

## 命令模式

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COMPONENT [part\component] [/SEctions] [/FOrm] [/WEtted] [/DEpth: d1, ..., dn]  
[/SKin [: All | Deck | Nodeck | Bottom]] [/PROfile | /PLAN]

Displays information about the specified component(s) in their current conditions.

显示指定构部件在其当前状态下的信息。

COMPONENT [part\component] [/VOlume] [/TOnnage [/DEpth: D]]

Lists component volumes and summations for "tonnage" calculations.

列出构部件容积和总和用于“吨位”计算。

COMPONENT [part\component] /SF[:value] [/QUIet]

Sets shape factor to a new value for matching non-tank components, reporting changed components; if no value specified, reports shape factors for matching components.

重新设定非舱室类构部件的形状系数数值，并报告有所变化的构部件；若不设定形状系数数值，则报告相关构部件的形状系数。

COMPONENT [part\component] /EF[:value] [/QUIet]

Sets effectiveness to a new value for matching non-tank components, reporting changed components; if no value specified, reports effectiveness for matching components.

重新设定非舱室类构部件的有效率参数数值，并报告有所变化的构部件；若不设定有效率参数，则报告相关构部件的有效率。

COMPONENT [part\component] /PErm[:value] [/QUIet]

Sets permeability to a new value for matching tank components, reporting changed components; if no value specified, reports permeability for matching components.

重新设定舱室类构部件的渗透率，并报告有所变化的构部件；若不设定渗透率参数，则报告相关构部件的渗透率。

## 参数说明

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part\component

The component specification. If part\ is omitted, the currently-selected part is assumed (see the PART command); if there is no current part or if \component appears with a backslash, all components matching the given name are assumed (regardless of which parts they belong to). If \component is omitted, the component name is assumed to be the same as the part name. If only the part name is given followed by a backslash, then all components in that part are assumed. If neither part nor component is named, all components of all parts are assumed.

指定的构部件。如果忽略 part\，则假定为当前选定的子模型（参看 PART 命令）；如果当前没有选定子模型或者出现 \component，那么将选取所有符合名称的构部件（无论构部件属于哪个子模型）。如果忽略 \component，构部件名称将认为和子模型名称一致。如果是只有子模

型的名称如 part\, 则选取该子模型的所有构部件。如果子模型和构部件名称都未给出, 则选取所有子模型的所有构部件。

#### /SECTIONS

Calls for a table of section properties (including section areas), omitting the plot if there is no section area.

输出横剖面属性 (包含横剖面面积), 若没有横剖面面积, 则忽略图表输出。

#### /FORM

Calls for a form analysis including ratios and coefficients of form (uncorrected for effectiveness or permeability). Note that form calculations are deliberately limited to components instead of multi-component parts, since the coefficients of form are only applicable to fair bodies (i.e. not with appendages that protrude beyond or deduct from the fair body).

输出跟比值类相关的形状参数 (未校正有效性或渗透性)。此参数只适用于构部件, 而不是带有多个构部件的子模型, 因为这些参数都只适用于光滑的体 (即: 不适用于光滑的体中, 伸出的附体部分或者减除的部分)。

#### /WETTED

Calls for wetted surface along with the form data.

在形状参数表格中添加湿表面面积信息。

#### /DEPTH: d1, ..., dn

Causes a tabular format to be used showing section areas (with /SECTIONS) or selected form coefficients (with /FORM) as a function of Reference Point depth, using the Reference Point of the part to which the component(s) belong. When given in feet and inches in English units, depths are likewise shown in ft'inch format. With the /SECTIONS parameter,  $1 \leq n \leq 7$ .

根据设定参考点的深度, 表格显示横剖面面积 (/SECTIONS) 或形状参数 (/FORM)。该参考点为构部件所归属的子模型的参考点。如果使用英制单位, 深度将采用英尺'英寸显示。和参数 /SECTIONS 一起使用, 其中  $1 \leq n \leq 7$ 。

#### /SKIN [: ALL | DECK | NODECK | BOTTOM]

Causes a skin area analysis either for ALL component surfaces (default), DECK above any deck-edge mark at each station, NODECK surfaces below the deck, or BOTTOM only (slope < 0.5).

对指定范围进行表面积的分析计算: 所有构部件的表面积 (默认), DECK 为甲板边线以上的表面积, NODECK 为不包括甲板的甲板以下区域表面积, BOTTOM 为底部表面积 (斜率 < 0.5)。

#### /PROFILE | /PLAN

Includes the component profile or plan on /SECTIONS area and /SKIN girth plots.

