命令模式

GHs D-Spec [/FSM | /TRUEFSM] [/KM] [/GMRA] [/NOWARN]

Computes and displays hydrostatic properties at one or more drafts using the current trim, VCG, damage condition and wave.

在当前纵倾，重心高度，破损工况和波浪条件下，计算并显示一个或多个吃水的静水力。

参数说明

D-Spec may take one of the following forms:
[DRaft [@ location] =] [d1, ..., dn]
or
DIspl = w1, ..., wn
DRAFT @ location =

Specifies the longitudinal location at which the drafts are taken. Drafts are in the centerplane, perpendicular to the baseline. LCF may be used in lieu of a location value, causing the program to refer drafts to the Longitudinal Center of Flotation. If the DRAFT@ parameter is omitted, DRAFT @ LCF is assumed.

指定读取吃水的纵向位置。吃水为船中纵剖面上的吃水，并垂直于基线。可以用 LCF 来代替纵向位置，来使得程序参考漂心的纵向位置。如果省略 DRAFT@ parameter，那么将默认为 DRAFT @ LCF。

d1, ..., dn

A list of drafts. If none are given, the current draft is assumed. When given in foot units and inches are included (e.g. 3'00, 3'01 ... 6) the drafts are displayed in ft'inch format.

一系列的吃水。如果省略吃水，那么默认为当前工况吃水。如果吃水用单位英尺给出且包含英寸时（例如：3'00, 3'01 ... 6），那么输出的吃水以 ft'inch 的形式显示。

w1, ..., wn

A list of displacement weights. These indirectly determine draft(s) at the current trim angle.

一系列的排水量，排水量间接地设定了当前纵倾下的吃水。

/FSM

Applies only to the current draft (i.e. when no drafts are given). Replaces the true free surface moment with formal values as specified by the FSMMT command. This is the default mode; i.e. /FSM is implied even if not given unless /TRUEFSM is given.

只适用于当前的吃水（即不指定吃水），用命令 FSMMT 中设置的正式的自由液面力矩替代真实的自由液面力矩。此为默认模式，即为即使不加子参数/FSM，这个子参数也会起作用，除非使用了子参数/TRUEFSM。

/TRUEFSM

Prevents formal FSM values from being used and causes true free surface moments to be used.

使用真实的自由液面力矩，而不使用正式的自由液面力矩。

/KM

Forces KM to be reported instead of GM. Normally GM is shown when current draft is used.

在报告中显示 KM 值，而不显示 GM 值。一般当计算当前吃水时，会显示 GM 值。

/GMRA

Requests that the righting-arm curve be used for obtaining the GMT value. If not in equilibrium or not in "current-waterplane-and-GM" mode, this parameter has no effect.

利用复原力臂曲线来获得 GMT 值，如果不在平衡状态或不在 current-waterplane-and-GM 模式，则这个子参数不起作用。

/NOWARN

Omits the caution normally displayed when GM obtained from the righting-arm curve exceeds significantly the standard waterplane GM.

忽略警告，通常当从复原力臂曲线获得的 GM 值明显大于标准的从水线面获得的 GM 值时显示警告。

Notes:

注意：

See the HS command for a more basic version of hydrostatic properties.

参看 HS 命令了解更多基础的静水力值输出。

See the COMPONENT command for coefficients of form and volumes.

参看 COMPONENT 命令了解船形系数和体积输出。

Operation

操作

The GHS command operates in three distinct modes:

GHS 命令有三种不同模式：

1）Current-waterplane-and-GM mode. The absence of draft values together with the absence of the /KM parameter triggers this mode. The heel may be any angle up to 45?port or starboard. GM values are shown rather than KM.

1）Current-waterplan-and-GM 模式：缺少吃水数值和/KM 子参数时触发此模式，横倾角度可以最多为左右横倾 0 到 45 度。显示 GM 值而非 KM 值。

Either the formal or true free surface is reflected in the GM and moment-to-trim values (depending on whether the /TRUEFSM parameter is present). If DRAFT @ location is given (without any draft values following) it determines the location at which the drafts are shown on the output. The total-weight VCG is used for the moment-to-trim and for the GM values. If the /GMRA parameter is present, transverse GM is obtained

by looking at the righting arms at small heel increments and decrements relative to the current heel angle. If the AXIS rotation is not zero, GMT is replaced by GMA (GM about the current axis) which is derived from righting arms; also GML and moment to trim are omitted.

GM 值和纵向力矩考虑正式的或真正的自由液面（取决于是否出现了/TRUEFSM 参数）。如果给定 DRAFT @ location（不给任何的吃水数值），它决定显示吃水的位置。总 VCG 将用于计算纵向力矩和 GM 值。如果出现参数/GMRA，横向的 GM 值将通过比较当前横倾角小角度的增加和减小后的复原力臂来求得。如果是非 0 转轴，则用从复原力臂获得的相对于当前轴的 GMA 值来代替横向的 GM 值，同时纵向的 GML 和纵倾力矩会被缺省。

2) Specified-draft-and-KM mode. The presence of draft values or the presence of the /KM parameter triggers this mode. The heel is forced to zero, KM values are shown rather than GM, free surface is not included and deflection is ignored. The VCG used for the moment-to-trim computation is from the fixed weight (tanks ignored). If no draft is specified, the current draft is used.

