

# Parameters impermeable net

# TR-FOU-100004-7

**Revision 1** 

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Summary:

This document presents three new parameters for impermeable load formulations "Lice skirt" and "Closed compartment", as well as the removal of the parameters "Bottom factor" and "Vacuum surface suction" previously used for the load formulation "General impermeable net".

Consequently, the load formulation "General impermeable net" has been removed and all the capabilities of this load formulation have been separated out in the load formulations "Lice skirt", "Closed compartment" and "Surface tarpaulin", making "General impermeable net" obsolete.

The parameters used for the impermeable load formulations "Lice skirt" and "Closed compartment" are in the 2.20 version of AquaSim presented in an updated interface and are sorted more thematically.

Furthermore, a description of how these new parameters are presented in AquaView has been included in this document. Additionally, renaming of parameters from version 2.19 to 2.20 has been explained and descriptions have been updated.

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## 1 Introduction

This document presents three new parameters for load formulations "Lice skirt" and "Closed compartment" in AquaSim and introduces an updated interface for presenting the analysis parameters in AquaEdit and the 2.20 version of AquaSim. Furthermore, a description of how these new parameters are presented in AquaView has been included.

## 2 Description of new parameters

In version 2.19 and earlier, the same scaling factor was applied both vertically and horizontally for the added mass and hydrodynamic damping using the parameters "Added mass coefficient / height" and "Hydrodynamic damping coefficient".

For the inner watermass only the horizontal component of the mass was considered and could either be set explicitly for each element in the component-group to a defined value expressed in mH2O using "Horizontal radius inner watermass [mH2O]" or calculated automatically if "Horizontal radius inner watermass [mH2O]" was set to 0. The horizontal component of the mass could in turn be scaled using the parameter "Inner fluid mass scaling".

The three new parameters that have been included enable separate adjustments of the horizontal and vertical component of the added mass, hydrodynamic damping and inner watermass.

The parameters enabling separate adjustment of the horizontal and vertical component of the added mass, hydrodynamic damping and inner watermass, are in version 2.20 denoted "Added mass coefficient horizontal", "Added mass coefficient vertical", "Hydrodynamic damping coefficient horizontal", "Hydrodynamic damping coefficient vertical", "Mass relative to radius following acceleration vertically" and "Mass following acceleration vertically" and "Mass following acceleration vertically [mH2O]".

For the added mass and hydrodynamic damping, the horizontal and vertical factors are applied directly on the horizontal and vertical component, respectively.

For the inner watermass, a vertical component of the inner watermass is introduced in the 2.20 version of AquaSim, and this value can be set explicitly for each element in the componentgroup to a defined value expressed in mH2O using "Mass following acceleration vertically [mH2O]". For the horizontal component of the inner watermass, no change is made except that the parameter scaling the horizontal component of the inner watermass has changed name from "Inner fluid mass scaling" to "Mass relative to radius following acceleration horizontally".

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### 3 Parameters AquaEdit

The interface from version 2.19 of AquaSim, is shown in Figure 1. In version 2.20 of AquaSim, three new parameters have been introduced, and simultaneously the interface has been sorted as shown in Figure 2. It is noted that the parameters under the header "Thickness" in version 2.19, has been moved to "Material properties" in version 2.20.