在横剖面面积曲线 /SECTIONS 和表面积 /SKIN 图表中, 绘制构部件的侧视图或平面图。

#### /VOLUME

Lists the overall dimensions and gross volume (uncorrected for effectiveness or permeability). Separate totals are given for displacer, container, and set sail components.

显示构部件的总尺寸和总容积（没有对有效率或渗透率的修正）。根据排水类子模型，舱室类子模型和风帆类子模型来分别显示其总和。

#### /TONNAGE

Calls for the 1969 International Tonnage Convention formula to be applied to the displacer total for all components with an extra line showing gross tonnage. Not available in BHS.

根据 1969 International Tonnage Convention，计算所有排水类构部件，从而得到总吨位数值。BHS 不可实现。

#### /DEPTH: D

The net tonnage (1969 Convention) formula is applied to the container total using D as the Midship Depth of the tonnage rule and the current origin depth as the draft. The passenger term is omitted.

根据 1969 International Tonnage Convention，计算船舶净吨位。D 为计算所需的船舯型深，以当前原点深度作为吃水。忽略乘客人数。

#### /SF: value

Specifies a Shape Factor value stored in geometry files at the component level. This shape factor may range from 0.0 to 2.0 (default is 1.0) and multiplies displacer and sail part lateral plane area calculations for HMMT purposes.

定义形状系数，它存储在构部件层面中。形状系数范围为 0.0 到 2.0（默认 1.0），将其乘以排水类子模型和风帆类子模型的侧面积可用于 HMMT 命令中风压面积的计算。

#### /EFF: value

Specifies an Effectiveness value stored in geometry files at the component level. Displacement effectiveness ranges from 0.0 to 1.0 for a solid part (negative for a deduction part).

定义有效率，存储在构部件层面中。构部件排水的有效率范围为 0.0 到 1.0（扣除的构部件有效率为负值）

#### /PERM: value

Specifies a Permeability value stored in geometry files at the component level, ranging from 0.0 to 0.999. Tank permeability may be less than 1.0 to account for any internal structure that reduces tank capacity to contain liquid.

定义渗透率，存储在构部件层面中。舱室渗透率通常小于 1（范围 0.0-0.999），因为舱室内部的结构加强减少了所能存储的液体量。

#### /QUIET

Suppresses reporting of changes made by /SF, /EFF, or /PERM.

不报告显示命令/SF, /EFF, 和 /PERM 的更改结果。

## Operation

### 操作

Since a complete component specification includes its part name, the `part\component` parameter formally contains both names. However, the `part\portion` may be omitted if there is no ambiguity. (A forward slash may be substituted for the back slash between part and component if the component name cannot be confused with any of the secondary parameters.) If none of the secondary parameters are specified, the part and component names are listed.

由于完整的构部件说明需包含其子模型名称，因此构部件参数 `part\component` 通常包含两个名称。然而，如果没有歧义的话，`part\`也可以被省略。（如果构部件名称不会和任何次级参数混淆，`part\component` 中间的反斜杠可用斜杠替代）。如果没有定义任何次级参数，子模型和构部件的名称都将列出。

In the first form of the command, each component is reported individually, showing the data requested. Without the `/DEPTH` parameter, the current waterplane is used (i.e. internal waterplanes for tanks, according to their current loadings or infinite depth for empty tanks). With the `/DEPTH` parameter, the waterplane levels are specified relative to the reference point of the part to which each component belongs (see the `REFPT` command). In either case, the current trim and heel angles are used.

在第一种命令模式下，每个构部件都单独显示，同时显示所需求的数据。如果没有设定`/DEPTH`参数，则使用当前水线面（即：舱室当前内部装载的水线面，空舱记为无穷深）。如果定义了`/DEPTH`参数，水线面高度参考每个构部件归属的子模型中的参考点深度（参看命令`REFPT`）。任何情况下都是用当前浮态下的横倾和纵倾角度。

Wetted surface values appear when `/WETTED` is included with the `/FORM` parameter. In order to get an accurate wetted surface, the effects of the longitudinal slopes are taken into account. This requires ascertaining inter-section slopes through a complicated process that requires quite a bit of computing. If the end sections are immersed, their immersed faces are also counted in the wetted surface. Accurate wetted surface around steep longitudinal curves requires more sections than are required for a comparable accuracy in the other hydrostatic computations. Sharp corners in section outlines in the way of steep longitudinal curves can also degrade the accuracy of the wetted surface results. In such cases, the accuracy should not be considered better than  $\pm 2\%$ .

