,117 | 11,988 | 12,217 |
| 38 300 | 1,164 | 2,337 | 2,811 | 3,530 | 4,752 | | 7,285 | | 9,571 | 11,115 | 11,985 | 12,214 |
| 38 400 | 1,163 | 2,336 | 2,810 | 3,529 | 4,750 | | 7,282 | | 9,568 | 11,113 | 11,982 | 12,211 |
| 38 500 | 1,163 | 2,336 | 2,809 | 3,527 | 4,748 | | 7,280 | | 9,565 | 11,110 | 11,979 | 12,209 |
| 38 600 | 1,162 | 2,335 | 2,808 | 3,526 | 4,746 | | 7,277 | | 9,562 | 11,108 | 11,976 | 12,206 |
| 38 700 | 1,162 | 2,334 | 2,807 | 3,525 | 4,744 | | 7,275 | | 9,558 | 11,106 | 11,973 | 12,203 |
| 38 800 | 1,162 | 2,333 | 2,807 | 3,523 | 4,742 | | 7,272 | | 9,555 | 11,104 | 11,970 | 12,200 |
| 38 900 | 1,161 | 2,333 | 2,806 | 3,522 | 4,740 | | 7,270 | | 9,552 | 11,101 | 11,967 | 12,197 |
| 39 000 | 1,161 | 2,332 | 2,805 | 3,521 | 4,738 | | 7,267 | | 6,549 | 11,099 | 11,963 | 12,194 |
| 39 100 | 1,161 | 2,331 | 2,804 | 3,520 | 4,736 | | 7,265 | | 9,545 | 11,097 | 11,960 | 12,191 |
| 39 200 | 1,161 | 2,330 | 2,803 | 3,518 | 4,735 | | 7,262 | | 9,542 | 11,094 | 11,957 | 12,189 |
| 39 300 | 1,160 | 2,330 | 2,802 | 3,517 | 4,733 | | 7,260 | | 9,539 | 11,092 | 11,954 | 12,186 |
| 39 400 | 1,160 | 2,329 | 2,801 | 3,516 | 4,731 | | 7,257 | | 9,536 | 11,090 | 11,951 | 12,183 |
| 39 500 | 1,160 | 2,328 | 2,800 | 3,515 | 4,730 | | 7,255 | | 9,532 | 11,087 | 11,948 | 12,180 |
| 39 600 | 1,159 | 2,328 | 2,800 | 3,514 | 4,728 | | 7,253 | | 9,529 | 11,085 | 11,945 | 12,177 |
| 39 700 | 1,159 | 2,327 | 2,799 | 3,513 | 4,726 | | 7,250 | | 9,526 | 11,083 | 11,941 | 12,174 |
| 39 800 | 1,159 | 2,327 | 2,799 | 3,512 | 4,725 | | 7,248 | | 9,523 | 11,080 | 11,938 | 12,171 |
| 39 900 | 1,159 | 2,326 | 2,797 | 3,511 | 4,723 | | 7,246 | | 9,519 | 11,078 | 11,935 | 12,168 |
| 40 000 | 1,159 | 2,326 | 2,797 | 3,510 | 4,722 | | 7,244 | | 9,516 | 11,075 | 11,932 | 12,165 |
| 40 100 | 1,158 | 2,325 | 2,796 | 3,509 | 4,720 | | 7,242 | | 9,513 | 11,073 | 11,929 | 12,163 |
| 40 200 | 1,158 | 2,324 | 2,795 | 3,508 | 4,719 | | 7,239 | | 9,510 | 11,070 | 11,925 | 12,160 |
| 40 300 | 1,158 | 2,324 | 2,795 | 3,507 | 4,717 | | 7,237 | | 9,506 | 11,068 | 11,922 | 12,157 |
| 40 400 | 1,158 | 2,323 | 2,794 | 3,506 | 4,716 | | 7,235 | | 9,503 | 11,065 | 11,919 | 12,154 |
| 40 500 | 1,157 | 2,323 | 2,793 | 3,505 | 4,714 | | 7,233 | | 9,500 | 11,063 | 11,915 | 12,151 |

| PHIH | 5° | 10° | 12° | 15° | 20° | 25° | 30° | 35° | 40° | 50° | 60° | 70° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DISP | | | | | KN (KY) | | | | | | | |
| Tonn | | | | | Meter | | | | | | | |
| 40 600 | 1,157 | 2,322 | 2,793 | 3,504 | 4,713 | | 7,231 | | 9,497 | 11,060 | 11,912 | 12,148 |
| 40 700 | 1,157 | 2,322 | 2,792 | 3,504 | 4,712 | | 7,229 | | 9,493 | 11,058 | 11,909 | 12,145 |
| 40 800 | 1,157 | 2,322 | 2,792 | 3,503 | 4,710 | | 7,227 | | 9,490 | 11,055 | 11,906 | 12,142 |
| 40 900 | 1,157 | 2,322 | 2,791 | 3,502 | 4,709 | | 7,225 | | 9,487 | 11,052 | 11,902 | 12,139 |
| 41 000 | 1,157 | 2,321 | 2,790 | 3,501 | 4,708 | | 7,223 | | 9,484 | 11,050 | 11,899 | 12,136 |
| 41 100 | 1,157 | 2,321 | 2,790 | 3,500 | 4,706 | | 7,221 | | 9,481 | 11,047 | 11,896 | 12,133 |
| 41 200 | 1,156 | 2,320 | 2,789 | 3,500 | 4,705 | | 7,219 | | 9,477 | 11,044 | 11,892 | 12,130 |
| 41 300 | 1,156 | 2,320 | 2,789 | 3,499 | 4,704 | | 7,218 | | 9,474 | 11,042 | 11,889 | 12,127 |
| 41 400 | 1,156 | 2,319 | 2,788 | 3,498 | 4,703 | | 7,216 | | 9,471 | 11,039 | 11,886 | 12,124 |
| 41 500 | 1,156 | 2,319 | 2,788 | 3,498 | 4,702 | | 7,214 | | 9,468 | 11,036 | 11,882 | 12,121 |
| 41 600 | 1,156 | 2,319 | 2,788 | 3,497 | 4,701 | | 7,212 | | 9,464 | 11,034 | 11,879 | 12,118 |
| 41 700 | 1,156 | 2,318 | 2,787 | 3,496 | 4,699 | | 7,210 | | 9,461 | 11,031 | 11,875 | 12,115 |
| 41 800 | 1,156 | 2,318 | 2,787 | 3,496 | 4,698 | | 7,209 | | 9,458 | 11,028 | 11,872 | 12,112 |
| 41 900 | 1,156 | 2,318 | 2,786 | 3,495 | 4,697 | | 7,207 | | 9,455 | 11,025 | 11,869 | 12,109 |
| 42 000 | 1,156 | 2,317 | 2,786 | 3,495 | 4,696 | | 7,205 | | 9,452 | 11,022 | 11,865 | 12,106 |
| 42 100 | 1,155 | 2,317 | 2,786 | 3,494 | 4,695 | | 7,204 | | 9,448 | 11,019 | 11,862 | 12,103 |
| 42 200 | 1,155 | 2,317 | 2,785 | 3,493 | 4,694 | | 7,202 | | 9,445 | 11,017 | 11,858 | 12,100 |
| 42 300 | 1,155 | 2,317 | 2,785 | 3,493 | 4,693 | | 7,201 | | 9,442 | 11,014 | 11,855 | 13,097 |
| 42 400 | 1,155 | 2,316 | 2,785 | 3,492 | 4,692 | | 7,199 | | 9,439 | 11,011 | 11,851 | 12,094 |
| 42 500 | 1,155 | 2,316 | 2,784 | 3,492 | 4,992 | | 7,197 | | 9,436 | 11,008 | 11,848 | 12,091 |
| 42 600 | 1,155 | 2,316 | 2,784 | 3,491 | 4,691 | | 7,196 | | 9,433 | 11,005 | 11,844 | 12,088 |
| 42 700 | 1,155 | 2,316 | 2,784 | 3,491 | 4,690 | | 7,194 | | 9,430 | 11,002 | 11,841 | 12,084 |
| 42 800 | 1,155 | 2,316 | 2,783 | 3,491 | 4,689 | | 7,193 | | 9,426 | 10,999 | 11,837 | 12,081 |
| 42 900 | 1,155 | 2,316 | 2,783 | 3,490 | 4,688 | | 7,192 | | 9,423 | 10,996 | 11,834 | 12,078 |
| 43 000 | 1,155 | 2,315 | 2,783 | 3,490 | 4,687 | | 7,190 | | 9,420 | 10,993 | 11,830 | 12,075 |
| 43 100 | 1,155 | 2,315 | 2,783 | 3,489 | 4,686 | | 7,189 | | 9,417 | 10,990 | 11,827 | 12,072 |
| 43 200 | 1,155 | 2,315 | 2,783 | 3,489 | 4,686 | | 7,187 | | 9,414 | 10,987 | 11,823 | 12,069 |
| 43 300 | 1,155 | 2,315 | 2,782 | 3,489 | 4,685 | | 7,186 | | 9,411 | 10,984 | 11,820 | 12,066 |
| 43 400 | 1,155 | 2,315 | 2,782 | 3,488 | 4,684 | | 7,185 | | 9,408 | 10,981 | 11,816 | 12,063 |
| 43 500 | 1,155 | 2,315 | 2,782 | 3,488 | 4,684 | | 7,183 | | 9,405 | 10,979 | 11,813 | 12,060 |
| 43 600 | 1,155 | 2,315 | 2,782 | 3,488 | 4,683 | | 7,182 | | 9,402 | 10,974 | 11,809 | 12,057 |
| 43 700 | 1,155 | 2,315 | 2,782 | 3,487 | 4,682 | | 7,181 | | 9,399 | 10,971 | 11,806 | 12,053 |
| 43 800 | 1,155 | 2,315 | 2,782 | 3,487 | 4,682 | | 7,179 | | 9,396 | 10,968 | 11,802 | 12,050 |
| 43 900 | 1,155 | 2,314 | 2,781 | 3,487 | 4,681 | | 7,178 | | 9,393 | 10,965 | 11,798 | 12,047 |
| 44 000 | 1,155 | 2,314 | 2,781 | 3,487 | 4,680 | | 7,177 | | 9,390 | 10,962 | 11,795 | 12,044 |
| 44 100 | 1,155 | 2,314 | 2,781 | 3,486 | 4,680 | | 7,175 | | 9,387 | 10,959 | 11,791 | 12,041 |
| 44 200 | 1,155 | 2,314 | 2,781 | 3,486 | 4,679 | | 7,174 | | 9,384 | 10,955 | 11,788 | 12,038 |
| 44 300 | 1,155 | 2,314 | 2,781 | 3,486 | 4,679 | | 7,173 | | 9,381 | 10,952 | 11,784 | 12,035 |
| 44 400 | 1,155 | 2,314 | 2,781 | 3,486 | 4,678 | | 7,172 | | 9,378 | 10,949 | 11,780 | 12,032 |
| 44 500 | 1,155 | 2,314 | 2,781 | 3,485 | 4,678 | | 7,170 | | 9,375 | 10,946 | 11,777 | 12,028 |
| 44 600 | 1,155 | 2,314 | 2,781 | 3,485 | 4,677 | | 7,169 | | 9,372 | 10,942 | 11,773 | 12,025 |
| 44 700 | 1,155 | 2,314 | 2,781 | 3,485 | 4,677 | | 7,168 | | 9,369 | 10,939 | 11,770 | 12,022 |
| 44 800 | 1,155 | 2,314 | 2,781 | 3,485 | 4,676 | | 7,167 | | 9,366 | 10,932 | 11,766 | 12,019 |
| 44 900 | 1,155 | 2,314 | 2,781 | 3,485 | 4,676 | | 7,165 | | 9,363 | 10,932 | 11,762 | 12,016 |
| 45 000 | 1,155 | 2,314 | 2,781 | 3,485 | 4,675 | | 7,164 | | 9,360 | 10,929 | 11,759 | 12,013 |
| 45 100 | 1,155 | 2,314 | 2,781 | 3,485 | 4,675 | | 7,163 | | 9,357 | 10,926 | 11,755 | 12,009 |
| 45 200 | 1,155 | 2,315 | 2,781 | 3,484 | 4,675 | | 7,162 | | 9,354 | 10,922 | 11,751 | 12,006 |
| 45 300 | 1,155 | 2,315 | 2,781 | 3,484 | 4,674 | | 7,161 | | 9,351 | 10,919 | 11,748 | 12,003 |
| 45 400 | 1,155 | 2,315 | 2,781 | 3,484 | 4,674 | | 7,159 | | 9,348 | 10,916 | 11,744 | 12,000 |
| 45 500 | 1,156 | 2,315 | 2,781 | 3,484 | 4,673 | | 7,158 | | 9,345 | 10,912 | 11,740 | 11,997 |
| 45 600 | 1,156 | 2,315 | 2,781 | 3,484 | 4,673 | | 7,157 | | 9,343 | 10,909 | 11,737 | 11,994 |

