



Release document

NAUTICUS™ Hull

Proven ship design solutions, made for the future

Version: 20.34, February 2025, cycle update 1

This is a cycle update to v.20.33, released in January 2025

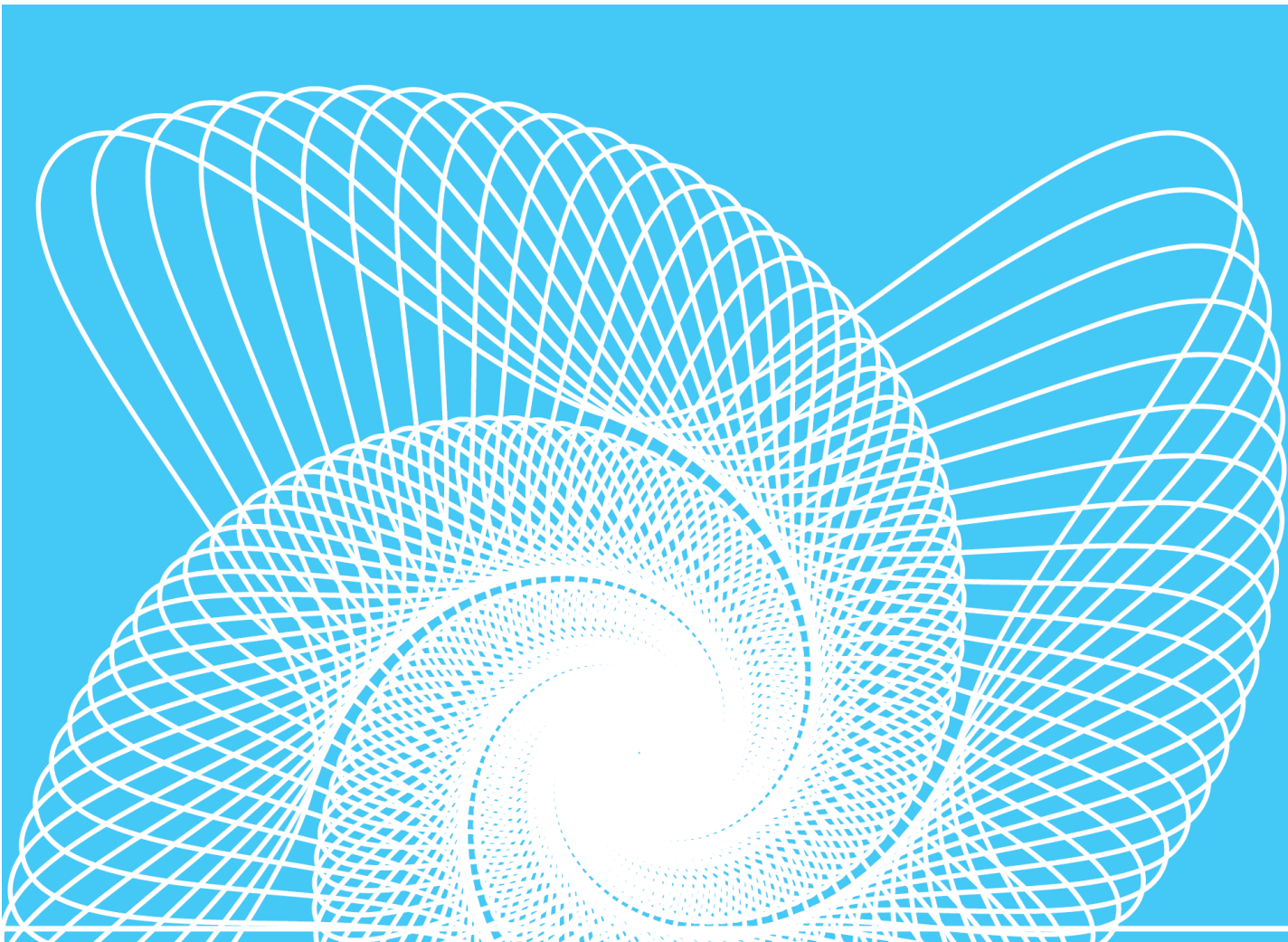


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1 VERSION 20.34 – AN INTERMEDIATE UPDATE OF VERSION 20.33

1.1 Error corrections available in 20.34

Area	Case #	Description	ID
Corrections			
FE	00234784	In FE manager, export of RuleLoads.xml file crashed when exporting OSA / OST waves with torsional adjustments. Corrected.	639444
FE		Hull Girder Load Adjuster (HGLA) tool, used by GeniE for cargo hold models, for torsional adjustments in way of foremost and forward region, wrong sign convention for target torsional moment was used. Corrected.	639592
		Hull Girder Load Adjuster (HGLA) tool in NH V20.33, used by GeniE for cargo hold models, applied torsional adjustments, even if 'No' was specified in FE manager / GeniE. Corrected.	640260
		Hull Girder Load Adjuster (HGLA) tool, used by GeniE for cargo hold models, the Excel spreadsheet was not plotting the vertical shear force from local loads exactly at the target transverse bulkhead positions. Corrected.	645948
3D Model		Scantlings on inner side was lost after re-opening the model. Corrected.	641395
3D-Beam	00235489	In 3D Beam, a beam modelled with same start node and end node caused the program to crash and not possible to re-open. Corrected.	641647

Content below is identical to content in version 20.33 release document.