Drag coefficient       1.0         Lift coefficient       2.4         Density of fluid inside tank       1025.0 kg/m^3         Height of fluid level inside tank relative to sea level       0.0 m         Added mass coefficient / height       0.25         Hydrodynamic damping coefficient       0.25         Bottom factor, 0 if water flow through bottom       0.0 m^2         Damping coefficient       0.00 m^2         Damping coefficient       0.00 m^2         Damping coefficient       0.00 m^2         Skin friction coefficient       0.1         Height of net edge       0.0         Include drift		Impermeable net load formulation	
Lift coefficient       2.4         Density of fluid inside tank       1025.0 kg/m^3         Height of fluid level inside tank relative to sea level       0.0 m         Added mass coefficient / height       0.25         Hydrodynamic damping coefficient       0.25         Bottom factor, 0 if water flow through bottom       0.0 m^2         Damping coefficient       0.00 m^2         Damping coefficient       0.00 m^2         Damping coefficient       0.00 m^2         Skin friction coefficient       0.1         Height of net edge       0.0         Include drift		Drag coefficient	1.0
Density of fluid inside tank       1025.0 kg/m^3         Height of fluid level inside tank relative to sea level       0.0 m         Added mass coefficient / height       0.25         Hydrodynamic damping coefficient       0.25         Bottom factor, 0 if water flow through bottom       0.0 m^2         Damping coefficient       0.0 m^2         Damping coefficient       0.00 m^2         Include drift		Lift coefficient	2.4
Height of fluid level inside tank relative to sea level       0.0 m         Added mass coefficient / height       0.25         Hydrodynamic damping coefficient       0.25         Bottom factor, 0 if water flow through bottom       0.0 m^2         Damping coefficient       0.00 m^2         Damping coefficient       0.00 m^2         Damping coefficient       0.02         Include drift		Density of fluid inside tank	1025.0 kg/m^3
Added mass coefficient / height       0.25         Hydrodynamic damping coefficient       0.25         Bottom factor, 0 if water flow through bottom       0.0 m^2         Damping coefficient       0.00 m^2         Damping coefficient       0.02         Include drift		Height of fluid level inside tank relative to sea level	0.0 m
Hydrodynamic damping coefficient       0.25         Bottom factor, 0 if water flow through bottom       0.0         Area top that water can penetrate over       0.0 m^2         Damping coefficient       0.02         Include drift		Added mass coefficient / height	0.25
Bottom factor, 0 if water flow through bottom       0.0         Area top that water can penetrate over       0.0 m^2         Damping coefficient       0.02         Include drift		Hydrodynamic damping coefficient	0.25
Area top that water can penetrate over       0.0 m^2         Damping coefficient       0.02         Include drift		Bottom factor, 0 if water flow through bottom	0.0
Damping coefficient       0.02         Include drift		Area top that water can penetrate over	0.0 m^2
Include drift		Damping coefficient	0.02
Skin friction coefficient       0.1         Height of net edge       0.0         Inner fluid mass scaling       1.0         Horisontal radius inner watermass       0.0         Added mass indicator       0         Extra drag in front       0.0         Wave damping tangential to panels       0.1         Combined pressure from waves and current       0.0         Type of diffraction load       MacCamy-Fuchs         Vacuum surface suction       1.0         Vacuum surface suction       1.2566E-4 m         Thickness Z       1.2566E-4 m         Thickness Z       2.5133E-4 m         Mave amplitude reduction       0.0         Current reduction       0.0         Table       (none)		Include drift	
Height of net edge       0.0         Inner fluid mass scaling       1.0         Horisontal radius inner watermass       0.0         Added mass indicator       0         Extra drag in front       0.0         Wave damping tangential to panels       0.1         Combined pressure from waves and current       0.0         Type of diffraction load       MacCamy-Fuchs         Diffraction scaling       1.0         Vacuum surface suction       1.0         Thickness       1.2566E-4 m         Thickness Z       1.2566E-4 m         Thickness       2.5133E-4 m         Mave amplitude reduction       0.0         Current reduction       0.0         E Sloshing          Table       (none)		Skin friction coefficient	0.1
Inner fluid mass scaling1.0Horisontal radius inner watermass0.0Added mass indicator0Extra drag in front0.0Wave damping tangential to panels0.1Combined pressure from waves and current0.0Type of diffraction loadMacCamy-FuchsDiffraction scaling1.0Vacuum surface suction		Height of net edge	0.0
Horisontal radius inner watermass       0.0         Added mass indicator       0         Extra drag in front       0.0         Wave damping tangential to panels       0.1         Combined pressure from waves and current       0.0         Type of diffraction load       MacCamy-Fuchs         Diffraction scaling       1.0         Vacuum surface suction		Inner fluid mass scaling	1.0
Added mass indicator0Extra drag in front0.0Wave damping tangential to panels0.1Combined pressure from waves and current0.0Type of diffraction loadMacCamy-FuchsDiffraction scaling1.0Vacuum surface suction		Horisontal radius inner watermass	0.0
Extra drag in front0.0Wave damping tangential to panels0.1Combined pressure from waves and current0.0Type of diffraction loadMacCamy-FuchsDiffraction scaling1.0Vacuum surface suction		Added mass indicator	0
Wave damping tangential to panels0.1Combined pressure from waves and current0.0Type of diffraction loadMacCamy-FuchsDiffraction scaling1.0Vacuum surface suction		Extra drag in front	0.0
Combined pressure from waves and current0.0Type of diffraction loadMacCamy-FuchsDiffraction scaling1.0Vacuum surface suction		Wave damping tangential to panels	0.1
Type of diffraction loadMacCamy-FuchsDiffraction scaling1.0Vacuum surface suction		Combined pressure from waves and current	0.0
Diffraction scaling1.0Vacuum surface suction		Type of diffraction load	MacCamy-Fuchs
Vacuum surface suction		Diffraction scaling	1.0
□ Thickness   Thickness Y   1.2566E-4 m   Thickness Z   1.2566E-4 m   Thickness   2.5133E-4 m     Output   Wave amplitude reduction   0.0   Current reduction   0.0   Current reduction   0.0   Table   (none)		Vacuum surface suction	
Thickness Y       1.2566E-4 m         Thickness Z       1.2566E-4 m         Thickness       2.5133E-4 m         Image: Advanced       2.5133E-4 m         Wave amplitude reduction       0.0         Current reduction       0.0         Image: Sloshing       Image: Sloshing         Table       (none)		Thickness	
Thickness Z       1.2566E-4 m         Thickness       2.5133E-4 m         Advanced       Vave amplitude reduction         Current reduction       0.0         Current reduction       0.0         Image: Sloshing       Image: Sloshing         Table       (none)		Thickness Y	1.2566E-4 m
Thickness     2.5133E-4 m       Advanced     0.0       Wave amplitude reduction     0.0       Current reduction     0.0       E Sloshing        Table     (none)		Thickness Z	1.2566E-4 m
□ Advanced         Wave amplitude reduction       0.0         Current reduction       0.0         □ Sloshing          Table       (none)		Thickness	2.5133E-4 m
Wave amplitude reduction     0.0       Current reduction     0.0       Sloshing        Table     (none)		Advanced	
Current reduction     0.0       Sloshing     Table       Table     (none)		Wave amplitude reduction	0.0
□ Sloshing Table (none)		Current reduction	0.0
Table (none)	Ξ	Sloshing	
		Table	(none) 💌

