Links and Resources

Revision 27 November 2020 – work in progress

Our intent with these pages to provide a direct reference to internet locations and reference books and papers that may be useful to engineers and students of Air Cushion Technology. We list below a selection of of internet sites that can form a starting point for technical search. In addition, papers, theses, and publications that are available are listed below that can be useful for research into vessel resistance, air lubrication, air cushion technology, and the various aspects of planing craft technology that form a basis for design.

It is important to note that companies do change, get absorbed into larger organisations, and some more specialist organisations often pass further on to become part of different larger organisations. Our advice is that if a link doesn't work for you, try searching on the main name and see if parts of the address have been changed, perhaps .co.uk to .com for example. For much basic information it is helpful also to look at what exists in Wikipedia. Please note that Wiki also exists in various local forms, so Wikipedia in German is not the same as the UK or US version.

Please do be careful to check that a site is genuine if searching on keywords, as there are many fakes out there. It is important to have virus protection working for you on your computer or other device. It should also be noted that everything listed here is at user risk. We take no responsibility for any download of the document or subsequent connection to the links listed.

The material is based on listings contained in several textbooks and covers organisation links and subjects that will be relevant to amphibious hovercraft, surface effect ships, air cavity craft, and air lubricated vessels. Since surface effect ships and air cavity craft have overlapping hydrodynamics with catamarans and planing craft, references are included for this as well.

Further information related to Ekranoplan/WIG and other hybrid high speed marine craft will be added gradually. During the period since 2000 there have not been so many papers concerned with amphibious hovercraft and air cushion technology. A survey will be undertaken during the course of 2021 and suitable reference materials added.

The sites are grouped in subject areas. Please note that the listing is not exhaustive and we tend to focus on smaller vessel applications. The idea is to give the reader a good start. We have also given additional direction to pages that are directly useful as many of the sites for large companies or organisations have different ways of presenting their information and finding the area for information relevant to our subject of fast vessels is not obvious.

Finally two advisories – first please note the revision date above. This will be included with updates, so you can check if there is new info compared to any download you might make. Updates from last revision will be highlighted in yellow for easy reference. Secondly this document is expanding such that from New Year 2021 we will split it in two parts for the links, and for the documentary resources, so it doesn't become too unwieldy.

Technical Societies

The Societies that best form a start point are RINA, and SNAME, as these publish research papers and technical journals. There are many other societies and special interest clubs that can provide useful information if a key word search is used. University electronic library sites are now becoming more common, with access once an account is registered. Sites such as www.scribd.com also have some useful papers available.

www.RINA.org.uk	Royal Institution of Naval Architects (London, UK)
www.SNAME.org	Society of Naval Architects and Marine Engineers (NY, USA)

Universities, Marine Institutes, and Industry Organisations

https://www.tudelft.nl/en/library/	Location for Delft University of Technology library
www.NTNU.no	Site for Trondheim University and Test Basin
www.engineering.unsw.edu.au	University of New South Wales at /mechanical-engineering/Naval Architecture. Prof Laurie Doctors and his book on hydrodynamics of High Performance Marine Vessels (see books below). Degree now suspended.
www.utas.edu.au/	University of Tasmania, Marine Technology and Naval Architecture, with extensive list of research papers available on request at www.eprints.utas.edu.au.

www.ucl.ac.uk University College London, search under /mecheng, /our-courses, /postgraduate/naval-architecture for courses, research and contacts

www.southampton.ac.uk/ search under engineering maritime engineering, ship science, naval architecture for Naval Architecture course and contacts

www.wumtia.soton.ac.uk /about-us/published-papers/high-speed-craft-code-review for High Speed Craft reviews by Southampton University including wind heeling moment research

www.theses.gla.ac.uk University of Glasgow library and repository for theses, look under section v for Naval and Naval Architecture

www.wegemt.com Site for European Universities summer school papers. Includes HPMV

www.MARIN..nl Marine Research Institution Netherlands, at Wageningen

www.SSPA.se Swedish Ship Model Basin, Goteborg, Sweden

www.HSVA.de Hamburg Ship Model Basin, Hamburg, Germany

www.en.wikipedia.org/wiki/David_Taylor_Model_Basin David Taylor Model Basin for basic info

www.dome.mit.edu/handle/1721.3/48001 for DTMB reports

http://offshore.cssc.net.cn/en/component_production_capacity/index.php?typeid=2 for summary of MARIC

www.maric.com.cn Marine Design and Research Institute of China, Shanghai, site in chinese. MARIC are the principal designers in China of ACV, SES, WIG, Catamarans and fast vessels. Google can translate, but plugins are blocked.

http://www.cssrc.com/ China Ship Research Centre, Wuxi, China. Principal towing tank and ship research facilities including fast marine craft

https://en.wikipedia.org/wiki/PLA_Naval_University_of_Engineering China Naval Engineering University (CNEU)

https://www.sssri-marin-jv.com/about-us/sssri Shanghai Shipping Research Institute

https://www.sssri-marin-jv.com/ SSSRI Joint venture with MARIN in Holland, provides support to technology development and courses in both China and Europe

http://www.tsagi.com/ CAHI Central Aerohydrodynamic research institute (N Zhukovsky Institute, Zhukovsky, Moscow Region, 140180, Russian Federation)

https://interferry.com/ Interferry industry organisation for all types of ferries