当`/WETTED`伴随参数`/FORM`使用时，会显示湿表面积值。为了得到精确的湿表面积，必须考虑纵倾的影响，这需要经过复杂的处理计算来确定内部交线的斜率。如果尾封板被浸没，其浸没的端面也算作湿表面积。与静水力相比，计算精准的湿表面积需要纵向方向更多的横剖线。外型上的尖角处也会降低湿表面积计算的准确性。这种情况下，通常认为其准确性不高于 $\pm 2\%$ 。

When the waterplane breadth is reported, it is obtained by: a) at a given station, the waterlines (tops of all immersed portions of the station) are summed and called  $B_i$  at the  $i$ th station; b) the largest  $B_i$  is taken as the waterplane breadth of the component. This yields the same coefficient whether the model is a catamaran, or one CL component or a pair of P & S components.

当求水线面宽时，由以下计算所得：a) 在指定站，汇集水线（此站所有浸没部分的顶点），并且记为第 i 站宽为  $B_i$ ；b) 最大的  $B_i$  记为该构部件的水线宽。因此，无论模型是双体、居中或左右两个构部件，水线宽系数值不受其形状影响。

In the second "tonnage" form, a table is produced where each component is represented by one line and total volumes are shown. Support is provided for the 1969 International Tonnage Convention rules, which use molded boundaries and compensate for framing allowances through a formula. Without the /TONNAGE parameter, the volumes are still useful for tonnage work under other rules if the vessel model has been constructed to the appropriate boundaries.

在第二种“吨位”模式中，每个构部件会逐行显示并且总容积也会显示在表格中。其根据 1969 International Tonnage Convention 规定，使用模型边界并且用一个公式对横剖线框架做余量补偿。在没有参数 /TONNAGE 的情况下，如果模型准确，容积仍然可以用于其他规范规定的吨位计算。

In the /SF, /EFF, and /PERM forms, the corresponding value is assigned for all matching components, reporting changed components if /QUIET parameter is missing (note these are not saved in the geometry file, and Shape Factor changes are not preserved by the WRITE command nor transmitted to external programs). If no new value is specified, then existing values for matching components are reported.

在 /SF, /EFF, 和 /PERM 模式中，设置相关构部件的参数或系数，如果没有命令参数 /QUIET，则报告显示设置后的构部件的系数（注意，这没有被储存在模型文件中，命令 WRITE 也不会保存形状系数的变化，且不会传输到外部程序中）。如果未设置新的参数或系数，则报告显示相关构部件的当前数值。

## Display Output

### 显示输出

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The first output line begins with the part name, component name and an indication of whether the component has a port, starboard or centerline designation. Finally, it shows the permeability factor if it is a container (tank) or the effectiveness factor if it belongs to a displacer part.

输出格式为：子模型名称，构部件的名称以及构部件是否为左、右或居中的特性信息。在结尾处，如果是舱室类子模型，则显示其渗透率；如果是排水类子模型则显示其有效率。

The /SECTIONS parameter without the /DEPTH specification presents detailed information on a section-by-section basis. These are cross-sections of the component - i.e. planes normal to the baseline - whose locations are determined by the structure of the Geometry File. Each section which is at least partly immersed is represented by its longitudinal location, the distance its waterline is from the baseline (not including any wave), its immersed area and center of the area. Further, if the waterline is intersecting, the waterline width and center are shown (this center is relative to the point where the waterline intersects the line normal to itself and intersecting the baseline). If a wave is present, two additional columns appear giving the local amount that the waterline is raised or lowered by the wave and the local change of heel angle due to the wave.

没有标明/DEPTH 的参数/SECTIONS 会列出各个横截面的详细信息。这也就是构部件的各个横剖面，即：构部件形状中，垂直于基线的平面，平面的位置取决于模型文件的结构。将显示每个至少部分浸没的横剖面的纵向位置，其水线到基线的距离（不考虑波浪影响），浸没面积及面积型心。另外，如果水线线面交叉，将显示水线宽和中心（这个中心为水线面法线与基线的交点）。如果设置了波浪，会额外显示水线面受波浪影响后的升高或降低，以及横倾角的局部变化。

The /SECTIONS parameter with the /DEPTH specification shows only section areas, and presents a column for each depth requested.

