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LAMPIRAN

Lampiran 1 Penentuan nilai kecepatan model kapal (Vm)

Berdasarkan Persamaan 23 dimana $\frac{V_m}{\sqrt{g.L_m}} = \frac{V_s}{\sqrt{g.L_s}}$ **maka dalam menentukan kecepatan model kapal sebagai berikut.**

a. **Kecepatan 9 knot**

$$Fn_s = \frac{V_s}{\sqrt{g.L_s}}$$

$$= \frac{4,630}{\sqrt{9,81 \; x \; 76,6}}$$

$$= 0,169$$

$$Fn_s = Fn_m = 0,169$$

Maka,

$$Fn_m = \frac{V_m}{\sqrt{g.L_m}}$$

$$0,169 = \frac{V_m}{\sqrt{9,81 \; x \; 1,92}}$$

$$V_m = 0,732 \text{ m/s}$$

b. **Kecepatan 10 knot**

$$Fn_s = \frac{V_s}{\sqrt{g.L_s}}$$

$$= \frac{5,144}{\sqrt{9,81 \; x \; 76,6}}$$

$$= 0,188$$

$$Fn_s = Fn_m = 0,188$$

Maka,

$$Fn_m = \frac{V_m}{\sqrt{g.L_m}}$$

$$0,188 = \frac{V_m}{\sqrt{9,81 \; x \; 1,92}}$$

$$V_m = 0,813 \text{ m/s}$$

c. **Kecepatan 11 knot**

$$Fn_s = \frac{V_s}{\sqrt{g.L_s}}$$

$$= \frac{5,658}{\sqrt{9,81 \; x \; 76,6}}$$

$$= 0,207$$

$$Fn_s = Fn_m = 0,207$$

Maka,

$$\text{Fn}_m = \frac{V_m}{\sqrt{g.L_m}}$$

$$0{,}207 = \frac{V_m}{\sqrt{9{,}81 \; x \; 1{,}92}}$$

$$V_m = 0{,}895 \text{ m/s}$$

d. Kecepatan 12 knot

$$\text{Fn}_s = \frac{V_s}{\sqrt{g.L_s}}$$

$$= \frac{6{,}173}{\sqrt{9{,}81 \; x \; 76{,}6}}$$

$$= 0{,}225$$

$$\text{Fn}_s = \text{Fn}_m = 0{,}225$$

Maka,

$$\text{Fn}_m = \frac{V_m}{\sqrt{g.L_m}}$$

$$0{,}225 = \frac{V_m}{\sqrt{9{,}81 \; x \; 1{,}92}}$$

$$V_m = 0{,}976 \text{ m/s}$$

e. Kecepatan 13 knot

$$\text{Fn}_s = \frac{V_s}{\sqrt{g.L_s}}$$

$$= \frac{6{,}687}{\sqrt{9{,}81 \; x \; 76{,}6}}$$

$$= 0{,}244$$

$$\text{Fn}_s = \text{Fn}_m = 0{,}244$$

Maka,

$$\text{Fn}_m = \frac{V_m}{\sqrt{g.L_m}}$$

$$0{,}244 = \frac{V_m}{\sqrt{9{,}81 \; x \; 1{,}92}}$$

$$V_m = 1{,}057 \text{ m/s}$$

f. Kecepatan 14 knot

$$\text{Fn}_s = \frac{V_s}{\sqrt{g.L_s}}$$

$$= \frac{7{,}202}{\sqrt{9{,}81 \; x \; 76{,}6}}$$

$$= 0{,}263$$

$$\text{Fn}_s = \text{Fn}_m = 0{,}263$$

Maka,

$$\text{Fn}_m = \frac{V_m}{\sqrt{g.L_m}}$$

$$0{,}263 = \frac{V_m}{\sqrt{9{,}81 \; x \; 1{,}92}}$$

$$V_m = 1{,}139 \text{ m/s}$$

g. Kecepatan 15 knot

$$\text{Fn}_s = \frac{V_s}{\sqrt{g.L_s}}$$

$$= \frac{7{,}716}{\sqrt{9{,}81 \; x \; 76{,}6}}$$

$$= 0{,}282$$

$$\text{Fn}_s = \text{Fn}_m = 0{,}282$$

Maka,

$$\text{Fn}_m = \frac{V_m}{\sqrt{g.L_m}}$$

$$0{,}282 = \frac{V_m}{\sqrt{9{,}81 \; x \; 1{,}92}}$$

$$V_m = 1{,}220 \text{ m/s}$$

h. Kecepatan 16 knot

$$\text{Fn}_s = \frac{V_s}{\sqrt{g.L_s}}$$

$$= \frac{8{,}230}{\sqrt{9{,}81 \; x \; 76{,}6}}$$

$$= 0{,}300$$

$$\text{Fn}_s = \text{Fn}_m = 0{,}300$$

Maka,

$$\text{Fn}_m = \frac{V_m}{\sqrt{g.L_m}}$$

$$0{,}300 = \frac{V_m}{\sqrt{9{,}81 \; x \; 1{,}92}}$$

$$V_m = 1{,}301 \text{ m/s}$$

i. Kecepatan 17 knot

$$\text{Fn}_s = \frac{V_s}{\sqrt{g.L_s}}$$

$$= \frac{8{,}745}{\sqrt{9{,}81 \; x \; 76{,}6}}$$

$$= 0{,}319$$

$$\text{Fn}_s = \text{Fn}_m = 0{,}319$$

Maka,

$$\text{Fn}_m \quad = \frac{V_m}{\sqrt{g.L_m}}$$

$$0,319 = \frac{V_m}{\sqrt{9,81 \; x \; 1,92}}$$

$$V_m \quad = 1,383 \text{ m/s}$$

j. Kecepatan 18 knot

$$\text{Fn}_s \quad = \frac{V_s}{\sqrt{g.L_s}}$$

$$= \frac{9,259}{\sqrt{9,81 \; x \; 76,6}}$$

$$= 0,338$$

$$\text{Fn}_s = \text{Fn}_m = 0,338$$

Maka,
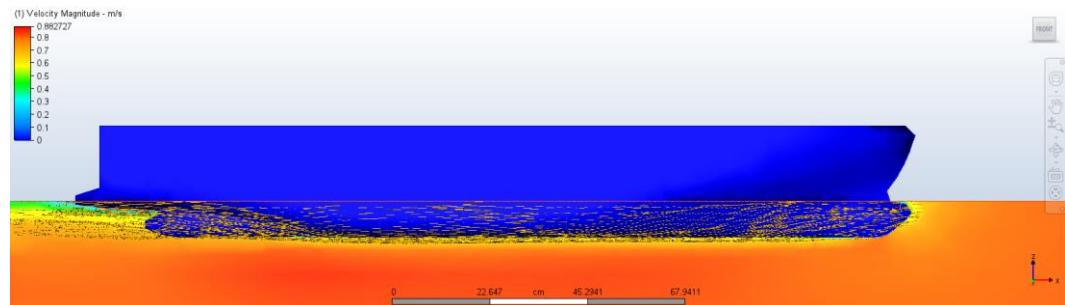
$$\text{Fn}_m \quad = \frac{V_m}{\sqrt{g.L_m}}$$