| PHIH | 5° | 10° | 12° | 15° | 20° | 25° | 30° | 35° | 40° | 50° | 60° | 70° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DISP | | | | | KN (KY) | | | | | | | |
| Tonn | | | | | Meter | | | | | | | |
| 45 700 | 1,156 | 2,315 | 2,781 | 3,484 | 4,673 | | 7,156 | | 9,340 | 10,905 | 11,733 | 11,990 |
| 45 800 | 1,156 | 2,315 | 2,781 | 3,484 | 4,673 | | 7,154 | | 9,337 | 10,902 | 11,729 | 11,987 |
| 45 900 | 1,156 | 2,315 | 2,781 | 3,484 | 4,672 | | 7,153 | | 9,334 | 10,898 | 11,726 | 11,984 |
| 46 000 | 1,156 | 2,315 | 2,781 | 3,484 | 4,672 | | 7,152 | | 9,331 | 10,895 | 11,722 | 11,981 |
| 46 100 | 1,156 | 2,315 | 2,781 | 3,484 | 4,672 | | 7,151 | | 9,328 | 10,891 | 11,718 | 11,978 |
| 46 200 | 1,156 | 2,315 | 2,781 | 3,484 | 4,672 | | 7,149 | | 9,325 | 10,888 | 11,714 | 11,974 |
| 46 300 | 1,156 | 2,316 | 2,781 | 3,484 | 4,671 | | 7,148 | | 9,323 | 10,884 | 11,711 | 11,971 |
| 46 400 | 1,156 | 2,316 | 2,782 | 3,484 | 4,671 | | 7,147 | | 9,320 | 10,881 | 11,707 | 11,968 |
| 46 500 | 1,156 | 2,316 | 2,782 | 3,484 | 4,671 | | 7,146 | | 9,317 | 10,877 | 11,703 | 11,965 |
| 46 600 | 1,157 | 2,316 | 2,782 | 3,484 | 4,671 | | 7,144 | | 9,314 | 10,874 | 11,699 | 11,961 |
| 46 700 | 1,157 | 2,316 | 2,782 | 3,484 | 4,671 | | 7,143 | | 9,311 | 10,870 | 11,696 | 11,958 |
| 46 800 | 1,157 | 2,316 | 2,782 | 3,484 | 4,671 | | 7,142 | | 9,308 | 10,866 | 11,692 | 11,955 |
| 46 900 | 1,157 | 2,316 | 2,782 | 3,484 | 4,671 | | 7,141 | | 9,306 | 10,863 | 11,688 | 11,952 |
| 47 000 | 1,157 | 2,317 | 2,782 | 3,485 | 4,670 | | 7,139 | | 9,303 | 10,859 | 11,684 | 11,949 |
| 47 100 | 1,157 | 2,317 | 2,782 | 3,485 | 4,670 | | 7,138 | | 9,300 | 10,856 | 11,681 | 11,945 |
| 47 200 | 1,157 | 2,317 | 2,783 | 3,485 | 4,670 | | 7,137 | | 9,297 | 10,852 | 11,677 | 11,942 |
| 47 300 | 1,157 | 2,317 | 2,783 | 3,485 | 4,670 | | 7,135 | | 9,295 | 10,848 | 11,673 | 11,939 |
| 47 400 | 1,157 | 2,317 | 2,783 | 3,485 | 4,670 | | 7,134 | | 9,292 | 10,845 | 11,669 | 11,936 |
| 47 500 | 1,157 | 2,317 | 2,783 | 3,485 | 4,670 | | 7,133 | | 9,289 | 10,841 | 11,665 | 11,932 |
| 47 600 | 1,158 | 2,318 | 2,783 | 3,485 | 4,670 | | 7,132 | | 9,286 | 10,837 | 11,662 | 11,929 |
| 47 700 | 1,158 | 2,318 | 2,784 | 3,485 | 4,670 | | 7,130 | | 9,284 | 10,834 | 11,658 | 11,926 |
| 47 800 | 1,158 | 2,318 | 2,784 | 3,486 | 4,670 | | 7,129 | | 9,281 | 10,830 | 11,654 | 11,923 |
| 47 900 | 1,158 | 2,318 | 2,784 | 3,486 | 4,670 | | 7,127 | | 9,278 | 10,826 | 11,650 | 11,919 |
| 48 000 | 1,158 | 2,318 | 2,784 | 3,486 | 4,670 | | 7,126 | | 9,275 | 10,822 | 11,646 | 11,916 |
| 48 100 | 1,158 | 2,319 | 2,784 | 3,486 | 4,670 | | 7,125 | | 9,273 | 10,819 | 11,643 | 11,913 |
| 48 200 | 1,158 | 2,319 | 2,785 | 3,486 | 4,670 | | 7,123 | | 9,270 | 10,815 | 11,639 | 11,910 |
| 48 300 | 1,158 | 2,319 | 2,785 | 3,487 | 4,670 | | 7,122 | | 9,267 | 10,811 | 11,635 | 11,906 |
| 48 400 | 1,159 | 2,319 | 2,785 | 3,487 | 4,670 | | 7,120 | | 9,264 | 10,807 | 11,631 | 11,903 |
| 48 500 | 1,159 | 2,319 | 2,785 | 3,487 | 4,670 | | 7,119 | | 9,262 | 10,803 | 11,627 | 11,900 |
| 48 600 | 1,159 | 2,320 | 2,785 | 3,487 | 4,671 | | 7,117 | | 9,259 | 10,800 | 11,623 | 11,897 |
| 48 700 | 1,159 | 2,320 | 2,786 | 3,487 | 4,671 | | 7,116 | | 9,256 | 10,796 | 11,620 | 11,893 |
| 48 800 | 1,159 | 2,320 | 2,786 | 3,488 | 4,671 | | 7,114 | | 9,253 | 10,792 | 11,616 | 11,890 |
| 48 900 | 1,159 | 2,320 | 2,786 | 3,488 | 4,671 | | 7,113 | | 9,250 | 10,788 | 11,612 | 11,887 |
| 49 000 | 1,159 | 2,321 | 2,787 | 3,488 | 4,671 | | 7,111 | | 9,248 | 10,784 | 11,608 | 11,884 |
| 49 100 | 1,160 | 2,321 | 2,787 | 3,488 | 4,671 | | 7,110 | | 9,245 | 10,780 | 11,604 | 11,880 |
| 49 200 | 1,160 | 2,321 | 2,787 | 3,489 | 4,671 | | 7,108 | | 9,242 | 10,776 | 11,600 | 11,877 |
| 49 300 | 1,160 | 2,321 | 2,787 | 3,489 | 4,672 | | 7,107 | | 9,239 | 10,772 | 11,596 | 11,874 |
| 49 400 | 1,160 | 2,322 | 2,788 | 3,489 | 4,672 | | 7,105 | | 9,237 | 10,769 | 11,592 | 11,870 |
| 49 500 | 1,160 | 2,322 | 2,788 | 3,490 | 4,672 | | 7,104 | | 9,234 | 10,765 | 11,588 | 11,867 |
| 49 600 | 1,160 | 2,322 | 2,788 | 3,490 | 4,672 | | 7,102 | | 9,231 | 10,761 | 11,585 | 11,864 |
| 49 700 | 1,160 | 2,322 | 2,788 | 3,490 | 4,673 | | 7,100 | | 9,228 | 10,757 | 11,581 | 11,861 |
| 49 800 | 1,161 | 2,323 | 2,789 | 3,491 | 4,673 | | 7,099 | | 9,225 | 10,753 | 11,577 | 11,857 |
| 49 900 | 1,161 | 2,323 | 2,789 | 3,491 | 4,673 | | 7,097 | | 9,222 | 10,749 | 11,573 | 11,854 |
| 50 000 | 1,158 | 2,318 | 2,784 | 3,484 | 4,664 | | 7,095 | | 9,204 | 10,727 | 11,569 | 11,851 |
| 50 100 | 1,159 | 2,319 | 2,784 | 3,484 | 4,664 | | 7,081 | | 9,201 | 10,723 | 11,546 | 11,827 |
| 50 200 | 1,159 | 2,319 | 2,784 | 3,485 | 4,664 | | 7,079 | | 9,198 | 10,720 | 11,542 | 11,824 |
| 50 300 | 1,159 | 2,319 | 2,794 | 3,485 | 4,665 | | 7,078 | | 9,196 | 10,716 | 11,538 | 11,821 |
| 50 400 | 1,159 | 2,320 | 2,785 | 3,485 | 4,665 | | 7,076 | | 9,193 | 10,712 | 11,534 | 11,818 |
| 50 500 | 1,159 | 2,320 | 2,785 | 3,486 | 4,665 | | 7,074 | | 9,190 | 10,708 | 11,530 | 11,814 |
| 50 600 | 1,159 | 2,320 | 2,786 | 3,486 | 4,666 | | 7,073 | | 9,187 | 10,704 | 11,526 | 11,811 |
| 50 700 | 1,160 | 2,320 | 2,786 | 3,486 | 4,666 | | 7,071 | | 9,184 | 10,700 | 11,522 | 11,808 |

| PHIH | 5° | 10° | 12° | 15° | 20° | 25° | 30° | 35° | 40° | 50° | 60° | 70° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DISP | | | | | KN (KY) | | | | | | | |
| Tonn | | | | | Meter | | | | | | | |
| 50 800 | 1,160 | 2,321 | 2,786 | 3,487 | 4,666 | | 7,069 | | 9,181 | 10,696 | 11,518 | 11,805 |
| 50 900 | 1,160 | 2,321 | 2,787 | 3,487 | 4,667 | | 7,067 | | 9,179 | 10,692 | 11,515 | 11,802 |
| 51 000 | 1,160 | 2,321 | 2,787 | 3,488 | 4,667 | | 7,066 | | 9,176 | 10,688 | 11,511 | 11,798 |
| 51 100 | 1,160 | 2,322 | 2,787 | 3,488 | 4,667 | | 7,064 | | 9,173 | 10,684 | 11,507 | 11,795 |
| 51 200 | 1,160 | 2,322 | 2,788 | 3,488 | 4,668 | | 7,062 | | 9,170 | 10,680 | 11,503 | 11,792 |
| 51 300 | 1,161 | 2,322 | 2,788 | 3,489 | 4,668 | | 7,060 | | 9,167 | 10,675 | 11,499 | 11,789 |
| 51 400 | 1,161 | 2,323 | 2,788 | 3,489 | 4,669 | | 7,058 | | 9,164 | 10,671 | 11,495 | 11,786 |
| 51 500 | 1,161 | 2,323 | 2,789 | 3,490 | 4,669 | | 7,057 | | 9,161 | 10,667 | 11,491 | 11,782 |
| 51 600 | 1,161 | 2,323 | 2,789 | 3,490 | 4,670 | | 7,055 | | 9,158 | 10,663 | 11,487 | 11,779 |
| 51 700 | 1,161 | 2,324 | 2,790 | 3,490 | 4,670 | | 7,053 | | 9,155 | 10,659 | 11,483 | 11,776 |
| 51 800 | 1,161 | 2,324 | 2,790 | 3,491 | 4,670 | | 7,051 | | 9,152 | 10,655 | 11,479 | 11,773 |
| 51 900 | 1,162 | 2,324 | 2,790 | 3,491 | 4,671 | | 7,049 | | 9,149 | 10,651 | 11,475 | 11,769 |
| 52 000 | 1,162 | 2,325 | 2,791 | 3,492 | 4,671 | | 7,047 | | 9,146 | 10,647 | 11,471 | 11,766 |
| 52 100 | 1,162 | 2,325 | 2,791 | 3,492 | 4,672 | | 7,046 | | 9,143 | 10,643 | 11,467 | 11,763 |
| 52 200 | 1,162 | 2,325 | 2,791 | 3,493 | 4,672 | | 7,044 | | 9,140 | 10,638 | 11,463 | 11,760 |
| 52 300 | 1,162 | 2,326 | 2,792 | 3,493 | 4,673 | | 7,042 | | 9,137 | 10,634 | 11,459 | 11,757 |
| 52 400 | 1,163 | 2,326 | 2,792 | 3,494 | 4,673 | | 7,040 | | 9,134 | 10,630 | 11,455 | 11,753 |
| 52 500 | 1,163 | 2,326 | 2,793 | 3,494 | 4,674 | | 7,038 | | 9,131 | 10,626 | 11,451 | 11,750 |
| 52 600 | 1,163 | 2,327 | 2,793 | 3,495 | 4,674 | | 7,036 | | 9,128 | 10,622 | 11,447 | 11,747 |
| 52 700 | 1,163 | 2,327 | 2,794 | 3,495 | 4,675 | | 7,034 | | 9,125 | 10,617 | 11,443 | 11,744 |
| 52 800 | 1,163 | 2,328 | 2,794 | 3,496 | 4,675 | | 7,032 | | 9,122 | 10,613 | 11,439 | 11,740 |
| 52 900 | 1,163 | 2,328 | 2,794 | 3,496 | 4,676 | | 7,030 | | 9,119 | 10,609 | 11,435 | 11,737 |
| 53 000 | 1,164 | 2,328 | 2,795 | 3,497 | 4,677 | | 7,029 | | 9,116 | 10,605 | 11,431 | 11,734 |
| 53 100 | 1,164 | 2,329 | 2,795 | 3,497 | 4,677 | | 7,027 | | 9,113 | 10,600 | 11,427 | 11,731 |
| 53 200 | 1,164 | 2,329 | 2,796 | 3,498 | 4,678 | | 7,025 | | 9,109 | 10,596 | 11,423 | 11,728 |
| 53 300 | 1,164 | 2,329 | 2,796 | 3,498 | 4,678 | | 7,023 | | 9,106 | 10,592 | 11,419 | 11,724 |
| 53 400 | 1,164 | 2,330 | 2,797 | 3,499 | 4,679 | | 7,021 | | 9,103 | 10,588 | 11,415 | 11,721 |
| 53 500 | 1,165 | 2,330 | 2,797 | 3,499 | 4,679 | | 7,019 | | 9,100 | 10,583 | 11,411 | 11,718 |
| 53 600 | 1,165 | 2,330 | 2,797 | 3,500 | 4,680 | | 7,017 | | 9,097 | 10,579 | 11,407 | 11,715 |
| 53 700 | 1,165 | 2,331 | 2,798 | 3,500 | 4,681 | | 7,016 | | 9,093 | 10,575 | 11,403 | 11,711 |
| 53 800 | 1,165 | 2,331 | 2,798 | 3,501 | 4,681 | | 7,014 | | 9,090 | 10,570 | 11,398 | 11,708 |
| 53 900 | 1,165 | 2,332 | 2,799 | 3,501 | 4,682 | | 7,012 | | 9,087 | 10,566 | 11,394 | 11,705 |
| 54 000 | 1,166 | 2,332 | 2,799 | 3,502 | 4,683 | | 7,010 | | 9,084 | 10,562 | 11,390 | 11,702 |
| 54 100 | 1,166 | 2,332 | 2,800 | 3,502 | 4,684 | | 7,008 | | 9,080 | 10,557 | 11,386 | 11,699 |
| 54 200 | 1,166 | 2,333 | 2,800 | 3,503 | 4,684 | | 7,006 | | 9,077 | 10,553 | 11,382 | 11,695 |
| 54 300 | 1,166 | 2,333 | 2,801 | 3,504 | 4,685 | | 7,005 | | 9,074 | 10,549 | 11,378 | 11,692 |
| 54 400 | 1,166 | 2,334 | 2,801 | 3,504 | 4,685 | | 7,003 | | 9,071 | 10,544 | 11,374 | 11,689 |
| 54 500 | 1,167 | 2,334 | 2,802 | 3,505 | 4,686 | | 7,001 | | 9,067 | 10,540 | 11,370 | 11,686 |
| 54 600 | 1,167 | 2,334 | 2,802 | 3,505 | 4,687 | | 6,999 | | 9,064 | 10,535 | 11,366 | 11,682 |
| 54 700 | 1,167 | 2,335 | 2,803 | 3,506 | 4,687 | | 6,997 | | 9,061 | 10,531 | 11,362 | 11,679 |
| 54 800 | 1,167 | 2,335 | 2,803 | 3,506 | 4,688 | | 6,996 | | 9,057 | 10,527 | 11,357 | 11,676 |
| 54 900 | 1,167 | 2,336 | 2,804 | 3,507 | 4,689 | | 6,994 | | 9,054 | 10,522 | 11,353 | 11,673 |
| 55 000 | 1,168 | 2,336 | 2,804 | 3,508 | 4,689 | | 6,992 | | 9,050 | 10,518 | 11,349 | 11,670 |
| 55 100 | 1,168 | 2,336 | 2,805 | 3,508 | 4,690 | | 6,990 | | 9,047 | 10,513 | 11,345 | 11,666 |
| 55 200 | 1,168 | 2,337 | 2,805 | 3,509 | 4,691 | | 6,989 | | 9,044 | 10,509 | 11,341 | 11,663 |
| 55 300 | 1,168 | 2,337 | 2,805 | 3,509 | 4,692 | | 6,987 | | 9,040 | 10,504 | 11,337 | 1,660 |
| 55 400 | 1,168 | 2,338 | 2,806 | 3,510 | 4,692 | | 6,985 | | 9,037 | 10,500 | 11,333 | 11,657 |
| 55 500 | 1,169 | 2,338 | 2,806 | 3,511 | 4,693 | | 6,984 | | 9,033 | 10,495 | 11,328 | 11,653 |
| 55 600 | 1,169 | 2,339 | 2,807 | 3,511 | 4,694 | | 6,982 | | 9,030 | 10,491 | 11,324 | 11,650 |
| 55 700 | 1,169 | 2,339 | 2,807 | 3,512 | 4,695 | | 6,980 | | 9,026 | 10,486 | 11,320 | 11,647 |
| 55 800 | 1,169 | 2,339 | 2,808 | 3,512 | 4,695 | | 6,979 | | 9,023 | 10,482 | 11,316 | 11,644 |