Conferences of interest

www.hiper-conf.info HIPER Conferences details from 2017

http://fast2017.com/ FAST Conferences, FAST 2017 papers are on-line

Museums with Hovercraft

https://hovercraft-museum.org Has a selection of small and very large craft at Lee-on-Solent, Hampshire, the earlier base at HMS Daedelus for IHTU and NHTU

Note that The Science Museum, has the SR.N1 at its collections centre Wroughton, near Swindon, Wiltshire mantained in its final operational state: https://collection.sciencemuseumgroup.org.uk/objects/co41524/hovercraft-sr-n1-hovercraft

Hovercraft History and general

https://www.bartiesworld.co.uk/hovercraft/index.php Tony Barton's web site with summary onfo on Hovercraft from the 1960's to present around the Solent and Isle of Wight

Air Cushion Vehicles (ACV)

www.en.wikipedia.org/wiki/Hovercraft Air Cushion Vehicles general introduction

www.griffonhoverwork.com Amphibious hovercraft design, construction, maintenance support, and operations training. Passenger, Utility and Paramilitary craft. Also refurbishment and re-sale of hovercraft

Ship-to-Shore Connector | Textron Systems Textron programme for the replacement of USNavy LCAC Fleet of close to 80 craft capable of transporting a main battle tank and personnel or equivalent. One of the 'original' hovercraft designers and builders from the 1970's as summarised on their site

https://www.amphibiousmarine.com/ Builders of utility craft at Shelton, Washington State, USA

https://airlifthovercraft.com/ Builders of the Kaiman, Wildfire and Pioneer craft in Queensland, Australia.

ACV Operators

This requires some research, as while Hovertravel (https://www.hovertravel.co.uk) is straight forward, there are a wealth of utility and paramilitary operators (eg Indian Coastguard, Korea Coastguard, NZ Aukland Airport, Finnish CG, Swedish CG etc that have craft, as well as various Fire Departments in US

Light Hovercraft

www.britishhovercraft.com The British Hovercraft Company supply a range of small craft up to 6 seats

https://www.hovercraft.org.uk/ Site for Hoverclub of Great Britain. Go to Publications and look for downloads to find construction regulations for cruising and racing craft as well as for operation in races and cruises. The Light Hovercraft Handbook is still available for GBP 10.00.

https://www.hovercraft.com Universal Hovercraft, Rockford, Illinois, USA. Their range also includes designs of WIG Hovercraft.

http://www.hovertechnics.com/ Integrated lift and propulsion craft, Terre Haute, Indiana

https://www.neoterichovercraft.com Neoteric Hovercaft, Terre Haute, Indiana

https://hovercraft.se/ Ivanoff Hovercraft ab, Sweden

http://www.bufocraft.net/ Builders of 'MAD' Hovercraft in Slovenia

https://hovercraft.nz Pacific Hovercraft, New Zealand, now build the 'Slider'

SES and Air Cavity Vessels

www.um.no UMOE Mandal designers and builders of SES for wind farm and offshore logistics service (see also www.wavecraft.no). Builders of the Royal Norwegian Navy SES Minehunters and SES High Speed Strike Craft

www.harleyshipbuilding.net Designer and builder of air cavity catamarans

www.zdship.ru/en/ Zelenodolsk AM Gorki Shipyard have built air cavity craft

www.en.wikipedia.org/wiki/More_(Feodosiya)

More Shipyard, Feodosia, Crimea built Zubr military ACVearlier and have built air cavity craft

http://www.tuco.dk/index.php/en/cases/78-air-supported-vessel

Tuco Marine, Denmark, builders of fast ASV craft in collaboration with SESXMarine Technologies (see designers below)

Ekranoplan and Wing in Ground Effect Craft

https://www.imo.org/en/OurWork/Safety/Pages/WIG.aspx

IMO page on WIG and guideline regulations

http://krylov-centre.ru/en/ Krilov State Research Centre, St Petersburg

http://www.ckbspk.ru/en/ Fast Ships Bureau, Alexeev Design Institute, Nizhny Novgorod, also see:

https://en.wikipedia.org/wiki/Rostislav_Alexeyev The design centre for hydrofoils, ACV, SES, Ekranoplan, and Air Cavity Craft. Testing is carried out at Krilov Centre in St Petersburg

https://www.wigetworks.com/wig-technology

Builders of the Fischer Airfish 8 passenger WIG, based in Singapore and active in 2020. Various articles on the site

https://pacificseaflight.com Designers of the WSH 500 passenger WIG

Air Lubrication Shipbuilders

www.dsme.co.kr Daewoo Shipbuilding and Marine Engineering, has developed own air lubrication technology and applied to Maran Gas Maritime 173,400 cu.m LNG Carriers, first of class, *Maran Gas Andros* delivered November 2019, remaining 11 ships to be delivered up to 2022. DSME system has active control system and quoted at saving around 5% fuel consumption.

https://www.mhi.co.jp/technology/review/pdf/e502/e502044.pdf

Implementation of Ship Energy-saving Operation with Mitsubishi Air Lubrication System,Mitsubishi Heavy Industries Technical Review Vol.50 No.2(2013)

https://samsungshi.com/eng/default.aspx

	Samsung Heavy Industries (Samsung Shipbuilding). Look for Saver Air under new technologies. Samsung have their own air lubrication technology applied to ships they deliver to operators
www.damen.com	Damen in The Netherlands have developed air cavity and compartmented air layer drag reduction for application to high L/B inland waterway barges as part of efficiency and environmental improvements. First of class built.