2 INTRODUCTION

2.1 Purpose of this document

The purpose of this document is to inform users about system requirements, new programs and functionalities, enhancements and bug fixes that have been implemented in Nauticus Hull since the previous release.

Details about the implementations in all programs are not fully covered in this document, and for more information, the user should consult the program documentations being a part of the installation.

It is recommended that the user contact DNV support or the local approval engineers for details about rule implementations in the program and for information about how to use the program for specific ship types.

For information on how to install the program, please see the *Nauticus Hull Installation Guide*, which can be found on our Customer Portal at www.dnv.com/cp.

2.2 Rule sets covered

DNV Rules for classification: Ships (RU-SHIP)

All editions up to and including July 2024 entering into force January 2025.

DNV-CG-0128, Buckling, December 2023 edition is included in DNV Rule edition July 2023.

DNV Rules for classification: High speed and light craft (RU-HSLC)

July 2019 Edition.

DNV Rules for classification: Naval vessels (RU-NAV)

July 2024 Edition.

DNV Rules for classification: Offshore Units

Support for prescriptive and FE calculations according to DNVGL-OS-C102 Structural design of offshore ship-shaped and cylindrical units up to and including July 2021, entering into force 1st January 2022.

IACS CSR BC & OT – January 2024 and earlier editions

Enter into force on 1st July 2024

The following rule sets are not covered

DNV rules - July 2015 and older

CSR Tank - July 2012 and older

CSR Bulk - July 2012 and older

These rules are supported by Nauticus Hull “Classic” January 2018 (separate installation).



Note: The Nauticus Hull Classic package (January 2018 V18.5) containing the General Cross Section and PULS tools are no longer distributed with this distribution of Nauticus Hull. Users have to download the package from the customer portal.

3 HIGHLIGHTS OF NEW RELEASE

The following main features have been introduced in this version:

DNV and CSR Rules – Connection strength – permissible stress

New result tables showing sigma_w stress utilization for all acceptance criteria. The table will also show whether the connection is arranged with soft heel. Re CSR Pt.1 Ch.3. Sec.6 [5.1.5] and DNV Pt.3 Ch.6. Sec.7 [1.1.5].

In addition, permissible stress is increased by 5% when soft heel is present - as per footnotes in CSR Pt.1 Ch.3. Sec.6 [5.2.5] and DNV Pt.3 Ch.6. Sec.7 [1.2.4] Table 1.

- Connection of stiffeners to PSM (#119)
 - Yielding aft frame
 - Yielding fwd frame
 - Yielding sig_w utilization aft frame
 - Yielding sig_w utilization fwd frame

Panel	Stiffener	Profile type	Dimension	Position	Utilization σ w AC-S	Utilization σ w AC-SD	Utilization σ w AC-I	End connection	Soft heel
Outer shell	11	Built up T from plates	298 x 9 x 90 x 18	Bottom	0.50	0.50	0.00	(2F) EC2-BL-IBL	Yes
Outer shell	12	Built up T from plates	298 x 9 x 90 x 18	Bottom	0.50	0.50	0.00	(2F) EC2-BL-IBL	Yes
Outer shell	13	Built up T from plates	298 x 9 x 90 x 18	Bottom	0.47	0.47	0.00	(2F) EC2-BL-IBL	Yes
Outer shell	14	Built up T from plates	298 x 9 x 90 x 18	Bottom	0.47	0.47	0.00	(2F) EC2-BL-IBL	Yes
Outer shell	15	Built up T from plates	298 x 9 x 90 x 18	Bottom	0.47	0.48	0.00	(2F) EC2-BL-IBL	Yes
Outer shell	1	Built up T from plates	278 x 9 x 90 x 18	Side	0.31	0.30	0.00	(19F) EC19-126F-SL1	No
Strength Deck	5	HPBulb	280 x 11	Strength deck	0.09	0.12	0.00	(21F) EC21f-DL	No
Strength Deck	9	HPBulb	280 x 11	Strength deck	0.09	0.12	0.00	(21F) EC21f-DL	No
Strength Deck	13	HPBulb	280 x 11	Strength deck	0.09	0.14	0.00	(21F) EC21f-DL	No

CSR Rules – Global corrosion Pt.1 Ch.13 Sec.2

Now showing area separately for deck, neutral axis zone and bottom zone.