| PHIH | 5° | 10° | 12° | 15° | 20° | 25° | 30° | 35° | 40° | 50° | 60° | 70° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DISP | | | | | KN (KY) | | | | | | | |
| Tonn | | | | | Meter | | | | | | | |
| 55 900 | 1,170 | 2,340 | 2,809 | 3,513 | 4,696 | | 6,977 | | 9,020 | 10,477 | 11,312 | 11,641 |
| 56 000 | 1,170 | 2,340 | 2,809 | 3,514 | 4,697 | | 6,975 | | 9,016 | 10,473 | 11,308 | 11,637 |
| 56 100 | 1,170 | 2,341 | 2,810 | 3,514 | 4,698 | | 6,974 | | 9,013 | 10,468 | 11,303 | 11,634 |
| 56 200 | 1,170 | 2,341 | 2,810 | 3,515 | 4,698 | | 6,972 | | 9,009 | 10,464 | 11,299 | 11,631 |
| 56 300 | 1,170 | 2,342 | 2,811 | 3,516 | 4,699 | | 6,970 | | 9,005 | 10,459 | 11,295 | 11,628 |
| 56 400 | 1,171 | 2,342 | 2,811 | 3,516 | 4,700 | | 6,969 | | 9,002 | 10,454 | 11,291 | 11,624 |
| 56 500 | 1,171 | 2,342 | 2,812 | 3,517 | 4,701 | | 6,967 | | 8,998 | 10,450 | 11,287 | 11,621 |
| 56 600 | 1,171 | 2,343 | 2,812 | 3,518 | 4,702 | | 6,966 | | 8,995 | 10,445 | 11,282 | 11,618 |
| 56 700 | 1,171 | 2,343 | 2,813 | 3,518 | 4,702 | | 6,964 | | 8,991 | 10,441 | 11,278 | 11,615 |
| 56 800 | 1,172 | 2,344 | 2,813 | 3,519 | 4,703 | | 6,963 | | 8,988 | 10,436 | 11,274 | 11,611 |
| 56 900 | 1,172 | 2,344 | 2,814 | 3,519 | 4,704 | | 6,961 | | 8,984 | 10,431 | 11,270 | 11,608 |
| 57 000 | 1,172 | 2,345 | 2,814 | 3,520 | 4,705 | | 6,959 | | 8,981 | 10,427 | 11,266 | 11,605 |
| 57 100 | 1,172 | 2,345 | 2,815 | 3,521 | 4,706 | | 6,958 | | 8,977 | 10,422 | 11,261 | 11,602 |
| 57 200 | 1,172 | 2,346 | 2,815 | 3,521 | 4,707 | | 6,956 | | 8,973 | 10,417 | 11,257 | 11,599 |
| 57 300 | 1,173 | 2,346 | 2,816 | 3,522 | 4,708 | | 6,955 | | 8,970 | 10,413 | 11,253 | 11,595 |
| 57 400 | 1,173 | 2,346 | 2,816 | 3,523 | 4,708 | | 6,953 | | 8,966 | 10,408 | 11,249 | 11,592 |
| 57 500 | 1,173 | 2,347 | 2,817 | 3,524 | 4,709 | | 6,952 | | 8,962 | 10,403 | 11,244 | 11,589 |
| 57 600 | 1,173 | 2,347 | 2,818 | 3,524 | 4,710 | | 6,950 | | 8,959 | 10,399 | 11,240 | 11,586 |
| 57 700 | 1,174 | 2,348 | 2,818 | 3,525 | 4,711 | | 6,949 | | 8,955 | 10,394 | 11,236 | 11,582 |
| 57 800 | 1,174 | 2,348 | 2,819 | 3,526 | 4,712 | | 6,947 | | 8,952 | 10,389 | 11,232 | 11,579 |
| 57 900 | 1,174 | 2,349 | 2,819 | 3,526 | 4,713 | | 6,946 | | 8,948 | 10,384 | 11,227 | 11,576 |
| 58 000 | 1,174 | 2,349 | 2,820 | 3,527 | 4,714 | | 6,945 | | 8,944 | 10,380 | 11,223 | 11,573 |
| 58 100 | 1,175 | 2,350 | 2,820 | 3,528 | 4,715 | | 6,943 | | 8,941 | 10,375 | 11,219 | 11,569 |
| 58 200 | 1,175 | 2,350 | 2,821 | 3,528 | 4,716 | | 6,942 | | 8,937 | 10,370 | 11,215 | 11,566 |
| 58 300 | 1,175 | 2,351 | 2,822 | 3,529 | 4,717 | | 6,940 | | 8,933 | 10,365 | 11,210 | 11,563 |
| 58 400 | 1,175 | 2,351 | 2,822 | 3,530 | 4,717 | | 6,939 | | 8,929 | 10,361 | 11,206 | 11,560 |
| 58 500 | 1,176 | 2,352 | 2,823 | 3,531 | 4,718 | | 6,938 | | 8,926 | 10,356 | 11,202 | 11,556 |
| 58 600 | 1,176 | 2,352 | 2,823 | 3,531 | 4,719 | | 6,936 | | 8,922 | 10,351 | 11,197 | 11,553 |
| 58 700 | 1,176 | 2,353 | 2,824 | 3,532 | 4,720 | | 6,935 | | 8,918 | 10,346 | 11,193 | 11,550 |
| 58 800 | 1,176 | 2,353 | 2,824 | 3,533 | 4,721 | | 6,933 | | 8,915 | 10,342 | 11,189 | 11,547 |
| 58 900 | 1,177 | 2,354 | 2,825 | 3,533 | 4,722 | | 6,932 | | 8,911 | 10,337 | 11,185 | 11,543 |
| 59 000 | 1,177 | 2,354 | 2,826 | 3,534 | 4,723 | | 6,931 | | 8,907 | 10,332 | 11,180 | 11,540 |
| 59 100 | 1,177 | 2,355 | 2,826 | 3,535 | 4,724 | | 6,929 | | 8,903 | 10,327 | 11,176 | 11,537 |
| 59 200 | 1,177 | 2,355 | 2,827 | 3,536 | 4,725 | | 6,928 | | 8,900 | 10,322 | 11,172 | 11,534 |
| 59 300 | 1,177 | 2,356 | 2,827 | 3,536 | 4,726 | | 6,927 | | 8,896 | 10,317 | 11,167 | 11,530 |
| 59 400 | 1,178 | 2,356 | 2,828 | 3,537 | 4,727 | | 6,925 | | 8,892 | 10,313 | 11,163 | 11,527 |
| 59 500 | 1,178 | 2,357 | 5,829 | 3,538 | 4,728 | | 6,924 | | 8,888 | 10,308 | 11,159 | 11,524 |
| 59 600 | 1,178 | 2,357 | 2,829 | 3,539 | 4,729 | | 6,923 | | 8,884 | 10,303 | 11,154 | 11,521 |
| 59 700 | 1,179 | 2,358 | 2,830 | 3,539 | 4,730 | | 6,922 | | 8,881 | 10,298 | 11,150 | 11,517 |
| 59 800 | 1,179 | 2,358 | 2,830 | 3,540 | 4,731 | | 6,920 | | 8,877 | 10,293 | 11,146 | 11,514 |
| 59 900 | 1,179 | 2,359 | 2,831 | 3,541 | 4,732 | | 6,919 | | 8,873 | 10,288 | 11,141 | 11,511 |
| 60 000 | 1,179 | 2,359 | 2,832 | 3,542 | 4,733 | | 6,918 | | 8,869 | 10,283 | 11,137 | 11,507 |

# PART 7

GRAIN LOADING PLAN
Information on stability

MAXIMUM ALLOWABLE HEELING MOMENT.

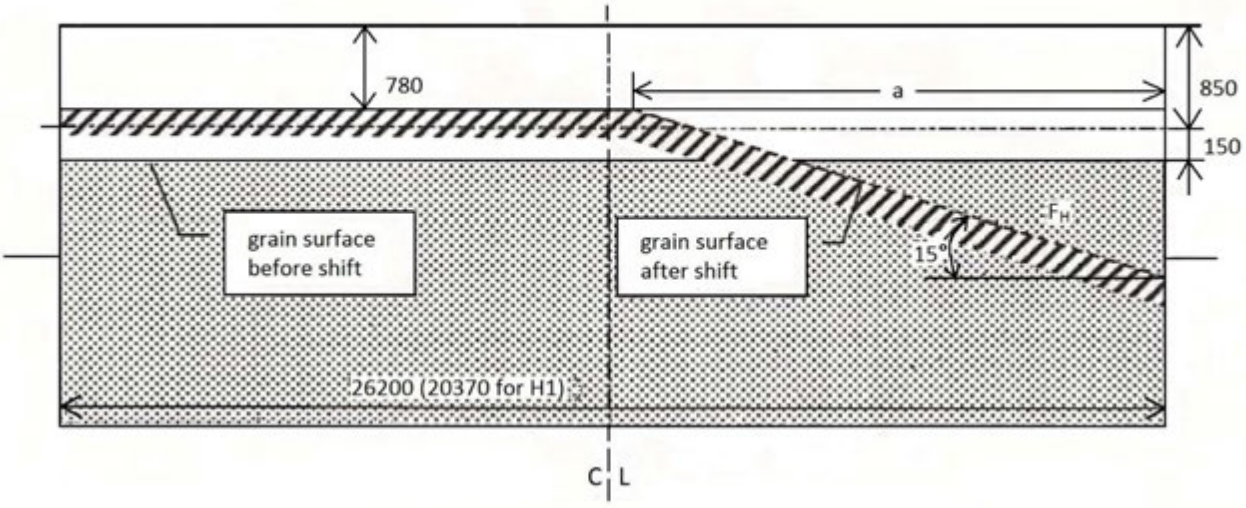
VOLUMES
VOLUME CENTRE VERTICAL ORDINATES
AND VOLUMETRIC HEELING MOMENTS DUE TO GRAIN SHIFTING
FOR HOLDS NO 1 – 10
(diagrams and tables)

In this chapter are shown:

1. Curves of volums VOL.
2. Curves of volumetric vertical centre KG vol. for various levels of cargo where the geometric centre of the whole cargo compartment to the level of gain, with no account for voids has been taken.
3. Curves of actual volumetric heeling moments due to grain shifting, MVG, the curves and the tables have been increased by 12% in relation to calculated theoretical valus.

   In upper parts of curves:
   For the filled up holds (case «FILLED COMPARTMENT») the total heeling moment has been counted as volumetric heeling moment in filled hatch.
   The values of the moment are without increasing.

CALCULATION OF MVG IN HATCH – HOLDS FILLED UP:
Transverse section:




Void area:

$F_{H2\text{-}10}$ = (0,07/0,15) * 26,20 = 5,764 $m^2$

$F_{H1}$ = (0,07 / 0,15) * 20,37 = 4,481 $m^2$

Void area moment:

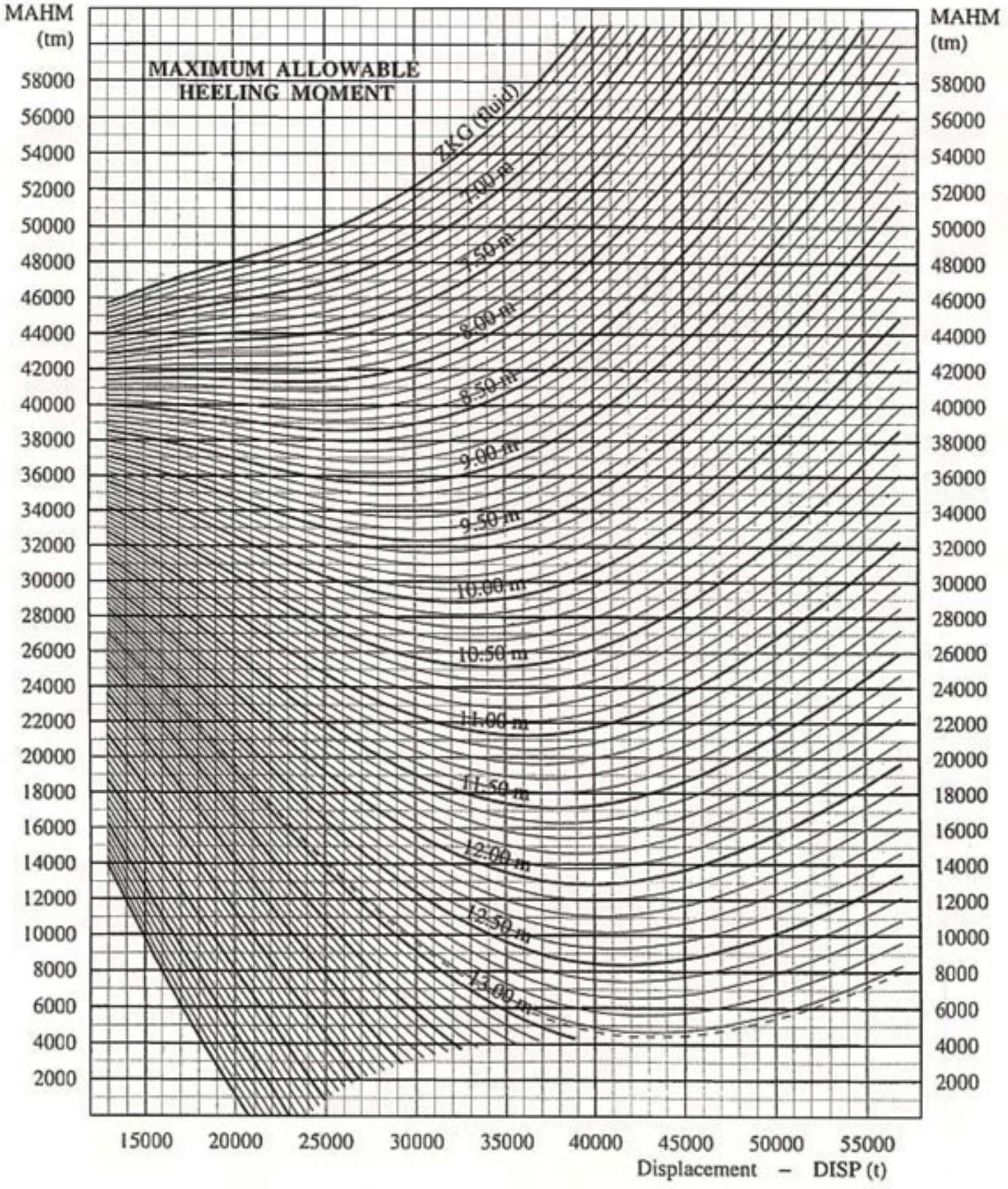
$M_{H2\text{-}10} = F_{H2\text{-}10} * (13{,}10 - a/3)$;
$M_{H2\text{-}10}$ = 5,765 * (13,10 – 6,56/3)
$M_{H2\text{-}10}$ = 62,9 $m^3$

$M_{H1} = F_{H2\text{-}10} * (10{,}185 - a/3)$; $a = \sqrt{2FH/tg15°}$
$M_{H1}$ = 4,481 * (10,185 – 5,78/3)

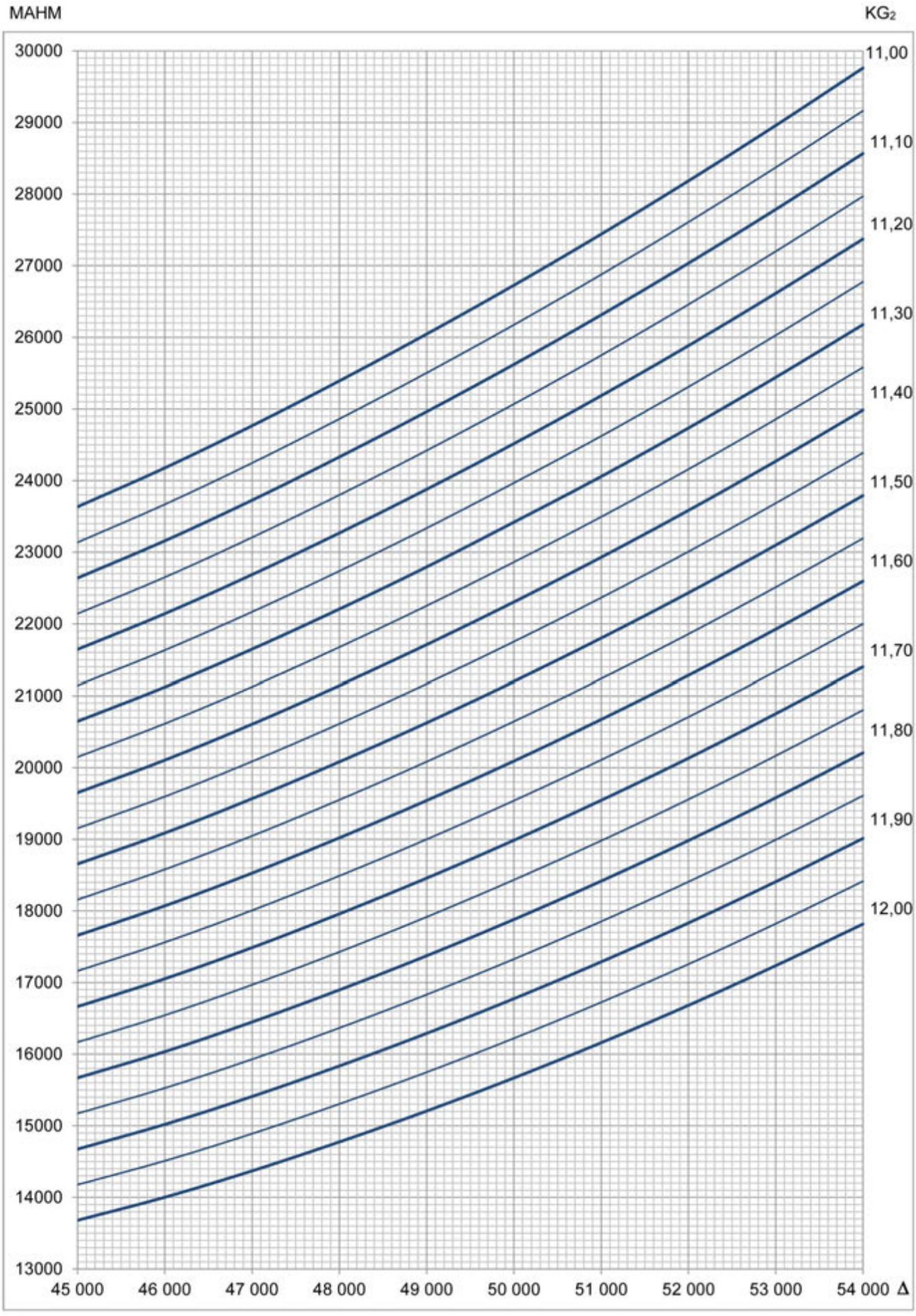
Volumetric heeling moment due to grain shift:

MVG = $M_H * l_H$ where $l_H$ – hatch length
$MVG_{H2\text{-}10}$ = 62,9 * 12,30
$MVG_{H2\text{-}10}$ = 774 $m^4$

$MVG_{H1}$ = 37,0 * 12,30
$MVG_{H1}$ = 455 $m^4$


MAHM
(tm)
MAXIMUM ALLOWABLE
HEELING MOMENT
ZKG (fluid)
7.00 m
7.50 m
8.00 m
8.50 m
9.00 m
9.50 m
10.00 m
10.50 m
11.00 m
11.50 m
12.00 m
12.50 m
13.00 m
58000
56000
54000
52000
50000
48000
46000
44000
42000
40000
38000
36000
34000
32000
30000
28000
26000
24000
22000
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
15000
20000
25000
30000
35000
40000
45000
50000
55000
Displacement – DISP (t)