Air Lubrication Stepped Planing Vessels

https://www.beneteau.com/en/innovate	
	Beneteau, designers of fast planing craft using air vented stepped hulls

High Performance Marine Vessel Designers / Naval Architect Practises

www.esna.no	Norwegian hybrid SES Naval Architecture Practise
www.SESXMarineTechnologies.com	
	Oslo based company developing air cavity hybrid and zero emission craft
www.invincibleboats.com	Ventilated stepped vee hulls as from Michael Peters Yacht Design (www.mpyd.net)
www.aeromarineresearch.com	tunnel boats – high speed catamarans, design books and software
www.revenger.co.uk	Stepped hull RIB's
www.lornecampbelldesign.com	Planing and racing craft – ref presentation on steps
www.cdicorp.com	/engineering/government-services/naval-architecture-advanced-ship-design/ including Band Lavis group working on ACV and catamarans etc

Zero Emission Vessels and Transport Systems

http://bbgreen.eu/	BB Green are a consortium developing a zero emission city commuter ferry based on the vessels engineered by SESEU and now SESX Technologies
https://Greencityferries.com	Green City Ferries work on integrated ferry systems design bringing together battery or fuel cell powered vessels with air lubrication with terminal systems that enable zero emissions

Air Lubrication Design for Ships

https://www.silverstream-tech.com/	Silverstream deliver customised air lubrication modular systems for new builds and retrofit to ships including cruise ships, LNG and container vessels
www.foreship.com/en/company	Foreship design customised systems for cruise ships and other vessels
www.rand-engineering.co.jp	Research and Engineering Company Original perform research and development for Winged Air Induction Pipe (WAIP) air lubrication systems for marine vessels
www.stenateknik.com	Stena Research, Stena Teknik have studied air cavity drag reduction to apply to their ship fleet but so far it is R&D only

Air lubricated Ship Operators

www.nyk.com/english/	NYK Hydo Line have vessels including Aries Leader car carrier with MHI system
www.rclcorporate.com	Royal Caribbean Cruise Line (RCCL) have cruise ships with Foreship system
www.carnivalcorp.com	Carnival Corporation have cruise ships with Silverstream system

Rules and Regulations

www.lr.org	Lloyds Register Classification Society
www.dnvgl.com	DNV Classification Society – High Speed Service Craft Rules
www.eagle.org	ABS rules at /rules-and-resources/rules-and-guides.html
www.turkloydu.org/en-us	Lloyds Turku Classification Society Home page, go to /publications/turk-loydu-rules.aspx# for regulations, part C High Speed Crafts
www.krs.co.kr	Korean Register of Shipping Classification Society technical rules listing – GB11 for HSC, GC06 and 07 for recreation and WIG

Rules at:
http://krsusa.cloudapp.net/Files/KRRules/KRRules2016/KRRulesE.html

www.ccs.org.cn	China Classification Society, go to /ccswzen/font/fontAction!moudleIndex.do for high speed craft rules

www.gov.uk/	UK Maritime and Coastguard Agency Go to guidance/high-speed-craft-construction-and-maintenance-standards#construction-standards-for-high-speed-craft
www.amsa.gov.au	Australian Marine Standards Association
www.sjofartsdir.no/en	Norwegian maritime authority go to /shipping/legislation/#regulations
www.bureauveritas.com	Home page at /home/our-services/classification/
www.veristar.com/portal	/veristarinfo/detail/generalinfo/giRulesRegulations/bvRules/rulenotes for full rules listing including HSC etc, items in red can be downloaded. Also link to erules. Erules loads a popup application also - takes too long for me. Note NR 396 are joint between BV, GL and RIN from 2002, and so link also to DNV rules

https://www.gov.uk/government/publications/the-hovercraft-code-of-practice-cop-23
The rules for hovercraft up 24m length and up to 12 passengers published by UK MCA in 2015 (MCA CoP24)

International Organisations

www.ittc.info/	International Towing Tank Conference Home Page – source for guidance on model testing and hydrodynamic analysis including CFD for vessel and propulsors. Go to the publications list for PDF's of key procedures and guidelines. Full reports of each ITTC are available under the downloads section
www.imo.org/en	Home page for the International Maritime Organisation - HSC Code and updates at https://www.imo.org/en/OurWork/Safety/Pages/HSC.aspx

General Stability requirements for ships also relevant for SES etc are here:
https://www.imo.org/en/OurWork/Safety/Pages/ShipDesignAndStability-default.aspx
Special requirements for Wig Craft issued in 2018 are here wtih other packground references:
https://www.imo.org/en/OurWork/Safety/Pages/WIG.aspx

