

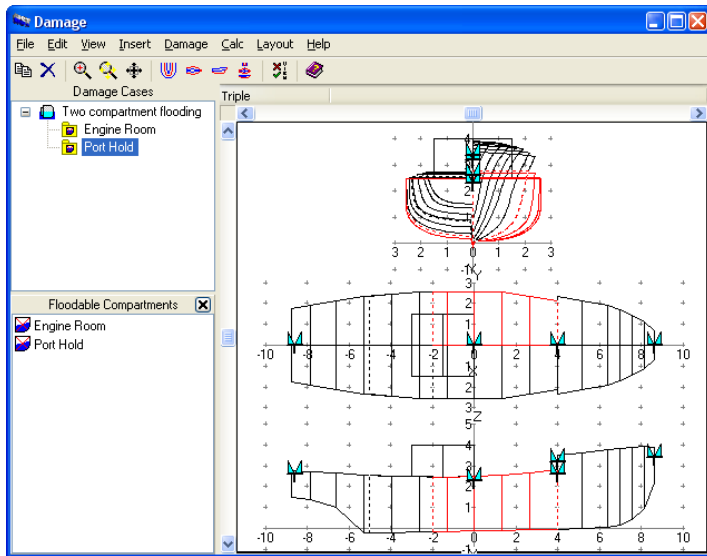


HST Damage is an additional module to HST, the Wolfson Unit's hydrostatics, stability and tank capacities program. HST Damage calculates damage stability, damage maximum KG and floodable lengths. The module uses the hull definition directly from HST.

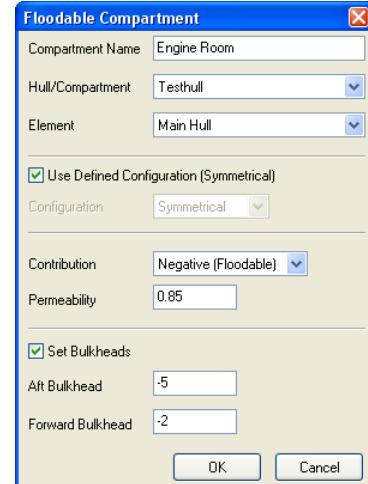
DAMAGE STABILITY

The Damage Stability Program is used to calculate the 360-degree stability of vessels in which various regions are defined to be flooded.

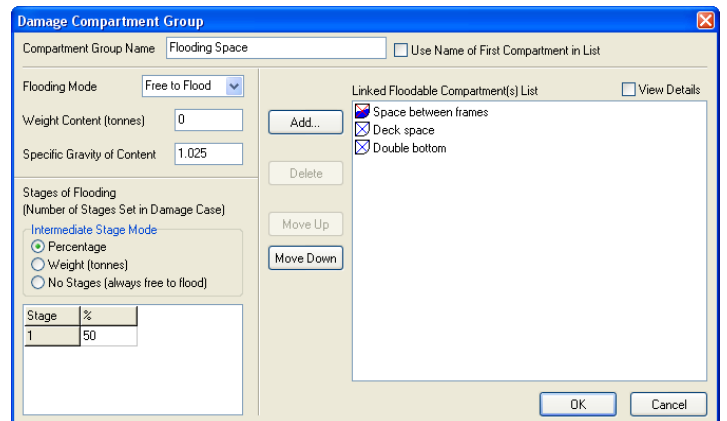
A damage case is used to define the flooded areas of the vessel, the range of displacement conditions, the downflooding points and any intermediate stages of flooding. A graphic display is available to indicate the arrangement of compartments in each case.



A flooded region may either be defined between plane bulkheads within the existing hull definition of the vessel, or as a separate hull definition enabling any shape to be accommodated. Within each compartment, the space may be specified to be free flooding, i.e. its internal waterline is level with the sea, or to be partially filled with a fixed volume of fluid with a known specific gravity. Individual compartments may be linked together to have a common waterline, thus allowing complex flooding patterns to be modelled.



The floodable compartment areas are available for selection in any damage case but do not have to exist in all damage cases. The list of compartments for any one particular case are set as a damage compartment group. A compartment group is created by selecting an individual floodable compartment or a number of floodable compartments that are physically linked. A compartment group is described by its type of flooding, initial weight content and its specific gravity and any intermediate stages of flooding.



In addition to the areas of flooding a set of displacement conditions are selected for use with the particular damage case. Downflooding points may also be set, and data for their angle of immersion, and their freeboard at equilibrium, obtained.