## Maksimalt tillatte krengemomenter (MAHM)



**MAHM** (tm)

| Disp. t. | 9,00 | 9,10 | $KG_2$ 9,20 | (fluid) 9,30 | (m) 9,40 | 9,50 | 9,60 | 9,70 | Disp. t. |
|---|---|---|---|---|---|---|---|---|---|
| 15 000 | 38 176 | 37 844 | 37 512 | 37 180 | 36 848 | 36 516 | 36 185 | 35 853 | 15 000 |
| 15 500 | 38 077 | 37 734 | 37 391 | 37 048 | 36 705 | 36 363 | 36 020 | 35 677 | 15 500 |
| 16 000 | 37 974 | 37 620 | 37 266 | 36 912 | 36 558 | 36 204 | 35 850 | 35 496 | 16 000 |
| 16 500 | 37 866 | 37 501 | 37 136 | 36 771 | 36 406 | 36 041 | 35 676 | 35 311 | 16 500 |
| 17 000 | 37 754 | 37 377 | 37 001 | 36 625 | 36 249 | 35 873 | 35 497 | 35 121 | 17 000 |
| 17 500 | 37 636 | 37 249 | 36 862 | 36 474 | 36 087 | 35 700 | 35 313 | 34 926 | 17 500 |
| 18 000 | 37 513 | 37 115 | 36 717 | 36 319 | 35 921 | 35 523 | 35 124 | 34 726 | 18 000 |
| 18 500 | 37 387 | 36 978 | 36 569 | 36 159 | 35 750 | 35 341 | 34 932 | 34 523 | 18 500 |
| 19 000 | 37 257 | 36 837 | 36 417 | 35 997 | 35 577 | 35 156 | 34 736 | 34 316 | 19 000 |
| 19 500 | 37 125 | 36 694 | 36 262 | 35 831 | 35 400 | 34 968 | 34 537 | 34 106 | 19 500 |
| 20 000 | 36 990 | 36 548 | 36 105 | 35 663 | 35 221 | 34 778 | 34 336 | 33 893 | 20 000 |
| 20 500 | 36 854 | 36 400 | 35 947 | 35 493 | 35 040 | 34 587 | 34 133 | 33 680 | 20 500 |
| 21 000 | 36 718 | 36 254 | 35 789 | 35 325 | 34 860 | 34 396 | 33 931 | 33 467 | 21 000 |
| 21 500 | 36 585 | 36 110 | 35 634 | 35 159 | 34 683 | 34 208 | 33 732 | 33 257 | 21 500 |
| 22 000 | 36 457 | 35 970 | 35 484 | 34 997 | 34 511 | 34 024 | 33 537 | 33 051 | 22 000 |
| 22 500 | 36 334 | 35 836 | 35 339 | 34 841 | 34 343 | 33 846 | 33 348 | 32 850 | 22 500 |
| 23 000 | 35 216 | 35 708 | 35 199 | 34 690 | 34 182 | 33 673 | 33 164 | 32 655 | 23 000 |
| 23 500 | 36 105 | 35 586 | 35 066 | 34 546 | 34 026 | 33 506 | 32 986 | 32 467 | 23 500 |
| 24 000 | 36 002 | 35 472 | 34 941 | 34 410 | 33 879 | 33 348 | 32 817 | 32 286 | 24 000 |
| 24 500 | 35 909 | 35 367 | 34 825 | 34 283 | 33 741 | 33 199 | 32 657 | 32 115 | 24 500 |
| 25 000 | 35 825 | 35 272 | 34 719 | 34 166 | 33 613 | 30 060 | 32 506 | 31 953 | 25 000 |
| 25 500 | 35 752 | 35 188 | 34 624 | 34 060 | 33 496 | 32 931 | 32 367 | 31 803 | 25 500 |
| 26 000 | 35 691 | 35 116 | 34 541 | 33 965 | 33 390 | 32 815 | 32 240 | 31 664 | 26 000 |
| 26 500 | 35 641 | 35 055 | 34 469 | 33 883 | 33 296 | 32 710 | 32 124 | 31 538 | 26 500 |
| 27 000 | 35 604 | 35 006 | 34 409 | 33 812 | 33 215 | 32 617 | 32 020 | 31 423 | 27 000 |
| 27 500 | 35 578 | 34 969 | 34 361 | 33 753 | 33 145 | 32 536 | 31 928 | 31 320 | 27 500 |
| 28 000 | 35 563 | 34 944 | 34 324 | 33 705 | 33 086 | 32 466 | 31 847 | 31 228 | 28 000 |
| 28 500 | 35 560 | 34 930 | 34 299 | 33 669 | 33 038 | 32 408 | 31 777 | 31 147 | 28 500 |
| 29 000 | 35 570 | 34 929 | 34 287 | 33 645 | 33 003 | 32 361 | 31 719 | 31 078 | 29 000 |
| 29 500 | 35 594 | 34 941 | 34 288 | 33 635 | 32 981 | 32 328 | 31 675 | 31 022 | 29 500 |
| 30 000 | 35 630 | 34 966 | 34 302 | 33 638 | 32 973 | 32 309 | 31 645 | 30 981 | 30 000 |
| 30 500 | 35 680 | 35 005 | 34 330 | 33 654 | 32 979 | 32 304 | 31 628 | 30 954 | 30 500 |
| 31 000 | 35 744 | 35 058 | 34 371 | 33 685 | 32 999 | 32 312 | 31 626 | 30 940 | 31 000 |
| 31 500 | 35 821 | 35 124 | 34 427 | 33 730 | 33 032 | 32 335 | 31 638 | 30 941 | 31 500 |
| 32 000 | 35 913 | 35 205 | 34 496 | 33 788 | 33 080 | 32 372 | 31 664 | 30 956 | 32 000 |
| 32 500 | 36 018 | 35 299 | 34 580 | 33 861 | 33 142 | 32 424 | 31 705 | 30 986 | 32 500 |
| 33 000 | 36 138 | 35 408 | 34 678 | 33 948 | 33 218 | 32 488 | 31 758 | 31 028 | 33 000 |
| 33 500 | 36 272 | 35 531 | 34 790 | 34 049 | 33 309 | 32 568 | 31 827 | 31 086 | 33 500 |
| 34 000 | 36 420 | 35 668 | 34 917 | 34 165 | 33 413 | 32 662 | 31 910 | 31 158 | 34 000 |
| 34 500 | 36 582 | 35 820 | 35 057 | 34 295 | 33 532 | 32 770 | 32 006 | 31 243 | 34 500 |
| 35 000 | 36 760 | 35 986 | 35 213 | 34 439 | 33 666 | 32 892 | 32 118 | 31 344 | 35 000 |
| 35 500 | 36 953 | 36 168 | 35 384 | 34 599 | 33 815 | 33 030 | 32 245 | 31 461 | 35 500 |
| 36 000 | 37 162 | 36 366 | 35 571 | 34 775 | 33 979 | 33 184 | 32 388 | 31 592 | 36 000 |
| 36 500 | 37 386 | 36 580 | 35 773 | 34 967 | 34 160 | 33 353 | 32 546 | 31 738 | 36 500 |
| 37 000 | 37 627 | 36 809 | 35 992 | 35 174 | 34 356 | 33 538 | 32 720 | 31 901 | 37 000 |
| 37 500 | 37 884 | 37 055 | 36 226 | 35 396 | 34 567 | 33 738 | 32 909 | 32 080 | 37 500 |
| 38 000 | 38 156 | 37 315 | 36 475 | 35 634 | 34 793 | 33 953 | 33 112 | 32 272 | 38 000 |
| 38 500 | 38 442 | 37 591 | 36 739 | 35 887 | 35 036 | 34 184 | 33 332 | 32 480 | 38 500 |
| 39 000 | 38 743 | 37 880 | 37 017 | 36 155 | 35 292 | 34 429 | 33 566 | 32 704 | 39 000 |
| 39 500 | 39 059 | 38 185 | 37 311 | 36 437 | 35 564 | 34 690 | 33 816 | 32 943 | 39 500 |
| 40 000 | 39 391 | 38 506 | 37 621 | 36 737 | 35 852 | 34 967 | 34 082 | 33 198 | 40 000 |
| 40 500 | 39 740 | 38 844 | 37 948 | 37 052 | 36 156 | 35 260 | 34 365 | 33 469 | 40 500 |
| 41 000 | 40 106 | 39 199 | 38 291 | 37 384 | 36 477 | 35 570 | 34 663 | 33 757 | 41 000 |
| 41 500 | 40 488 | 39 570 | 38 651 | 37 733 | 36 815 | 35 897 | 34 979 | 34 061 | 41 500 |
| 42 000 | 40 886 | 39 956 | 39 027 | 38 098 | 37 169 | 36 239 | 35 310 | 34 381 | 42 000 |
| 42 500 | 41 299 | 40 358 | 39 418 | 38 478 | 37 538 | 36 598 | 35 657 | 34 717 | 42 500 |
| 43 000 | 41 725 | 40 773 | 39 822 | 38 871 | 37 920 | 36 969 | 36 017 | 35 056 | 43 000 |
| 43 500 | 42 162 | 41 200 | 40 238 | 39 275 | 38 313 | 37 351 | 36 388 | 35 426 | 43 500 |
| 44 000 | 42 611 | 41 637 | 40 664 | 39 691 | 38 717 | 37 744 | 36 770 | 35 797 | 44 000 |
| 44 500 | 43 071 | 42 087 | 41 102 | 40 118 | 39 133 | 38 149 | 37 165 | 36 180 | 44 500 |
| 45 000 | 43 544 | 42 549 | 41 553 | 40 558 | 39 562 | 38 567 | 37 571 | 36 576 | 45 000 |
| 45 500 | 44 030 | 43 024 | 42 017 | 41 011 | 40 004 | 38 997 | 37 991 | 36 984 | 45 500 |
| 46 000 | 44 529 | 43 511 | 42 493 | 41 476 | 40 458 | 39 441 | 38 423 | 37 405 | 46 000 |
| 46 500 | 45 039 | 44 010 | 42 982 | 41 953 | 40 924 | 39 896 | 38 867 | 37 838 | 46 500 |
| 47 000 | 45 560 | 44 520 | 43 480 | 42 441 | 41 401 | 40 361 | 39 322 | 38 282 | 47 000 |
| 47 500 | 46 090 | 45 039 | 43 988 | 42 938 | 41 887 | 40 836 | 39 785 | 38 735 | 47 500 |
| 48 000 | 46 628 | 45 566 | 44 504 | 43 442 | 42 380 | 41 319 | 40 257 | 39 195 | 48 000 |
| 48 500 | 47 172 | 46 099 | 45 026 | 43 954 | 42 881 | 41 808 | 40 735 | 39 662 | 48 500 |
| 49 000 | 47 724 | 46 640 | 45 556 | 44 472 | 43 388 | 42 304 | 41 220 | 40 136 | 49 000 |
| 49 500 | 48 282 | 47 188 | 46 093 | 44 998 | 43 903 | 42 808 | 41 713 | 40 618 | 49 500 |
| 50 000 | 48 849 | 47 743 | 46 637 | 45 531 | 44 425 | 43 319 | 42 212 | 41 106 | 50 000 |
| 50 500 | 49 422 | 48 305 | 47 188 | 46 071 | 44 954 | 43 837 | 42 720 | 41 603 | 50 500 |
| 51 000 | 50 004 | 48 875 | 47 747 | 46 619 | 45 491 | 44 363 | 43 235 | 42 107 | 51 000 |
| 51 500 | 50 593 | 49 453 | 48 314 | 47 175 | 46 036 | 44 897 | 43 758 | 42 618 | 51 500 |
| 52 000 | 51 189 | 50 039 | 48 889 | 47 739 | 46 588 | 45 438 | 44 288 | 43 138 | 52 000 |
| 52 500 | 51 794 | 50 633 | 49 471 | 48 310 | 47 149 | 45 988 | 44 826 | 43 665 | 52 500 |
| 53 000 | 52 406 | 51 234 | 50 062 | 48 889 | 47 717 | 46 545 | 45 372 | 44 200 | 53 000 |
| 53 500 | 53 025 | 51 842 | 50 658 | 49 475 | 48 292 | 47 108 | 45 925 | 44 741 | 53 500 |
| 54 000 | 53 650 | 52 456 | 51 261 | 50 067 | 48 872 | 47 678 | 46 484 | 45 289 | 54 000 |
| 54 500 | 54 282 | 53 077 | 51 871 | 50 666 | 49 460 | 48 255 | 47 050 | 45 844 | 54 500 |
| 55 000 | 54 921 | 53 704 | 52 488 | 51 272 | 50 055 | 48 839 | 47 622 | 46 406 | 55 000 |

