

April 15, 2021

# HydroComp NavCad® 2021 Released

## *New features for improved Vessel-Propulsor-Drive system simulation*

Development in 2021 for HydroComp NavCad offers new features across the range of applications.

### Towed barge prediction

One of the more component-intensive applications for NavCad is a towed barge being pulled by a tug. Not only do you need to setup the resistance and propulsion for the tug, the towed barge must be properly modeled. This includes reliable prediction of the added drags affecting the barge – including appendages (typically skegs), a towline drag supplement, and seas drag. NavCad can now add estimates for appendage drag and tow line (with drift) drag. We have also implemented a new added drag in seas prediction method specifically for barges.

Box barge resistance			SPEED [kt]	RTOWED [lbf]	RBarge [lbf]	RApp [lbf]	RTowLine [lbf]	RSeas [lbf]
<b>Prediction options</b>			4.00	25441	8060	1612	1209	14560
Resistance type:	Towed resistance	▼	4.50	30225	10183	2037	1527	16478
Prediction method:	HydroComp barge	▼	5.00	35341	12552	2510	1883	18396
<b>General dimensions</b>			5.50	40790	15167	3033	2275	20315
Length on WL:	146.00	ft	6.00	46572	18028	3606	2704	22233
Max beam on WL:	50.00	ft						
Max molded draft:	8.00	ft						
Displacement:	1525.00	LT						
Max section area:	400.00	ft <sup>2</sup>						
Wetted surface:	9400.00	ft <sup>2</sup>						
<b>Bow form</b>								
Length of entrance:	20.00	ft						
Buttock angle to BL:	45.00	deg						
<b>Stern form</b>								
Length of run:	20.00	ft						
Buttock angle to BL:	35.00	deg						
Transom immersion:	0.00	ft						
<b>Added drag</b>								
Appendage drag %:	20.0	%						
Tow line drag %:	15.0	%						
Seas technique:	Prediction	▼						
Prediction method:	Ractliffe	...						

A/B Clear Calc OK Cancel Help

### New surface-piercing propeller model

This propeller series method was developed by HydroComp from a small family of model tests for cleaver-style wedge-type surface-piercing propellers. Our in-house research also allowed for the development of a new performance metric for a “minimum critical speed”, below which SPP propeller performance begins to fall off. This new design criteria can provide information to ensure that the *Vessel-Propulsor-Drive* system running SPPs have the proper gear ratio for the proposed speed and power.

### New electric motor Drive module

A major update coming later in 2021 is a new module for electric motors as the prime mover of NavCad’s *Drive* component. Development includes consideration of AC and DC motors, with particular development for easy user definition of standard motor types, such

as the popular styles of permanent magnet synchronous motors (PMSM) found in UVs and other submersibles. A new model for partial load efficiency and current draw will provide engineers and designers with a critical missing piece when conducting trade-off studies, evaluation and validation of trial data, or calculations of operational battery budget.

### **Enhanced GUI components**

Also for 2021, HydroComp has undertaken a significant in-house initiative to enhance product “look-and-feel” for contemporary themes available in Windows 10. Overall workflow processes will remain very comfortable and familiar to users, but with new interface controls and graphs supporting Windows “visual styles”.

### **About HydroComp NavCad**

For additional information, click to: [www.hydrocompinc.com/solutions/navcad](http://www.hydrocompinc.com/solutions/navcad)

### **About HydroComp**

Since 1984, HydroComp has been a leader in providing hydrodynamic software and services for resistance and propulsion prediction, propeller sizing and design, and forensic performance analysis. Through its unique array of software packages and services, HydroComp now serves over 1200 naval architectural design firms, shipyards, yacht owners, ship operators, propeller designers, universities and militaries around the globe.

### **For more information, please contact:**

Jill Aaron, Managing Director  
jill.aaron@hydrocompinc.com  
HydroComp, Inc.  
15 Newmarket Road, Suite 2  
Durham, NH 03824 USA  
+1 603-868-3344  
[www.hydrocompinc.com](http://www.hydrocompinc.com)