$$0,338 = \frac{V_m}{\sqrt{9,81 \; x \; 1,92}}$$
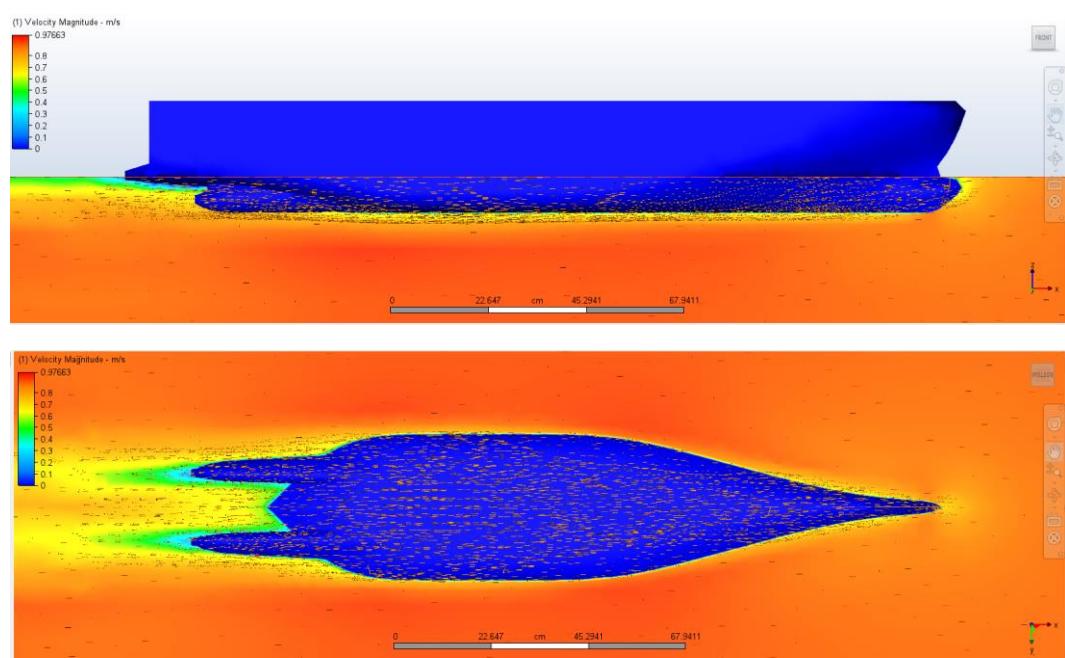
$$V_m \quad = 1,464 \text{ m/s}$$
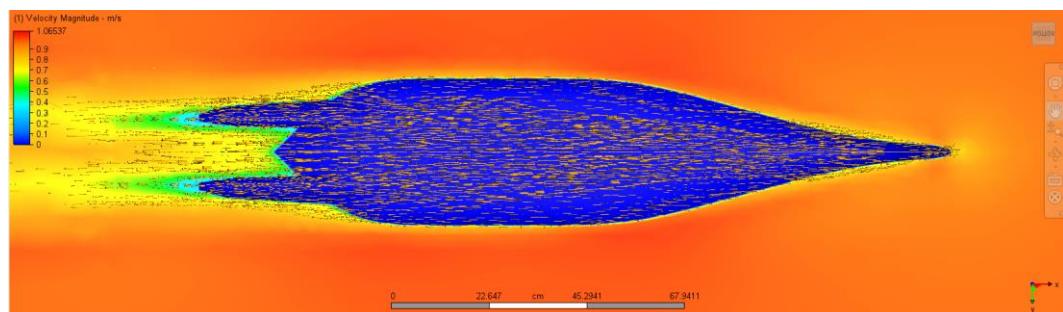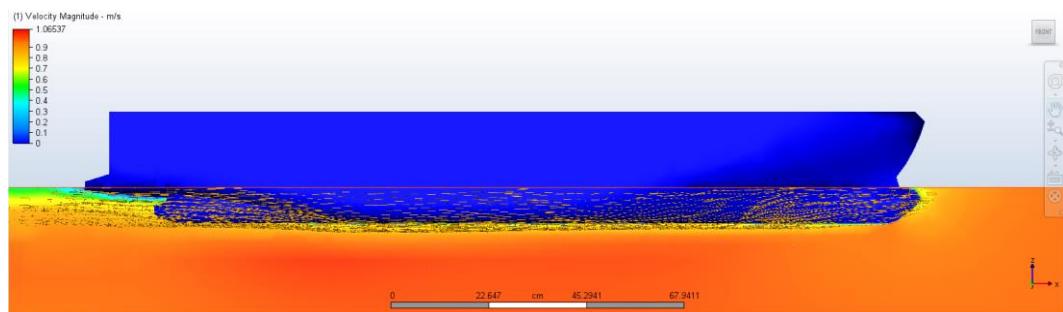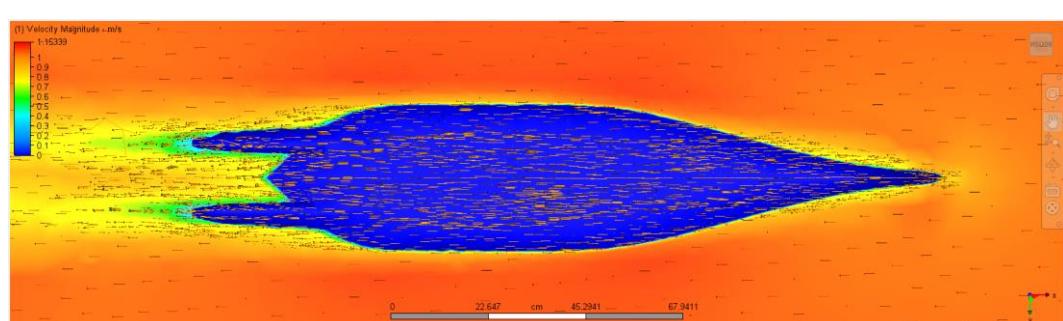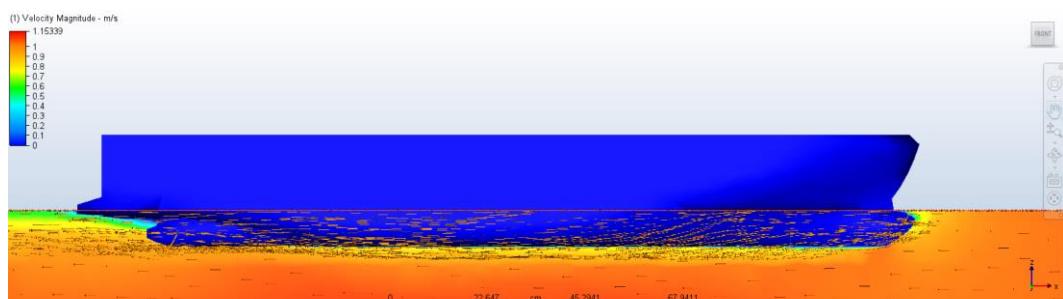
Lampiran 2 Visualisasi *velocity magnitude* pada setiap variasi kecepatan
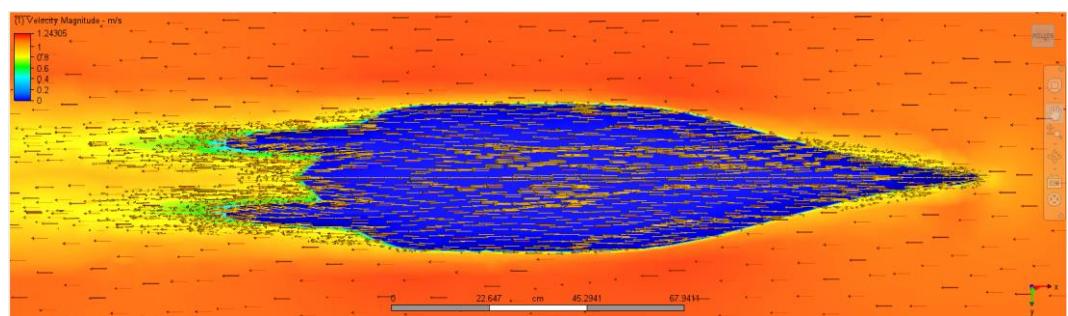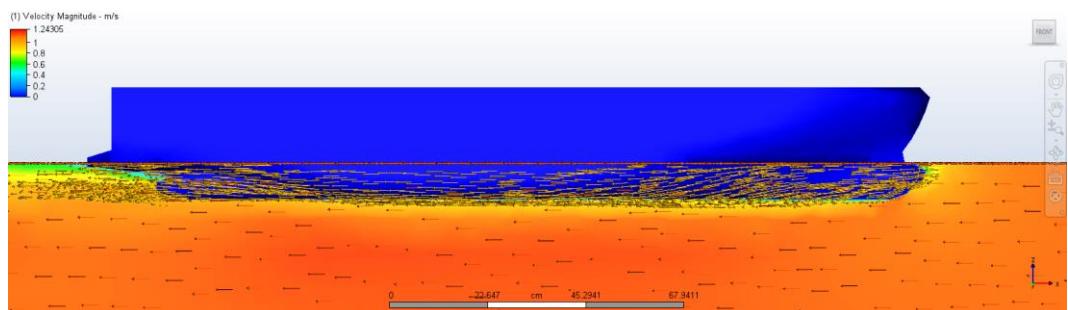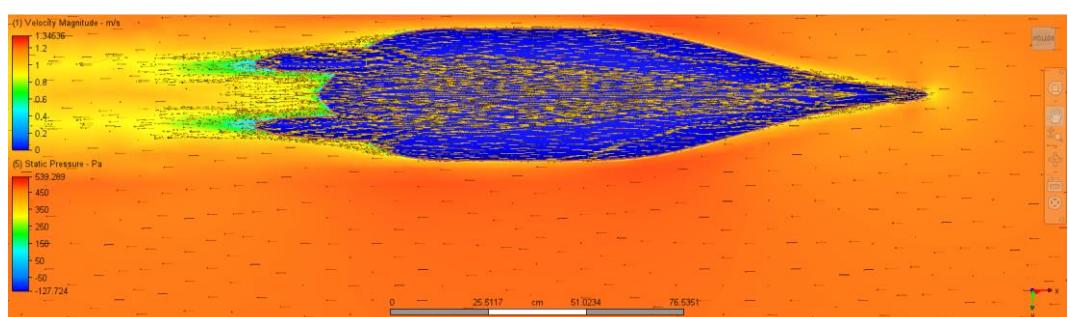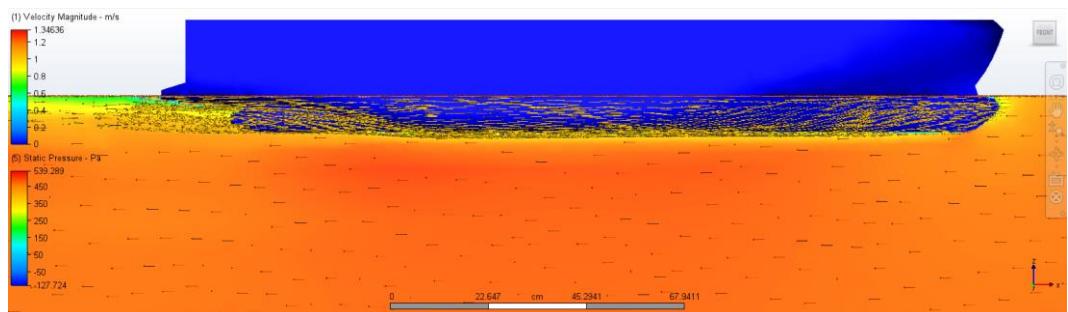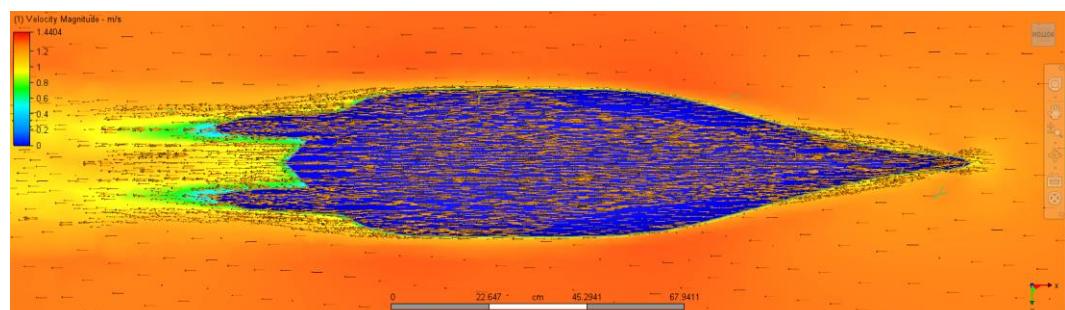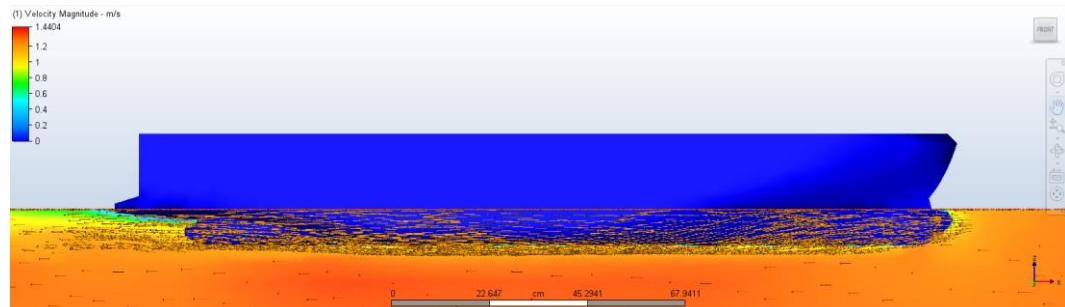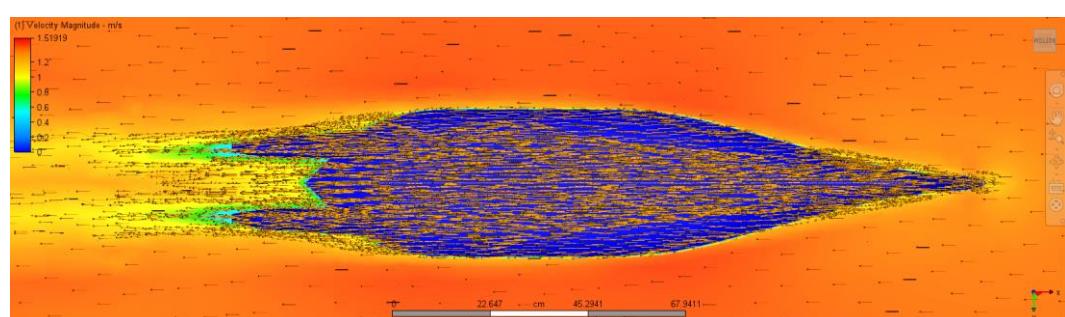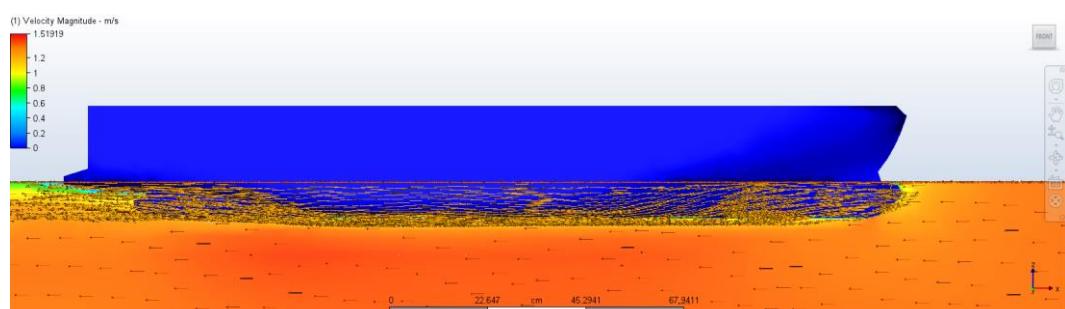
a. **Kecepatan 0,813 m/s**

b. **Kecepatan 0,895 m/s**

c. **Kecepatan 0,976 m/s**

d. **Kecepatan 1,057 m/s**
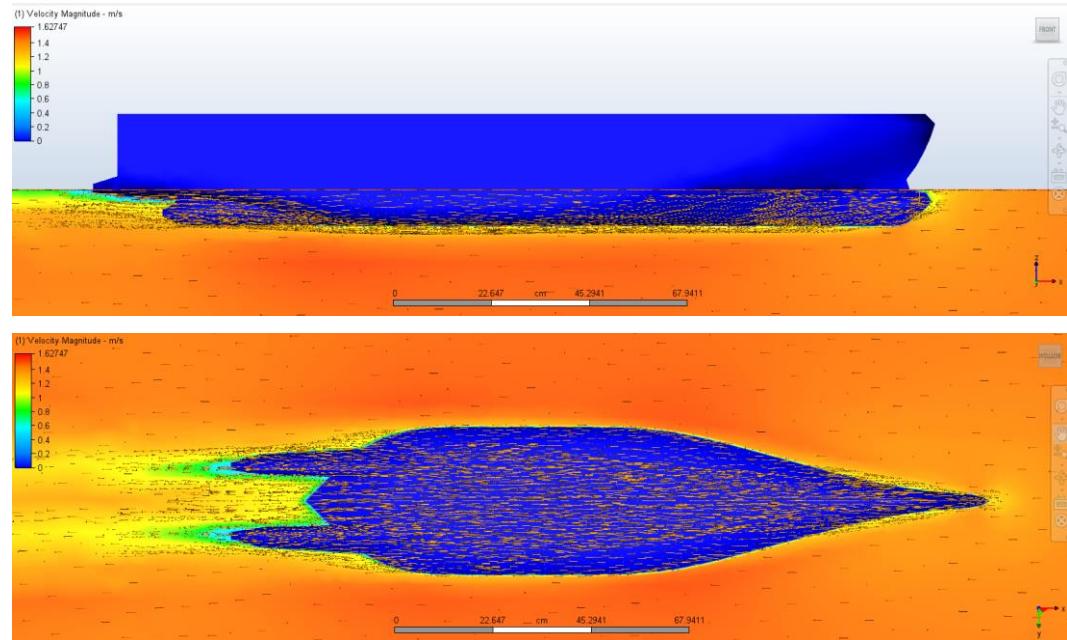
e. **Kecepatan 1,139 m/s**
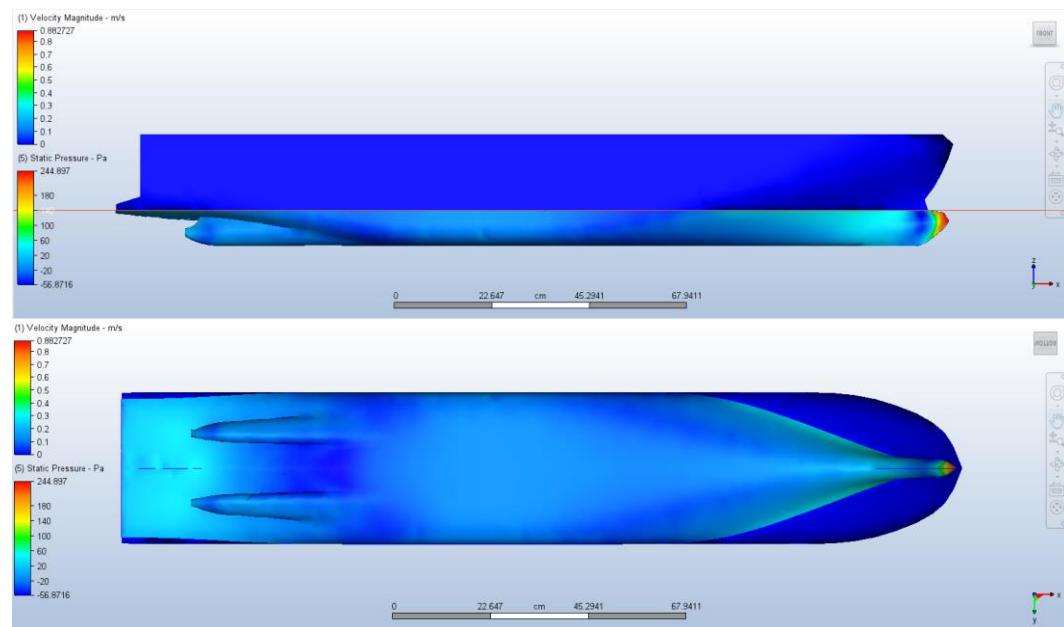
f. **Kecepatan 1,220 m/s**