**MAHM** (tm)

| Disp. t. | 9,80 | 9,90 | $KG_2$ 10,00 | (fluid) 10,10 | (m) 10,20 | 10,30 | 10,40 | 10,50 | Disp. t. |
|---|---|---|---|---|---|---|---|---|---|
| 15 000 | 35 521 | 35 189 | 34 857 | 34 525 | 34 193 | 33 862 | 33 530 | 33 198 | 15 000 |
| 15 500 | 35 334 | 34 991 | 34 648 | 34 305 | 33 962 | 33 619 | 33 276 | 32 934 | 15 500 |
| 16 000 | 35 142 | 34 788 | 34 434 | 34 080 | 33 727 | 33 373 | 33 019 | 32 665 | 16 000 |
| 16 500 | 34 946 | 34 581 | 34 216 | 33 851 | 33 486 | 33 121 | 32 756 | 32 391 | 16 500 |
| 17 000 | 34 745 | 34 369 | 33 993 | 33 617 | 33 241 | 32 865 | 32 489 | 32 113 | 17 000 |
| 17 500 | 34 539 | 34 152 | 33 765 | 33 378 | 32 991 | 32 604 | 32 216 | 31 829 | 17 500 |
| 18 000 | 34 328 | 33 930 | 33 532 | 33 134 | 32 736 | 32 337 | 31 939 | 31 541 | 18 000 |
| 18 500 | 34 114 | 33 704 | 33 295 | 32 886 | 32 477 | 32 068 | 31 658 | 31 249 | 18 500 |
| 19 000 | 33 896 | 33 475 | 33 055 | 32 635 | 32 215 | 31 795 | 31 374 | 30 954 | 19 000 |
| 19 500 | 33 675 | 33 243 | 32 812 | 32 381 | 31 950 | 31 518 | 31 087 | 30 656 | 19 500 |
| 20 000 | 33 451 | 33 009 | 32 566 | 32 124 | 31 682 | 31 239 | 30 797 | 30 355 | 20 000 |
| 20 500 | 33 226 | 32 773 | 32 320 | 31 866 | 31 413 | 30 959 | 30 506 | 30 052 | 20 500 |
| 21 000 | 33 002 | 32 538 | 32 073 | 31 609 | 31 144 | 30 680 | 30 215 | 29 751 | 21 000 |
| 21 500 | 32 781 | 32 306 | 31 830 | 31 354 | 30 879 | 30 403 | 29 928 | 29 452 | 21 500 |
| 22 000 | 32 564 | 32 078 | 31 591 | 31 105 | 30 618 | 30 132 | 29 645 | 29 158 | 22 000 |
| 22 500 | 32 353 | 31 855 | 31 358 | 30 860 | 30 362 | 29 865 | 29 367 | 28 870 | 22 500 |
| 23 000 | 32 147 | 31 638 | 31 129 | 30 620 | 30 112 | 29 603 | 29 094 | 28 586 | 23 000 |
| 23 500 | 31 947 | 31 427 | 30 907 | 30 387 | 29 868 | 29 348 | 28 828 | 28 308 | 23 500 |
| 24 000 | 31 755 | 31 224 | 30 693 | 30 162 | 29 631 | 29 100 | 28 570 | 28 039 | 24 000 |
| 24 500 | 31 572 | 31 030 | 30 488 | 29 946 | 29 405 | 28 863 | 28 321 | 27 779 | 24 500 |
| 25 000 | 31 400 | 30 847 | 30 294 | 29 741 | 29 188 | 28 635 | 28 082 | 27 529 | 25 000 |
| 25 500 | 31 239 | 30 675 | 30 110 | 29 547 | 28 983 | 28 419 | 27 855 | 27 291 | 25 500 |
| 26 000 | 31 089 | 30 514 | 29 939 | 29 364 | 28 789 | 28 214 | 27 639 | 27 064 | 26 000 |
| 26 500 | 30 951 | 30 365 | 29 779 | 29 193 | 28 607 | 28 021 | 27 435 | 26 849 | 26 500 |
| 27 000 | 30 826 | 30 228 | 29 631 | 29 034 | 28 437 | 27 840 | 27 243 | 26 646 | 27 000 |
| 27 500 | 30 711 | 30 103 | 29 495 | 28 887 | 28 279 | 27 671 | 27 063 | 26 455 | 27 500 |
| 28 000 | 30 608 | 29 989 | 29 370 | 28 751 | 28 132 | 27 513 | 26 894 | 26 275 | 28 000 |
| 28 500 | 30 516 | 29 886 | 29 256 | 28 625 | 27 995 | 27 365 | 26 734 | 26 104 | 28 500 |
| 29 000 | 30 436 | 29 795 | 29 155 | 28 513 | 27 872 | 27 230 | 26 589 | 25 947 | 29 000 |
| 29 500 | 30 370 | 29 719 | 29 066 | 28 414 | 27 761 | 27 109 | 26 456 | 25 804 | 29 500 |
| 30 000 | 30 318 | 29 655 | 28 992 | 28 328 | 27 665 | 27 001 | 26 338 | 25 674 | 30 000 |
| 30 500 | 30 280 | 29 605 | 28 931 | 28 257 | 27 582 | 26 907 | 26 233 | 25 558 | 30 500 |
| 31 000 | 30 255 | 29 570 | 28 884 | 28 199 | 27 513 | 26 827 | 26 141 | 25 456 | 31 000 |
| 31 500 | 30 244 | 29 548 | 28 852 | 28 155 | 27 458 | 26 761 | 26 065 | 25 368 | 31 500 |
| 32 000 | 30 248 | 29 541 | 28 834 | 28 126 | 27 418 | 26 710 | 26 002 | 25 294 | 32 000 |
| 32 500 | 30 267 | 29 548 | 28 829 | 28 110 | 27 391 | 26 672 | 25 953 | 25 234 | 32 500 |
| 33 000 | 30 298 | 29 569 | 28 839 | 28 109 | 27 379 | 26 649 | 25 919 | 25 189 | 33 000 |
| 33 500 | 30 345 | 29 604 | 28 862 | 28 121 | 27 380 | 26 639 | 25 898 | 25 157 | 33 500 |
| 34 000 | 30 405 | 29 653 | 28 900 | 28 148 | 27 396 | 26 643 | 25 891 | 25 139 | 34 000 |
| 34 500 | 30 480 | 29 716 | 28 953 | 28 189 | 27 426 | 26 662 | 25 899 | 25 135 | 34 500 |
| 35 000 | 30 571 | 29 797 | 29 021 | 28 246 | 27 471 | 26 696 | 25 921 | 25 146 | 35 000 |
| 35 500 | 30 676 | 29 891 | 29 104 | 28 317 | 27 531 | 26 745 | 25 959 | 25 173 | 35 500 |
| 36 000 | 30 796 | 30 000 | 29 202 | 28 404 | 27 607 | 26 810 | 26 013 | 25 215 | 36 000 |
| 36 500 | 30 931 | 30 123 | 29 315 | 28 507 | 27 699 | 26 891 | 26 082 | 25 274 | 36 500 |
| 37 000 | 31 082 | 30 263 | 29 444 | 28 625 | 27 806 | 26 987 | 26 168 | 25 349 | 37 000 |
| 37 500 | 31 250 | 30 419 | 29 589 | 28 759 | 27 929 | 27 100 | 26 270 | 25 440 | 37 500 |
| 38 000 | 31 431 | 30 591 | 29 750 | 28 909 | 28 067 | 27 226 | 26 384 | 25 545 | 38 000 |
| 38 500 | 31 629 | 30 777 | 29 926 | 29 074 | 28 221 | 27 369 | 26 517 | 25 664 | 38 500 |
| 39 000 | 31 841 | 30 979 | 30 116 | 29 253 | 28 390 | 27 527 | 26 664 | 25 800 | 39 000 |
| 39 500 | 32 069 | 31 196 | 30 322 | 29 448 | 28 574 | 27 700 | 26 826 | 25 952 | 39 500 |
| 40 000 | 32 313 | 31 428 | 30 544 | 29 659 | 28 774 | 27 890 | 27 005 | 26 120 | 40 000 |
| 40 500 | 32 573 | 31 678 | 30 782 | 29 887 | 28 991 | 28 095 | 27 200 | 26 304 | 40 500 |
| 41 000 | 32 850 | 31 944 | 31 037 | 30 131 | 29 224 | 28 317 | 27 411 | 26 504 | 41 000 |
| 41 500 | 33 144 | 32 226 | 31 309 | 30 391 | 29 473 | 28 555 | 27 637 | 26 720 | 41 500 |
| 42 000 | 33 452 | 32 524 | 31 596 | 30 667 | 29 738 | 28 809 | 27 880 | 26 951 | 42 000 |
| 42 500 | 33 777 | 32 837 | 31 897 | 30 957 | 30 017 | 29 077 | 28 137 | 27 197 | 42 500 |
| 43 000 | 34 115 | 33 164 | 32 213 | 31 261 | 30 310 | 29 359 | 28 408 | 27 456 | 43 000 |
| 43 500 | 34 464 | 33 501 | 32 539 | 31 577 | 30 614 | 29 652 | 28 690 | 27 728 | 43 500 |
| 44 000 | 34 824 | 33 850 | 32 877 | 31 904 | 30 930 | 29 957 | 28 983 | 28 010 | 44 000 |
| 44 500 | 35 196 | 34 211 | 33 227 | 32 242 | 31 258 | 30 273 | 29 289 | 28 305 | 44 500 |
| 45 000 | 35 580 | 34 585 | 33 589 | 32 594 | 31 598 | 30 603 | 29 607 | 28 612 | 45 000 |
| 45 500 | 35 978 | 34 971 | 33 965 | 32 958 | 31 952 | 30 945 | 29 939 | 28 932 | 45 500 |
| 46 000 | 36 388 | 35 370 | 34 353 | 33 335 | 32 318 | 31 300 | 30 282 | 29 265 | 46 000 |
| 46 500 | 36 810 | 35 781 | 34 752 | 33 724 | 32 695 | 31 667 | 30 636 | 29 609 | 46 500 |
| 47 000 | 37 242 | 36 202 | 35 163 | 34 123 | 33 083 | 32 044 | 31 004 | 29 964 | 47 000 |
| 47 500 | 37 684 | 36 633 | 35 582 | 34 532 | 33 481 | 32 430 | 31 379 | 30 329 | 47 500 |
| 48 000 | 38 133 | 37 071 | 36 010 | 34 948 | 33 886 | 32 824 | 31 762 | 30 701 | 48 000 |
| 48 500 | 38 589 | 37 516 | 36 444 | 35 371 | 34 298 | 33 225 | 32 152 | 31 079 | 48 500 |
| 49 000 | 39 052 | 37 969 | 36 885 | 35 801 | 34 717 | 33 633 | 32 549 | 31 465 | 49 000 |
| 49 500 | 39 523 | 38 428 | 37 333 | 36 238 | 35 143 | 34 048 | 32 953 | 31 858 | 49 500 |
| 50 000 | 40 000 | 38 894 | 37 788 | 36 682 | 35 576 | 34 470 | 33 364 | 32 258 | 50 000 |
| 50 500 | 40 486 | 39 369 | 38 252 | 37 134 | 36 017 | 34 900 | 33 783 | 32 666 | 50 500 |
| 51 000 | 40 979 | 39 850 | 38 722 | 37 594 | 36 466 | 35 338 | 34 210 | 33 082 | 51 000 |
| 51 500 | 41 479 | 40 340 | 39 201 | 38 062 | 36 922 | 35 783 | 34 644 | 33 505 | 51 500 |
| 52 000 | 41 988 | 40 837 | 39 687 | 38 537 | 37 387 | 36 236 | 35 086 | 33 936 | 52 000 |
| 52 500 | 42 504 | 41 342 | 40 181 | 39 020 | 37 858 | 36 697 | 35 536 | 34 375 | 52 500 |
| 53 000 | 43 027 | 41 855 | 40 683 | 39 510 | 38 338 | 37 166 | 35 993 | 34 821 | 53 000 |
| 53 500 | 43 558 | 42 375 | 41 191 | 40 008 | 38 824 | 37 641 | 36 458 | 35 274 | 53 500 |
| 54 000 | 44 095 | 42 900 | 41 706 | 40 511 | 39 317 | 38 123 | 36 928 | 35 734 | 54 000 |
| 54 500 | 44 639 | 43 433 | 42 227 | 41 021 | 39 816 | 38 611 | 37 406 | 36 200 | 54 500 |
| 55 000 | 45 190 | 43 973 | 42 755 | 41 538 | 40 322 | 39 106 | 37 890 | 36 673 | 55 000 |

**MAHM** (tm)

| Disp. t. | 10,60 | 10,70 | $KG_2$ 10,80 | (fluid) 10,90 | (m) 11,00 | 11,10 | 11,20 | 11,30 | Disp. t. |
|---|---|---|---|---|---|---|---|---|---|
| 15 000 | 32 866 | 32 534 | 32 203 | 31 871 | 31 539 | 31 207 | 30 875 | 30 543 | 15 000 |
| 15 500 | 32 591 | 32 248 | 31 905 | 31 562 | 31 219 | 30 876 | 30 533 | 30 189 | 15 500 |
| 16 000 | 32 311 | 31 957 | 31 603 | 31 249 | 30 895 | 30 541 | 30 186 | 29 832 | 16 000 |
| 16 500 | 32 026 | 31 662 | 31 297 | 30 931 | 30 566 | 30 201 | 29 836 | 29 470 | 16 500 |
| 17 000 | 31 737 | 31 361 | 30 985 | 30 609 | 30 233 | 29 856 | 29 480 | 29 103 | 17 000 |
| 17 500 | 31 442 | 31 055 | 30 668 | 30 281 | 29 894 | 29 506 | 29 119 | 28 732 | 17 500 |
| 18 000 | 31 143 | 30 745 | 30 347 | 29 949 | 29 551 | 29 152 | 28 753 | 28 355 | 18 000 |
| 18 500 | 30 840 | 30 431 | 30 022 | 29 613 | 29 203 | 28 794 | 28 384 | 27 974 | 18 500 |
| 19 000 | 30 534 | 30 114 | 29 693 | 29 273 | 28 853 | 28 432 | 28 011 | 27 591 | 19 000 |
| 19 500 | 30 224 | 29 793 | 29 362 | 28 930 | 28 499 | 28 067 | 27 635 | 27 204 | 19 500 |
| 20 000 | 29 912 | 29 470 | 29 028 | 28 585 | 28 143 | 27 700 | 27 257 | 26 814 | 20 000 |
| 20 500 | 29 599 | 29 145 | 28 692 | 28 239 | 27 785 | 27 331 | 26 877 | 26 423 | 20 500 |
| 21 000 | 29 286 | 28 822 | 28 357 | 27 893 | 27 428 | 26 963 | 26 498 | 26 033 | 21 000 |
| 21 500 | 28 977 | 28 501 | 28 026 | 27 550 | 27 075 | 26 598 | 26 122 | 25 646 | 21 500 |
| 22 000 | 28 672 | 28 185 | 27 699 | 27 210 | 26 725 | 26 238 | 25 751 | 25 263 | 22 000 |
| 22 500 | 28 372 | 27 874 | 27 377 | 26 879 | 26 381 | 25 883 | 25 384 | 24 886 | 22 500 |
| 23 000 | 28 077 | 27 568 | 27 059 | 26 551 | 26 042 | 25 532 | 25 023 | 24 513 | 23 000 |
| 23 500 | 27 788 | 27 268 | 26 749 | 26 229 | 25 709 | 25 188 | 24 668 | 24 147 | 23 500 |
| 24 000 | 27 508 | 26 977 | 26 446 | 25 915 | 25 384 | 24 852 | 24 321 | 23 789 | 24 000 |
| 24 500 | 27 237 | 26 695 | 26 153 | 25 611 | 25 068 | 24 526 | 23 983 | 23 440 | 24 500 |
| 25 000 | 26 976 | 26 423 | 25 870 | 25 317 | 24 763 | 24 209 | 23 655 | 23 101 | 25 000 |
| 25 500 | 26 727 | 26 163 | 25 599 | 25 034 | 24 469 | 23 904 | 23 339 | 22 774 | 25 500 |
| 26 000 | 26 489 | 25 914 | 25 339 | 24 763 | 24 187 | 23 611 | 23 035 | 22 458 | 26 000 |
| 26 500 | 26 263 | 25 678 | 25 091 | 24 504 | 23 917 | 23 330 | 22 742 | 22 155 | 26 500 |
| 27 000 | 26 049 | 25 452 | 24 855 | 24 257 | 23 659 | 23 061 | 22 462 | 21 864 | 27 000 |
| 27 500 | 25 847 | 25 238 | 24 630 | 24 021 | 23 412 | 22 803 | 22 193 | 21 584 | 27 500 |
| 28 000 | 25 655 | 25 035 | 24 416 | 23 796 | 23 176 | 22 556 | 21 935 | 21 315 | 28 000 |
| 28 500 | 25 473 | 24 843 | 24 213 | 23 582 | 22 951 | 22 320 | 21 688 | 21 057 | 28 500 |
| 29 000 | 25 306 | 24 664 | 24 022 | 23 381 | 22 739 | 22 096 | 21 454 | 20 812 | 29 000 |
| 29 500 | 25 151 | 24 498 | 23 845 | 23 192 | 22 539 | 21 886 | 21 233 | 20 580 | 29 500 |
| 30 000 | 25 010 | 24 346 | 23 682 | 23 018 | 22 354 | 21 690 | 21 026 | 20 361 | 30 000 |
| 30 500 | 24 883 | 24 208 | 23 533 | 22 857 | 22 182 | 21 507 | 20 832 | 20 157 | 30 500 |
| 31 000 | 24 770 | 24 084 | 23 398 | 22 711 | 22 025 | 21 339 | 20 654 | 19 968 | 31 000 |
| 31 500 | 24 671 | 23 974 | 23 277 | 22 580 | 21 883 | 21 186 | 20 489 | 19 792 | 31 500 |
| 32 000 | 24 586 | 23 878 | 23 170 | 22 462 | 21 755 | 21 047 | 20 339 | 19 631 | 32 000 |
| 32 500 | 24 515 | 23 797 | 23 078 | 22 359 | 21 640 | 20 921 | 20 203 | 19 484 | 32 500 |
| 33 000 | 24 459 | 23 729 | 22 999 | 22 269 | 21 539 | 20 809 | 20 079 | 19 349 | 33 000 |
| 33 500 | 24 416 | 23 675 | 22 934 | 22 193 | 21 452 | 20 711 | 19 970 | 19 229 | 33 500 |
| 34 000 | 24 387 | 23 635 | 22 883 | 22 131 | 21 378 | 20 626 | 19 874 | 19 122 | 34 000 |
| 34 500 | 24 372 | 23 609 | 22 846 | 22 083 | 21 320 | 20 557 | 19 794 | 19 031 | 34 500 |
| 35 000 | 24 372 | 23 598 | 22 824 | 22 051 | 21 277 | 20 503 | 19 729 | 18 955 | 35 000 |
| 35 500 | 24 388 | 23 603 | 22 818 | 22 034 | 21 249 | 20 464 | 19 679 | 18 894 | 35 500 |
| 36 000 | 24 419 | 23 624 | 22 828 | 22 032 | 21 236 | 20 441 | 19 645 | 18 849 | 36 000 |
| 36 500 | 24 467 | 23 660 | 22 853 | 22 047 | 21 240 | 20 433 | 19 627 | 18 821 | 36 500 |
| 37 000 | 24 530 | 23 712 | 22 894 | 22 077 | 21 259 | 20 442 | 19 625 | 18 808 | 37 000 |
| 37 500 | 24 610 | 23 780 | 22 951 | 22 122 | 21 294 | 20 466 | 19 638 | 18 811 | 37 500 |
| 38 000 | 24 703 | 23 864 | 23 024 | 22 184 | 21 344 | 20 506 | 19 668 | 18 830 | 38 000 |
| 38 500 | 24 812 | 23 962 | 23 111 | 22 260 | 21 410 | 20 560 | 19 711 | 18 862 | 38 500 |
| 39 000 | 24 938 | 24 076 | 23 214 | 22 352 | 21 490 | 20 630 | 19 769 | 18 909 | 39 000 |
| 39 500 | 25 079 | 24 205 | 23 332 | 22 458 | 21 586 | 20 714 | 19 843 | 18 971 | 39 500 |
| 40 000 | 25 235 | 24 351 | 23 466 | 22 581 | 21 698 | 20 815 | 19 932 | 19 049 | 40 000 |
| 40 500 | 25 408 | 24 512 | 23 617 | 22 721 | 21 827 | 20 932 | 20 037 | 19 143 | 40 500 |
| 41 000 | 25 597 | 24 691 | 23 784 | 22 878 | 21 971 | 21 065 | 20 158 | 19 252 | 41 000 |
| 41 500 | 25 802 | 24 884 | 23 966 | 23 049 | 22 131 | 21 213 | 20 296 | 19 378 | 41 500 |
| 42 000 | 26 022 | 25 093 | 24 164 | 23 235 | 22 307 | 21 378 | 20 449 | 19 520 | 42 000 |
| 42 500 | 26 257 | 25 317 | 24 377 | 23 437 | 22 497 | 21 557 | 20 616 | 19 676 | 42 500 |
| 43 000 | 26 505 | 25 554 | 24 603 | 23 652 | 22 700 | 21 749 | 20 798 | 19 847 | 43 000 |
| 43 500 | 26 765 | 25 803 | 24 841 | 23 878 | 22 916 | 21 953 | 20 991 | 20 028 | 43 500 |
| 44 000 | 27 037 | 26 063 | 25 090 | 24 116 | 23 143 | 22 169 | 21 195 | 20 221 | 44 000 |
| 44 500 | 27 320 | 26 336 | 25 351 | 24 367 | 23 382 | 22 397 | 21 413 | 20 428 | 44 500 |
| 45 000 | 27 616 | 26 621 | 25 625 | 24 630 | 23 634 | 22 639 | 21 643 | 20 647 | 45 000 |
| 45 500 | 27 926 | 26 919 | 25 912 | 24 906 | 23 899 | 22 893 | 21 886 | 20 879 | 45 500 |
| 46 000 | 28 247 | 27 230 | 26 212 | 25 194 | 24 177 | 23 159 | 22 142 | 21 124 | 46 000 |
| 46 500 | 28 581 | 27 552 | 26 523 | 25 495 | 24 466 | 23 437 | 22 409 | 21 380 | 46 500 |
| 47 000 | 28 925 | 27 885 | 26 845 | 25 806 | 24 766 | 23 726 | 22 687 | 21 647 | 47 000 |
| 47 500 | 29 278 | 28 227 | 27 176 | 26 126 | 25 075 | 24 024 | 22 973 | 21 923 | 47 500 |
| 48 000 | 29 639 | 28 577 | 27 515 | 26 453 | 25 392 | 24 330 | 23 268 | 22 206 | 48 000 |
| 48 500 | 30 006 | 28 934 | 27 861 | 26 788 | 25 715 | 24 642 | 23 569 | 22 496 | 48 500 |
| 49 000 | 30 381 | 29 297 | 28 213 | 27 129 | 26 046 | 24 962 | 23 878 | 22 794 | 49 000 |
| 49 500 | 30 763 | 29 668 | 28 573 | 27 478 | 26 383 | 25 288 | 24 193 | 23 098 | 49 500 |
| 50 000 | 31 152 | 30 046 | 28 940 | 27 834 | 26 728 | 25 622 | 24 516 | 23 410 | 50 000 |
| 50 500 | 31 549 | 30 432 | 29 315 | 28 198 | 27 081 | 25 964 | 24 847 | 23 730 | 50 500 |
| 51 000 | 31 954 | 30 826 | 29 697 | 28 569 | 27 441 | 26 313 | 25 185 | 24 057 | 51 000 |
| 51 500 | 32 366 | 31 227 | 30 087 | 28 948 | 27 309 | 26 670 | 25 531 | 24 392 | 51 500 |
| 52 000 | 32 786 | 31 635 | 30 485 | 29 335 | 28 185 | 27 035 | 25 884 | 24 734 | 52 000 |
| 52 500 | 33 213 | 32 054 | 30 891 | 29 729 | 28 568 | 27 407 | 26 246 | 25 084 | 52 500 |
| 53 000 | 33 649 | 32 476 | 31 304 | 30 132 | 28 959 | 27 787 | 26 615 | 25 442 | 53 000 |
| 53 500 | 34 091 | 32 907 | 31 724 | 30 541 | 29 357 | 28 174 | 26 990 | 25 807 | 53 500 |
| 54 000 | 34 540 | 33 345 | 32 151 | 30 956 | 29 761 | 28 567 | 27 373 | 26 178 | 54 000 |
| 54 500 | 34 995 | 33 790 | 32 584 | 31 378 | 30 172 | 28 966 | 27 761 | 26 556 | 54 500 |
| 55 000 | 35 457 | 34 240 | 33 023 | 31 806 | 30 589 | 29 373 | 28 156 | 26 940 | 55 000 |

