# Sea Tech

## Project B20-R

## Calculation of Total Resistance and Total Propulsive Power /efficiency 50%/ with program Maxsurf Resistance v.21.14

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092014\Orca3D v1.3 and 1.4-WIP\Sea Tech-Models-15032019\B20-R-New-09032019\B20-R-Maxsurf Resistance\B20-R-Resistance Results,D=54,85t, Tmax=1,25m,trim=0,15m,efficiency 50%-16042019.hsd

| | Item | Value | Units | Holtrop | Van Oortmerssen | Compton | Fung |
|---|---|---|---|---|---|---|---|
| 1 | LWL | 19,662 | m | 19,662 (low) | 19,662 | 19,662 (low) | 19,662 |
| 2 | Beam | 5,128 | m | 5,128 (high) | 5,128 (high) | 5,128 (high) | 5,128 |
| 3 | Draft | 1,25 | m | 1,25 (low) | 1,25 (high) | 1,25 | 1,25 |
| 4 | Displaced volume | 54,85 | m^3 | 54,85 | 54,85 | 54,85 (high) | 54,85 |
| 5 | Wetted area | 90,488 | m^2 | 90,488 | 90,488 | 90,488 | 90,488 |
| 6 | Prismatic coeff. (Cp) | 0,6 | | 0,6 | 0,6 | – | 0,6 |
| 7 | Waterpl. area coeff. (Cwp) | 0,693 | | 0,693 | – | – | – |
| 8 | 1/2 angle of entrance | 14,1 | deg. | 14,1 | 14,1 | – | 14,1 (low) |
| 9 | LCG from midships(+ve for'd) | -1,366 | m | -1,366 | -1,366 | -1,366 | – |
| 10 | Transom area | 1,14 | m^2 | 1,14 | – | – | 1,14 |
| 11 | Transom wl beam | 4,26 | m | – | – | – | 4,26 |
| 12 | Transom draft | 0,29 | m | – | – | – | 0,29 |
| 13 | Max sectional area | 4,646 | m^2 | – | 4,646 (low) | – | 4,646 |
| 14 | Bulb transverse area | 0,018 | m^2 | 0,018 | – | – | 0,018 |
| 15 | Bulb height from keel | 0,899 | m | 0,899 | – | – | – |
| 16 | Draft at FP | 1,1 | m | 1,1 | – | – | – |
| 17 | Deadrise at 50% LWL | 6,7 | deg. | – | – | – | – |
| 18 | Hard chine or Round bilge | Round bilge | | – | – | Round bilge | – |
| 19 | | | | | | | |
| 20 | Frontal Area | 21,72 | m^2 | | | | |
| 21 | Headwind | 26,05 | kn | | | | |
| 22 | Drag Coefficient | 0,8 | | | | | |
| 23 | Air density | 0,001 | tonne/m^3 | | | | |
| 24 | Appendage Area | 0 | m^2 | | | | |
| 25 | Nominal App. length | 0 | m | | | | |
| 26 | Appendage Factor | 1 | | | | | |
| 27 | | | | | | | |
| 28 | Correlation allowance | use 19th ITTC formulation | | Calculated by method | use 19th ITTC formulation | use 19th ITTC formulation | Fixed at 0.0005 |
| 29 | Kinematic viscosity | 0,000001139 | m^2/s | | | | |
| 30 | Water Density | 1 | tonne/m^3 | | | | |