标明了/DEPTH 的参数/SECTIONS 只显示横剖面面积，并且以每个深度为一纵列显示。

Information produced by the /FORM parameter without the /DEPTH parameter is divided into four sections:

没有标明/DEPTH 的参数/FORM 将会显示如下信息：

1) Block Dimensions. Here are presented the length, width and depth (together with various ratios) of the rectangular block which circumscribes the immersed volume of a displacer component. Normally, the top of this block is the waterplane, and its sides are all planes perpendicular to the waterplane, regardless of heel and trim. However, if the LBP command has been used to define a Length Between Perpendiculars, that length is used for the length of the circumscribing block regardless of heel and trim. (Caution: While use of the LBP may be necessary to produce results agreeing with the results of older methods, it may produce unrealistic block coefficients).

1) 外形长宽值。通过一定的长宽高的长方体（和变化比例）来表示包围水下部分的构部件的边界。通常，长方体顶部为水线面，长方体的侧面为通过水线面的边，且正交于水线面的平面，不考虑纵倾和横倾。如果命令 LBP 定义了垂线间长，那么将使用垂线间长作为长方体的长，不考虑纵倾和横倾。（注意：有时需要使用 LBP 来计算，使得结果和一些老的计算方法相一致；但同时它也可能会产生不真实的方形系数）。

2) Waterplane Dimensions. This shows the length and width of the rectangle which circumscribes the waterplane/component intersection, together with its area, center and moments of inertia about its own center. (The length and width of the waterplane may be less than the corresponding block dimensions.)

2) 水线面数值。通过一定长宽的矩形来表示水线面与构部件的边界，同时显示其面积，面积型心及围绕型心的转动惯量。（水线面长宽也许会小于外形长宽值）。

3) Maximum Section. This refers to a transverse plane normal to the waterplane at which the immersed area is maximum. Its area and coefficient (area / area of circumscribing rectangle) are shown. Generally, the Maximum Section area divided by the greatest section area shown in the section properties table will equal the secant of the trim angle.

3) 最大横截面。与水线面正交垂直的浸没面积最大的横截面。同时显示其面积及系数（面积/矩形边界的面积）。通常，最大横截面面积（与水线面垂直）除以横剖面属性中输出的最大面积（与基线面垂直），等于纵倾角的正割值。

4) Prismatic Coefficients. Longitudinal prismatic ( $C_p$ ) is shown first, followed by the vertical ( $C_{vp}$ ) prismatic whenever there is a waterplane.  $C_p$  uses LBP if it has been

defined; otherwise it uses the true underwater length. Since the vertical prismatic is based on the waterplane, it can become larger than unity in extreme cases — such as when part of the deck is submerged.

4) 棱形系数。显示纵向棱形系数( $C_p$ )及垂向棱形系数( $C_{vp}$ )。如果定义了垂线间长, 则使用 LBP, 否则使用水下实际长度。由于垂向棱形系数基于水线面, 极端情况下也许会比通常值要大, 例如甲板部分浸水。

Not all of the form data is shown for components belonging to container parts.

不是所有构部件的形状参数都是属于舱室类子模型。

With the /DEPTH specifications, the /FORM parameter produces a table with a row for each depth. The columns present volume, block coefficient, displacement/length ratio, waterplane coefficient, maximum section coefficient, and prismatic coefficients (both longitudinal and vertical).

定义了/DEPTH 的情况下, 参数/FORM 生成以每个深度为一行的表格。列项则显示容积, 方形系数, 排水量和长度比, 水线面系数, 最大中横剖面系数, 纵向和垂向棱形系数。

The /SKIN paramater produces a table with a row for each interval at increasing longitudinal center (with extra initial and final rows showing area of the end sections in ALL or NODECK mode). The columns present actual girth, modified girth, interval width, surface area, and centers. (Modified girth corrects for curvature so it equals interval area divided by width.)

参数/SKIN 会生成一个表格, 根据纵坐标递增顺序, 以每个纵向间隔为一行(在 ALL 或 NODECK 模式下, 首尾行分别表示艏艉端); 列项显示实际周长, 修正周长, 间隔宽度, 表面积和型心。(修改后的周长可校正曲率, 使其等于间隔面积除以宽度。)

In the "Tonnage" form of the command, a table is presented containing one line for each component. It shows the component name, the description of the part to which it belongs (or the part name in square brackets if it has no description), the overall length, width and height of the component, and its gross volume in cubic units. This volume does not include the permeability or effectiveness factor. The total volume for those components shown is included at the bottom of the table. Separate tables are used for components belonging to displacer and container parts.