**MAHM** (tm)

| Disp. t. | 11,40 | 11,50 | $KG_2$ 11,60 | (fluid) 11,70 | (m) 11,80 | 11,90 | 12,00 | 12,10 | Disp. t. |
|---|---|---|---|---|---|---|---|---|---|
| 15 000 | 30 210 | 29 878 | 29 546 | 29 215 | 28 883 | 28 552 | 28 221 | 27 891 | 15 000 |
| 15 500 | 29 846 | 29 503 | 29 160 | 28 817 | 28 475 | 28 133 | 27 790 | 27 449 | 15 500 |
| 16 000 | 29 478 | 29 124 | 28 770 | 28 415 | 28 062 | 27 709 | 27 356 | 27 003 | 16 000 |
| 16 500 | 29 105 | 28 740 | 28 374 | 28 009 | 27 645 | 27 281 | 26 917 | 26 553 | 16 500 |
| 17 000 | 28 727 | 28 351 | 27 974 | 27 599 | 27 223 | 26 847 | 26 472 | 26 098 | 17 000 |
| 17 500 | 28 344 | 27 957 | 27 569 | 27 182 | 26 796 | 26 409 | 26 023 | 25 638 | 17 500 |
| 18 000 | 27 956 | 27 557 | 27 160 | 26 762 | 26 365 | 25 967 | 25 569 | 25 173 | 18 000 |
| 18 500 | 27 565 | 27 155 | 26 746 | 26 337 | 25 929 | 25 520 | 25 112 | 24 704 | 18 500 |
| 19 000 | 27 170 | 26 749 | 26 329 | 25 910 | 25 490 | 25 070 | 24 650 | 24 232 | 19 000 |
| 19 500 | 26 772 | 26 340 | 25 909 | 25 478 | 25 047 | 24 616 | 24 186 | 23 756 | 19 500 |
| 20 000 | 26 371 | 25 928 | 25 486 | 25 044 | 24 602 | 24 160 | 23 719 | 23 278 | 20 000 |
| 20 500 | 25 969 | 25 515 | 25 062 | 24 609 | 24 156 | 23 703 | 23 251 | 22 799 | 20 500 |
| 21 000 | 25 568 | 25 103 | 24 638 | 24 175 | 23 711 | 23 247 | 22 783 | 22 321 | 21 000 |
| 21 500 | 25 170 | 24 694 | 24 218 | 23 743 | 23 268 | 22 794 | 22 319 | 21 846 | 21 500 |
| 22 000 | 24 776 | 24 289 | 23 802 | 23 316 | 22 830 | 22 345 | 21 859 | 21 375 | 22 000 |
| 22 500 | 24 388 | 23 889 | 23 391 | 22 894 | 22 398 | 21 901 | 21 404 | 20 909 | 22 500 |
| 23 000 | 24 004 | 23 494 | 22 986 | 22 478 | 21 971 | 21 463 | 20 955 | 20 449 | 23 000 |
| 23 500 | 23 627 | 23 106 | 22 586 | 22 067 | 21 549 | 21 030 | 20 511 | 19 994 | 23 500 |
| 24 000 | 23 257 | 22 726 | 22 195 | 21 665 | 21 135 | 20 605 | 20 075 | 19 547 | 24 000 |
| 24 500 | 22 897 | 22 354 | 21 812 | 21 271 | 20 731 | 20 190 | 19 649 | 19 110 | 24 500 |
| 25 000 | 22 547 | 21 993 | 21 440 | 20 889 | 20 337 | 19 785 | 19 233 | 18 683 | 25 000 |
| 25 500 | 22 209 | 21 644 | 21 080 | 20 517 | 19 954 | 19 391 | 18 829 | 18 268 | 25 500 |
| 26 000 | 21 882 | 21 306 | 20 731 | 20 157 | 19 583 | 19 010 | 18 436 | 17 865 | 26 000 |
| 26 500 | 21 568 | 20 980 | 20 395 | 19 810 | 19 225 | 18 640 | 18 056 | 17 473 | 26 500 |
| 27 000 | 21 265 | 20 667 | 20 070 | 19 474 | 18 878 | 18 283 | 17 687 | 17 094 | 27 000 |
| 27 500 | 20 974 | 20 365 | 19 757 | 19 150 | 18 543 | 17 936 | 17 330 | 16 725 | 27 500 |
| 28 000 | 20 694 | 20 075 | 19 456 | 18 837 | 18 219 | 17 601 | 16 983 | 16 368 | 28 000 |
| 28 500 | 20 425 | 19 794 | 19 165 | 18 535 | 17 906 | 17 276 | 16 647 | 16 021 | 28 500 |
| 29 000 | 20 169 | 19 527 | 18 886 | 18 245 | 17 604 | 16 963 | 16 324 | 15 686 | 29 000 |
| 29 500 | 19 926 | 19 273 | 18 621 | 17 969 | 17 316 | 16 664 | 16 013 | 15 364 | 29 500 |
| 30 000 | 19 697 | 19 033 | 18 370 | 17 706 | 17 043 | 16 379 | 15 717 | 15 056 | 30 000 |
| 30 500 | 19 482 | 18 808 | 18 133 | 17 458 | 16 784 | 16 110 | 15 438 | 14 762 | 30 500 |
| 31 000 | 19 282 | 18 596 | 17 910 | 17 225 | 16 539 | 15 853 | 15 168 | 14 483 | 31 000 |
| 31 500 | 19 096 | 18 399 | 17 705 | 17 005 | 16 308 | 15 612 | 14 915 | 14 218 | 31 500 |
| 32 000 | 18 923 | 18 216 | 17 508 | 16 800 | 16 092 | 15 384 | 14 677 | 13 969 | 32 000 |
| 32 500 | 18 765 | 18 046 | 17 327 | 16 608 | 15 889 | 15 171 | 14 452 | 13 732 | 32 500 |
| 33 000 | 18 619 | 17 889 | 17 159 | 16 430 | 15 700 | 14 970 | 14 240 | 13 509 | 33 000 |
| 33 500 | 18 488 | 17 747 | 17 006 | 16 265 | 15 524 | 14 782 | 14 041 | 13 298 | 33 500 |
| 34 000 | 18 370 | 17 618 | 16 866 | 16 114 | 15 361 | 14 608 | 13 855 | 13 101 | 34 000 |
| 34 500 | 18 268 | 17 505 | 16 742 | 15 978 | 15 213 | 14 449 | 13 685 | 12 919 | 34 500 |
| 35 000 | 18 181 | 17 406 | 16 632 | 15 857 | 15 081 | 14 306 | 13 530 | 12 752 | 35 000 |
| 35 500 | 18 109 | 17 324 | 16 538 | 15 751 | 14 965 | 14 178 | 13 392 | 12 601 | 35 500 |
| 36 000 | 18 054 | 17 258 | 16 460 | 15 662 | 14 865 | 14 067 | 13 269 | 12 467 | 36 000 |
| 36 500 | 18 014 | 17 208 | 16 399 | 15 590 | 14 781 | 13 973 | 13 163 | 12 349 | 36 500 |
| 37 000 | 17 991 | 17 173 | 16 354 | 15 534 | 14 714 | 13 894 | 13 072 | 12 247 | 37 000 |
| 37 500 | 17 983 | 17 155 | 16 324 | 15 493 | 14 662 | 13 832 | 12 998 | 12 161 | 37 500 |
| 38 000 | 17 991 | 17 151 | 16 311 | 15 470 | 14 626 | 13 782 | 12 938 | 12 090 | 38 000 |
| 38 500 | 18 013 | 17 163 | 16 310 | 15 456 | 14 602 | 13 748 | 12 894 | 12 035 | 38 500 |
| 39 000 | 18 049 | 17 188 | 16 325 | 15 460 | 14 595 | 13 730 | 12 865 | 11 996 | 39 000 |
| 39 500 | 18 099 | 17 227 | 16 355 | 15 479 | 14 604 | 13 728 | 12 852 | 11 973 | 39 500 |
| 40 000 | 18 166 | 17 283 | 16 399 | 15 514 | 14 627 | 13 741 | 12 854 | 11 965 | 40 000 |
| 40 500 | 18 248 | 17 353 | 16 459 | 15 563 | 14 666 | 13 769 | 12 872 | 11 973 | 40 500 |
| 41 000 | 18 346 | 17 440 | 16 534 | 15 527 | 14 721 | 13 813 | 12 906 | 11 997 | 41 000 |
| 41 500 | 18 461 | 17 543 | 16 625 | 15 708 | 14 790 | 13 872 | 12 954 | 12 036 | 41 500 |
| 42 000 | 18 591 | 17 662 | 16 733 | 15 804 | 14 875 | 13 946 | 13 018 | 12 089 | 42 000 |
| 42 500 | 18 736 | 17 796 | 16 856 | 15 916 | 14 976 | 14 036 | 13 096 | 12 156 | 42 500 |
| 43 000 | 18 895 | 17 944 | 16 993 | 16 042 | 15 091 | 14 139 | 13 188 | 12 238 | 43 000 |
| 43 500 | 19 066 | 18 103 | 17 140 | 16 178 | 15 215 | 14 254 | 13 293 | 12 333 | 43 500 |
| 44 000 | 19 248 | 18 274 | 17 300 | 16 326 | 15 353 | 14 381 | 13 409 | 12 438 | 44 000 |
| 44 500 | 19 443 | 18 458 | 17 473 | 16 488 | 15 505 | 14 521 | 13 538 | 12 556 | 44 500 |
| 45 000 | 19 651 | 18 655 | 17 659 | 16 664 | 15 669 | 14 674 | 13 680 | 12 687 | 45 000 |
| 45 500 | 19 872 | 18 866 | 17 859 | 16 852 | 15 846 | 14 840 | 13 835 | 12 831 | 45 500 |
| 46 000 | 20 106 | 19 088 | 18 071 | 17 053 | 16 035 | 15 019 | 14 002 | 12 986 | 46 000 |
| 46 500 | 20 352 | 19 323 | 18 294 | 17 266 | 16 237 | 15 209 | 14 181 | 13 153 | 46 500 |
| 47 000 | 20 607 | 19 568 | 18 528 | 17 488 | 16 449 | 15 409 | 14 370 | 13 330 | 47 000 |
| 47 500 | 20 872 | 19 821 | 18 771 | 17 720 | 16 669 | 15 618 | 14 568 | 13 517 | 47 500 |
| 48 000 | 21 144 | 20 082 | 19 021 | 17 959 | 16 897 | 15 835 | 14 774 | 13 711 | 48 000 |
| 48 500 | 21 424 | 20 351 | 19 278 | 18 205 | 17 132 | 16 059 | 14 986 | 13 912 | 48 500 |
| 49 000 | 21 710 | 20 626 | 19 542 | 18 458 | 17 374 | 16 290 | 15 206 | 14 121 | 49 000 |
| 49 500 | 22 003 | 20 908 | 19 813 | 18 718 | 17 623 | 16 528 | 15 433 | 14 336 | 49 500 |
| 50 000 | 22 305 | 21 199 | 20 093 | 18 987 | 17 881 | 16 775 | 15 668 | 14 560 | 50 000 |
| 50 500 | 22 613 | 21 496 | 20 379 | 19 262 | 18 145 | 17 028 | 15 910 | 14 791 | 50 500 |
| 51 000 | 22 929 | 21 801 | 20 673 | 19 545 | 16 417 | 17 289 | 16 160 | 15 029 | 51 000 |
| 51 500 | 23 253 | 22 113 | 20 974 | 19 835 | 18 696 | 17 557 | 16 417 | 15 275 | 51 500 |
| 52 000 | 23 584 | 22 433 | 21 283 | 20 133 | 18 983 | 17 832 | 16 682 | 15 530 | 52 000 |
| 52 500 | 23 923 | 22 762 | 21 600 | 20 439 | 19 278 | 18 116 | 16 955 | 15 792 | 52 500 |
| 53 000 | 24 270 | 23 098 | 21 925 | 20 753 | 19 580 | 18 408 | 17 236 | 16 062 | 53 000 |
| 53 500 | 24 624 | 23 440 | 22 257 | 21 073 | 19 890 | 18 707 | 17 523 | 16 339 | 53 500 |
| 54 000 | 24 984 | 23 790 | 22 595 | 21 401 | 20 207 | 19 012 | 17 817 | 16 622 | 54 000 |
| 54 500 | 25 350 | 24 145 | 22 940 | 21 734 | 20 529 | 19 323 | 18 117 | 16 911 | 54 500 |
| 55 000 | 25 723 | 24 507 | 23 290 | 22 073 | 20 857 | 19 640 | 18 424 | 17 208 | 55 000 |