- (#119) FR119
 - Hull Girder Strength (#119)
 - Torsional characteristics
 - Steel weight summary
 - Cross section properties

X Pos	tc (%)	CutOuts	Eff. Type	Area total (cm ²)	Area deck zone (cm ²)	Area N.A. zone (cm ²)	Area bottom zone (cm ²)	Ycg (m)	Zcg (m)	Ih (m ⁴)	Iv (m ⁴)	Ihv (m ⁴)	Zbott (m ³)	Zdeck (m ³)	Zside (m ³)	StatMomAboveNA (cm ³)	loverS (m)	Min z N.A. zone (m)	Max z N.A. zone (m)
100,580	0	True	Bending	32,906	7,976	19,740	5,190	-0.003	8.139	175.967	432.916	0.111	21.621	16.583	27.051	11,978,295	1,469	4.700	16.875
100,580	0	False	Bending	33,632	7,976	20,302	5,354	0.000	8.105	178.554	444.295	0.039	22.031	16.773	27.768	12,180,669	1,466	4.700	16.875
100,580	50	True	Bending	28,595	6,850	17,281	4,464	-0.003	8.076	152.673	375.452	0.099	18.905	14.303	23.461	10,154,463	1,504	4.700	16.875
100,580	50	False	Bending	29,225	6,850	17,762	4,613	0.000	8.040	154.900	385.227	0.035	19.266	14.463	24.076	10,327,625	1,500	4.700	16.875

DNV Rules - Rule Calculator – Pt.1 Ch.8 Sec.2 [3, 4] Slenderness requirements for stiffeners and PSMs

Calculations are available from rule edition July 2021.

Calculate all

Calculate selected

Pt.3 Ch.8 Sec.2 [3, 4] Slenderness - Stiffener and PSM

	1	2	3
Input			
Id text	PSM1	PSM2	STIFF1
Stiffener or PSM	Single skin PSM	Double skin PSM	Stiffener
Stiffener profile			BuiltUpTbar 300 x 100 x 12 x
C _w for flatbars			
C _r for angle or T	12 – default		12 – default
PSM plate breadth, s _w [mm]	800	850	
PSM web thickness, t _w [mm]	12	12	
PSM flange thickness, t _f [mm]	18		
Flange outstand, gross b _{f,out} [mm]	150		
Material	VL-NS	VL-NS	VL-36
Attached plate thickness, t _p [mm]			12
Same material for web and flanges?	☒	☒	☒
Total corrosion addition, t _c [mm]	2	3.5	2
PSM web stiffener			
Web stiffener profile	JapaneseAngle 100 x 75 x 10	FlatBar 180 x 14	
Web stiffener arrangement	Normal to PSM span	Normal to PSM span	
Effective width attached plate, s _{eff} [mm]	200	800	
Length of web stiffener, l [mm]	1200	2400	
Results stiffener or PSM slenderness			
Information			
Required web thickness, t _{w,slend,gr} [mm]	10.0	8.5	6.0
Required flange thickness, t _{f,slend,gr} [mm]	14.5		5.5
b _{f,out} [mm]	150.0		44.0
b _{f,out,max,gr} [mm]	194.0		128.9
Gross flange breadth, b _{f,gr} [mm]			0.0
Applied h _{w,gr} [mm]			300.0
Slenderness ok?	OK	OK	OK
C _w	100.0	125.0	75.0
C _r	12.0		12.0
Results web stiffening			
Actual net I _{st} [cm ⁴]	567.8	1979.2	
Required net I _{st} [cm ⁴]	80.3	1148.7	
Slenderness coefficient C			
I _{st} ok?	OK	OK	
Applied corrosion additions			
Applied corrosion addition for plate, t _c [mm]			2.0
Total corrosion addition for web, t _c [mm]	2.0	2.4	2.0
Total corrosion addition for flange, t _c [mm]	2.0		2.0