g. **Kecepatan 1,301 m/s**

h. **Kecepatan 1,383 m/s**
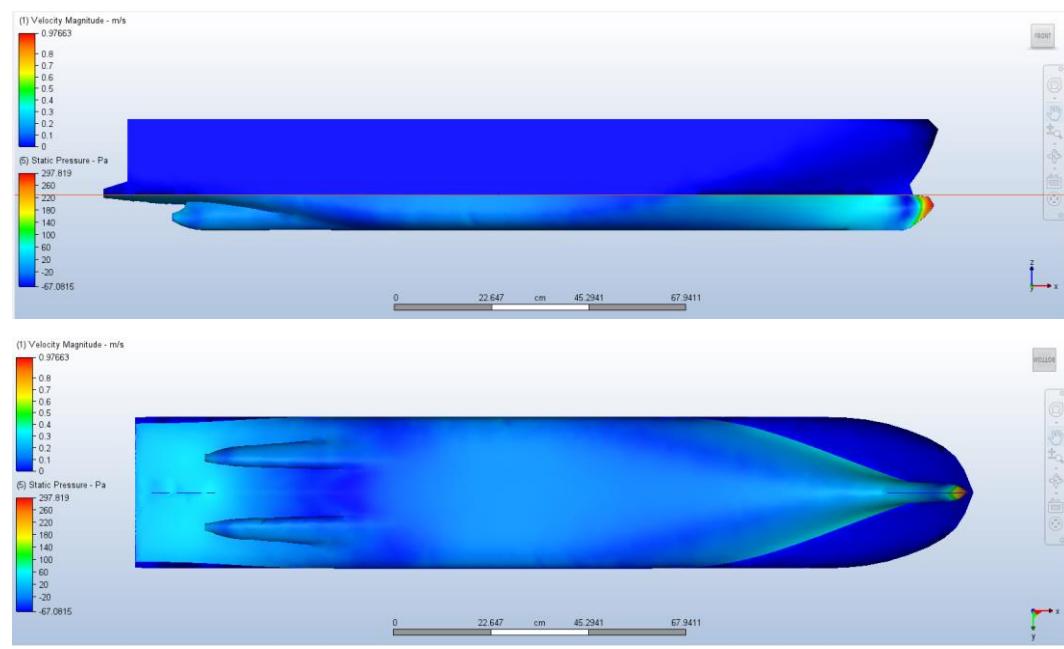
i. Kecepatan 1,464 m/s

Lampiran 3 Visualisasi *Static Pressure* pada setiap variasi kecepatan
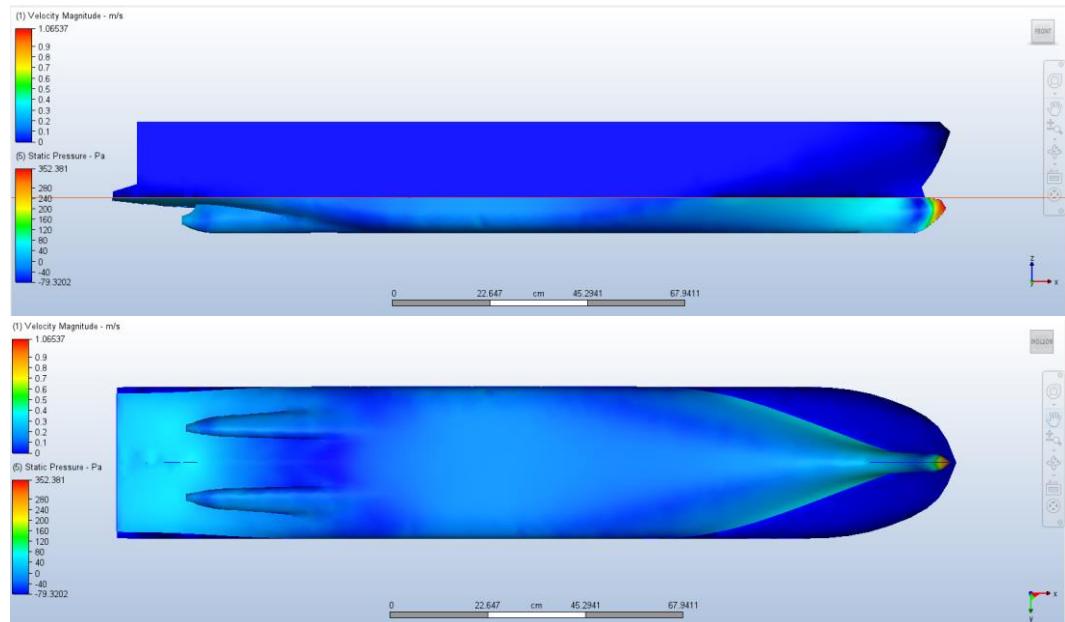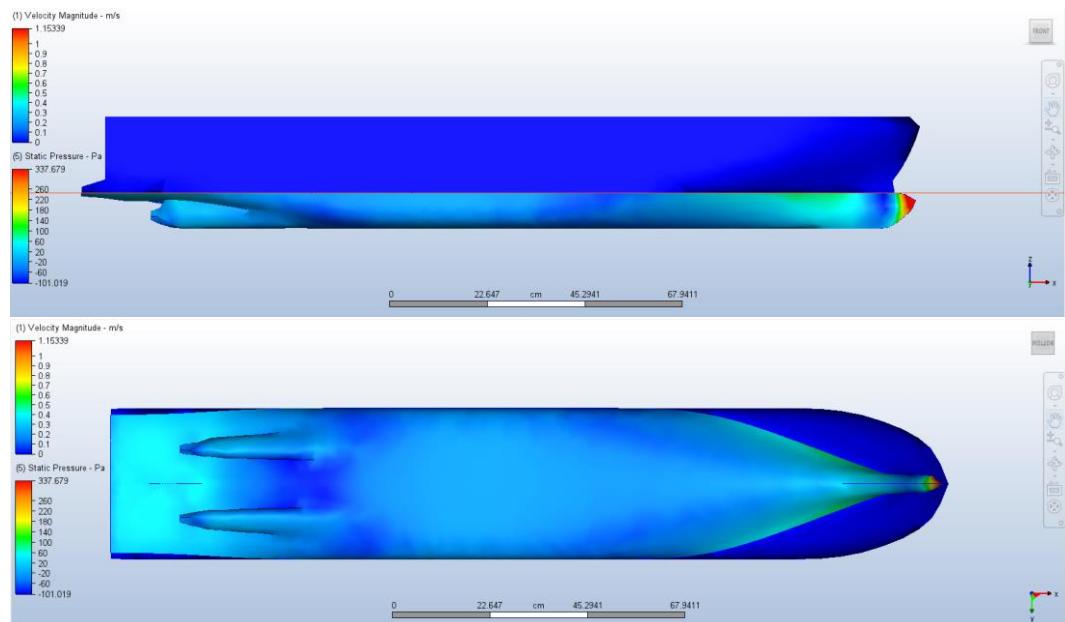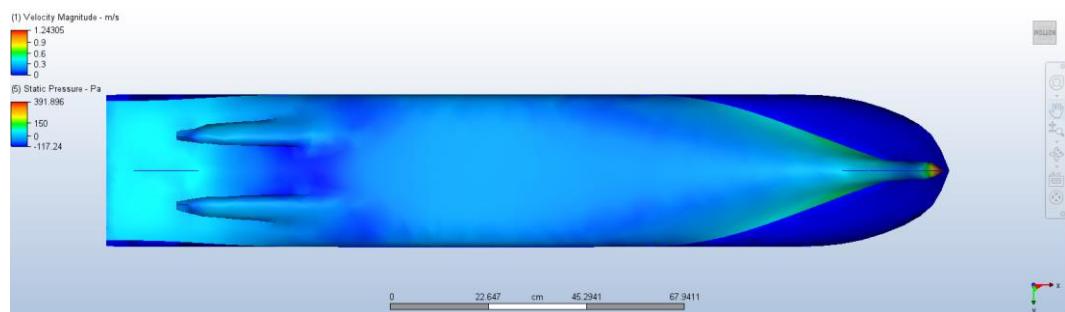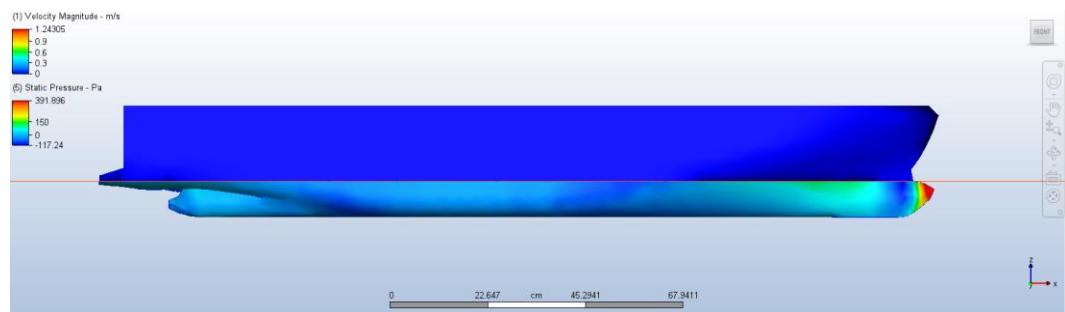
a. Kecepatan 0,813 m/s