Figure 1 Parameters and interface "General impermeable net" in version 2.19 of AquaSim.

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_		1	
Ξ	Fluid parameters internally in tank		
	Bottom factor	0.0	
	Density of fluid inside enclosed volume	1025.0 kg/m^3	
	Height of fluid level inside enclosed volume relative to $\ensuremath{s}\xspace\ldots$	0.0 m	
	Free surface area of internal waterline	0.0 m^2	
	Distance from water line to panel edge	0.0 m	
	Mass following acceleration vertically [mH2O]	0.0 m	
	Mass relative to radius following acceleration horizontally	1.0	
	Horizontal radius inner watermass [mH2O]	0.0 m	
Ξ	Drag		
	Drag coefficient upstream	1.0	
	Drag coefficient downstream	0.0	
	Skin friction coefficient	0.1	
	Lift coefficient	1.0	
Ξ	Diffraction		
	Diffraction forces, load formulation	MacCamy-Fuchs	-
	Diffraction scaling	1.0	
	Added mass and damping		
	Added mass coefficient horizontal	0.25	
	Added mass coefficient vertical	0.25	
	Added mass indicator	0: Mean free surface	-
	Hydrodynamic damping coefficient horizontal	0.25	
	Hydrodynamic damping coefficient vertical	0.25	
	Damping coefficient (flexible tarp)	0.0	
	Damping coefficient (flexible tarp) tangential to panels	0.0	
Ξ	Advanced		
	Wave amplitude reduction	0.0	
	Current reduction	0.0	
	Include drift		
	Combined pressure from waves and current	0.0	
	Vacuum surface suction		
Ξ	Sloshing		
	Table	(none)	r)

Figure 2 Parameters and interface "Closed compartment" in version 2.20 of AquaSim. The three new parameters are highlighted in green. The two old parameters highlighted in red have been removed and were previously used for load formulation "General impermeable net".