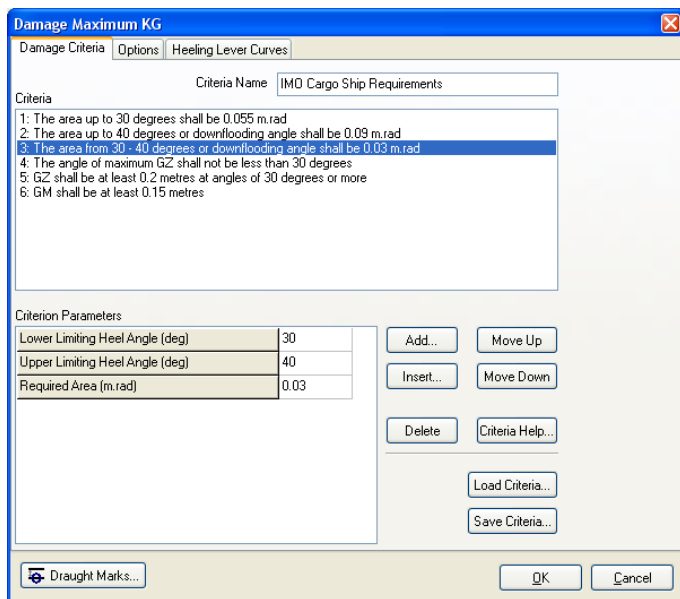
Another useful calculation is in the case of vessels with liquid cargo in slack tanks. Since the calculation accurately represents the loss of buoyancy and waterplane area at each draught, trim, and heel, the tanks may be filled with the appropriate cargo volume and the effect of the movement of cargo correctly modelled, rather than taken as a correction to an intact stability curve.

The results may be plotted in the program or using the Wolfson General Plotting Program, GoPlot.

DAMAGE MAXIMUM KG

The Maximum KG part of the module performs a number of tasks primarily related to matching calculated damage stability curves with a variety of stability criteria. These are as follows: maximum allowable KG, wind heeling, turning moments, passenger crowding, general heeling limits, and GZ curve summaries.

The program calculates GZ curves utilizing a set of stability criteria. A number of data files of IMO stability criteria are provided with the program, covering general cargo and passenger vessels, offshore supply vessels, timber vessels, pontoons, and fishing craft. However, the program enables additional sets of criteria to be constructed to suit local requirements. A typical set of criteria for cargo vessels would be:-

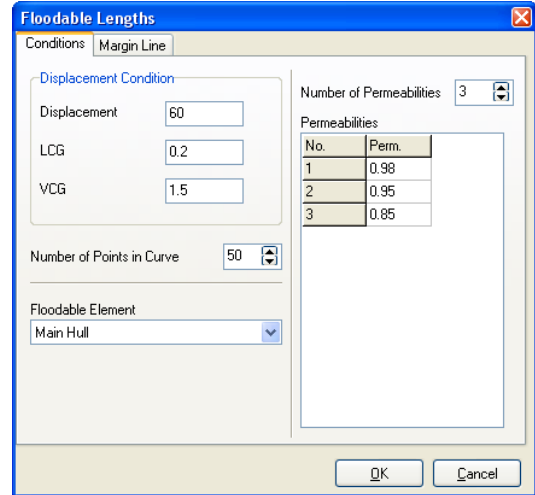


The maximum allowable KG routine will match a given displacement condition to the criteria, and calculate the allowable KG and deadweight moments.

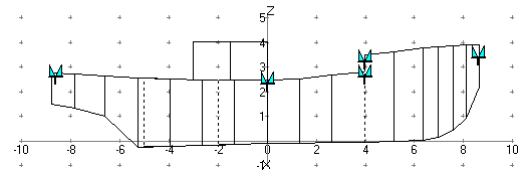
The program can also present a summary of the GZ curve suitable for inclusion in stability information booklets, calculate IMO wind heeling data and perform passenger crowding, and turning moment calculations.

FLOODABLE LENGTHS

The Floodable Lengths part of the module examines the effects of single compartment flooding, and the addition of deadweight, in the upright condition.



The program accepts input relating to the vessel's margin line. This may be checked against the profile graphically.



The size of compartment which will sink the vessel until its waterline is a tangent to the margin line is then calculated at a number of positions along the ship's length. For each longitudinal position of compartment centre, the compartment length, draught, trim, and initial stability are calculated. Results may be obtained for several compartment permeabilities per run.

HELP SYSTEM

The program comes with a full manual and online help system describing the module calculation processes and systems. The Help system includes comprehensive definitions of the stability criteria and a comprehensive tutorial on the loading conditions definition. Included is a full glossary of terms showing the derivation of calculated data.

HST DAMAGE MODULE PRICE INFORMATION

Windows XP/Vista/7 32-bit and 64-bit:

please see www.wolfsonunit.com/pricelist.html

Second copies available at 65%, subsequent copies at 50% of price.

Educational discount of 33% on total price.

Price includes full support.