Software

www.bentley.com	Maxsurf is at extension: /en/products/brands/maxsurf. Hydromax is also documented on the site. Maxsurf is for hull modelling and statics, and Hydromax for wave generation and drag
www.dnvgl.com/services	go to /services/global-fe-analysis-software-shipload-18522 for DNVGL shipload, or /linear-and-non-linear-hydrodynamic-analysis-of-vessels-including-forward-speed-wasim-2413 for linear and nonlinear hydrodynamic analysis or /hydrodynamic-analysis-and-stability-analysis-sesam-hydrod-2410 for stability and linear hydrodynamic analysis or /marine-project-management-efficient-collaboration-in-ship-design-ship-building-and-aftermarket-synergi-project-18373 for Synergi Project Management
www.proteusengineering.com/	Fastship / for hull dev / Visual SMP ship motions prog from USN using strip theory. US Based with Alion
www.alionscience.com	owners of Proteus - use Navcad resistance and powering (from Hydrocomp) GHS for stability and hydrostatics (from Creative Systems), and Visual SMP for seakeeping
www.hydrocompinc.com	Navcad speed and power, using 2D theory based on volume rather than surface ordinates
www.ghsport.com	Creative Systems Inc, General Hydrostatics programs, used by Navatek and Damen
www.autoship.com	Detail design software
www.aerohydro.com	Multisurf 3D design and interface to WAMIT – note modelling, not structural and depends on WAMIT for motions
www.boatdesign.net	Information network for boat design Useful site and software links
www.aeromarineresearch.com	Information site for power boat design including tunnel hull catamaran planing craft
www.hawaii-marine.com/templates/	Various spreadsheets for hydrostatics and planing hull resistance calcs including Savitsky (outside EU only to individuals)
www.aveva.com	Aveva Marine comprehensive Naval Architecture for ship projects, hull and outfitting design including project workflow – Initial –Design for hull form,

	structure and hydrostatic and dynamics, followed by materials, drafting, PDMS, systems and fabrication setup as used by Hyundai etc
www.delftship.net	Hull modeller and hydrostatics, free and professional at eur150, plus extensions ref Danish Yachts
www.wumtia.soton.ac.uk/software	Southampton University Wolfson Unit Marine Design Software –free and to purchase. The free shipshape program can output to DXF as well as their own format for further processing
www.rhino3d.com/	Rhino 3D modeller and rendering software available for PC and MAC. Eur 995 for full software or Eur 1700 for whole package. Works with NURBS surfaces etc.
www.orca3d.com	Builds on rhino modelling and provides hull design and fairing, hydro and stability, speed and power and weight/cost tracking for around 3000 USD
www.autodesk.com/products	Autodesk site for CAD products and integration with Solidworks and Nastran FEM
www.autodesk.com/navisworks	site for Autodesk CAD and navisworks viewer and project management
www.solidworks.com/	CAD modelling suite
www.SSI-corporate.com	ShipConstructor 2017 based on Autocad and Navisworks, linking to modules mechanical, P&ID, Plant 3D, use for detailed systems design
www.napa.fi	Finnish company supporting major shipyards also far-east links with Autocad
www.ptc.com	software design site
www.adina.com/	FEM suite, German origin, with nonlinear analysis
www.plm.automation.siemens.com/en_us/	Siemens PLM home page with access to all products
www.mdx.plm.automation.siemens.com/star-ccm-plus	Siemens Star CD and CCM+ etc fluid simulation software for internal and general turbulent flows, earlier was CDadapco Star CD and CCM+. Now integrated into Siemens design automation solutions
www.paramarine.qinetiq.com/products/paramarine/Pages/default.aspx	Qinetiq Paramarine software builds on Siemens PLM parasolid modelling. Seakeeping via 2D Rankine source approach for Freq Domain response, also has structural model aimed at Naval projects. Also used by Adhoc Marine and Keel Marine for wind farm catamaran design
www.mscsoftware.com	Home for Finite Element based software including Nastran Structural design
www.ansys.com	FEM software linear, fatigue and non-linear, and multiple linked structures. at /Products/Structures/ANSYS-Aqwa Diffraction based software for wave loads and link to ANSYS ASAS suite for structural analysis
www.ansys.com	at /Products/Fluids/ANSYS-Fluent CFD software tools including Fluent and CFX. Fluent is general modelling while CFX covers turbomachinery. Note used by Navatek see brochure
www.openfoam.com/	Open source CFD software – Also has visual CFD
https://www.cfd-online.com	go to /Wiki/Main_Page for lots of info, sources both open and commercial including mesh generation , visualisation etc
www.sunrise-sys.com	suppliers of pipenet piping system modelling for flow analysis including firewater sprinklers, go to /index.asp
www.swan.tudelft.nl/	SWAN software from TUI Delft freely available for wave generation modelling in coastal areas and inland waters, so useful for wave wash
www.ptc.com	site for Mathcad software, also links to Solidworks
www.mathworks.com	Site for Matlab for solving matrix based problems
www.strand7.com/	FE software with useful images in gallery showing twisted cat. Aimed at smaller company
www.reliasoft.com/products.htm	Reliability and FMEA software tools
www.fmea-fmeca.com	Information site on FMEA/FMECA and industry standards for FMEA

Propulsion Waterjets

www.wartsila.com	Wartsila water jets in range 4500 to 26,000 kW incorporates LIPS from earlier, look under propulsion products for water jets. Are in Holland.
www.marinejetpower.com	Successor to MJP at /index2.php including Ultrajet range, see history

www.rolls-royce.com/marine/	Rolls Royce subsidiary KaMeWa water jets in power range from 100kW to 40mW (under /propulsors/waterjets)
www.hamiltonjet.com	Hamiltonjet water jets in range to approx 4000 kW
www.castoldijet.it/en	Castoldijet water jets up to 1987 kW at /waterjet_en/applications_en.html
www.namjet.com/	Site for North Americam Marine Jet, suppliers of jets 387 to 1016 m in dia for utility and small ferries. Axial pump design, and electrical controls not hydraulic for improved reliability
www.scottwaterjet.com	at /products/index.html New Zealand supplier for smaller jet units in range 50 to 2000 shp
www.rbbi.com	at /links/drives/waterjet.htm list of waterjet manufacturers worldwide with links
www.berkeleyjet.com/	US manufacturer for planing craft in power range 205 to 430 shp
www.americanturbine.com/	Another supplier similar to Berkleyjet for jetboats, mixed flow jets including inducers and aluminium intakes can be welded in to aluminium hulls
www.doen.com/	Dutch manufacturer for water jest in range 100 to 4000 kW