**MAHM (tm)**

| Disp. t. | 12,20 | 12,30 | $KG_2$ 12,40 | (fluid) 12,50 | (m) 12,60 | 12,70 | 12,80 | 12,90 | Disp. t. |
|---|---|---|---|---|---|---|---|---|---|
| 15 000 | 27 560 | 27 230 | 26 899 | 26 568 | 26 237 | 25 906 | 25 571 | 25 237 | 15 000 |
| 15 500 | 27 108 | 26 766 | 26 425 | 26 083 | 25 741 | 25 398 | 25 053 | 24 707 | 15 500 |
| 16 000 | 26 651 | 26 299 | 25 946 | 25 593 | 25 240 | 24 886 | 24 530 | 24 174 | 16 000 |
| 16 500 | 26 190 | 25 826 | 25 463 | 25 099 | 24 735 | 24 369 | 24 002 | 23 635 | 16 500 |
| 17 000 | 25 723 | 25 349 | 24 974 | 24 599 | 24 224 | 23 848 | 23 469 | 23 091 | 17 000 |
| 17 500 | 25 252 | 24 867 | 24 481 | 24 095 | 23 708 | 23 322 | 22 932 | 22 542 | 17 500 |
| 16 000 | 24 776 | 24 380 | 23 983 | 23 586 | 23 188 | 22 790 | 22 389 | 21 989 | 18 000 |
| 18 500 | 24 297 | 23 889 | 23 482 | 23 073 | 22 663 | 22 254 | 21 844 | 21 432 | 18 500 |
| 19 000 | 23 813 | 23 395 | 22 976 | 22 556 | 22 135 | 21 714 | 21 294 | 20 871 | 19 000 |
| 19 500 | 23 327 | 22 897 | 22 468 | 22 037 | 21 605 | 21 172 | 20 740 | 20 307 | 19 500 |
| 20 000 | 22 838 | 22 397 | 21 957 | 21 515 | 21 071 | 20 628 | 20 185 | 19 740 | 20 000 |
| 20 500 | 22 348 | 21 896 | 21 445 | 20 991 | 20 537 | 20 083 | 19 629 | 19 173 | 20 500 |
| 21 000 | 21 859 | 21 396 | 20 934 | 20 469 | 20 004 | 19 540 | 19 074 | 18 606 | 21 000 |
| 22 500 | 21 372 | 20 899 | 20 425 | 19 950 | 19 475 | 19 000 | 18 522 | 18 043 | 21 500 |
| 22 000 | 20 891 | 20 406 | 19 922 | 19 436 | 18 950 | 18 464 | 17 973 | 17 483 | 22 000 |
| 22 500 | 20 414 | 19 919 | 19 423 | 18 927 | 18 430 | 17 932 | 17 430 | 16 929 | 22 500 |
| 23 000 | 19 942 | 19 436 | 18 930 | 18 424 | 17 915 | 17 406 | 16 894 | 16 381 | 23 000 |
| 23 500 | 19 477 | 18 960 | 18 442 | 17 924 | 17 406 | 16 884 | 16 361 | 15 838 | 23 500 |
| 24 000 | 19 020 | 18 492 | 17 963 | 17 434 | 16 905 | 16 372 | 15 837 | 15 303 | 24 000 |
| 24 500 | 18 571 | 18 033 | 17 493 | 16 953 | 16 413 | 15 869 | 15 323 | 14 778 | 24 500 |
| 25 000 | 18 134 | 17 584 | 17 034 | 16 483 | 15 932 | 15 376 | 14 820 | 14 263 | 25 000 |
| 25 500 | 17 708 | 17 147 | 16 586 | 16 024 | 15 462 | 14 895 | 14 328 | 13 760 | 25 500 |
| 26 000 | 17 293 | 16 722 | 16 150 | 15 577 | 15 004 | 14 426 | 13 848 | 13 268 | 26 000 |
| 26 500 | 16 891 | 16 309 | 15 726 | 15 142 | 14 558 | 13 969 | 13 380 | 12 788 | 26 500 |
| 27 000 | 16 501 | 15 908 | 15 313 | 14 719 | 14 123 | 13 523 | 12 923 | 12 320 | 27 000 |
| 27 500 | 16 121 | 15 517 | 14 912 | 14 306 | 13 700 | 13 089 | 12 477 | 11 864 | 27 500 |
| 28 000 | 15 752 | 15 137 | 14 521 | 13 905 | 13 286 | 12 666 | 12 042 | 11 416 | 28 000 |
| 28 500 | 15 394 | 14 767 | 14 139 | 13 511 | 12 882 | 12 250 | 11 614 | 10 979 | 28 500 |
| 29 000 | 15 048 | 14 409 | 13 771 | 13 130 | 12 489 | 11 847 | 11 202 | 10 556 | 29 000 |
| 29 500 | 14 714 | 14 064 | 13 415 | 12 762 | 12 109 | 11 456 | 10 802 | 10 145 | 29 500 |
| 30 000 | 14 394 | 13 733 | 13 071 | 12 409 | 11 744 | 11 079 | 10 413 | 9 748 | 30 000 |
| 30 500 | 14 089 | 13 415 | 12 742 | 12 069 | 11 395 | 10 718 | 10 042 | 9 365 | 30 500 |
| 31 000 | 13 798 | 13 112 | 12 427 | 11 742 | 11 057 | 10 372 | 9 685 | 8 998 | 31 000 |
| 31 500 | 13 522 | 12 825 | 12 129 | 11 432 | 10 735 | 10 039 | 9 342 | 8 645 | 31 500 |
| 32 000 | 13 261 | 12 553 | 11 845 | 11 137 | 10 429 | 9 722 | 9 014 | 8 306 | 32 000 |
| 32 500 | 13 013 | 12 294 | 11 574 | 10 855 | 10 136 | 9 417 | 8 699 | 7 981 | 32 500 |
| 33 000 | 12 778 | 12 047 | 11 316 | 10 586 | 9 856 | 9 127 | 8 398 | 7 669 | 33 000 |
| 33 500 | 12 555 | 11 813 | 11 070 | 10 328 | 9 587 | 8 846 | 8 105 | 7 367 | 33 500 |
| 34 000 | 12 347 | 11 592 | 10 838 | 10 084 | 9 330 | 8 577 | 7 829 | 7 081 | 34 000 |
| 34 500 | 12 153 | 11 386 | 10 620 | 9 853 | 9 087 | 8 327 | 7 567 | 6 807 | 34 500 |
| 35 000 | 11 974 | 11 196 | 10 417 | 9 638 | 8 862 | 8 090 | 7 318 | 6 550 | 35 000 |
| 35 500 | 11 811 | 11 021 | 10 230 | 9 439 | 8 653 | 7 869 | 7 086 | 6 311 | 35 500 |
| 36 000 | 11 664 | 10 862 | 10 060 | 9 257 | 8 461 | 7 665 | 6 874 | 6 088 | 36 000 |
| 36 500 | 11 535 | 10 721 | 9 906 | 9 092 | 8 285 | 7 478 | 6 679 | 5 883 | 36 500 |
| 37 000 | 11 421 | 10 596 | 9 770 | 8 945 | 8 127 | 7 309 | 6 499 | 5 693 | 37 000 |
| 37 500 | 11 324 | 10 487 | 9 651 | 8 815 | 7 986 | 7 157 | 6 336 | 5 519 | 37 500 |
| 38 000 | 11 243 | 10 395 | 9 548 | 8 701 | 7 861 | 7 021 | 6 189 | 5 361 | 38 000 |
| 38 500 | 11 177 | 10 319 | 9 461 | 8 604 | 7 752 | 6 903 | 6 056 | 5 217 | 38 500 |
| 39 000 | 11 127 | 10 262 | 9 391 | 8 524 | 7 660 | 6 802 | 5 943 | 5 090 | 39 000 |
| 39 500 | 11 094 | 10 215 | 9 338 | 8 461 | 7 584 | 6 715 | 5 847 | 4 979 | 39 500 |
| 40 000 | 11 076 | 10 188 | 9 300 | 8 414 | 7 527 | 6 643 | 5 765 | 4 887 | 40 000 |
| 40 500 | 11 075 | 10 176 | 9 277 | 8 381 | 7 486 | 6 590 | 5 696 | 4 806 | 40 500 |
| 41 000 | 11 088 | 10 180 | 9 271 | 8 363 | 7 458 | 6 553 | 5 648 | 4 742 | 41 000 |
| 41 590 | 11 117 | 10 199 | 9 280 | 8 362 | 7 443 | 6 526 | 5 609 | 4 692 | 41 500 |
| 42 000 | 11 160 | 10 231 | 9 302 | 8 373 | 7 444 | 6 515 | 5 586 | 4 657 | 42 000 |
| 42 500 | 11 217 | 10 277 | 9 337 | 8 398 | 7 458 | 6 519 | 5 578 | 4 636 | 42 500 |
| 43 000 | 11 289 | 10 339 | 9 390 | 8 440 | 7 487 | 6 534 | 5 582 | 4 629 | 43 000 |
| 43 500 | 11 373 | 10 412 | 9 452 | 8 492 | 7 528 | 6 564 | 5 599 | 4 635 | 43 500 |
| 44 000 | 11 468 | 10 497 | 9 526 | 8 554 | 7 579 | 6 605 | 5 630 | 4 656 | 44 000 |
| 44 500 | 11 575 | 10 593 | 9 611 | 8 628 | 7 643 | 6 658 | 5 673 | 4 686 | 44 500 |
| 45 000 | 11 694 | 10 701 | 9 708 | 8 714 | 7 718 | 6 722 | 5 726 | 4 729 | 45 000 |
| 45 500 | 11 826 | 10 822 | 9 818 | 8 812 | 7 805 | 6 798 | 5 791 | 4 784 | 45 500 |
| 46 000 | 11 970 | 10 954 | 9 939 | 8 923 | 7 904 | 6 885 | 5 867 | 4 848 | 46 000 |
| 46 500 | 12 126 | 11 098 | 10 071 | 9 043 | 8 015 | 6 985 | 5 956 | 4 926 | 46 500 |
| 47 000 | 12 291 | 11 252 | 10 213 | 9 174 | 8 135 | 7 096 | 6 055 | 5 015 | 47 000 |
| 47 500 | 12 466 | 11 416 | 10 365 | 9 314 | 8 264 | 7 213 | 6 162 | 5 112 | 47 500 |
| 48 000 | 12 648 | 11 586 | 10 523 | 9 463 | 8 400 | 7 339 | 6 278 | 5 217 | 48 000 |
| 48 500 | 12 839 | 11 765 | 10 691 | 9 617 | 8 544 | 7 470 | 6 399 | 5 328 | 48 500 |
| 49 000 | 13 036 | 11 950 | 10 865 | 9 780 | 8 694 | 7 612 | 6 530 | 5 448 | 49 000 |
| 49 500 | 13 240 | 12 143 | 11 046 | 9 950 | 8 855 | 7 762 | 6 669 | 5 576 | 49 500 |
| 50 000 | 13 452 | 12 344 | 11 236 | 10 127 | 9 023 | 7 919 | 6 815 | 5 711 | 50 000 |
| 50 500 | 13 671 | 12 552 | 11 433 | 10 313 | 9 198 | 8 083 | 6 968 | 5 853 | 50 500 |
| 51 000 | 13 899 | 12 768 | 11 638 | 10 507 | 9 381 | 8 255 | 7 129 | 6 003 | 51 000 |
| 51 500 | 14 134 | 12 992 | 11 851 | 10 709 | 9 572 | 8 435 | 7 298 | 6 161 | 51 500 |
| 52 000 | 14 377 | 13 225 | 12 072 | 10 920 | 9 771 | 8 623 | 7 475 | 6 327 | 52 000 |
| 52 500 | 14 628 | 13 465 | 12 302 | 11 138 | 9 978 | 8 819 | 7 660 | 6 501 | 52 500 |
| 53 000 | 14 888 | 13 713 | 12 539 | 11 369 | 10 195 | 9 024 | 7 853 | 6 683 | 53 000 |
| 53 500 | 15 154 | 13 970 | 12 786 | 11 601 | 10 417 | 9 233 | 8 052 | 6 871 | 53 500 |
| 54 000 | 15 428 | 14 233 | 13 039 | 11 844 | 10 650 | 9 455 | 8 261 | 7 066 | 54 000 |
| 54 500 | 15 706 | 14 501 | 13 295 | 12 090 | 10 884 | 9 679 | 8 473 | 7 268 | 54 500 |
| 55 000 | 15 992 | 14 775 | 13 559 | 12 343 | 11 127 | 9 911 | 8 694 | 7 477 | 55 000 |

**MAHM (tm)**

| Disp. t. | 13,00 | 13,10 | $KG_2$ 13,20 | (fluid) 13,30 | (m) 13,40 | 13,50 | 13,60 | 13,70 | Disp. t. |
|---|---|---|---|---|---|---|---|---|---|
| 15 000 | 24 903 | 24 562 | 24 213 | 23 855 | 23 488 | 23 109 | 22 716 | 22 309 | 15 000 |
| 15 500 | 24 362 | 24 009 | 23 649 | 23 280 | 22 902 | 22 511 | 22 107 | 21 689 | 15 500 |
| 16 000 | 23 817 | 23 452 | 23 081 | 22 701 | 22 312 | 21 909 | 21 494 | 21 066 | 16 000 |
| 16 500 | 23 267 | 22 891 | 22 509 | 22 118 | 21 717 | 21 304 | 20 878 | 20 440 | 16 500 |
| 17 000 | 22 712 | 22 325 | 21 932 | 21 531 | 21 119 | 20 695 | 20 259 | 19 811 | 17 000 |
| 17 500 | 22 153 | 21 755 | 21 351 | 20 939 | 20 517 | 20 082 | 19 636 | 19 178 | 17 500 |
| 18 000 | 21 588 | 21 180 | 20 766 | 20 344 | 19 911 | 19 466 | 19 011 | 18 543 | 18 000 |
| 18 500 | 21 020 | 20 602 | 20 178 | 19 746 | 19 303 | 18 849 | 18 383 | 17 906 | 18 500 |
| 19 000 | 20 448 | 20 020 | 19 585 | 19 143 | 18 689 | 18 225 | 17 749 | 17 262 | 19 000 |
| 19 500 | 19 873 | 19 433 | 18 988 | 18 535 | 18 069 | 17 594 | 17 108 | 16 611 | 19 500 |
| 20 000 | 19 295 | 18 844 | 18 386 | 17 924 | 17 445 | 16 958 | 16 462 | 15 955 | 20 000 |
| 20 500 | 18 716 | 18 252 | 17 783 | 17 307 | 16 817 | 16 320 | 15 814 | 15 294 | 20 500 |
| 21 000 | 18 138 | 17 662 | 17 180 | 16 691 | 16 191 | 15 683 | 15 166 | 14 635 | 21 000 |
| 21 500 | 17 564 | 17 075 | 16 581 | 16 080 | 15 569 | 15 050 | 14 522 | 13 981 | 21 500 |
| 22 000 | 16 993 | 16 493 | 15 988 | 15 475 | 14 953 | 14 425 | 13 885 | 13 335 | 22 000 |
| 22 500 | 16 428 | 15 916 | 15 401 | 14 878 | 14 346 | 13 808 | 13 257 | 12 699 | 22 500 |
| 23 000 | 15 868 | 15 346 | 14 821 | 14 288 | 13 746 | 13 199 | 12 640 | 12 073 | 23 000 |
| 23 500 | 15 313 | 14 781 | 14 244 | 13 700 | 13 152 | 12 592 | 12 028 | 11 454 | 23 500 |
| 24 000 | 14 767 | 14 225 | 13 676 | 13 125 | 12 565 | 11 999 | 11 428 | 10 844 | 24 000 |
| 24 500 | 14 230 | 13 677 | 13 120 | 12 559 | 11 990 | 11 417 | 10 834 | 10 244 | 24 500 |
| 25 000 | 13 703 | 13 141 | 12 574 | 12 004 | 11 425 | 10 842 | 10 250 | 9 650 | 25 000 |
| 25 500 | 13 188 | 12 616 | 12 038 | 11 457 | 10 868 | 10 273 | 9 673 | 9 060 | 25 500 |
| 26 000 | 12 685 | 12 102 | 11 513 | 10 922 | 10 320 | 9 714 | 9 101 | 8 478 | 26 000 |
| 26 500 | 12 194 | 11 599 | 10 997 | 10 392 | 9 779 | 9 160 | 8 535 | 7 899 | 26 500 |
| 27 000 | 11 715 | 11 104 | 10 492 | 9 872 | 9 248 | 8 614 | 7 977 | 7 327 | 27 000 |
| 27 500 | 11 247 | 10 624 | 9 997 | 9 366 | 8 727 | 8 082 | 7 430 | 6 769 | 27 500 |
| 28 000 | 10 790 | 10 155 | 9 520 | 8 873 | 8 225 | 7 566 | 6 902 | 6 231 | 28 000 |
| 28 500 | 10 343 | 9 697 | 9 051 | 8 395 | 7 736 | 7 068 | 6 397 | 5 715 | 28 500 |
| 29 000 | 9 909 | 9 252 | 8 596 | 7 930 | 7 262 | 6 587 | 5 906 | 5 219 | 29 000 |
| 29 500 | 9 488 | 8 822 | 8 155 | 7 482 | 6 804 | 6 123 | 5 433 | 4 742 | 29 500 |
| 30 000 | 9 081 | 8 406 | 7 730 | 7 050 | 6 363 | 5 676 | 4 980 | 4 283 | 30 000 |
| 30 500 | 8 689 | 8 005 | 7 320 | 6 634 | 5 940 | 5 245 | 4 545 | 3 841 | 30 500 |
| 31 000 | 8 311 | 7 619 | 6 926 | 6 234 | 5 532 | 4 831 | 4 128 | 3 418 | 31 000 |
| 31 500 | 7 948 | 7 248 | 6 547 | 5 846 | 5 141 | 4 432 | 3 724 | | 31 500 |
| 32 000 | 7 599 | 6 890 | 6 181 | 5 472 | 4 763 | 4 049 | | | 32 000 |
| 32 500 | 7 264 | 6 546 | 5 828 | 5 110 | 4 393 | | | | 32 500 |
| 33 000 | 6 940 | 6 215 | 5 490 | 4 764 | 4 039 | | | | 33 000 |
| 33 500 | 6 630 | 5 896 | 5 162 | 4 428 | | | | | 33 500 |
| 34 000 | 6 333 | 5 590 | 4 848 | 4 104 | | | | | 34 000 |
| 34 500 | 6 051 | 5 300 | 4 549 | | | | | | 34 500 |
| 35 000 | 5 785 | 5 026 | 4 267 | | | | | | 35 000 |
| 35 500 | 5 536 | 4 769 | | | | | | | 35 500 |
| 36 000 | 5 303 | 4 528 | | | | | | | 36 000 |
| 36 500 | 5 087 | 4 303 | | | | | | | 36 500 |
| 37 000 | 4 887 | | | | | | | | 37 000 |
| 37 500 | 4 702 | | | | | | | | 37 500 |
| 38 000 | 4 533 | | | | | | | | 38 000 |
| 38 500 | 4 378 | | | | | | | | 38 500 |