b. Kecepatan 0,895 m/s

c. **Kecepatan 0,976 m/s**
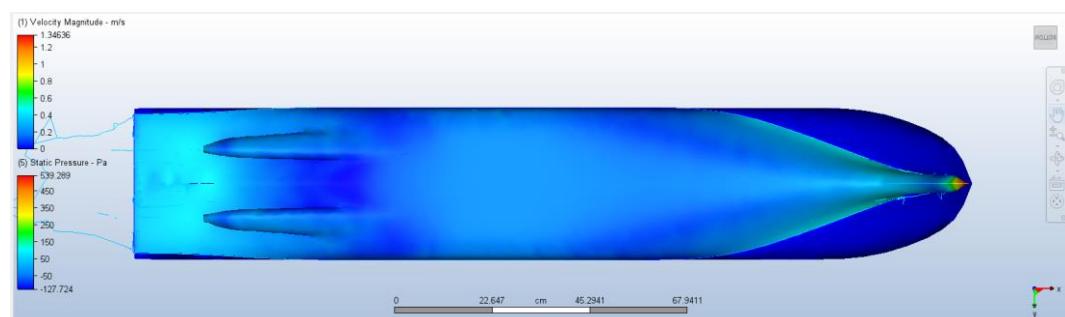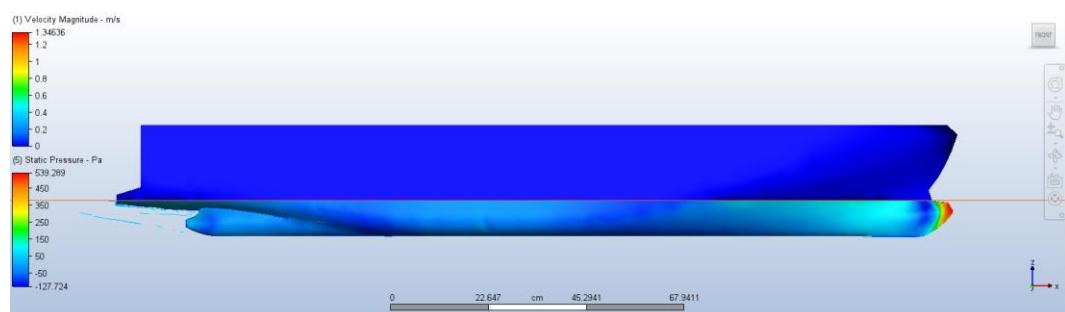
d. **Kecepatan 1,057 m/s**
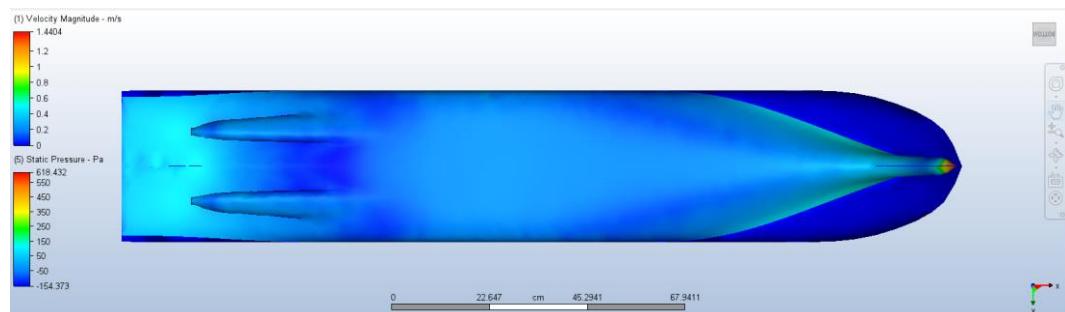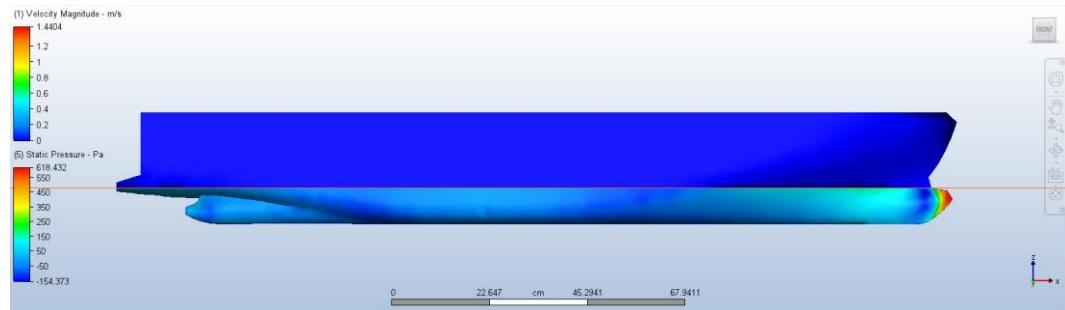
e. **Kecepatan 1,139 m/s**
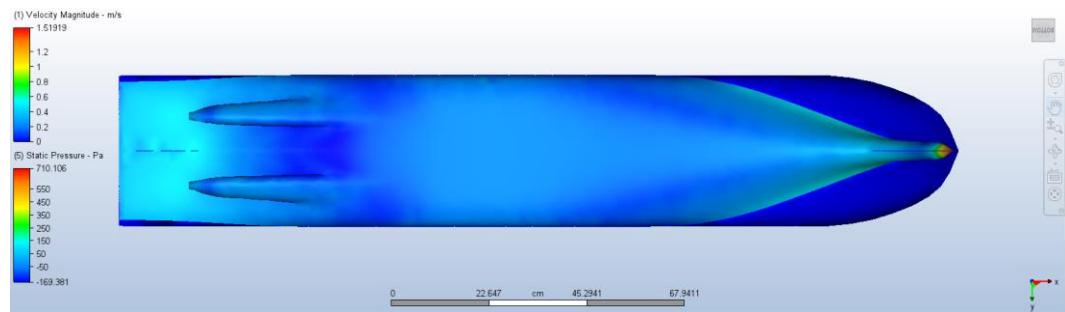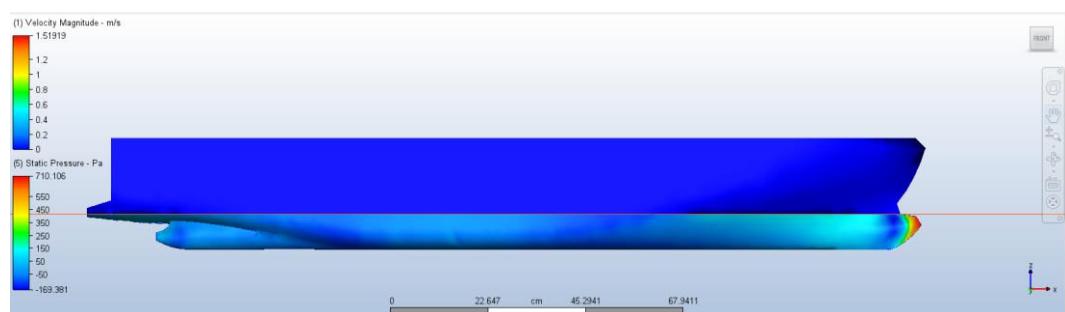
f. **Kecepatan 1,220 m/s**
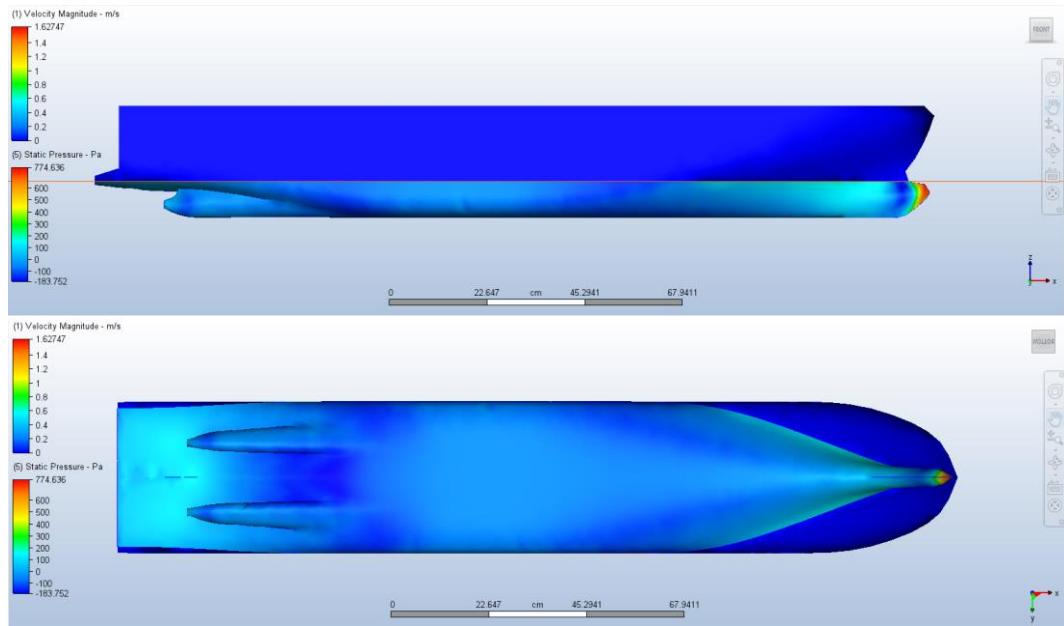
g. **Kecepatan 1,301 m/s**

h. **Kecepatan 1,383 m/s**

i. Kecepatan 1,464 m/s

Lampiran 4 Nilai *Static Pressure* pada setiap variasi kecepatan

a. **Kecepatan 0,813 m/s**

```
 Var       Mean           at      Max          at       Min
Vx Vel   -8.02895e+01  42602 +2.67274e+01   54111 -8.67088e+01 cm/s
Vy Vel   +3.84330e-03  59817 +3.01456e+01   54873 -3.30902e+01 cm/s
Vz Vel   -1.58166e-02 285404 +1.36126e+01   56574 -2.67783e+01 cm/s
Press    -5.68094e+00   1492 +2.44897e+03     104 -5.68716e+02 dyne/cm^2
Temp     +0.00000e+00   1232 +0.00000e+00    1243 +0.00000e+00 C
TurbK    +2.94748e+00  52585 +3.70445e+02    1722 +1.14040e-05 cm^2/s^2
TurbD    +1.79264e+01   1561 +9.43864e+04  227885 +4.08184e-03 cm^2/s^3
```

b. **Kecepatan 0,895 m/s**

```
 Var       Mean           at      Max          at       Min
Vx Vel   -8.83497e+01  42602 +2.79660e+01   54111 -9.61679e+01 cm/s
Vy Vel   +1.88014e-03  59817 +3.39816e+01   54873 -3.64537e+01 cm/s
Vz Vel   -2.06974e-02 285404 +1.45624e+01   55728 -2.80923e+01 cm/s
Press    -6.80169e+00   1507 +2.97819e+03    2148 -6.70815e+02 dyne/cm^2
Temp     +0.00000e+00   1232 +0.00000e+00    1243 +0.00000e+00 C
TurbK    +3.34310e+00  52585 +4.61543e+02    1722 +1.14040e-05 cm^2/s^2
TurbD    +2.16835e+01   1561 +9.95059e+04  227885 +3.29780e-03 cm^2/s^3
```

c. **Kecepatan 0,976 m/s**

```
 Var       Mean           at      Max          at       Min
Vx Vel   -9.63526e+01  42602 +3.04012e+01   54111 -1.04664e+02 cm/s
Vy Vel   -1.15678e-03  59817 +3.67998e+01   54873 -3.97633e+01 cm/s
Vz Vel   -2.08858e-02 285404 +1.60846e+01   56574 -3.23658e+01 cm/s
Press    -8.21953e+00   1530 +3.52381e+03    2148 -7.93202e+02 dyne/cm^2
Temp     +0.00000e+00   1232 +0.00000e+00    1243 +0.00000e+00 C
TurbK    +3.69735e+00  52591 +5.68379e+02    1722 +1.14040e-05 cm^2/s^2
TurbD    +2.65969e+01   1561 +1.17376e+05  227885 +3.93534e-03 cm^2/s^3
```

d. **Kecepatan 1,057 m/s**

```
 Var       Mean           at      Max          at       Min
Vx Vel   -9.75262e+01  15052 +3.54092e+01   26929 -1.13428e+02 cm/s
Vy Vel   -1.78249e-02  32635 +4.21947e+01   27691 -4.35847e+01 cm/s
Vz Vel   -9.33008e-02  54848 +1.88288e+01   28540 -3.27078e+01 cm/s
Press    -4.92046e+01   1104 +4.24082e+03    1401 -1.00130e+03 dyne/cm^2
Temp     +0.00000e+00    906 +0.00000e+00     910 +0.00000e+00 C
TurbK    +1.32560e+01  25406 +3.95242e+02    1320 +1.14040e-05 cm^2/s^2
TurbD    +2.33172e+02  25324 +1.06681e+05   64836 +9.23481e-03 cm^2/s^3
```

e. **Kecepatan 1,139 m/s**

```
 Var       Mean           at      Max          at       Min
Vx Vel   -1.05187e+02  15052 +3.88958e+01   26929 -1.22425e+02 cm/s
Vy Vel   -1.93748e-02  32635 +4.55220e+01   27691 -4.69997e+01 cm/s
Vz Vel   -8.91046e-02  54848 +2.08218e+01   28540 -3.52942e+01 cm/s
Press    -5.79807e+01   1109 +4.92842e+03    1401 -1.17930e+03 dyne/cm^2
Temp     +0.00000e+00     31 +0.00000e+00     615 +0.00000e+00 C
TurbK    +1.52303e+01  25406 +4.67438e+02    1112 +1.14040e-05 cm^2/s^2
TurbD    +2.86987e+02   1159 +1.22508e+05   55276 +1.00092e-02 cm^2/s^3
```

f. Kecepatan 1,220 m/s

```
 Var       Mean            at       Max            at       Min
Vx Vel  -1.21020e+02   47260 +4.21603e+01   58723 -1.31516e+02 cm/s
Vy Vel  -9.43411e-04   64429 +4.94433e+01   59485 -4.94085e+01 cm/s
Vz Vel  -5.13945e-02  248895 +2.24440e+01   60340 -3.84050e+01 cm/s
Press   -6.25157e+00    1574 +5.53210e+03    1847 -1.33083e+03 dyne/cm^2
Temp    +2.69393e+01   51941 +3.73479e+01   56894 -2.68202e+01 C
TurbK   +5.52301e+00   57198 +7.08733e+02    1766 +1.14040e-05 cm^2/s^2
TurbD   +3.99637e+01    1605 +1.75765e+05  248644 +5.29392e-03 cm^2/s^3
```