Air Propellers

tba

Marine Propellers

www.servogear.no/	propellers classic for fast ferries, in hull partial tunnel (Norway)
www.wartsila.com	at /products/marine-oil-gas/propulsors-gears, though oriented to large ferries and ships (Finland)
www.rolls-royce.com/marine	KaMeWa are now part of Rolls Royce Marine under propulsion, and continue to supply propellers for fast vessels including CP and supercavitating
www.elicheradice.com	at /page.php?pageid=PHOME001 home page for propeller, shaft and skeg supplier in Italy including surface drives (they say)
www.piening-propeller.de/en/	Propellers and propulsion packages (gearbox, shaft etc) also high speed
www.qmarine.co.nz	at /products/propulsion-systems inc surface drives and market MJP waterjets
www.tuprop.com/	tunnel propeller system, mounted on transom to 1000 shp for utility and fast boats. Is the site for MSA Marine systems gmbh
http://www.andritz.com	at /products-and-services/pf-detail?productid=9659, for EscherWyss CP high speed propeller systems
www.amartech.nl/products	Propeller and transmission designer and manufacturer
www.bruntons-propellers.com/	Smaller propeller manufacturer has built props for many high speed craft, builds up to 3000 KW while sister company Stone Marine builds larger propellers
www.teignbridge.co.uk/	Propeller manufacturer including high speed propellers and surface drive propellers
www.miwheel.com/	Michigan Wheel – various propeller series for outboards, inboards and speeds in range up to Fn about 0.7 I think. They are big.
www.volvopenta.com	Search on IPS system for their integrated engine and rotatable contra-rotating puller propeller drives in range to 740 kW, with control system

Surface Drives

www.Rolla-propellers.ch	Rolla propellers (also analytical consultants) for surface drive and fully submerged high speed propellers (Italy)
www.Arneson-industries.com	Arneson surface drives – the complete drive system (USA)
www.zf.com	ZF Searex surface drive
www.francehelices.fr	Surface drive system and propeller manufacture
www.q-spd.com/	surface drives manufacturer supplied by Qmarine above
www.levidrives.com	Levi surface drives and propellers. Drive unit has fixed prop and cover which doubles as rudder mechanism
http://msa-marine-systems.com/	Tunnel Surface Drives in range to around 2000kW. Drive unit hinged for both trim and turning.

Engines

www.deutz.com	engines up to around 600 shp air and water cooled, still independent

www.mtu-online.com	go to products, engine-program diesel engines for marine main propulsion, passenger ships and ferries for engines for marine and fast ferries in range up to 9000 kW now part of RR yes but independent in the group. Includes Detroit Diesel now also.
www.cat.com	go to /en_US/by-industry/marine.html. Main basis is Germany, which is descendant of MWM (now Caterpillar Energy Solutions gmbh) Used by LCS project etc.
www.marine.man.eu	MAN engines, go to /applications/ferries
www.cumminsengines.com	Main site for marine, go to resources to download data sheets etc.
www.rolls-royce.com	go to /products-and-services/marine/product-finder/diesel-and-gas-engines.aspx#section-featured-product too locate med speed (Bergen) diesels, propulsion pods etc as well as KaMeWa waterjets and CP Propellers
www.energy.siemens.com/hq/en	go to /fossil-power-generation/gas-turbines. Siemens use RR as core drivers 4 to 50 mW
www.scania.com/global/en	at /global/products-and-services/engines/our-range/marine-engines.html for marine engines up to 1150 bhp. Eight Di13 engines being used in ferries on Potomac etc by Metal Shark
www.geaviation.com/marine/	GE marine site for Gas Turbines and diesels. Gas Turbines 4.5 to 42 MW, diesels are medium speed and heavy . .
www.dieselturbo.man.eu/	MAN B&W diesels site mainly large slow diesels for ships
www.volvopenta.com	Engines and integrated propulsion sterndrives (IPS)
www.yanmarmarine.com	Powerboat and commercial marine diesels up to 4480kW
www.mercurymarine.com	Outboards and sterndrives to 550 bhp
www.suzukimarine.com	Outboards up to 350 bhp
www.evinrude.com	Outboards up to 300 bhp

Intake Filtration

www.sulzer.com/en	go to /Products-and-Services/Separation-Technology/Separators for knitmesh filters
www.knitted-mesh.com	Chinese supplier of knitted mesh products including demister materials

Service Suppliers and Marine Equipment Suppliers

www.frydenbo-industri.no	go to /eng/engines/deutz/deutz-marine-engines and others in Norway
www.european-diesels.co.uk	go to /engines/ for service and spares range inc Ruston, Bergen diesel, Dorman, Perkins, and English Electric. Ruston sold to Siemens, but diesels seem to have stopped so only spares now
www.vetus.com/	Suppliers of equipment and outfitting for boats and smaller vessels ranging from engines and ancillaries to windows to fire retardant insulation materials (under engines and around)

Gearboxes and transmission

www.reintjes-gears.de	Reintjes, also propulsor plus pdfs of vessels
www.zf.com	go to /corporate/en_de/products/further_product_ranges/marine/index.html for marine gearboxes and fast ferries etc. Also do fixed pitch propellers and tunnel thrusters
www.twindisc.com	at /marine-products/ for gearboxes and transmission, trim tabs, propellers and other products. Parent to Rolla and Arneson.
www.prm-newage.com	at /c1-marine-gearbox for marine gearboxes at smaller power end of market
www.renksystems.com	marine at /renk-marine-gears.php. have supplied also US Navy LCS
www.renk.biz/home-en.html	Renk main site, go to vehicle transmissions and products to find marine transmissions and download brochure
www.renk-maag.ch/en/company/	Renk Swiss subsidiary providing high performance gearboxes
www.regalpts.com	Jaure s.a. specialist in marine transmission shafts and couplings at /industries/marine/Pages/marine.aspx.