CSR Rules – Pt.1 Ch.8 Sec.2 [5.2] slenderness requirements for end brackets

Calculate all

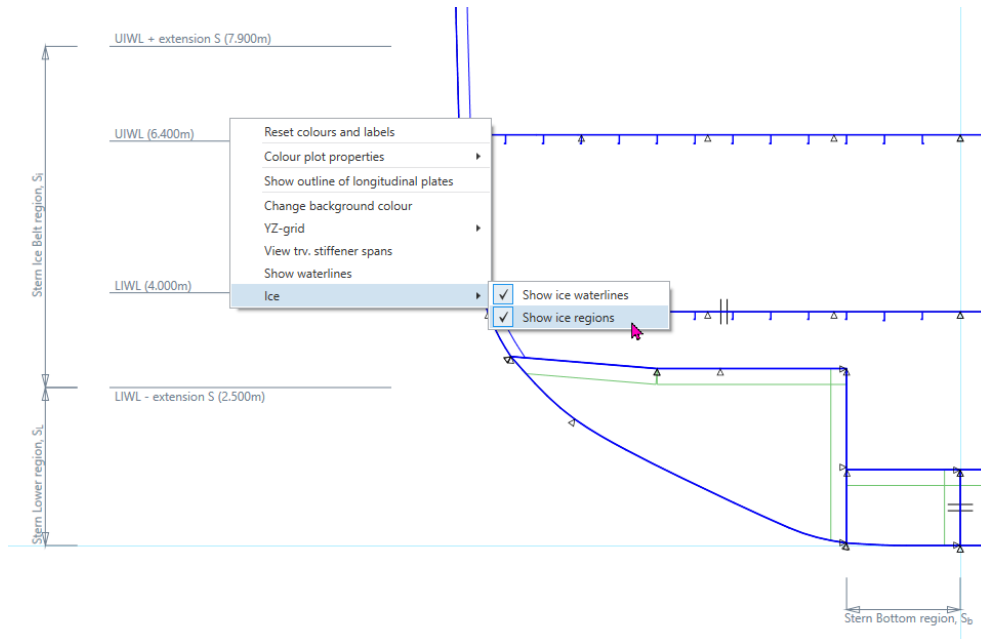
Calculate selected

Pt.1 Ch.8 Sec.2 [5.2] Slenderness - End brackets

	1	2	3
Input			
Id text	RolledAngle	T-bar	FB
Gross bracket thickness, t _b [mm]	12	12	12
Total corrosion addition, t _c [mm]	4	4	4
Length of bracket, l _b [mm]	500	500	500
Depth of bracket, d _b [mm]	400	400	400
Material, bracket	VL-NS	VL-NS	VL-NS
Edge reinforcement			
Edge stiffener profile	RolledAngles 100 x 50 x 10 x	BuiltUpTbar 100 x 100 x 12 x	FlatBar 100 x 10
Edge material	VL-NS	VL-NS	VL-NS
Bracket proportions			
Information			
Slenderness coefficient C for t _b	70.0	70.0	70.0
Net required, t _{b,slend,net} [mm]	5.7	5.7	5.7
Gross required, t _{b,slend,gr} [mm]	9.5	9.5	9.5
Proportions OK?	OK	OK	OK
Edge stiffener, h_w			
Slenderness coefficient C for h _w	75	75	75
Net required, h _{w,net} [mm]	50.0	50.0	50.0
Gross required, h _{w,gr} [mm]	46.0	46.0	50.0
Actual h _w [mm]	90.0	100.0	100.0
h _w OK?	OK	OK	OK
Edge stiffener, slenderness			
Gross web slend thk, t _{w,slend,gr} [mm]	5.5	5.5	8.5
Gross flange slend thk, t _{f,slend,gr} [mm]	7.5	8.0	0.0
Gross flange breadth, b _f [mm]	23.0	25.0	0.0
Slenderness ok?	OK	OK	OK
Applied corrosion additions			
Applied corrosion addition for bracket, t _c [mm]	4.0	4.0	4.0
Total corrosion addition for web, t _c [mm]	4.0	4.0	4.0
Total corrosion addition for flange, t _c [mm]	4.0	4.0	4.0

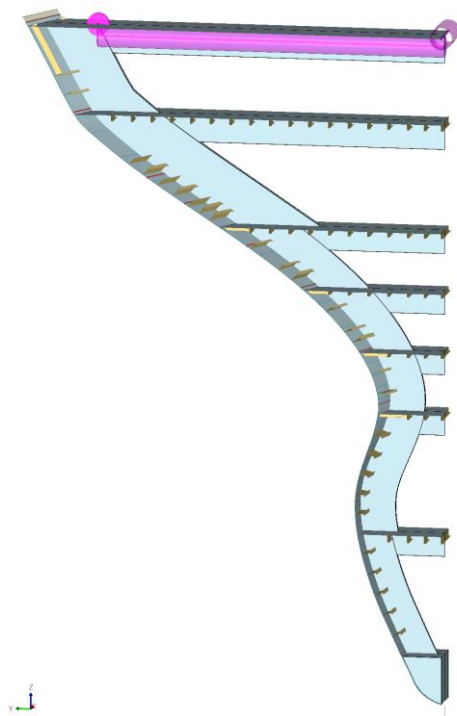
Polar Class – plot of ice regions

Ice regions are now displayed together with the ice waterlines as applicable:



3D model – Wizard for single skin girder

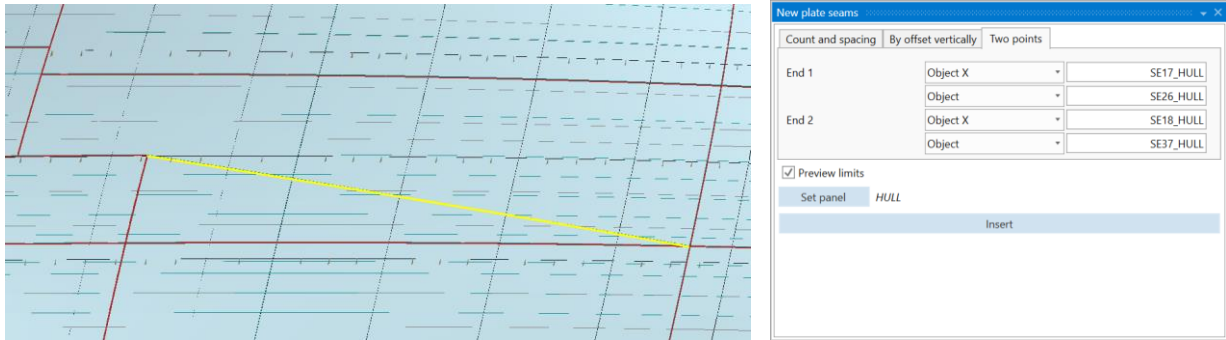
A wizard for effective modelling of single skin girder is introduced. The face plate can either be represented by plate or flat bar stiffener. The girder ends (web and face plate) are automatically trimmed against intersecting geometries.