g. Kecepatan 1,301 m/s

```
 Var       Mean            at       Max            at       Min
Vx Vel  -1.28465e+02   35423 +4.49708e+01   46900 -1.41616e+02 cm/s
Vy Vel  +5.17062e-04   52606 +5.01372e+01   47662 -5.20151e+01 cm/s
Vz Vel  -2.51781e-02  222254 +2.23882e+01   48517 -4.22020e+01 cm/s
Press   -1.51241e+01    1426 +6.18432e+03   35425 -1.54373e+03 dyne/cm^2
Temp    +0.00000e+00     881 +0.00000e+00      34 +0.00000e+00 C
TurbK   +5.90355e+00   45374 +7.44473e+02    1612 +1.14040e-05 cm^2/s^2
TurbD   +6.32639e+01   45373 +1.80397e+05   34191 +1.82173e-02 cm^2/s^3
```

h. Kecepatan 1,383 m/s

```
 Var       Mean            at       Max            at       Min
Vx Vel  -1.36607e+02   42602 +4.95602e+01   54111 -1.49545e+02 cm/s
Vy Vel  +4.49996e-03   59817 +5.27595e+01   54873 -5.64429e+01 cm/s
Vz Vel  -2.27398e-02  285404 +2.42997e+01   55728 -4.30981e+01 cm/s
Press   -1.68815e+01    1511 +7.10106e+03     104 -1.69381e+03 dyne/cm^2
Temp    +0.00000e+00    1232 +0.00000e+00    1243 +0.00000e+00 C
TurbK   +6.18823e+00   52585 +8.57941e+02    1722 +1.14040e-05 cm^2/s^2
TurbD   +6.96067e+01    1561 +2.08615e+05  228200 +2.07665e-02 cm^2/s^3
```

i. Kecepatan 1,464 m/s

```
 Var       Mean            at       Max            at       Min
Vx Vel  -1.35299e+02   15052 +5.09632e+01   26929 -1.58337e+02 cm/s
Vy Vel  +7.51843e-03   32635 +5.86778e+01   27691 -6.06335e+01 cm/s
Vz Vel  -1.17503e-01   54848 +2.69940e+01   28540 -4.55993e+01 cm/s
Press   -9.60061e+01    1128 +8.17798e+03    1401 -1.95359e+03 dyne/cm^2
Temp    +0.00000e+00      31 +0.00000e+00     615 +0.00000e+00 C
TurbK   +2.32421e+01   25406 +6.51434e+02      16 +1.14040e-05 cm^2/s^2
TurbD   +5.56907e+02    1159 +1.73711e+05      97 +2.76839e-03 cm^2/s^3
```

Lampiran 5 Hasil nilai perhitungan *wall calculator* tahanan model kapal di setiap variasi kecepatan menggunakan *software CFD (Computational Fluid Dynamic)*

a. **Kecepatan 0,813 m/s**

```
Summary
-------------------
Total area, 13186.3, cm^2
TOTAL FX, -1.56276, Newton
TOTAL FY, -0.116486, Newton
TOTAL FZ, -8.53795, Newton
Center of Force about X-Axis (Y-Z), -8335.3, -11041, cm
Center of Force about Y-Axis (X-Z), 15274.7, -11039.5, cm
Center of Force about Z-Axis (X-Y), 15245.5, -8335.56, cm
```

b. **Kecepatan 0,895 m/s**

```
Summary
------------------
Total area, 13186.3, cm^2
TOTAL FX, -1.80305, Newton
TOTAL FY, -0.072729, Newton
TOTAL FZ, -10.311, Newton
Center of Force about X-Axis (Y-Z), -8335.56, -11041, cm
Center of Force about Y-Axis (X-Z), 15236, -11041.4, cm
Center of Force about Z-Axis (X-Y), 15244.9, -8335.5, cm
```

c. **Kecepatan 0,976 m/s**

```
Summary
-------------------
Total area, 13186.3, cm^2
TOTAL FX, -2.0809, Newton
TOTAL FY, -0.0157407, Newton
TOTAL FZ, -12.3232, Newton
Center of Force about X-Axis (Y-Z), -8335.71, -11041, cm
Center of Force about Y-Axis (X-Z), 14866.1, -11044.7, cm
Center of Force about Z-Axis (X-Y), 15245.3, -8335.46, cm
```

d. Kecepatan 1,057 m/s

```
Summary
-------------------
Total area, 13168.2, cm^2
TOTAL FX, -2.45336, Newton
TOTAL FY, 0.0341124, Newton
TOTAL FZ, -14.3794, Newton
Center of Force about X-Axis (Y-Z), -8335.41, -11041.1, cm
Center of Force about Y-Axis (X-Z), 15102, -11043.4, cm
Center of Force about Z-Axis (X-Y), 15244.3, -8335.44, cm
```

e. Kecepatan 1,139 m/s

```
Summary
-------------------
Total area, 13168.2, cm^2
TOTAL FX, -2.81138, Newton
TOTAL FY, 0.0875541, Newton
TOTAL FZ, -16.7129, Newton
Center of Force about X-Axis (Y-Z), -8335.49, -11041.1, cm
Center of Force about Y-Axis (X-Z), 15201.9, -11040.8, cm
Center of Force about Z-Axis (X-Y), 15244.5, -8335.43, cm
```

f. Kecepatan 1,220 m/s

```
Summary
-------------------
Total area, 13186.3, cm^2
TOTAL FX, -3.17713, Newton
TOTAL FY, 0.0125398, Newton
TOTAL FZ, -19.4284, Newton
Center of Force about X-Axis (Y-Z), -8335.71, -11041, cm
Center of Force about Y-Axis (X-Z), 16433.2, -11025.9, cm
Center of Force about Z-Axis (X-Y), 15246.2, -8335.47, cm
```

g. Kecepatan 1,301 m/s

```
Summary
-------------------
Total area, 13186.3, cm^2
TOTAL FX, -3.79748, Newton
TOTAL FY, -0.236724, Newton
TOTAL FZ, -22.0421, Newton
Center of Force about X-Axis (Y-Z), -8335.42, -11041, cm
Center of Force about Y-Axis (X-Z), 15265.2, -11040.8, cm
Center of Force about Z-Axis (X-Y), 15245.5, -8335.56, cm
```

h. Kecepatan 1,383 m/s

```
Summary
-------------------
Total area, 13186.3, cm^2
TOTAL FX, -4.48367, Newton
TOTAL FY, -0.121817, Newton
TOTAL FZ, -24.0411, Newton
Center of Force about X-Axis (Y-Z), -8335.45, -11041, cm
Center of Force about Y-Axis (X-Z), 15258.5, -11039.8, cm
Center of Force about Z-Axis (X-Y), 15243.2, -8335.49, cm
```
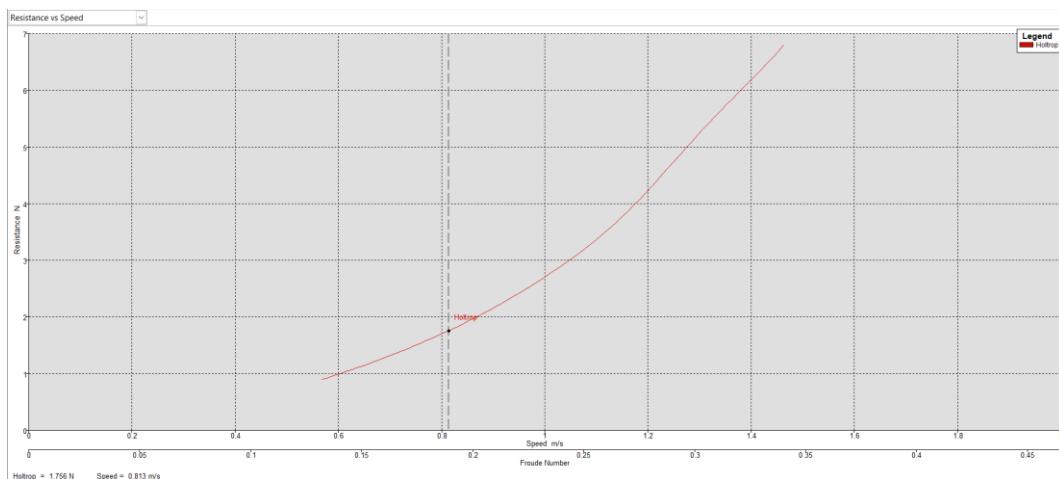
i. Kecepatan 1,464 m/s
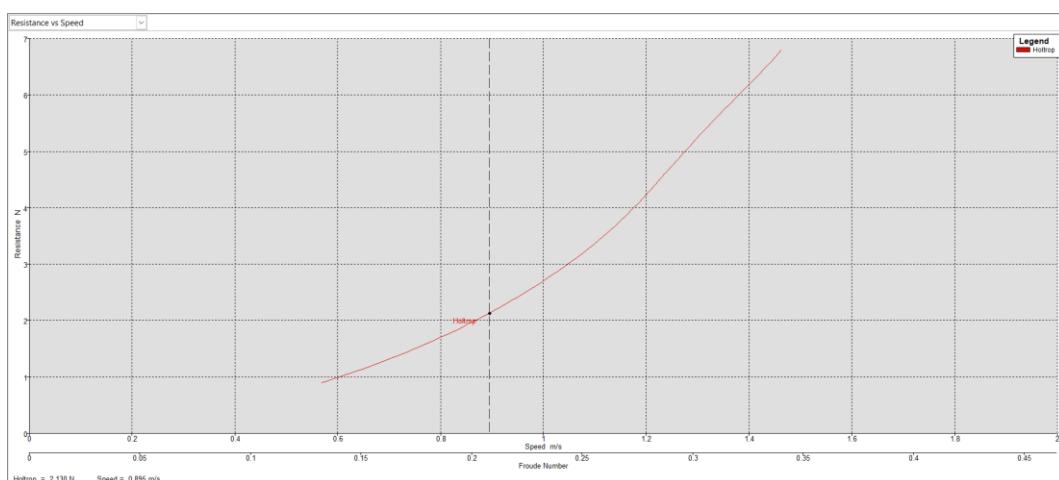
```
Summary
-------------------
Total area, 13186.3, cm^2
TOTAL FX, -5.24849, Newton
TOTAL FY, -0.270132, Newton
TOTAL FZ, -27.8918, Newton
Center of Force about X-Axis (Y-Z), -8335.37, -11041, cm
Center of Force about Y-Axis (X-Z), 15282.2, -11039.4, cm
Center of Force about Z-Axis (X-Y), 15242.7, -8335.51, cm
```

Lampiran 6 Hasil nilai perhitungan *wall calculator* tahanan model kapal di setiap variasi kecepatan menggunakan *software Maxsurf*.
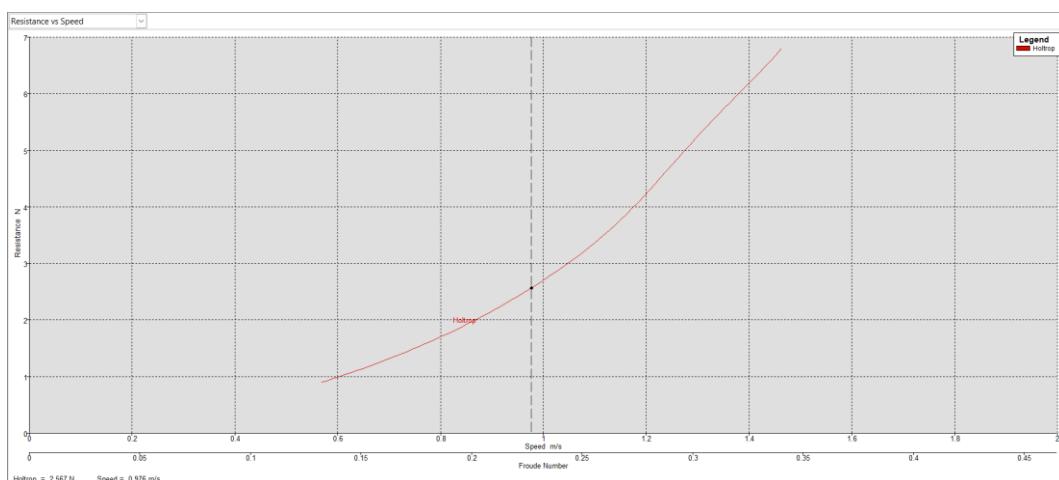
a. **Kecepatan 0,813 m/s**
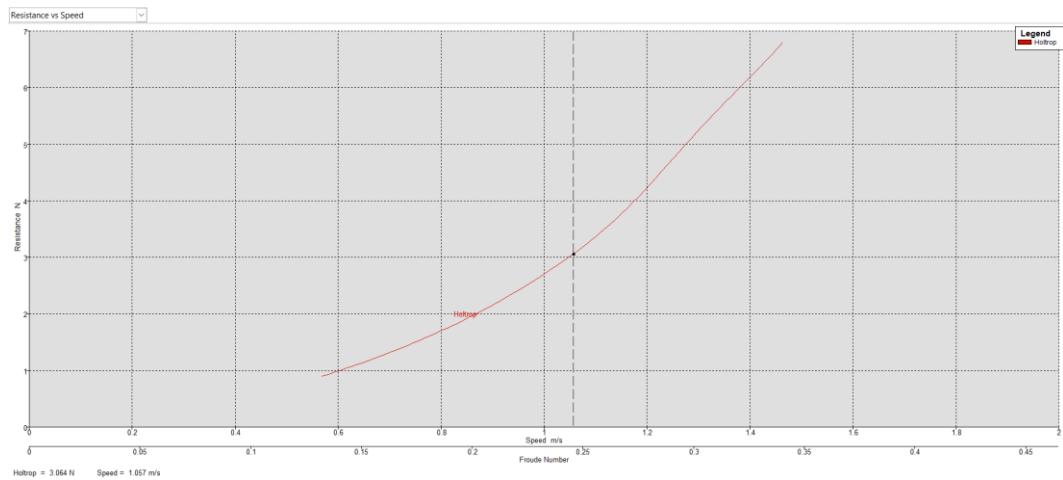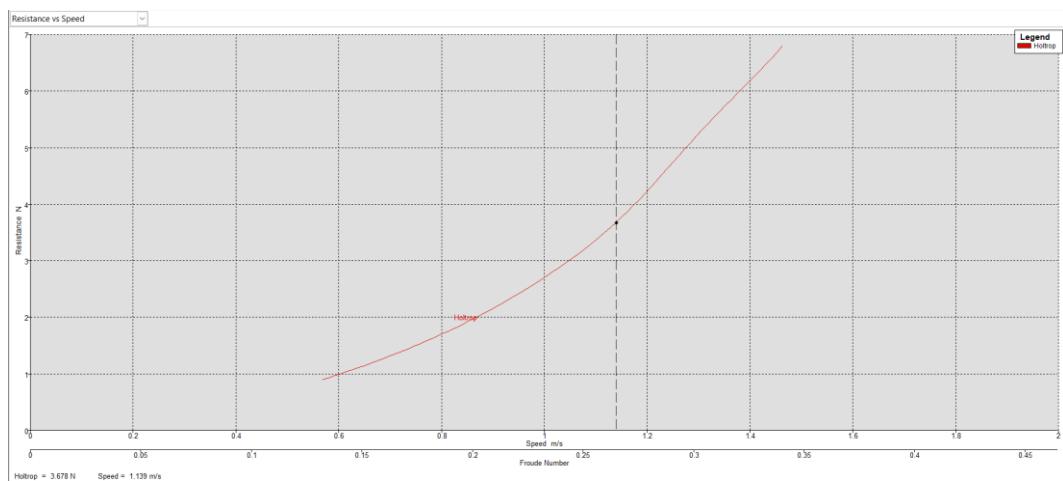
b. **Kecepatan 0,895 m/s**