Note that Rolls Royce, Wartsila, and MAN also provide transmission components or an integrated system

Stabilizers and Interceptors

www.humphree.com/	Interceptors and stabilizers, electric

www.naiaddynamics.com/	Successor to Maritime Dynamics, designers of stabilization systems for fast marine vessels including forward T foils and stern tabs, with active control systems

Rolls Royce , and Servogear also deliver stabilizers, and check on this site below for other potential suppliers:
www.nauticexpo.com/boat-manufacturer/stabilizer-19818.html listing of suppliers

Safety Outfitting

www.surviteczodiac.com	Survitec group main company in France
www.rfd.co.nz	Survitec – NZ – evacuation and survival gear
www.Viking-life.com	Evacuation and life rafts
www.lsames.com	Evacuation and life rafts
www.actionair.co.uk	HVAC duct marine fire dampers for rectangular or round ducting

Rubber Mountings

www.mackayrubber.com.au	Rubber mounts for top superstructures for Incat, Austal etc as well as complete industrial range of vibration isolation
http://isoflextech.com	Suppliers of isolation rubber mounts for machinery, superstructures and wheelhouses for commercial vessels
www.nauticexpo.com	Site for Ships and Yacht windows and various other marine outfitting equipment

Marine fire and sound insulation

www.glava.no	go to /marine-offshore/solutions for insulation, fire protection etc
www.promat-marine.com/en	marine fire and noise insulation

Marine architectural panels including suspended ceilings

www.duflex.com.au	/duflex2/products/featherlight for FRP panels
http://www.lautex.com	marine ceilings with sound absorption
http://dampa.com	/marine/products/ marine ceilings panels and design – supply Austal and are on 126m Trimaran
www.ceilingworks.com.au	Ferry internal suspended ceilings etc
www.altrofloors.com	Maritime safety flooring at /floors/transport-floors/Maritime

Seat manufacturers

www.eknes.no	Eknes classic seating for fast ferries
www.beurteaux.com/	Supplier of fast ferry seating for more than 900 vessels
www.westmekan.com/no	Suppliers of ferry seats and propulsion gear out of Nordfjordeid
www.pacificmarine.net	/marine-deck/marine-seats/ferry-passenger-seats.htm. US company for seats and other internals for ferries
www.deltafurniture.com	at /passenger transportation/ferry seating Ferry seating and passenger transport specialist - Canada location
www.ferryseating.com/	China supplier
www.ferryseat.com/	Sanhui, another Chinese factory with IMO HSC certified seats
www.springfieldmarine.co.uk	UK supplier of ferry seats, crew transfer and suspension seats for crew etc
www.grammer.co.uk/home.php	Grammer seats for suspended marine and all sorts of transport etc (not pax seats)

Marine Interior design

www.speargreen.com.au/	interior design specialist for fast ferries, out of Sydney since 1993. Also do Naval Architecture. Worked with AMD and Austal for Oman etc
www.arosmarine.com/en	marine outfitting contractor does installation – interesting is 'proven brands' banner bottom left on page
www.kaefer.com	/Accommodation.html another contractor for installation especially for cruise ships etc with range of own brand equipment also
www.alusys.com.sg/	Singapore based internal outfitting contractor including for ferries

Text Books and Reports

Students will be aware that physical books do go out of print and can be difficult to locate. A search on Amazon or one of the book distributors can often help, or your local bookstore may have useful ideas how to help. If you know the publisher it can be helpful to search on the site for that also. At University the library may have either a hard copy or electronic copy of reference works below, if it runs Marine Enginering or Naval Architecture courses.

Regarding papers listed below there are quite a few that can be located simply by a web enquiry with the full title, or via the digital libraries below. Those published in the transactions of RINA, SNAME, the FAST symposia and others require application to the society involved.

THS has in past years ran a number of technical conferences. The papers first need to be digitised, and then we will make a limited number of papers available directly on the site.

The Canadian Air Cushion Technology based in Ottowa with the Canadian Aeronautical and Space Institute also ran an important series of annual conferences through the 1980's. Particular advances were made in understanding icebreaking mechanisms under ACV's, hoverplatforms and air cushion technology in general.