2）Specified-draft-and-KM 模式：出现吃水数值和参数/KM 时触发此模式。横倾必须为 0，显示 KM 值而非 GM 值，忽略自由液面的影响和绕度的影响。利用固定重量（忽略舱室装载）的垂向重心来计算纵倾力矩。如果不指定吃水，将采用当前的吃水。

3) Specified-displacement-and-KM mode. The presence of displacement values triggers this mode. The heel is forced to zero, KM values are shown rather than GM, free surface is not included and deflection is ignored. The VCG used for the moment-to-trim computation is from the fixed weight (tanks ignored). Drafts, which are derived from the given displacements, are shown at the LCF.

3）Specified-displacement-and-KM 模式：出现排水量数值时触发此模式。横倾必须为 0，计算结果显示 KM 值，不显示 GM 值，忽略自由液面的影响和绕度的影响。利用固定重量（忽略舱室装载)的垂向重心来计算纵倾力矩。显示的吃水为利用排水量计算出的漂心位置处的吃水。

Note that GM and moment-to-trim (which is based on GML) require that the center of gravity lie in a line passing through the center of buoyancy and perpendicular to the waterplane; i.e., these values have meaning only when the vessel is in equilibrium. It is therefore assumed that the weight, LCG and TCG are such that equilibrium is satisfied at each draft for which the hydrostatic properties are computed. At large angles of trim and heel, the actual locations of LCG and TCG become more important than the VCG. This is one reason for limiting trim and heel to 45?or less.

注意 GM 值和纵倾力矩（基于 GML 计算）要求重心位置在穿过浮心并垂直于水平面的垂线上，即只有船舶位于平衡状态时，这些数值才有意义。在计算静水力时，命令假设计算的每一吃水下的 weight，LCG 和 TCG 都处于平衡状态。在大横倾和纵倾角度的浮态下，LCG 和 VCG 的实际位置变得比 VCG 更重要，因此限制横倾和纵倾角度在 45 度以内。

The use of centerplane draft also has limitations at higher trim and heel angles. Furthermore, KM becomes cumbersome with trim and worse with nonzero heel; hence it is limited to the zero-heel case.

利用中剖面的吃水计算时，同样要限制纵倾和横倾角度。另外，当有纵倾时，KM 值会变得不准确，如存在横倾则更糟糕。因此在横倾为 0 时才能使用此模式。

For a version of pure hydrostatic properties which are not encumbered with any ties to the center of gravity, see the HS command.

不考虑任何重心影响的纯静水力计算，查看命令 HS。

Display Output

显示输出

GHS displays draft, buoyancy or displacement weight, longitudinal and vertical center of buoyancy, weight per increment (inch or cm.) of immersion, longitudinal center of flotation, moment per increment (degree, inch or cm.) of trim, GML and GMT (or KML and KMT). When the AXIS angle is nonzero the moment to trim and GML are omitted and the GMT is replaced by GMA.

命令 GHS 显示输出吃水，排水量，纵向和垂向的浮心位置，每英寸或每厘米排水量，纵向的漂心位置，纵倾每增加一度/一寸/一厘米所产生的力矩，GML 值和 GMT 值，或 KML 值或 KMT 值。当 AXIS 非 0 时，不输出纵倾力矩和 GML 值，GMA 将代替 GMT 输出。

The draft is taken at the location specified, and the manner of reporting trim depends on whether a reference length has been defined by the LWL command.

吃水读取在所指定的位置处，纵倾输出的格式取决于是否设定参考水线长，即定义 LWL。

If the transverse center of buoyancy is required, the HS command may be used.

如果需要计算横向的浮心位置，可以用命令 HS 计算。

Although the waterplane area is not shown by GHS, it is easily obtained from the weight to immerse one inch (or centimeter). (The HS command shows waterplane areas directly, if required.)

虽然 GHS 没有输出水线面面积，但是很容易从每厘米或每英寸吃水吨数来求得。（如果需要，HS 命令可以直接显示水线面面积）。

Coefficients of form are available on a component-by-component basis via the COMPONENTS command.

通过 COMPONENTS 命令，可以得到基于构部件计算的船型系数信息。

Nondisplay Output

无显示输出

The hydrostatics data are preceded by the current heel and trim angles and an indication of the location at which the draft is taken.

在静水力表的前面会标明计算静水力时的横倾和纵倾，并会标明吃水的显示位置。

A table is defined which includes columns for draft (as defined above), buoyancy/displacement weight, displacement volume, center of buoyancy, waterplane area, longitudinal and transverse center of flotation, longitudinal and transverse BM, weight to immerse (one inch or cm.). Units are the same as in the display output.

静水力表包含吃水，排水量，排水容积，浮心，水线面面积，纵向和横向的漂心位置，纵向和横向的 BM 值，每英寸或每厘米吃水排水量，单位和显示输出相同。

Examples

样例

Hydrostatic properties in the current condition:

显示在当前浮态下的静水力：

GHS

Making a common table of hydrostatic properties; VCG at 0:

输出常规的静水力表，重心高度为 0：

VCG = 0

GHS DRAFT @ 0 = 2, 2.5, ..., 14

The current condition with formal FSM; draft shown 55.0 aft of the origin:

显示当前浮态的静水力，吃水显示原点往尾 55 处的吃水，考虑正式的自由液面倾斜力矩：

GHS DRAFT @ 55.0

Trimmed hydrostatics; drafts at the LCF:

计算纵倾状态下的静水力，吃水显示漂心位置的吃水：

TRIM = 1/100

GHS 5 6 ... 20