在命令的“Tonnage”模式中, 会生成以每个子模型为一行的表格。分别显示构部件名称, 归属子模型的说明(如果没有说明则显示方括号内的子模型名称), 构部件总长、宽、高, 及其总容积。容积不包括渗透率或有效率。表格底部汇总了所有构部件的总容积。排水类子模型和舱室类子模型将分别使用独立表格。

If the /TONNAGE parameter appears, an additional line is shown for the displacer components, giving the 1969 Convention Tonnage rounded down to a whole number. If, in addition, the /DEPTH: D parameter appears, an additional line is presented after the container total showing net tonnage, exclusive of the passenger term.

如果使用参数/TONNAGE, 将会为排水类构部件额外显示一行根据 1969 International Tonnage Convention 规范计算, 并向下圆整为整数的吨位值。如果使用参数/DEPTH: D, 还会在舱室类构部件后额外显示不考虑乘客人数的净吨位值。

## Nondisplay Output

### 非显示输出

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The component name begins the nondisplay output, followed by the current heel and trim angles.

非显示输出将以构部件名称开头，其后显示当前横倾和纵倾角度。

When the /SECTION parameter appears without the /DEPTH parameter, an abbreviated version of the section properties table is output consisting of:

当不标明/DEPTH 的参数/SECTION，将显示缩略版的横剖面说明，包含内容如下：

Location of the section and baseline depth;

横剖面位置和基线深度；

Wave height and heel (only if a wave is present);

浪高和横倾（仅当有波浪时）；

Section area, transverse and vertical center.

横剖面面积，横向和垂向中心。

Both the /SECTION and the /FORM parameter produce nondisplay output when the /DEPTH parameter is used. In these cases, the nondisplay version closely follows the display output. The /SKIN parameter produces nondisplay output with girth data following the display output.

当使用参数/DEPTH 时，参数/SECTION 和/FORM 都可以非显示输出。这种情况下，非显示输出形式和显示输出形式相近。参数/SKIN 非显示输出的周长数据与显示输出一样。

Units are the same as in the display output.

单位与显示输出单位相同。

## Examples

### 样例

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Listing all component names:

列出所有构部件名称：

```
COMPONENT *
```

Showing Form Coefficients for the HULL component:

显示 HULL 子模型下的 HULL 构部件的形状参数：

```
COMPONENT HULL\HULL /FORM
```

Same for the KEEL component:

显示 HULL 子模型下的 KEEL 构部件形状参数：



**COMP HULL\KEEL /FORM**

Including Wetted Surface for the HULL component:

显示 HULL 子模型下的 HULL 构部件形状参数，包含湿表面面积：

**COMPONENT HULL\HULL /FORM /WET**

Producing an analysis of skin area for the HULL deck showing its profile:

输出子模型下的 HULL 构部件的甲板面积分析并显示其投影：

**COMP HULL /SKIN: DECK /PROFILE**

Checking section areas of HOLD1:

显示 HOLD1 横剖面面积：

**COMP HOLD1 /SECT**

Observing a wave profile:

显示某个波形：

**WAVE(STOKES) 0, 130**

**COMP HULL /SECT**

Curves of form at given depths relative to the HULL part's Reference Point:

根据设定的 HULL 子模型参考点的深度，显示构部件的形状参数：

**COMP HULL\HULL /FORM /DEPTH: 2, 4, ..., 14**

A series of area curves at given depths relative to the HULL Reference Point:

根据设定的 HULL 子模型参考点的深度，显示构部件的横剖面面积曲线：

**COMP HULL\HULL /SECT /DEPTH: 2, 4, ..., 14**

Component Volumes:

构部件容积：

**COMP \* /VOLUME**

Component Volumes with 1969 Convention Tonnage:

根据 1969 International Tonnage Convention，用构部件计算吨位值：

**COMP \* /TONNAGE /DEPTH: 32.5**

Sets Shape Factor for hull components to 0.9, suppressing report of changes:

设置 hull 构部件的形状系数为 0.9，但不报告显示更改：

**COMP HULL\\* /SF:0.9 /QUIET**

Reports permeability for all tanks:

显示所有舱室的渗透率：

**COMP \* /PERM**