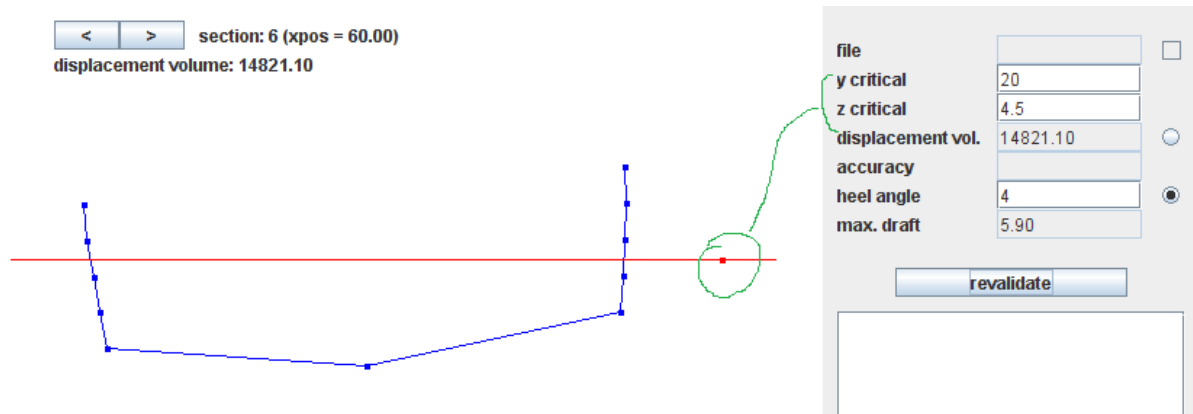


# Manual *HeelMe* v0809

This manual is under construction, please contact [maritiem@ugent.be](mailto:maritiem@ugent.be) for more information.

## Introduction

*HeelMe* is a tool that allows calculating heel angles or displacement volumes of specific configurations. It either calculates the displacement volume of a vessel rotated around a position (y,z) at a specified heel angle or the heel angle at which the critical point becomes, for a specified displacement volume, submerged. Two versions of the program are available: an applet and a stand-alone application.



## Input files

For the calculations, a geometry description is needed which can be pasted in the “ship geometry” popup of the program. In case of the application, the address of the geometry file can alternatively be given either as a relative or absolute file name. This option is not available in the applet due to security restrictions of online applications.

Two input files can be used:

### DelftShip offsets files

DelftShip 3.20 ([www.DelftShip.net](http://www.DelftShip.net)) can export a table of offsets which is a valid file format for *HeelMe*.

Example of a valid table of offsets:

```
7 // Number of waterlines
47 // Number of stations
1 // Read decline
1 // Read contour
1 // Read aft contour
1 // Read forward contour
0 // Read flat of bottom
11.050 // Length
3.529 // Beam
0.541 // Draft
0.211 0.423 0.634 0.845 1.057 1.268 1.480
2.742 1.247 0.004 0.904 1.043 1.260 0.000
0.250 0.000 0.000 0.598 0.000 0.000 0.000 0.000 0.796 0.000 0.588
0.500 0.000 0.000 0.754 1.002 0.000 0.000 0.000 0.800 0.000 0.546
...
11.250 0.000 0.013 0.105 0.170 0.222 0.271 0.318 1.636 0.354 0.398
11.500 0.000 0.000 0.000 0.059 0.115 0.162 0.209 1.655 0.247 0.715
11.750 0.000 0.000 0.000 0.000 0.000 0.000 0.074 1.675 0.124 1.360
10.817 11.282 11.458 11.556 11.637 11.716 11.794
```

## HeelMe input files

A *HeelMe* input file starts with a comment line (the line starts with a hash key “#”) that must contain the String “*HeelMe*” to be valid. The file consists of coordinates for different stations. A line that contains only one number is interpreted as the longitudinal position of a station. A line with two numbers is a transversal and vertical point of the previous longitudinal position. The number of stations and the number of points on one station is unlimited.

Example of a valid *HeelMe* input file:

```
# HeelMe
-10
-2.5 5
...
2.5 5
0
-2.5 5
...
2.5 5
10
-2.5 5
...
2.5 5
```

## Critical point

The coordinates that the ship is rotated around should be given at the *y critical* (lateral) and *z critical* (vertical) input box.

## Max. draft and heel angle?

When a displacement volume (in m<sup>3</sup>) and accuracy (in % of the displacement) are given, *HeelMe* calculates the corresponding heel angle and maximum draft within the give accuracy. Remark that non-realistic but mathematically correct solutions can be given by the program. If no accuracy is specified, the program assumes 1% of the displacement volume as accuracy.

## Max. draft and displacement?

When a heel angle (°) is given, *HeelMe* calculates the corresponding displacement and maximum draft.

## Program Execution

To start calculations, press the “revalidate” button. The results are calculated, displayed in the text fields and visualized on the left side of the program window. In case of calculation of heel angles, possible solutions are displayed in the list below the button and the first solution is visualized. To choose another heel angle, click through the available values of the list.

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