c. **Kecepatan 0,976 m/s**
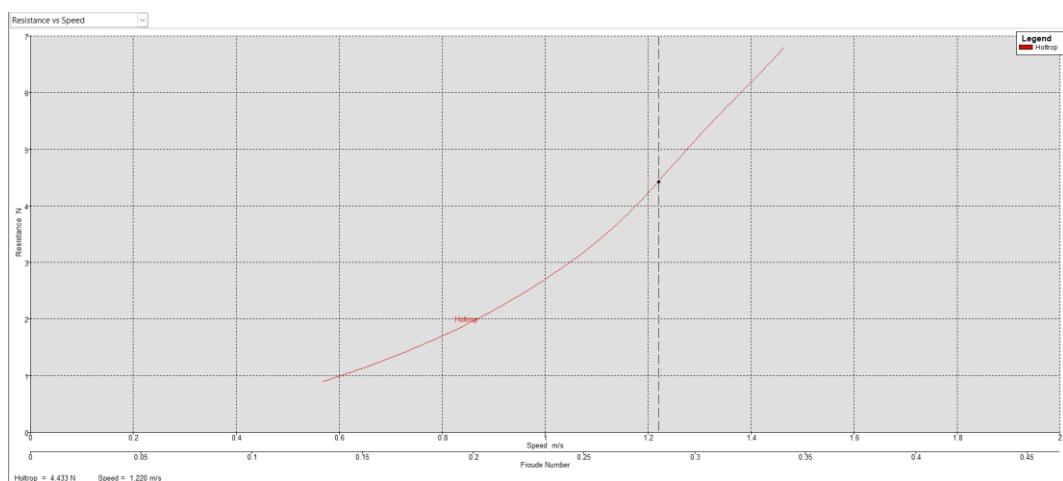
**d. Kecepatan 1,057 m/s**
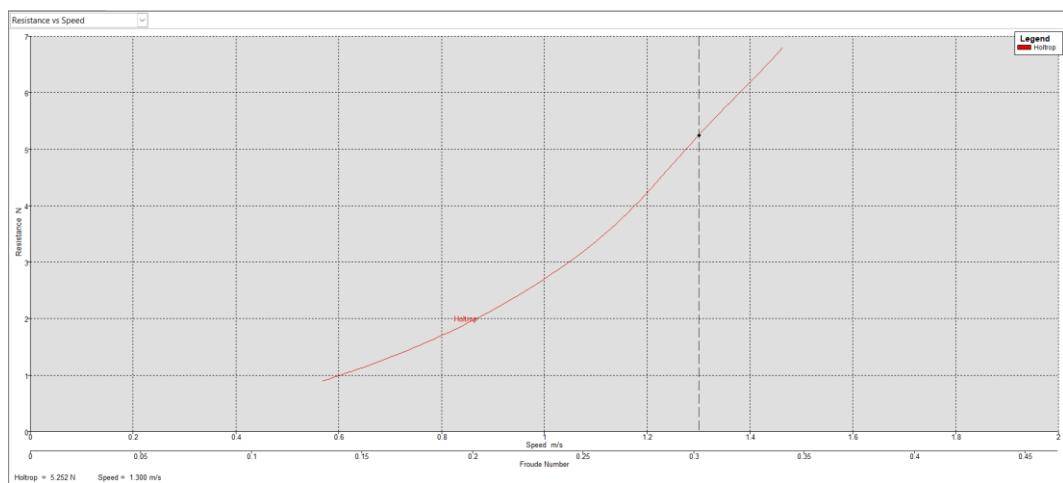
e. Kecepatan 1,139 m/s
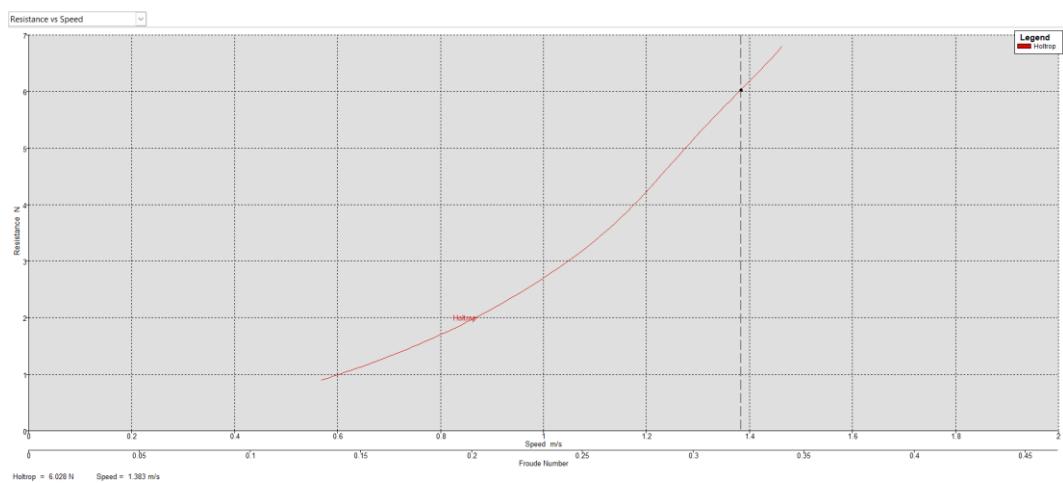
f. Kecepatan 1,220 m/s
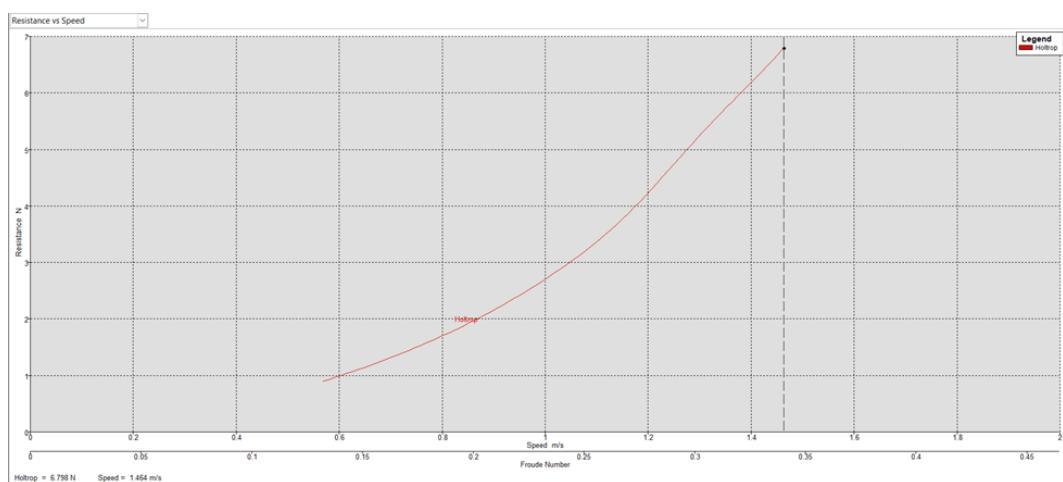
g. Kecepatan 1,300 m/s

h. Kecepatan 1,383 m/s

i. Kecepatan 1,464 m/s

Lampiran 7 Hasil nilai perhitungan *wall calculator* tahanan model kapal di setiap variasi kecepatan diubah menjadi tahanan kapal sesungguhnya

a. Kecepatan 10 knot

$$R_{TS} = R_{TM} * \lambda^3$$

$$= 1,563 \text{ x } 40^3$$

$$= 1,563 \text{ x } 64000$$

$$= 100032 \text{ N}$$

$$= 100,032 \text{ KN}$$

b. Kecepatan 11 knot

$$R_{TS} = R_{TM} * \lambda^3$$

$$= 1,803 \text{ x } 40^3$$

$$= 1,803 \text{ x } 64000$$

$$= 115392 \text{ N}$$

$$= 115,392 \text{KN}$$

c. Kecepatan 12 knot

$$R_{TS} = R_{TM} * \lambda^3$$

$$= 2,081 \text{ x } 40^3$$

$$= 2,081 \text{ x } 64000$$

$$= 133184 \text{ N}$$

$$= 133,184 \text{ KN}$$

d. Kecepatan 13 knot

$$R_{TS} = R_{TM} * \lambda^3$$

$$= 2,453 \text{ x } 40^3$$

$$= 2,453 \text{ x } 64000$$

$$= 156992 \text{ N}$$

$$= 156{,}992 \text{ KN}$$

e. **Kecepatan 14 knot**

$$R_{TS} = R_{TM} * \lambda^3$$

$$= 2{,}811 \times 40^3$$

$$= 2{,}811 \times 64000$$

$$= 179904 \text{ N}$$

$$= 179{,}904 \text{ KN}$$

f. **Kecepatan 15 knot**

$$R_{TS} = R_{TM} * \lambda^3$$

$$= 3{,}177 \times 40^3$$

$$= 3{,}713 \times 64000$$

$$= 203328 \text{ N}$$

$$= 203{,}328 \text{ KN}$$

g. **Kecepatan 16 knot**

$$R_{TS} = R_{TM} * \lambda^3$$

$$= 3{,}797 \times 40^3$$

$$= 3{,}797 \times 64000$$

$$= 243008 \text{ N}$$

$$= 243{,}008 \text{ KN}$$

h. **Kecepatan 17 knot**

$$R_{TS} = R_{TM} * \lambda^3$$

$$= 4{,}484 \times 40^3$$

$$= 4{,}484 \times 64000$$

$$= 286976 \text{ N}$$

$= 286{,}976$ KN

i. **Kecepatan 18 knot**

$R_{TS} = R_{TM} * \lambda^3$

$= 5{,}248 \times 40^3$
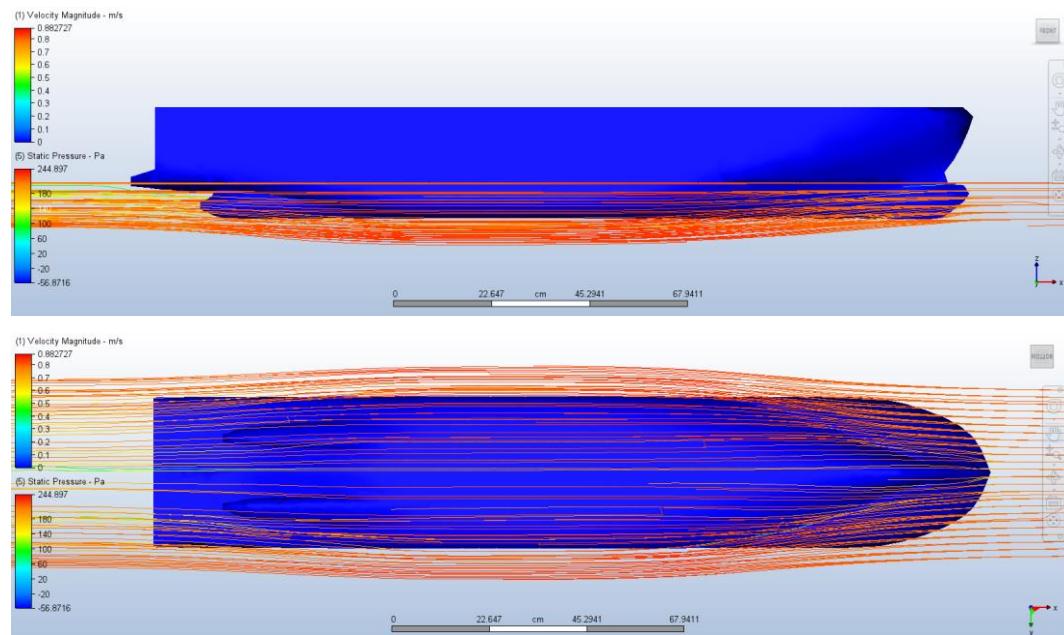
$= 5{,}248 \times 64000$