This document presents a modification of the table at page 36 in (Aquastructures, 2024a) and relevant changes from the original are described below. Please note that the notations from the 2.19 version of AquaSim is included in italics.

For updated descriptions and figures of the new interfaces for all the "Membrane" load formulations, see (Aquastructures, 2024d).

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Properties		Description	
Fluid parameters internal	y in tank	·	
Bottom factor - Removed		1.0 means that the inner v the outer volume.	olume is separated fron
		0.0 means that the inside a are connected, which is th	and the outside fluids e case for lice skirts.
Density of fluid inside enclosed volume (Density of fluid inside tank)		If the bottom factor is 0.0 parameter is a dummy. In static pressure is set equal pressure.	(e.g., lice skirt), this this case the internal to the external
		If the bottom factor is 1.0, the density of the fluid ins external pressure is calcula density of seawater, 1025	then this parameter is ide the tank. The ated based on the kg/m <sup>3</sup>
Height of fluid level inside relative to sea level (Height of fluid level inside	enclosed volume	This parameter is a dumm 0.0.	y if the bottom factor is
(Height of fluid level inside tank volume relative to sea level)		If the bottom factor is 1.0 static water level of the flu relative to the outside wat means that the inside wate the outside water level.	then this value is the uid inside the tank, er level. Positive value er level is higher than
		This and inner waterplane gives the extra volume.	area
Free surface area of interr (Area top that water can p	nal waterline penetrate over)	This parameter is a dumm 0.0.	y if the bottom factor is
		When an impermeable neinside is separated from the deformed it will change von the area the fluid is assum when volume is changed.	t, where the fluid on the ne fluid on the outside, is plume. This area is then ed to be pushed throug
Distance from water line t (Height of net edge)	o panel edge	Height of inside net, if 0.0	infinite height is set.
		If higher than 0.0 then the over the edge if it is comp reaches over this set heigh	fluid inside can splash ressed enough that it nt.
Mass following acceleratio [mH2O]	on vertically	mH2O of mass to be used vibrating vertically.	as internal mass

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Mass relative to radius for acceleration horizontally (Inner fluid mass scaling)	llowing	Part of inner water mass added mass horizontally If this parameter is:	inside tank to be used as in the analysis.
		1, then 100% of the enclo vibrates as added mass h	osed water volume oorizontally,
		0.2, then 20% of the encl vibrates as added mass h	losed water volume lorizontally,
		0, then 0% of the enclose as added mass horizonta	ed water volume vibrates lly,
		1.2, then 120% of the environment of the environmen	closed water volume orizontally.
		More information is four 2024b).	nd in (Aquastructures,
Horizontal radius inner w	atermass [mH2O]	AquaSim automatically d cylinder. If 0, then the automatica applied. If any other num the radius. in meters.	etects the radius of the Ily calculated radius is aber, this is interpreted as
Drag		,	
Drag coefficient upstrean (Drag coefficient and Ext	n ra drag in front)	Gives the form drag to th part. Note that the drag l in the 2.20 version. For d (Aquastructures, 2024c).	ne object for the upstrear load formulation is revise letails, see
Drag coefficient downstru (Drag coefficient and Ext	eam ra drag in front)	Gives the form drag to th downstream part. Note t formulation is revised in details, see (Aquastructu	ne object for the hat the drag load the 2.20 version. For res, 2024c).
Skin friction coefficient		Drag along the membran	e elements.
Lift coefficient		Gives the lift coefficient of Note that the drag load f the 2.20 version. For deta 2024c)	on the membrane panel. ormulation is revised in ails, see (Aquastructures,