Digital Reports and document Libraries

University of North Texas Digital Library, NACA Technical Memoranda Reports,
Available at https://digital.library.unt.edu/ark:/67531/metadc64973/

University of Michigan Digital Library, David Taylor Model Basin Reports,
Available at https://www.lib.umich.edu/database/david-taylor-model-basin-reports

Technische Universitiet Delft (TUDelft), Holland
Research documentation available at https://repository.tudelft.nl/ including early work on polymer injection for drag reduction and more recent work on air lubrication and Air Cavities, including:

1. O Sverkhovskyi, 'Ship drag reduction by air cavities', PhD dissertation 2014, ISBN 9789461086389
2. J Westerweel, T J C van Terwisga, O Zverkhovskyi, 'A flat bottomed vessel and a method for controlling the length of at least one air cavity', European Patent under WIPO, WO 2015/080574 A1

Naval Architecture texts

1. John P Comstock, editor, Principles of Naval Architecture, Revised edition 1967, further updates on regular basis to the present, now available as a series of books via www.SNAME.org, Society of Naval Architects and Marine Engineers, New York, NY 10048, USA.
2. Ship Hydrostatics and Stability, A. B. Biran, Butterworth Heinemann, 2003, ISBN 978-0-7506-4988-9. (BH is an impression of Elsevier, ref Elsevier.com)
3. Architecture Navale, Connaissance et pratique, D Presles, D Paulet, Editions de la Villette, 2005, ISBN 2-915456-14-3. (info at www.paris-lavillette.archi.fr)
4. Resistance et Propulsion du navire (Resistance and propulsion of ships - French text), Doutreleau,Y, Laurens JM, Jodet L, Technosup ENSTA Bretagne, Paris, 2011 ISBN 978-2-7298-6490-3
5. K J Rawson, E C Tupper, 'Basic Ship Theory', 2 volumes or one combined volume, Butterworth Heinemann, 5th Edition 2001, ISBN 978-0750653961/78 and 978-0750653981

6. E C Tupper, 'Introduction to Naval Architecture', Butterworth Heinemann, 5th Edition 2013, 490pp, ISBN 978-0080982373
7. P A Wilson, 'Basic Naval Architecture – Ship Stability', Springer, New York, 2018, 228pp, ISBN 978-3319728049

Text books on Hydrodynamics of High Speed Marine Vessels

1. Hydrodynamics of High-Speed Marine Vehicles, Professor O M Faltinsen, NTNU Trondheim, published by Cambridge University Press, 2005, 454pp, ISBN 978-0-521-84568-7
2. Performance by Design – Hydrodynamics for high-speed vessels, D J Blount, published by Donald J Blount and Associates, 342pp, 2014, ISBN-10-0989083713
3. Practical Design of Advanced Marine Vehicles, Chris B McKesson, 392pp, 2014, ISBN 13 978-1497396890
4. Hydrodynamics of High Performance Marine Vessels, Professor Laurence J Doctors, two volumes, available at www.Amazon.com in 2 volumes, 888pp, 2018, ISBN-13 978-15112244717

Hydrodynamics and Aerodynamics classic texts

1. Fundamentals of Hydro- and Aeromechanics, based on lectures of L Prandtl, Ph. D., O.G. Tietjens, Ph. D., Dover Publications, New York, 1957, 270pp, ISBN-13 978-0486603742
2. Applied Hydro- and Aeromechanics, based on lectures of L Prandtl, Ph. D., O.G. Tietjens, Ph. D., Dover Publications, New York, 1957, 306pp, ISBN-13 978-0486603759
3. Aerodynamic Theory, ed. William F Durand in six volumes, Dover Publications, New York 1963, Volume VI, Section S, Hydrodynamics of Boats and Floats, Library of Congress No 63-19489

MARIN Research reports (www.MARIN.nl)

The Marine Research Institute in the Netherlands at Wageningen has carried out significant research into air lubrication and air cavity physics. It is necessary to register an account first and then access is available to a range of R&D papers, including the following documents:

1. G Rotte, M Kerkvleit, T van Terwisga, 'On the Turbulence Modelling for an Air Cavity Interface', NuTTS conference 2017
2. O Zverkhovskyi, M Kerkvleit, A Lampe, G Vaz, T van Terwisga, 'Numerical Study on Air Cavity Flows', NuTTS conference 2015
3. E J Foeth, R eggers, F H H A Quadvlieg, 'The efficacy of air bubble lubrication for decreasing friction resistance', International Conference on ship drag reduction, SMOOTH Ships, Istanbul, Turkey, 20-21 May 2010
4. G Rotte, O Zwerkhovskyi, M Kerkvliet, T van Terwisga, 'On the physical mechanisms for the numerical modelling of flows around air lubricated ships', International Conference on Hydrodynamics, ICHD 2016. Modelling using MARIN CFD code ReFRESCO including looking at re-entrant flows at tail of cavity and wave pinch-off and effect of real fluid turbulence. Paper also at http://www.ichd2016.nl/onlineproc/proceedings/documents/15.pdf
5. C Thill, S Toxopeus, F van Walree, 'Project Energy-saving air-lubricated ships (PELS)', 2nd International Symposium on Seawater Drag Reduction, Busan, Korea, 23 – 26 May 2005. Summary of PELS Joint Industry Project model testing of a segmented instrumented barge model with cavities, and parallel simulation analysis

University of Southampton Reports

Available from www.eprints.soton.ac.uk

Use refined search and author name, sort on year to get easiest usable result. The reports below are a sample, as the R&D has been quite extensive over the 1990's and 2000's and to date.