Girder			
Profile type	☒ T-profile ☐ L-profile		
Face plate type	☐ Flat bar stiffener ☒ Plate		
Web height	1200 mm		
Web thickness	10 mm		
Face plate width	150 mm		
Face plate thickness	12 mm		
Material	VL-NS		
Web orientation	Transverse		
Flange direction	☒ Left ☐ Right		
Panel side	☒ Inside ☐ Outside		
Name	GIR18		
Position	X	#142	
End 1	Y Coord.	0 mm	
End 2	Object Y	GIR8_flange	
☒ Preview limits			
Set panel		ForeCastleDeck	
Insert			

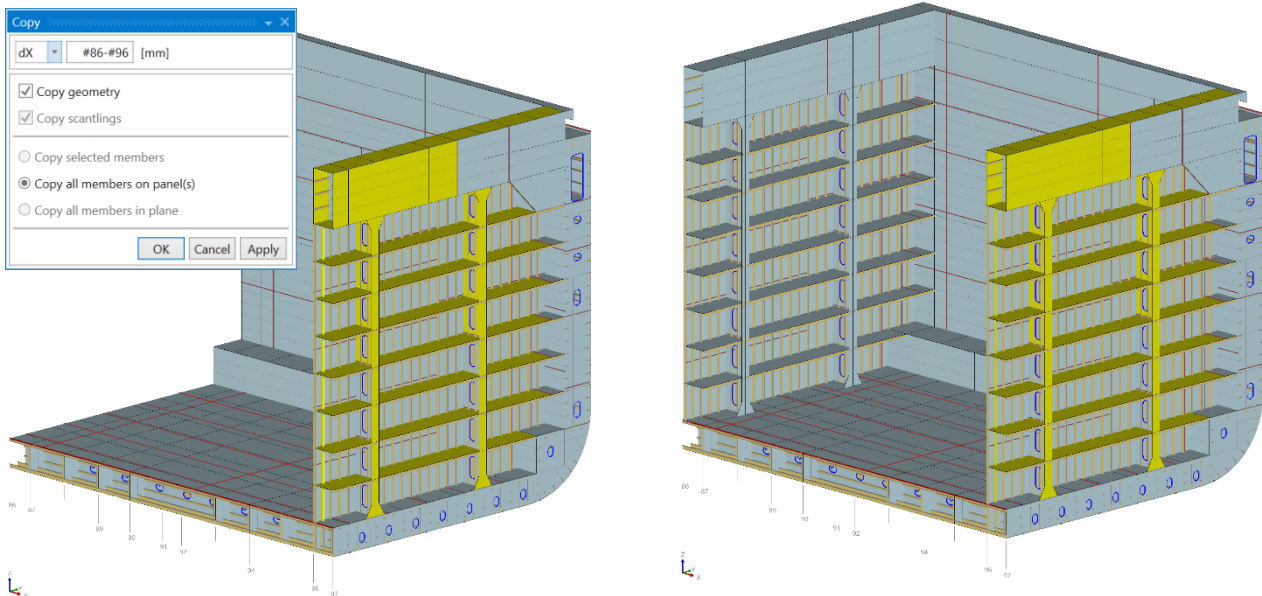
3D model – Improved scanlings modelling

User can now model plate seams and stiffeners on outer shell by specifying two points (and therefore add scanlings to the outer shell that are not limited a x-, y- or z-plane).



3D model – Copy scanlings and geometries

Functionality is extended to allow for copying scanlings and geometries in same operation. Efficient selection of members to be copied: User can select one scanling on a plane / panel and then all scanlings belonging to the plane / panel can be copied. Multiple planes and panels can be selected for efficient copying in same operation. The pasted objects will be checked against any existing structure, and overlapping structures will be prevented.



FE manager – Allow GeniE to calculate reference point for liquid compartment pressures

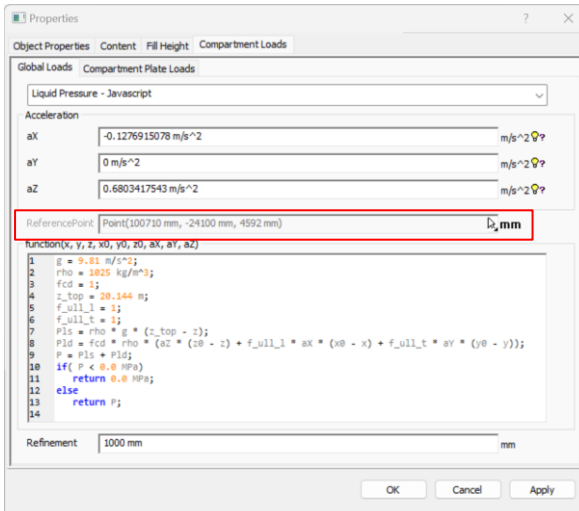
When creating compartment loads in FE manager, a new default method to calculate reference point is introduced. Nauticus Hull will export tank accelerations, and GeniE will calculate the reference point, using GeniE's detailed compartment definition.

This feature requires GeniE V8.11 or later (older GeniE versions will import the existing pressure definitions where NH calculates reference pressures).

The reference point calculated by GeniE is available in GeniE's property window for Compartment loads.