$= 335872$ N
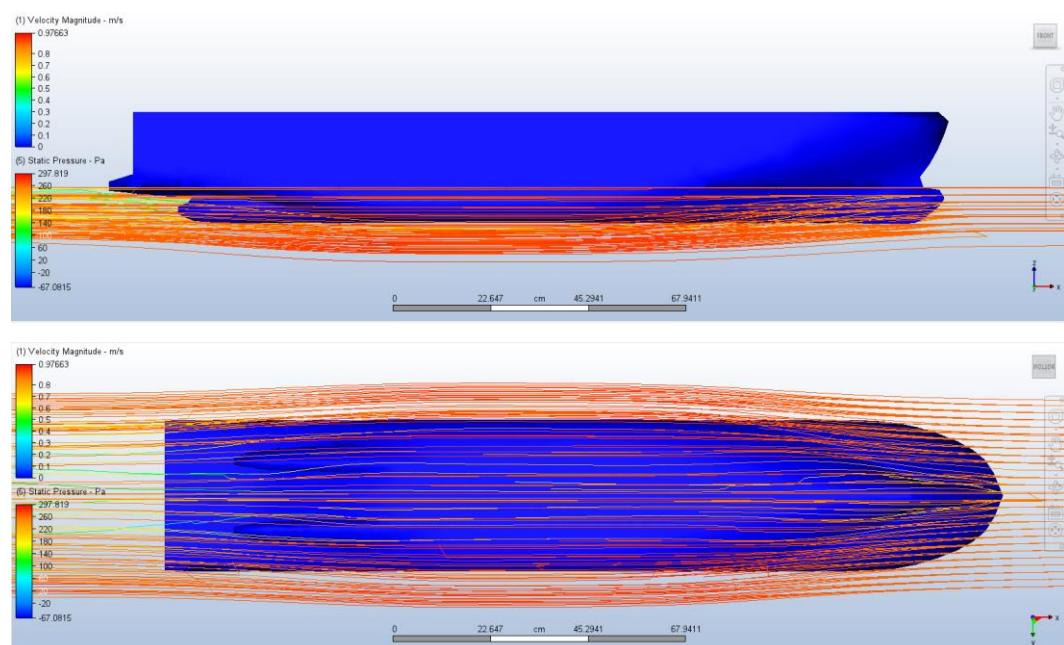
$= 335{,}872$ KN

Lampiran 8 Visualisasi pola aliran fluida pada setiap variasi kecepatan menggunakan *software* CFD *(Computational Fluid Dynamic)*
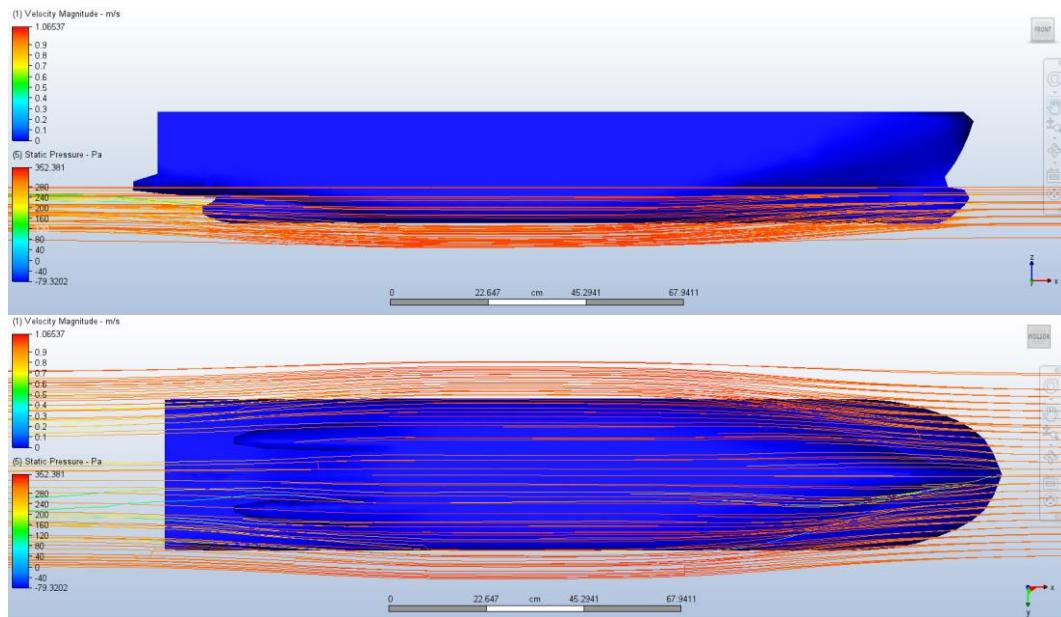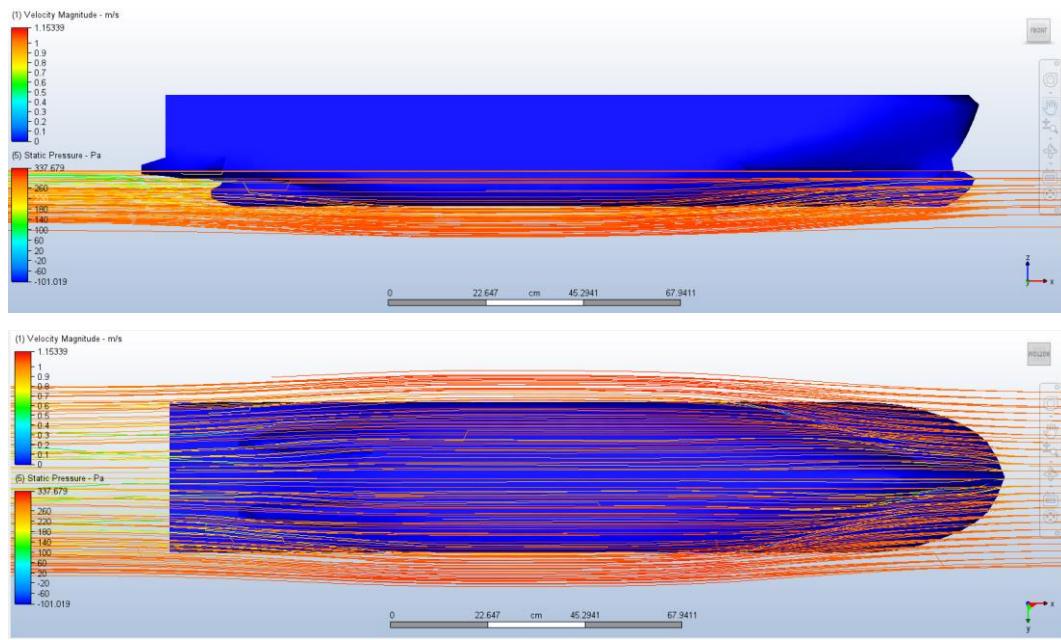
a. Kecepatan 0,813 m/s

b. Kecepatan 0,895 m/s
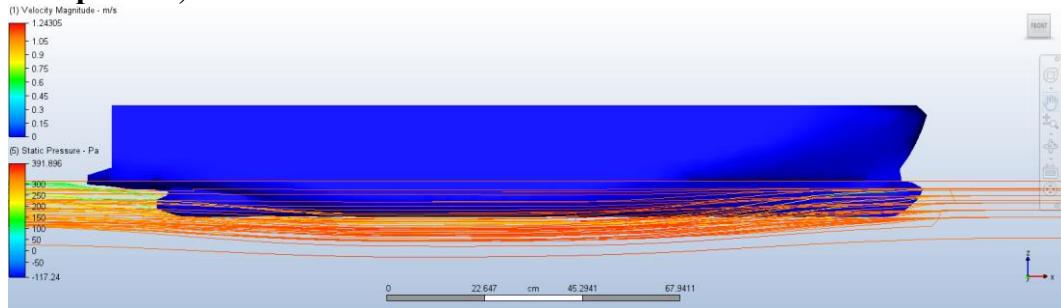
c. **Kecepatan 0,976 m/s**
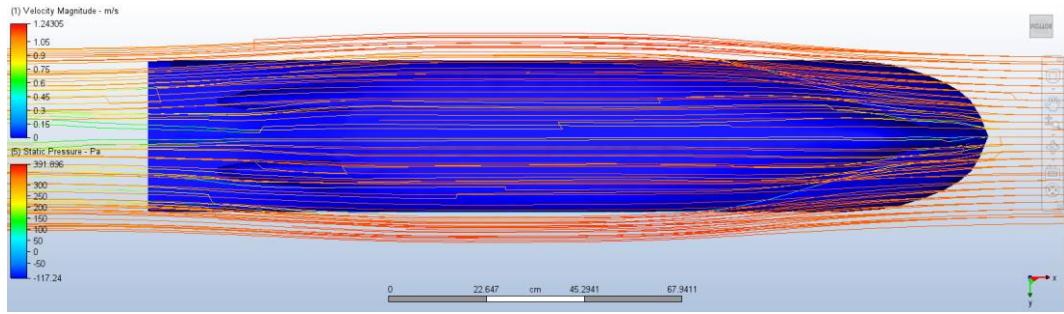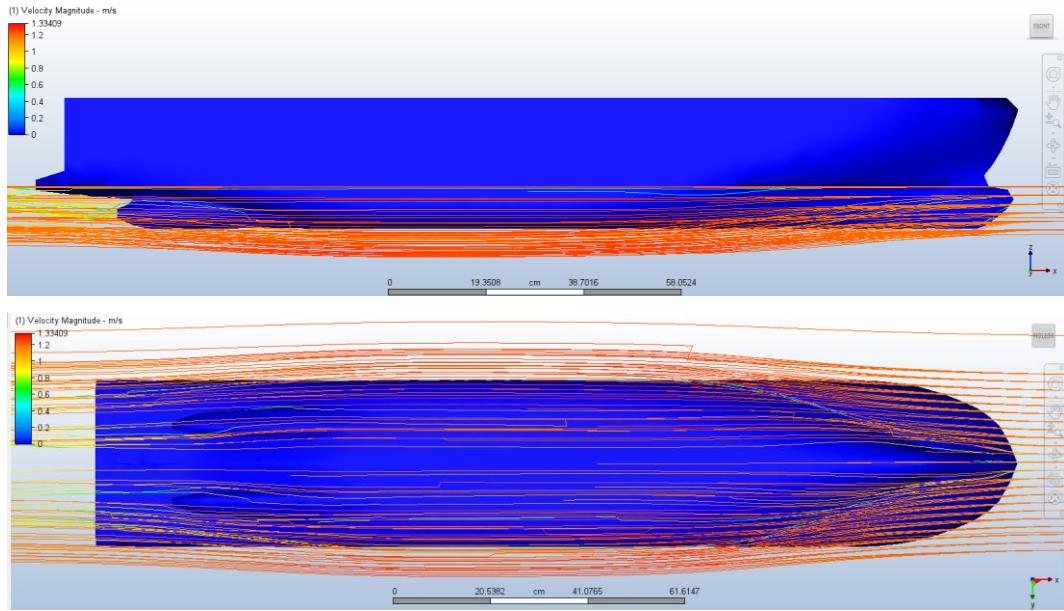