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| | Speed (kn) | Froude No. LWL | Froude No. Vol. | Holtrop Resist. (kN) | Holtrop Power (kW) | Van Oortmerssen Resist. (kN) | Van Oortmerssen Power (kW) | Compton Resist. (kN) | Compton Power (kW) | Fung Resist. (kN) | Fung Power (kW) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5,000 | 0,185 | 0,421 | 4,6 | 23,419 | 4,2 | 21,523 | 4,3 | 22,130 | 4,3 | 22,089 |
| 2 | 5,275 | 0,195 | 0,445 | 4,8 | 25,935 | 4,4 | 23,737 | 4,5 | 24,536 | 4,6 | 24,753 |
| 3 | 5,550 | 0,206 | 0,468 | 5,0 | 28,645 | 4,6 | 26,119 | 4,8 | 27,252 | 4,9 | 27,731 |
| 4 | 5,825 | 0,216 | 0,491 | 5,3 | 31,572 | 4,8 | 28,625 | 5,1 | 30,319 | 5,2 | 31,100 |
| 5 | 6,100 | 0,226 | 0,514 | 5,5 | 34,739 | 5,0 | 31,252 | 5,4 | 33,673 | 5,5 | 34,809 |
| 6 | 6,375 | 0,236 | 0,537 | 5,8 | 38,165 | 5,2 | 34,432 | 5,7 | 37,333 | 5,9 | 38,782 |
| 7 | 6,650 | 0,246 | 0,560 | 6,1 | 41,885 | 5,6 | 38,037 | 6,0 | 41,324 | 6,3 | 43,102 |
| 8 | 6,925 | 0,257 | 0,584 | 6,5 | 45,976 | 5,8 | 41,243 | 6,4 | 45,806 | 6,7 | 47,945 |
| 9 | 7,200 | 0,267 | 0,607 | 6,8 | 50,546 | 6,0 | 44,225 | 6,9 | 50,784 | 7,2 | 53,370 |
| 10 | 7,475 | 0,277 | 0,630 | 7,2 | 55,674 | 6,3 | 48,727 | 7,3 | 56,225 | 7,7 | 59,328 |
| 11 | 7,750 | 0,287 | 0,653 | 7,7 | 61,331 | 7,1 | 56,429 | 7,8 | 62,159 | 8,3 | 65,800 |
| 12 | 8,025 | 0,297 | 0,676 | 8,2 | 67,376 | 8,1 | 67,182 | 8,3 | 68,620 | 8,8 | 72,827 |
| 13 | 8,300 | 0,307 | 0,700 | 8,6 | 73,668 | 9,2 | 78,903 | 9,0 | 76,668 | 9,4 | 80,424 |
| 14 | 8,575 | 0,318 | 0,723 | 9,1 | 80,185 | 10,1 | 88,938 | 9,7 | 85,930 | 10,0 | 88,540 |
| 15 | 8,850 | 0,328 | 0,746 | 9,6 | 87,065 | 10,5 | 95,639 | 10,6 | 96,140 | 10,7 | 97,140 |
| 16 | 9,125 | 0,338 | 0,769 | 10,1 | 94,567 | 10,6 | 99,209 | 11,4 | 107,366 | 11,3 | 106,326 |
| 17 | 9,400 | 0,348 | 0,792 | 10,7 | 103,026 | 10,5 | 101,606 | 12,4 | 119,679 | 12,0 | 116,415 |
| 18 | 9,675 | 0,358 | 0,815 | 11,3 | 112,834 | 10,6 | 105,841 | 13,5 | 134,240 | 12,9 | 127,921 |
| 19 | 9,950 | 0,369 | 0,839 | 12,2 | 124,438 | 11,2 | 115,094 | 14,7 | 150,472 | 13,8 | 141,492 |
| 20 | 10,225 | 0,379 | 0,862 | 13,1 | 138,343 | 12,5 | 131,992 | 16,0 | 168,266 | 15,0 | 157,842 |
| 21 | 10,500 | 0,389 | 0,885 | 14,4 | 155,092 | 14,7 | 158,387 | 17,4 | 187,722 | 16,4 | 177,686 |
| 22 | 10,775 | 0,399 | 0,908 | 15,8 | 175,232 | 17,6 | 194,700 | 18,8 | 208,945 | 18,2 | 201,677 |
| 23 | 11,050 | 0,409 | 0,931 | 17,7 | 200,758 | 21,1 | 240,433 | 20,4 | 232,159 | 20,3 | 230,314 |
| 24 | 11,325 | 0,420 | 0,954 | 19,5 | 227,600 | 25,3 | 294,359 | 22,1 | 257,385 | 22,6 | 263,844 |
| 25 | 11,600 | 0,430 | 0,978 | 21,4 | 255,508 | 29,7 | 354,746 | 23,9 | 284,727 | 25,3 | 302,177 |
| 26 | 11,875 | 0,440 | 1,001 | 23,3 | 284,479 | 34,3 | 419,625 | 25,7 | 314,305 | 28,2 | 344,841 |
| 27 | 12,150 | 0,450 | 1,024 | 25,2 | 314,511 | 39,0 | 486,997 | 27,7 | 346,233 | 31,3 | 390,998 |
| 28 | 12,425 | 0,460 | 1,047 | 27,0 | 345,599 | 43,4 | 555,004 | 29,7 | 380,245 | 34,4 | 439,526 |
| 29 | 12,700 | 0,471 | 1,070 | 28,9 | 377,741 | 47,6 | 622,023 | 31,9 | 416,809 | 37,4 | 489,158 |
| 30 | 12,975 | 0,481 | 1,094 | 30,8 | 410,933 | 51,4 | 686,724 | 34,2 | 456,053 | 40,3 | 538,631 |
| 31 | 13,250 | 0,491 | 1,117 | 32,7 | 445,170 | 54,9 | 748,087 | 36,5 | 498,106 | 43,0 | 586,819 |
| 32 | 13,525 | 0,501 | 1,140 | 34,5 | 480,448 | 57,9 | 805,394 | 38,9 | 541,094 | 45,5 | 632,836 |
| 33 | 13,800 | 0,511 | 1,163 | 36,4 | 516,762 | 60,4 | 858,199 | 40,1 | 568,816 | 47,6 | 676,076 |
| 34 | 14,075 | 0,521 | 1,186 | 38,3 | 554,108 | 62,6 | 906,293 | 41,2 | 597,284 | 49,5 | 716,217 |
| 35 | 14,350 | 0,532 | 1,209 | 40,1 | 592,479 | 64,3 | 949,662 | 42,4 | 626,492 | 51,0 | 753,185 |
| 36 | 14,625 | 0,542 | 1,233 | 42,0 | 631,871 | 65,7 | 988,451 | 43,6 | 656,435 | 52,3 | 787,106 |
| 37 | 14,900 | 0,552 | 1,256 | 43,7 | 670,172 | 66,7 | 1022,921 | 44,7 | 685,843 | 53,4 | 818,243 |
| 38 | 15,175 | 0,562 | 1,279 | 44,8 | 699,613 | 67,5 | 1053,420 | 45,5 | 710,425 | 54,2 | 846,947 |
| 39 | 15,450 | 0,572 | 1,302 | 45,8 | 727,926 | 68,0 | 1080,352 | 46,2 | 734,969 | 55,0 | 873,609 |
| 40 | 15,725 | 0,583 | 1,325 | 46,7 | 756,216 | 68,2 | 1104,154 | 46,9 | 759,427 | 55,5 | 898,626 |
| 41 | 16,000 | 0,593 | 1,348 | 47,7 | 784,938 | 68,4 | 1125,277 | 47,6 | 783,746 | 56,0 | 922,380 |

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Project B20-R

D:\MyWorks\Orca3D v1.3 and 1.4-WIP\Sea-Tech-Models\B20-R-New-09032019\B20-R-Resistance Results,D=54,85t, Tmax=1,25m,trim=0,15m-09032019.hsd



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