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Diffraction Diffraction forces, load for (Type of diffraction load)	rmulation	Methods for calculating di pressure caused by waves explained in (Aquastructu Flexible tarp: load formula tarps and woven textiles, hydrodynamic damping fa volume of the tank. MacCamy-Fuchs: Diffracti from the MacCamy-Fuchs mass and hydrodynamic d related to the volume of t	iffraction part of the . These are further res, 2024c). ation adapted to flexibl and the added mass an actors are related to the on loads are calculated theory, and the added lamping factors are he tank.
		Numerical diffraction: Dif on numerical calculation(' mass and hydrodynamic d in this case scaling factors and hydrodynamic dampin numerical diffraction theo	fraction loads are based 'sink-source"). Added lamping coefficients are used on the added ma ng found from the ory.
		Hybrid flexible tarp/nume Combination of the Flexib diffraction-load formulation hydrodynamic damping is Numerical diffraction-theorem methods through the "Difference of the second sec	erical diffraction: le tarp- and Numerical ons. Added mass and calculated using the ory. The user weights th fraction scaling" option
		Hybrid flexible tarp/Mac Combination of the Flexib Fuchs load formulations. Thydrodynamic damping favolume of the tank. The u through the "Diffraction s	Camy-Fuchs: le tarp- and MacCamy- The added mass and actors are related to the ser weights the method caling" option.
Diffraction scaling		Weight factor for the Hybrowen numerical diffraction and MacCamy-Fuchs formulat 0.99 means that 99% of the calculated from either Num MacCamy-Fuchs. 1% is taken method.	rid flexible tarp/ Hybrid flexible tarp/ ions. Applying a value on the diffraction force is merical diffraction, or the flexible

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Added mass coefficient horizontal (Added mass coefficient)	<b>Flexible tarp:</b> Added mass for horizontal motion is calculated automatically for each element in the component group based on the 2D volume of the component group at the given depth, the element's horizontal distance from the centerline of the 2D volume at the given depth, the fluid density and scaled with the coefficient.
	MacCamy-Fuchs: Same as for Flexible tarp.
	Numerical diffraction: Added mass for horizontal motion is calculated automatically based on the Numerical diffraction- theory ("sink-source") and scaled with the coefficient.
	Hybrid flexible tarp/numerical diffraction: Same as for Numerical diffraction.
	Hybrid flexible tarp/MacCamy-Fuchs: Same as for Flexible tarp and MacCamy-Fuchs.
Added mass coefficient vertical (Added mass coefficient)	<b>Flexible tarp:</b> Added mass for vertical motion is calculated automatically for each element in the component group based on the 2D volume of the component group at the given depth, the element's horizontal distance from the centerline of the 2D volume at the given depth, the fluid density and scaled with the coefficient.
	MacCamy-Fuchs: Same as for Flexible tarp.
	Numerical diffraction: Added mass for vertical motion is calculated automatically based on the Numerical diffraction-

automatically based on the Numerical diffractiontheory ("sink-source") and scaled with the coefficient.

#### Hybrid flexible tarp/numerical diffraction:

Same as for Numerical diffraction.

Hybrid flexible tarp/MacCamy-Fuchs: Same as for Flexible tarp and MacCamy-Fuchs.