d. **Kecepatan 1,057 m/s**

e. **Kecepatan 1,139 m/s**
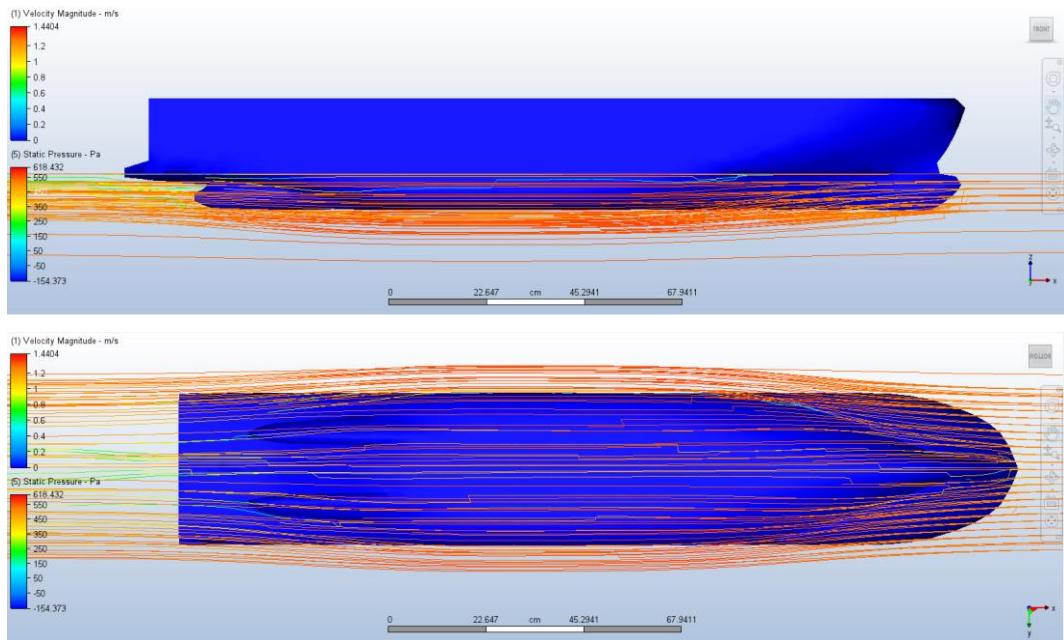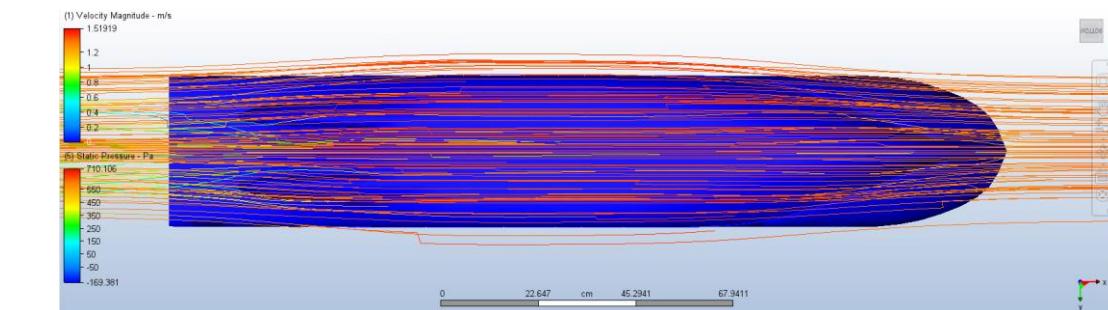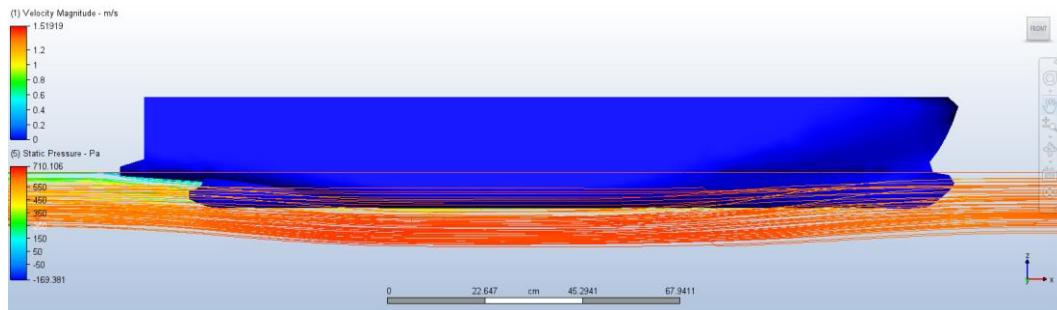
f. Kecepatan 1,220 m/s
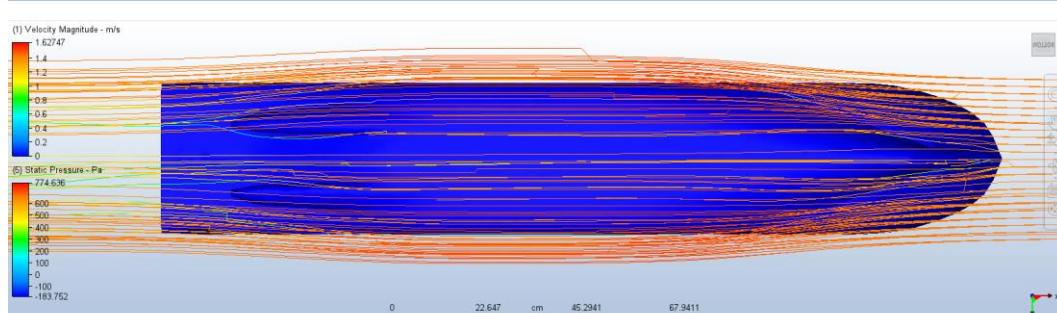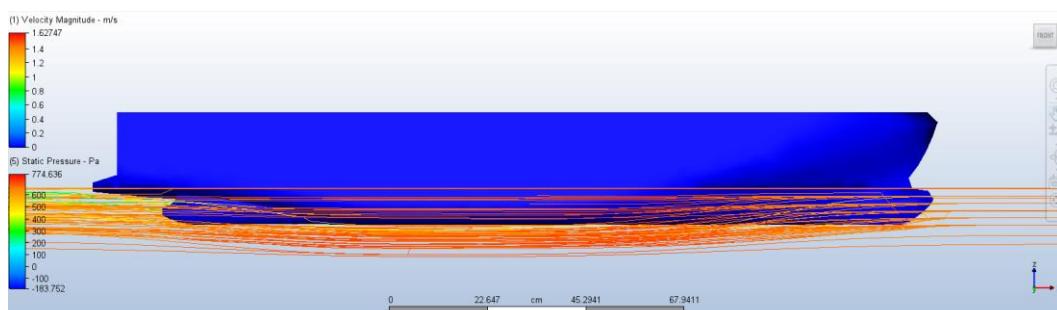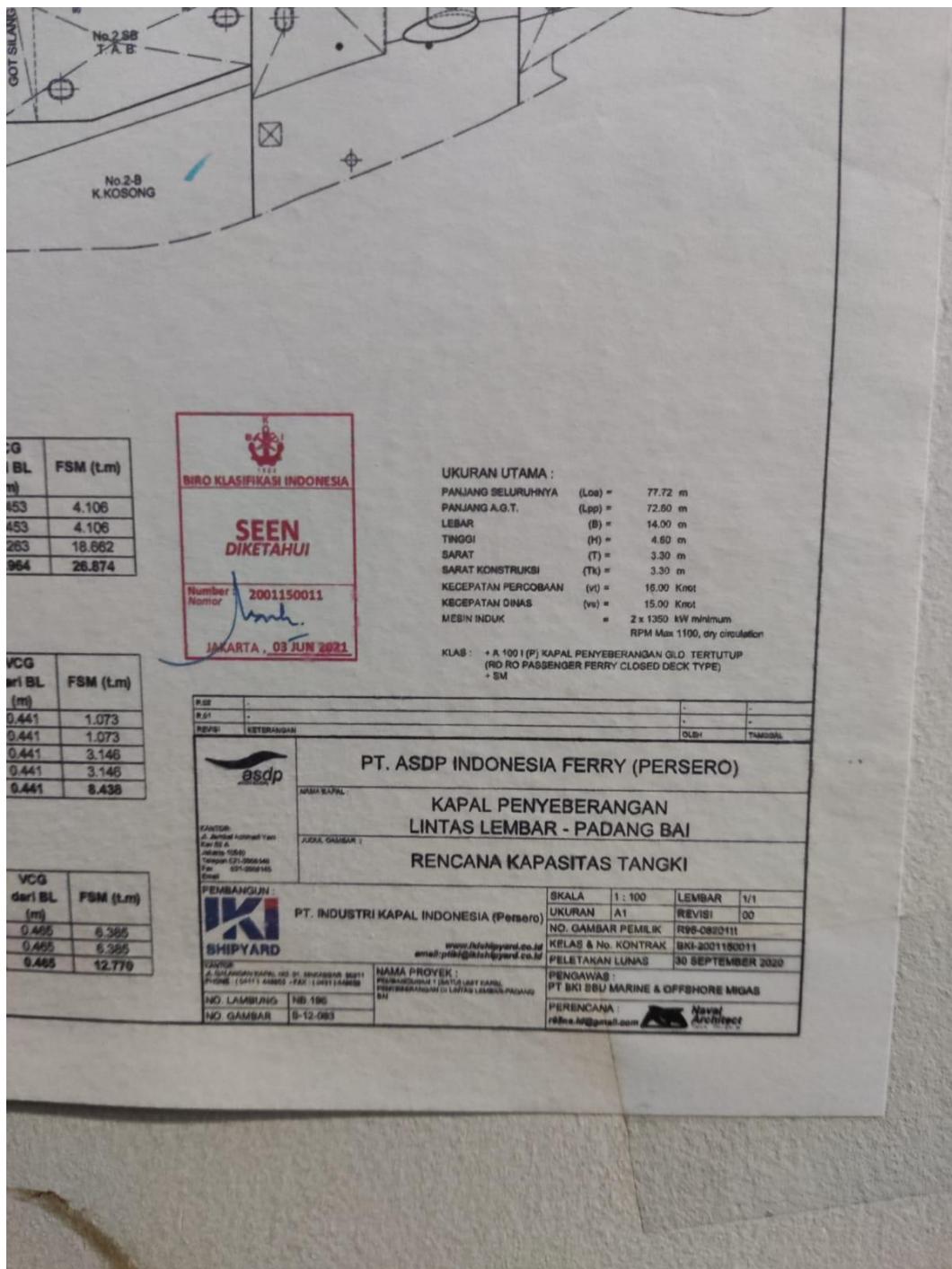
g. Kecepatan 1,301 m/s

h. Kecepatan 1,383 m/s

i. Kecepatan 1,464 m/s

Lampiran 9 Data Ukuran Utama Kapal ferry Roro Lintas Lembar Padang-Bai

Sumber: PT. Industri Kapal Indonesia

Lampiran 10 Data hasil perhitungan nilai tahanan kapal yang dilakukan Laboratorium Hidrodinamika Indonesia (LHI)

BPPT **IHL**

Tabel 8. Hasil ekstrapolasi hambatan kapal sarat 3.30 m

RESULTS OF RESISTANCE EXTRAPOLATION

```
RESISTANCE TEST KAPAL FERRY RORO 1500 GT DRAUGHT FWD    3.30  m
SHIP MODEL NO. LHI-0258                     DRAUGHT AFT    3.30  m
```

VS	VM	RM	CTM	CFM	CRES	CFS	CTS	FD	RS	PE	CE
KNOTS	M/S	N	5	5	5	5	5	N	KN	KW	
			*10	*10	*10	*10	*10				
10	1.23	14.88	492	326	56	169	339	4.63	57	292	430
11	1.35	18.19	497	320	68	167	349	5.43	71	400	418
12	1.47	21.84	501	315	79	165	357	6.29	86	532	408
13	1.60	26.19	512	311	96	163	372	7.19	105	704	392
14	1.72	32.42	547	307	136	162	410	8.14	135	969	356
15	1.84	41.34	607	303	201	160	473	9.14	178	1377	308
16	1.97	51.16	661	300	259	159	529	10.18	227	1869	275
17	2.09	60.06	687	296	290	158	558	11.27	270	2364	261
18	2.210	68.33	697	294	304	157	571	12.40	310	2869	255

```
NOTES: - FOR EXPLANATION OF ABBREVIATIONS SEE LIST OF SYMBOLS
       - THE RESULTS ABOVE WERE OBTAINED BY MEANS OF THE ITTC-1957
         FORMULA
         WITH A FORM FACTOR OF 1+K= 1.340
         AND A MODEL-SHIP CORRELATION ALLOWANCE OF CA=  .00057
         FOR A WETTED AREA OF S= 4.012 M2 (SHIP VALUE=  1235.7 M2)
         AND A LENGTH ON THE WATERLINE LWL= 4.365 M
         (SHIP L=  76.60 M)
         FOR A TANK WATER TEMPERATURE OF 27.3 DEGREES C
                     2/3   3
       - CE=0.7477*DISV*VS/PE IN UNITS AS ABOVE AND DISV= 2179.2 M3

       - THE RESULTS ARE FOR TRIAL CONDITIONS, IMPLYING
         UNRESTRICTED DEEP WATER OF 30 DEGREES C. AND A MASS
         DENSITY OF 1025.0 KG/M3, A CLEAN HULL
```

Sumber: Laboratorium Hidrodinamika Indonesia