Compartment loads | Hatch cover loads | Container on deck loads | Deck loads | Heavy

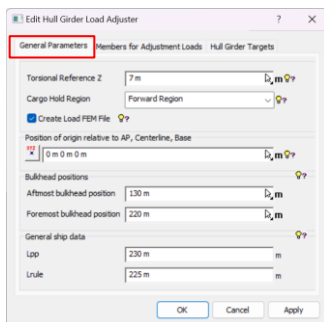
Create new	Compartment name	Load type	Density (t/m3)	Calculation of reference point
Edit	No4DS_WBTP	Water ballast	1.025	Let GeniE calculate
Delete	No4DS_WBTS	Water ballast	1.025	Let GeniE calculate
Reset sorting	No5DS_WBTP	Water ballast	1.025	Let GeniE calculate
	No5DS_WBTS	Water ballast	1.025	Let GeniE calculate
	No6DS_WBTP	Water ballast	1.025	Let GeniE calculate
	No6DS_WBTS	Water ballast	1.025	Let GeniE calculate
	No4DB_WBTP	Water ballast	1.025	Let GeniE calculate
	No4DB_WBTS	Water ballast	1.025	Let GeniE calculate
	No5DB_WBTP	Water ballast	1.025	Let GeniE calculate
	No5DB_WBTS	Water ballast	1.025	Let GeniE calculate
	No6DB_WBTP	Water ballast	1.025	Let GeniE calculate
	No6DB_WBTS	Water ballast	1.025	Let GeniE calculate
	No6Hold	Containers		
	No6Hold	Containers		
	No5Hold	Containers		
	No5Hold	Containers		
	No4Hold	Containers		
	No4Hold	Containers		

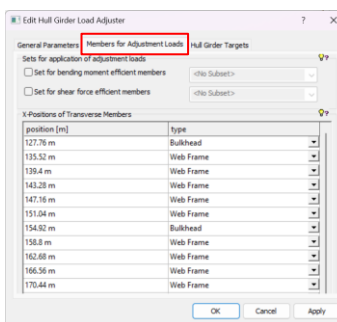


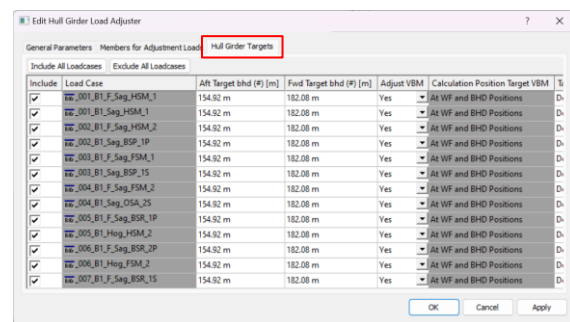
Hull Girder Load Adjuster (HGLA) Tool – Improved interface in GeniE

GeniE's interface to HGLA is improved. Previously, HGLA was reading target values and other information on RuleLoads.xml file created by Nauticus Hull. Now, all HGLA settings are available in GeniE's activity monitor and not reading information from the RuleLoads.xml file. The input needed to define longitudinal hull girder effective members and positions for application of adjustment loads along the length of the model are simplified.

This feature requires GeniE V8.12 or later (older GeniE versions will use the existing HGLA set-up).







4 ENHANCEMENTS, MODIFICATIONS AND CORRECTIONS

4.1 Enhancements and other modifications

Area	Case #	Description	ID
Rules	00198578	Connection strength - yielding - utilization actual stress/permissible stress is now presented in new result tables. This may ease evaluation of soft heel requirement. Re. CSR Pt.1 Ch.3 Sec.6 [5.1.5] and DNV Pt.3 Ch.6 Sec.7 [1.1.5].	570641
Rules		Cross-section and transverse bulkhead analysis - h5 result file. Reference to panel in model may not indicate the actual panel name but rather an ID that may or may not be the same as the panel name. This made it cumbersome to locate the actual panel in the h5 file. The ID is now presented in the panel's property window, improving the traceability.	578848
Rules\CSR	00200466	CSR - Hull girder sectional properties - renewal criteria. Sectional area of neutral axis zone is now included in the result table for cross-section properties.	574275
Section Scantlings		In Section Scantlings, the user now has more direct access to edit node coordinates via an Edit node coordinates context menu.	575042
Section Scantlings	00202967	Cross-section analysis - buckling - unmapped compartment cells caused erroneous pressure direction. Results OK if compartments are mapped. A warning is now shown if there are unmapped compartments.	579552
Compartments and Loads		Sloshing pressure calculation - geometrical tank length and breadth are now used in calculations if sloshing length and breadth has not been given or is set to '0'.	575095
FE		When exporting corrosion additions from Nauticus Hull to GeniE, compartment type independent tank for liquefied gas is now automatically assigned stainless steel property in GeniE.	537391
FE		When exporting liquid compartment pressures from Nauticus Hull to GeniE, the compartment's reference point is now computed by GeniE, based on GeniE's 3D compartment geometry.	548431
FE		When exporting corrosion additions from Nauticus Hull to GeniE, the special cases for boundary between BWT and heated fuel/lube/oil/slope tank according to foot note 2) and 3) in SCR BC&OT Pt.1 Ch.3 Sec.3 Table 1 are now implemented.	591094
FE		When exporting liquid pressures for independent prismatic tanks from Nauticus Hull to GeniE, the JavaScript syntax for	596604