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Added mass indicator		Indicator of added mass in and out of water.
		<b>0</b> : Added mass both of fluid inside and outside and assumed distributed to the mean free surface and mass is distributed consistent (no mass in rotational DOFs). The mean free surface is the surface at the steady state condition where approximately 2/3 of the current velocity has been added to the system.
		<b>1</b> : Same as 0, but the mass is lumped to the translational DOFs of the nodes.
		2: In this case added mass for both inside and outside fluid is calculated to the actual water line during the simulation. This option can be suitable for a stiff cylinder going in and out of water in a rather wall sided manner. 2 means combining wit consistent mass.
		<b>3</b> : Same as 2 but combining with lumped mass.
Hydrodynamic damping coe horizontal (Hydrodynamic damping coe	fficient efficient)	Flexible tarp: Hydrodynamic damping for horizontal motion is calculated automatically for each element in the component group based on the 2D volume of the component group at the given depth, the element's horizontal distance from the centerline of the 2D volume at the given depth, the fluid density and scaled with the coefficient.
		MacCamy-Fuchs: Same as for Flexible tarp.
		Numerical diffraction: Hydrodynamic damping for horizontal motion is calculated automatically based on the Numerical diffraction-theory ("sink-source") and scaled with the coefficient.
		Hybrid flexible tarp/numerical diffraction: Same as for Numerical diffraction.

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Hydrodynamic damping c (Hydrodynamic damping d	oefficient vertical coefficient)	Flexible tarp: Hydrodynamic damping fo calculated automatically f component group based o component group at the g element's horizontal dista of the 2D volume at the g density and scaled with th	or vertical motion is or each element in the on the 2D volume of the given depth, the ince from the centerline iven depth, the fluid he coefficient.	
		MacCamy-Fuchs: Same as for Flexible tarp.		
		Numerical diffraction: Hydrodynamic damping for calculated automatically b diffraction-theory ("sink-s the coefficient.	or vertical motion is based on the Numerical ource") and scaled with	
		Hybrid flexible tarp/numerical dif	erical diffraction: fraction.	
		Hybrid flexible tarp/Maco Same as for Flexible tarp a	Camy-Fuchs: and MacCamy-Fuchs.	
Damping coefficient (flexi (Damping coefficient)	ble tarp)	Damping forces normal to Calculated based on the F formulation and scaled wi details, see (Aquastructur	membrane panel. lexible tarp load th the coefficient. For es, 2024c).	
Damping coefficient (flexi	ble tarp)	Damping forces tangentia	l to membrane panel.	
tangential to panels (Wave damping tangentio	al to panels)	The same damping as calc direction based on the Fle formulation, is applied in and scaled with the coeffi (Aquastructures, 2024c).	ulated for the normal xible tarp load the tangential direction cient. For details, see	
Advanced				
Wave amplitude reductio	n	Reduction of wave amplit e.g., shadow effects. Input 0.0 and 1.0. 0 correspond corresponds to 100% redu	ude on element, due to t is a number between s to 0% reduction, 1.0 uction	
Current reduction		Reduction of current on e shadow effects. Input is a 1.0. 0 corresponds to 0% r corresponds to 100% redu	lement due to e.g., number between 0.0 a reduction, 1.0 uction.	
nclude drift		To include drift forces to t slamming" under the Adv dialog must be used.	he loads, "With anced tab in the Export	
		This element is calculated water line, meaning that p	with forces to the actuation of drift forces are	

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Combined pressure from waves and currents		<ul> <li>The way current and wave loads are combined for calculating pressure from current.</li> <li>0 means that the "raw" velocity at each element is used as basis such that the pressure is found from the pressure coefficient multiplied with relative velocity at the element.</li> <li>1 means that the relative velocity is averaged over the elements at similar vertical location. In</li> </ul>		
Vacuum surface suction - R	lemoved	be Va cas On me Of	tween means that the e cuum between membra ses where membrane m : activates vacuum. Neg embrane and water line f: does not enable press embrane (default).	ffects are weighted. ne and water line. For oves above water. ative pressure between is allowed. ure between surface and
Sloshing		Ed	it/Add a sloshing table t	o the net.

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## 4 Parameters AquaView

This section provides a description of how the separation of horizontal and vertical component of the added mass, hydrodynamic damping and inner watermass, as a result of the introduction of the three new parameters, is accounted for and presented in AquaView.

The parameters describing the horizontal and vertical component of the added mass, hydrodynamic damping and inner watermass, are in AquaView version 2.20, denoted "Added mass normal hor per m2 [m3]", "Added mass factor vert", "Hyd damp normal hor per m2 [Ns/m]", "Hydrodynamic damp factor vert", "Mass normal hor per m2" and "Mass normal vert per m2", highlighted in green in Figure 3.