**MAHM (tm)**

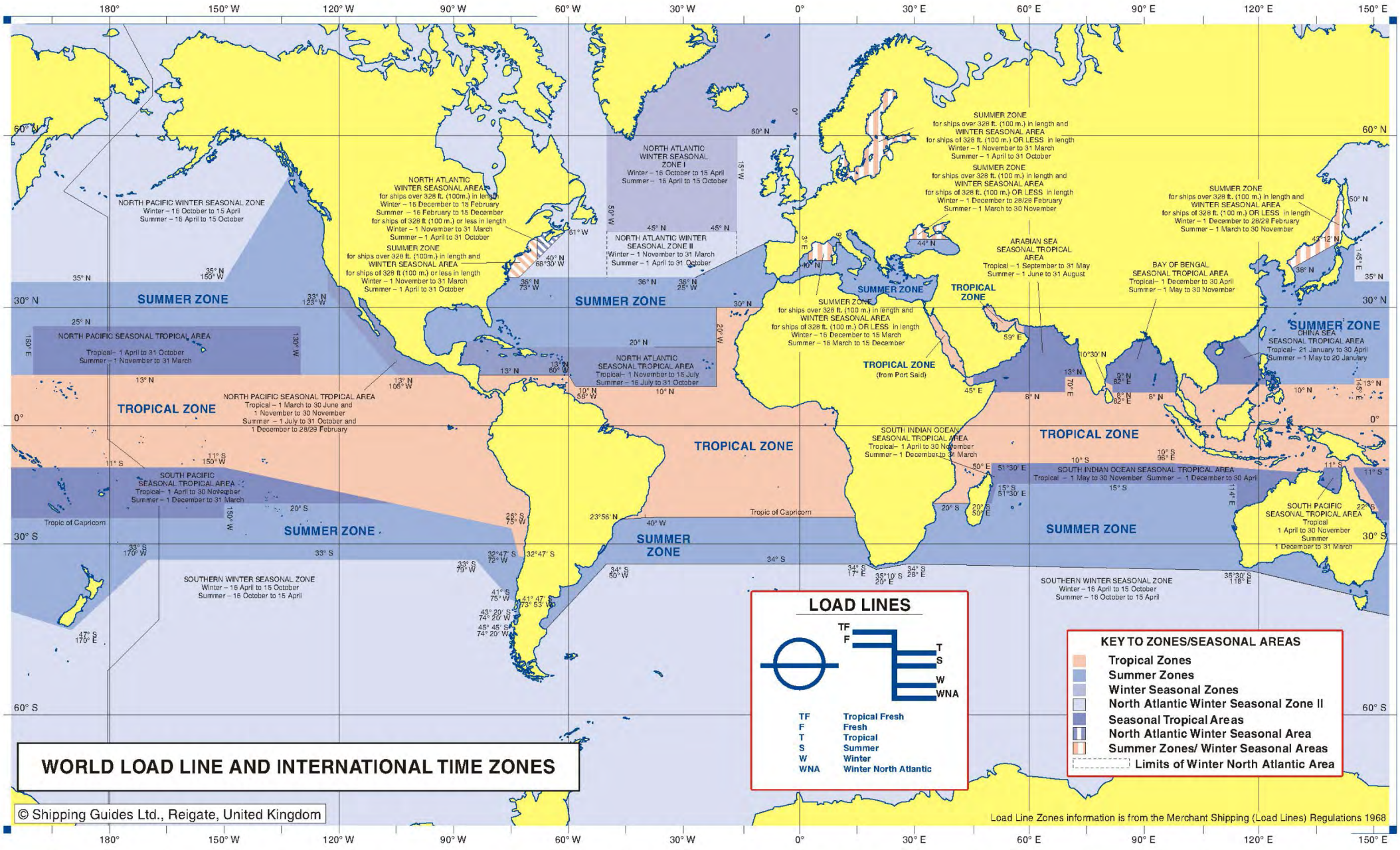
| Disp. t. | 13,80 | 13,90 | $KG_2$ 14,00 | (fluid) 14,10 | (m) 14,20 | 14,30 | 14,40 | 14,50 | Disp. t. |
|---|---|---|---|---|---|---|---|---|---|
| 15 000 | 21 887 | 21 450 | 20 995 | 20 522 | 20 033 | 19 525 | 19 002 | 18 465 | 15 000 |
| 15 500 | 21 257 | 20 809 | 20 344 | 19 861 | 19 361 | 18 845 | 18 312 | 17 764 | 15 500 |
| 16 000 | 20 624 | 20 165 | 19 690 | 19 198 | 18 689 | 18 162 | 17 619 | 17 061 | 16 000 |
| 16 500 | 19 987 | 19 519 | 19 035 | 18 533 | 18 014 | 17 478 | 16 926 | 16 358 | 16 500 |
| 17 000 | 19 348 | 18 871 | 18 377 | 17 866 | 17 338 | 16 793 | 16 231 | 15 654 | 17 000 |
| 17 500 | 18 706 | 18 219 | 17 716 | 17 196 | 16 660 | 16 107 | 15 535 | 14 949 | 17 500 |
| 18 000 | 18 061 | 17 564 | 17 052 | 16 523 | 15 977 | 15 415 | 14 836 | 14 241 | 18 000 |
| 18 500 | 17 415 | 16 909 | 16 387 | 15 848 | 15 293 | 14 722 | 14 136 | 13 533 | 18 500 |
| 19 000 | 16 761 | 16 245 | 15 713 | 15 166 | 14 603 | 14 025 | 13 431 | 12 822 | 19 000 |
| 19 500 | 16 099 | 15 573 | 15 033 | 14 478 | 13 908 | 13 322 | 12 722 | 12 108 | 19 500 |
| 20 000 | 15 432 | 14 896 | 14 348 | 13 786 | 13 209 | 12 618 | 12 011 | 11 391 | 20 000 |
| 20 500 | 14 762 | 14 218 | 13 662 | 13 093 | 12 508 | 11 910 | 11 298 | 10 673 | 20 500 |
| 21 000 | 14 094 | 13 542 | 12 979 | 12 400 | 11 808 | 11 204 | 10 588 | 9 960 | 21 000 |
| 21 500 | 13 431 | 12 872 | 12 298 | 11 712 | 11 115 | 10 506 | 9 884 | 9 249 | 21 500 |
| 22 000 | 12 777 | 12 208 | 11 626 | 11 033 | 10 431 | 9 814 | 9 185 | 8 544 | 22 009 |
| 22 500 | 12 133 | 11 553 | 10 964 | 10 365 | 9 754 | 9 129 | 8 494 | 7 849 | 22 500 |
| 23 000 | 11 498 | 10 910 | 10 312 | 9 705 | 9 087 | 8 455 | 7 813 | 7 160 | 23 000 |
| 23 590 | 10 870 | 10 279 | 9 676 | 9 062 | 8 438 | 7 803 | 7 153 | 6 492 | 23 500 |
| 24 000 | 10 254 | 9 657 | 9 046 | 8 426 | 7 798 | 7 153 | 6 496 | 5 828 | 24 000 |
| 24 500 | 9 648 | 9 040 | 8 422 | 7 796 | 7 157 | 6 504 | 5 840 | 5 163 | 24 500 |
| 25 000 | 9 045 | 8 427 | 7 800 | 7 164 | 6 516 | 5 853 | 5 179 | 4 492 | 25 000 |
| 25 500 | 8 442 | 7 816 | 7 176 | 6 529 | 5 871 | 5 196 | 4 511 | 3 813 | 25 500 |
| 26 000 | 7 849 | 7 209 | 6 558 | 5 899 | 5 226 | 4 541 | 3 845 | 3 135 | 26 000 |
| 26 500 | 7 257 | 6 604 | 5 941 | 5 271 | 4 586 | 3 890 | 3 186 | 2 466 | 26 500 |
| 27 000 | 6 672 | 6 007 | 5 333 | 4 653 | 3 957 | 3 255 | 2 543 | | 27 000 |
| 27 500 | 6 103 | 5 425 | 4 742 | 4 049 | 3 349 | 2 642 | | | 27 500 |
| 28 000 | 5 551 | 4 866 | 4 173 | 3 474 | 2 769 | | | | 28 000 |
| 28 500 | 5 032 | 4 337 | 3 641 | 2 936 | | | | | 28 500 |
| 29 000 | 4 527 | 3 829 | 3 127 | | | | | | 29 000 |
| 29 500 | 4 043 | 3 343 | | | | | | | 29 500 |
| 30 000 | 3 579 | | | | | | | | 30 000 |

## MAHM (tm)

| Disp. t. | KG$_2$ (fluid) (m) 14,60 | 14,70 | 14,80 | 14,90 | 15,00 | 15,10 | 15,20 | 15,30 | Disp. t. |
|---|---|---|---|---|---|---|---|---|---|
| 15 000 | 17 916 | 17 358 | 16 792 | 16 221 | 15 646 | 15 064 | 14 481 | 13 897 | 15 000 |
| 15 500 | 17 204 | 16 633 | 16 054 | 15 469 | 14 882 | 14 281 | 13 683 | 13 082 | 15 500 |
| 16 000 | 16 490 | 15 908 | 15 316 | 14 718 | 14 115 | 13 504 | 12 893 | 12 275 | 16 000 |
| 16 500 | 15 776 | 15 183 | 14 580 | 13 970 | 13 354 | 12 731 | 12 107 | 11 476 | 16 500 |
| 17 000 | 15 063 | 14 459 | 13 846 | 13 224 | 12 597 | 11 962 | 11 327 | 10 685 | 17 000 |
| 17 500 | 14 349 | 13 736 | 13 112 | 12 481 | 11 842 | 11 197 | 10 551 | 9 899 | 17 500 |
| 18 000 | 13 633 | 13 011 | 12 379 | 11 739 | 11 091 | 10 436 | 9 781 | 9 119 | 18 000 |
| 18 500 | 12 917 | 12 288 | 11 648 | 10 998 | 10 342 | 9 683 | 9 015 | 8 346 | 18 500 |
| 19 000 | 12 199 | 11 563 | 10 917 | 10 260 | 9 596 | 8 928 | 8 256 | 7 576 | 19 000 |
| 19 500 | 11 479 | 10 839 | 10 186 | 9 523 | 8 854 | 8 177 | 7 498 | 6 812 | 19 500 |
| 20 000 | 10 757 | 10 111 | 9 454 | 8 787 | 8 114 | 7 433 | 6 744 | 6 054 | 20 000 |
| 20 500 | 10 035 | 9 386 | 8 726 | 8 055 | 7 376 | 6 688 | 5 996 | 5 295 | 20 500 |
| 21 000 | 9 318 | 8 663 | 7 998 | 7 324 | 6 642 | 5 948 | 5 248 | 4 543 | 21 000 |
| 21 500 | 8 602 | 7 944 | 7 275 | 6 597 | 5 909 | 5 210 | 4 506 | 3 791 | 21 500 |
| 22 000 | 7 893 | 7 231 | 6 555 | 5 870 | 5 178 | 4 476 | 3 763 | 3 044 | 22 000 |
| 22 500 | 7 191 | 6 520 | 5 839 | 5 148 | 4 448 | 3 737 | 3 019 | 2 291 | 22 500 |
| 23 000 | 6 495 | 5 816 | 5 127 | 4 427 | 3 718 | 2 994 | 2 265 | 1 525 | 23 000 |
| 23 500 | 5 820 | 5 131 | 4 429 | 3 715 | 2 989 | 2 248 | 1 499 | 745 | 23 500 |
| 24 000 | 5 146 | 4 446 | 3 731 | 3 003 | 2 259 | 1 499 | 739 | | 24 000 |
| 24 500 | 4 469 | 3 758 | 3 032 | 2 290 | 1 530 | 759 | | | 24 500 |
| 25 000 | 3 787 | 3 066 | 2 328 | 1 574 | | | | | 25 000 |
| 25 500 | 3 098 | 2 366 | 1 618 | | | | | | 25 500 |
| 26 000 | 2 408 | 1 668 | | | | | | | 26 000 |

## MAHM (tm)

| Disp. t. | KG$_2$ (fluid) (m) 15,40 | 15,50 | 15,60 | 15,70 | 15,80 | 15,90 | 16,00 | 16,10 | Disp. t. |
|---|---|---|---|---|---|---|---|---|---|
| 15 000 | 13 311 | 12 726 | 12 142 | 11 559 | 10 980 | 10 405 | 9 829 | | 15 000 |
| 15 500 | 12 477 | 11 872 | 11 266 | 10 660 | 10 058 | 9 458 | 8 858 | | 15 500 |
| 16 000 | 11 654 | 11 031 | 10 406 | 9 781 | 9 157 | 8 537 | 7 914 | | 16 000 |
| 16 500 | 10 842 | 10 203 | 9 562 | 8 920 | 8 277 | 7 635 | 6 996 | | 16 500 |
| 17 000 | 10 038 | 9 387 | 8 732 | 8 076 | 7 418 | 6 760 | 6 102 | | 17 000 |
| 17 500 | 9 242 | 8 582 | 7 915 | 7 248 | 6 576 | 5 904 | 5 232 | | 17 500 |
| 18 000 | 8 455 | 7 783 | 7 111 | 6 432 | 5 752 | 5 067 | 4 383 | | 18 000 |
| 18 500 | 7 671 | 6 992 | 6 308 | 5 621 | 4 932 | 4 241 | 3 551 | | 18 500 |
| 19 000 | 6 895 | 6 205 | 5 514 | 4 819 | 4 124 | 3 430 | 2 736 | | 19 000 |
| 19 500 | 6 122 | 5 425 | 4 726 | 4 026 | 3 327 | 2 632 | 1 937 | | 19 500 |
| 20 000 | 5 353 | 4 650 | 3 945 | 3 241 | 2 539 | 1 844 | 1 150 | | 20 000 |
| 20 500 | 4 590 | 3 880 | 3 170 | 2 463 | 1 758 | 1 064 | 372 | | 20 500 |
| 21 000 | 3 828 | 3 113 | 2 397 | 1 688 | 984 | 288 | | | 21 000 |
| 21 500 | 3 072 | 2 349 | 1 629 | 915 | 206 | | | | 21 500 |
| 22 000 | 2 316 | 1 585 | 857 | 133 | | | | | 22 000 |
| 22 500 | 1 552 | 812 | 71 | | | | | | 22 500 |
| 23 000 | 776 | 23 | | | | | | | 23 000 |






Shipping guides LTD
The Port Information Specialists
Printed December 2000 – Including 1988 Protocols