		ULS pressures is better aligned with other JavaScript pressures.	
FE		Hull Girder Load Adjuster (HGLA) tool, used by GeniE for cargo hold models, now allows for creation of user-defined load cases in GeniE, in addition to loads cases imported from Nauticus Hull via RuleLoads.xml transfer.	609155
FE		Hull Girder Load Adjustment (HGLA) tool, used by GeniE for cargo hold models, now allows for offset between GeniE's coordinate system and the ships reference coordinate system used by Nauticus Hull.	611727
3D Model		For 3D model, the wizard for adding new stiffeners on outer shell is enhanced with a new tab: Two points. Allows for e.g. creating longitudinals on outer shell that is inclined in vertical direction.	363223
3D Model		For 3D model, the wizard for adding new plate seams on outer shell is enhanced with a new tab: Two points. Allows for e.g. creating longitudinal plate seams on outer shell that is inclined in vertical direction.	619443
Analysis Tools	00155224	DNV_Equipment spreadsheet - various updates for increased consistency and clarity.	518859
Analysis Tools		Scanning tool for bow impact pressures - table now also includes waterline and flare angle in addition to the bow impact pressure.	575473
Analysis Tools		Rule Calculator - Plates and Stiffeners - bow impact - a warning is shown if a stiffener is above bow impact region rather than giving false results.	607957
Other		In Section Scantlings and in Rule Calculator, the additional local prescriptive requirements to longitudinal hatch side coaming according to DNV Rules Pt.3 Ch.12 Sec.4 [5.2] to [5.3] and CSR BC&OT Pt.2 Ch.1 Sec.5 [6.3] are now implemented.	244295
Other		ICE Polar Class - indication of boundaries for ice regions (areas) now possible to add to the cross-section graphics, similar to ice waterlines.	491422
Other	00153360	In Section Scantlings, for corrugated bulkheads, the user may now edit structural arrangement of corrugations and upper/lower stool after creation. Previously, the user had to delete and create new.	507332

4.2 Corrections

Area	Case #	Description	ID
Rules	00206073	Connection strength - increase permissible stress with 5% if soft heel: CSR rules: Footnote 2) implemented. DNV rules: Footnote 3) implemented.	585373
Rules		For DNV HSLC Rules, the transverse acceleration's maximum wave height was not limited to a speed of 70% of maximum service speed, ref. Pt.3 Ch.1 Sec.3 [2.2.1]. Corrected.	616515
Rules\DNV		Minimum thickness - side shell plating. Requirements related to bilge plating was applied to side shell plate. Corrected.	578727
Rules\DNV		Ice (1A*, 1A*F) - Fore foot was not included in requirement check unless rake of stem was greater than 0. Corrected.	595952
Rules\DNV		Container ships - Implementation of WIV level 1 criteria for fatigue (acc. CG-0153 sec.4 [2]) was not implemented. Corrected.	628541
Rules\CSR	00216611	CSR - bottom slamming was not checked for bottom structure in way of pipe tunnel, re Pt.1 Ch.4 Sec.5 [3.2.1] Case 1. Corrected, pipe tunnel now handled as void space.	603426
Rules\CSR	00218324	Yield check of bottom, bilge, side structure was not performed if there were segments with position code Superstructure side within the same panel as the outer shell panel. Corrected.	606518
Ship Data		In Ship data, under applicable Rules, for Vessels for special operations, the qualifiers (e.g. Ice breaker) in the pull-down menu was not removed if changing back to No ship type notation. This resulted in that Ice breaker requirements was mistakenly applied in the rule checks. Corrected.	595949
Ship Data	00225762	For steel coil input under ship data, number of tiers was limited to an even number. Now the user may give a decimal number, e.g. 1.5 tiers, that is used in the rule checks (DNV Rules and CSR BC&OT).	622769
Section Scantlings		In Section Scantlings, color code legend was different in 2D view compared to 3D view if list with plotted results is higher than window height limitation. Corrected.	418777
Section Scantlings	00201382	Section Scantlings - incorrect tier number was detected for certain arrangements. Corrected. Calculated tier number is now also shown in the advanced result view of result grid.	576896
Section Scantlings		In Section Scantlings, plate EPP slenderness results missing for DNV Rules. Corrected.	593607
Section Scantlings		In Section Scantlings, the color coding (OK /Not OK) of stiffeners slenderness requirements according to DNV Rules Pt.3 Ch.8 Sec.2 [4.2.2] was wrong. Corrected.	594975
Section Scantlings		Cross-section position involving negative frame number and an offset (like #-23+500) caused error when calculating the	595239