Result Show Front Left	Right	Тор	Bottom	ISO	Zoom	Zoom to result	Tools	Help
Clear data								
Color								
Node number								
Acceleration	>							
Convergence norm								
Global section forces	>		1					
Impermeable net	>	A	dded ma	ass fac	tor ver	t		
Local section forces	>	A	dded ma	ass no	rmal ho	or per m2 [m3]		
Rotation	>	B	uoyancy	impe	rmeable	e net [m3]	2	
Sag		C	amp(flex	<mark>kible t</mark> a	arp) per	r m2 [Ns/m]		
Shell	>	E	dge abo	ve inn	er wate	r line [m]	- 25	
Shell stress	>	F	leight to	water	surface	e [mH2O]	1	
Stress component	>	H	lyd damp	o norn	nal hor	per m2 [Ns/m]		
Velocity	>	ŀ	lydrodyn	amic (	damp fa	actor vert	2	
Von Mises stress [MPa]		li	nner heig	ht wa	terline	[m]	2	
Wind	>	h	nternal p	ressur	e [mH2	0]	2	
Location	>	N	lass nor	nal ho	or per n	n2 [m3]	2	
Distance	>	N	lass nor	nal ve	rt per r	n2 [m3]		
Displacement	>	P	ercent e	emen	t in wat	ter [%]		
Rigid body rotation	>	P	ressure f	rom c	urrent	[Pa]		
Membrane area [m^2]		P	ressure f	rom w	aveDIF	F [mH2O]	1	
Utilization	>	P	ressure f	rom w	vaveFC	[mH2O]	1	
Information on springs	>	P	ressure f	rom w	vave [m	H2O]	2	
Debug	>	F	elative p	ressur	e [mH2	20]	2	
- 14	F	V	olume ir	nc <mark>l inn</mark>	er heig	h [m3]	3	

Figure 3 Parameters describing the horizontal and vertical component of the added mass, hydrodynamic damping and inner watermass, highlighted in green, as seen in the result view in AquaView.

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Result	Description
Impermeable net	
Added mass normal hor per m2 [m3]	This output shows the added mass in the normal direction of the element, used in the analysis, multiplied with a factor corresponding to AquaEdit input parameter "Added mass coefficient horizontal". The unit is $[m^3/m^2]$ and corresponds to mH2O that oscillates with the element. The added mass per unit area $[kg/m^2]$ is found by multiplication with the density of seawater.
Added mass factor vert	This output shows the added mass factor in the vertical direction, used in the analysis, corresponding to AquaEdit input parameter "Added mass coefficient vertical".
Hyd damp normal hor per m2 [Ns/m]	This output shows the hydrodynamic damping in the normal direction of the element, used in the analysis, multiplied with a factor corresponding to AquaEdit input parameter "Hydrodynamic damping coefficient horizontal". The unit is [(Ns/m)/m <sup>2</sup> ].
Hydrodynamic damp factor vert	This output shows the hydrodynamic damping factor in the vertical direction, used in the analysis, corresponding to AquaEdit input parameter "Hydrodynamic damping coefficient vertical".
Mass normal hor per m2 [m3]	This output shows the mass of the internal fluid in the normal direction of the element, used in the analysis for horizontal motion, multiplied with a factor corresponding to AquaEdit input parameter "Mass relative to radius following acceleration horizontally". The unit is [m <sup>3</sup> /m <sup>2</sup> ] and corresponds to mH2O that oscillates with the element. The added mass per unit area [kg/m <sup>2</sup> ] is found by multiplication with the density of seawater.
Mass normal vert per m2 [m3]	This output shows the mass of the internal fluid in the normal direction of the element, used in the analysis for vertical motion. The unit is $[m^3/m^2]$ and corresponds to mH2O that oscillates with the element. The added mass per unit area [kg/m <sup>2</sup> ] is found by multiplication with the density of seawater.

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