		cross-section. Corrected, such position definitions are now allowed.	
Section Scantlings		In Section Scantlings, shear force correction for ore carriers, the shear area of slanted longitudinal bulkhead was not projected in a vertical plane. Corrected.	614705
Section Scantlings		Stiffener selection - clicking a stiffener to select it caused plate or nearby node to be selected instead. If navigating in the stiffener result table by selecting stiffener graphically, this would cause plate result table to be selected instead.	617951
Section Scantlings	00225284	Bow impact check was performed for structure above intersection side shell/deck panel having position code Forecastle deck giving false results. Corrected, bow impact check is now performed for structure below deck with position code Forecastle deck.	621517
Section Scantlings		In Section Scantlings, if merging outer shell panels into one panel, the layout of longitudinal and transverse stiffeners was not maintained. Corrected.	623488
Section Scantlings		Section Scantlings - report option "End connections and slot/lugs" removed as this part is not implemented.	604448
Transverse Bulkhead		For transverse bulkheads tool, if exploding a panel with plate seams, the plate seam layouts are not retained. Corrected.	517218
Compartments and Loads	00222555	HSLC - wheel load definition in Compartments and loads indicated wrong unit [mm] in header for load area input. HSLC rules require load area in [m].	614882
FE	00208957	FE load template for ore carriers within midship cargo region has now been improved to also be available for cargo holds outside midship cargo region (with bending moment adjustments at each web frame / bulkhead position).	582016
FE		When exporting a 3D model from Nauticus Hull to GeniE, outer shell transverse stiffeners were not always correctly exported. Corrected.	593472
FE		When exporting a mirrored 3D model form Nauticus Hull to GeniE, plate seams on Starboard side was not always correctly exported. Corrected.	602503
FE	00222230	Hull Girder Load Adjuster (HGLA) tool, used by GeniE for cargo hold models, did in some special cases for aftmost cargo hold model tune vertical shear force to negative target value instead of positive target value (and vice versa). Corrected.	615815
FE		In FE Manager for bulk carriers, the shear force correction, dQswa, in longitudinal girders was calculated using wrong Section Scantlings cross section. Corrected.	618122
FE		Hull Girder Load Adjuster (HGLA) Tool, used by GeniE for cargo hold models, the shear flow analysis for cross sections with single side is improved.	622983
FE		Hull Girder Load Adjuster (HGLA) tool, used by GeniE for cargo hold models, was not using material density on finite element file but always assuming density of steel. Corrected.	624184

FE		For foremost cargo hold model, torsional adjustment was wrongly applied at aft model ends. Corrected and now applied to forward model end.	626515
FE		When exporting nodal container loads from NH to GeniE, a special case was detected, resulting in one horizontal point load was not mapped to the pillar bulkhead. Corrected.	628305
3D Model	00210818	Hull from import failed if no point on hull form was at Z=0.0. Model was seemingly correctly imported but quality check failed with message "No hull form available, not able to calculate bow impact". Corrected. Hull forms completely above Z=0.0 now accepted.	592946
3D Model		Mirroring a 3D model with openings did not work. Corrected.	603995
Analysis Tools		Spreadsheet for vessel < 90m. R-notation was not transferred to the spreadsheet if set in Applicable rules. Corrected.	604103
3D-Beam	00219427	3D-Beam - von Mises stress was suspiciously high for some standard profiles in a certain arrangement. Corrected.	608502
3D-Beam		In 3D Beam, for T-, H-, I-, C-, Channel- and Box-profiles, more cross-section calculation points are added for more accurate calculation of maximum von Mises stress.	630060
Other	00219901	PULS Excel - results marked as OK even though calculation failed. Corrected.	609745



5 TECHNICAL NOTES

5.1 Hardware requirements

Minimum Memory	Recommended Memory	Minimum free Storage	Minimum Screen resolution
16 GB	32 GB or more	8 GB	1280 x1024

5.2 Operating system requirement

- Windows 10 or Windows 11

5.3 Software requirements

- Excel and Word from Microsoft Office 2010 with SP2 or newer
- Microsoft .NET Framework 4.8
- The Local Model Load Applier console application, accessible from GeniE, requires .NET 8.0



6 OTHER PRODUCT INFORMATION

6.1 Programs and versions

The following programs are available in this release:

Program Version
Nauticus Hull v20.34
Application version manager
GeniE64
License manager
Sesam converters 64
Sesam manager
Sestra64
Submod

Version number of Sesam component in the FEA package can be found in file *PackageContents.xml* located together with the installation.

6.2 Usage of open source/free distributable libraries

Library	Purpose	Public licence	Source
IxMilia/Iges	Read/Write IGES files	Apache License 2.0	GitHub
HDF5	Read/Write HDF5 files	https://support.hdfgroup.org/ftp/HDF5/releases/COPYING	https://portal.hdfgroup.org
Live Geometry	2D viewer	Microsoft Public License (Ms-PL)	https://archive.codeplex.com/?p=livegeometry
AvalonEdit	Text editor	MIT	https://github.com/icsharpcode/AvalonEdit
AutoFac	IoC container	MIT	https://github.com/autofac/Autofac
Log4Net	Message log	Apache License 2.0	https://logging.apache.org/log4net/



6.3 Software Support

Email: Software.Support@dnv.com

Web: [Technical software support](#)

Customer Portal

- download of
 - new or old releases
 - release documents
 - installation guides
 - user manuals
- registration and follow-up of support request
- Knowledge base / FAQ's



About DNV

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