1. Ship Science Report No. 122, December 2001, A. F. Molland, P. A. Wilson and D. J. Taunton
A systematic series of experimental wash wave measurements for high speed displacement monohull and catamaran forms in shallow water.
2. Ship Science Report No. 125, November 2002, A. F. Molland, P. A. Wilson and D. J. Taunton
Theoretical prediction of the characteristics of ship generated near field wash waves.
3. Ship Science Report No. 127, 2003, A. F. Molland, P. A. Wilson and D. J. Taunton

Resistance experiments on a series of high speed displacement monohull and catamaran forms in shallow water

Flying Boat and Seaplane Hydrodynamics

1. Aerodynamic Theory, ed. William F Durand in six volumes, Dover Publications, New York 1963, Volume VI, Section S, Hydrodynamics of Boats and Floats, Library of Congress No 63-19489
2. W Sottorf, Systematic Model Researches on the stability limits of the DVL Series of Float Designs, NACA TM 1254 December 1949
3. N A Sokolov, 'Hydrodynamic properties of planing surfaces and flying boats', NACA TM 1246, October 1950; Translation from CAHI Report 149, 1932
4. Walter S Deil, 'The application of basic data on planing surfaces to the design of flying boat hulls', NACA Report 694, 1940
5. E Jablonski, 'Sea Wings – The romance of the flying boats, An illustrated history', Doubleday and Company, Garden City, New York, 1972, Library of Congress Card Number 72-76173, 259pp

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1. G H Elsley, A J Devereux, Hovercraft Design and Construction, David and Charles, 1968, 262 pp
2. R L Trillo, Marine Hovercraft Technology, Leonard Hill Books, 1971, ISBN 0 249 44036 9, 245pp
3. I Cross, C A O'Flaherty, Introduction to Hovercraft and Hoverports, Pitman Publishing, 1971, ISBN 0 273 00316 X, 160 pp
4. P J Mantle, A Technical Summary of Air Cushion Craft Development, David W. Taylor Naval Ship Research and Development Center, Report 80/012, January 1980. A comprehensive review of ACV design and development at the US Navy.
5. J R Amyot (Ed), Hovercraft Technology, Economics and Applications, 1989, Elsevier, Amsterdam, Studies in Mechanical Engineering II, ISBN 0 444 88152 2, 770 pp. This is a compendium with chapters covering the whole range of design from leading experts in ACV technology
6. A Bliault, L Yun, Theory and Design of Air Cushion Craft, Butterworth-Heinemann, 2000, ISBN-10 : 0340676507, 632pp
7. L Hayward, The History of Air Cushion Vehicles. Kalerghi-McLeavy Publications, 1963.
8. H F King, Aeromarine Origins, Putnam and Company, London, 1968, 93 pp
9. Bill Gunston, Hydrofoils and Hovercraft – New Vehicles for sea and land, Aldus Books, London, 1969, SBN 490 00136 X, 192 PP
10. M W Cagle, Flying Ships: Hovercraft and Hydrofoils, Dodd Mead and Company, New York, 1970, 142 pp
11. B J Russell, The Interservice Hovercraft (Trials) Unit. Hover Publications, Gosport, Hampshire, England, April 1979.
12. A Croome, Hover Craft, Hodder and Stoughton, London, four editions 1960 – 1984, ISBN 0 340 33201 8, 125 pp, includes helicopters and the Harrier as well as hovercraft
13. R L Wheeler, From River to Sea - the Marine Heritage of Sam Saunders. Cross Publishing, Newport, Isle of Wight, 1993, ISBN 1 873295 05 7 (contains extensive summary of SRN and BHC series ACV design development).
14. A Hollebone, The Hovercraft a History, The History Press, 2012, ISBN 978 0 75246479 4, 191 pp
15. R Paine, R Syms, On a Cushion of Air, The story of Hoverlloyd and the Cross Channel Hovercraft, 2012, Writers World, ISBN 978 0 9568978 0 0, 711 pp

Air Cushion Vehicles Classic Papers

1. M J Barratt, J T Everest, N Hogben, J C Shipway, J H W Wheatley. Estimation of Power and Drag for Marine Hovercraft. NPL Hovercraft Unit Report No. 11, 1969
2. J N Newman, F A P Poole, Wave resistance of a moving pressure distribution in a canal, Schiffs-technik, 9, January 1962.
3. J J Everest, N A Hogben, Theoretical and experimental study of the wavemaking of hovercraft of arbitrary plan form and angle of yaw. Transactions of the RINA, Vol 111, 1969.
4. H S Fowler, On the Lift Air Requirement of Air Cushion Vehicles, and its Relation to the Terrain and Operational Mode. National Research Council of Canada (NRC) report, 1979.

5. H S Fowler, Overland and Amphibious ACV Design : Data Relating to Performance. NRC Report No. 17423, 1979.

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1. J C Tatinclaux, On the wave resistance of surface effect ships. SNAME Transactions, 83, 1975.
2. A G Blyth. The roll stability of surface effect ships. Transactions of the Royal Institution of Naval Architects (RINA), pp 271-285 (ex 138), 1993.

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1. C E Brennan, Cavity and Bubble dynamics, 1995, Oxford University Press, 294pp, ISBN 0-19-509409-3, available for reference at https://authors.library.caltech.edu/25017/5/BUBBOOK.pdf
2. N K Madavan, S Deutsch, C L Merkle, ' Reduction of turbulent skin friction by microbubbles', Report TM 83-23, 9th March 1983, Pennsylvania State University, Applied Research Laboratory, issued under ONR Research Contract, approved for public release. Laboratory testing and analysis of plate friction.
3. Y Kuhn de Chizelle, S L Ceccio, C Brennan, 'Observations and scaling or travelling bubble cavitation', Journal of Fluid Mechanics 1995, vol 293, pp 99 – 126, Cambridge University Press
4. S A Makiharju, M Perlin, S L Ceccio, 'On the energy economics of air lubrication drag reduction', International Journal of Naval Architecture and Ocean Engineering 4, 2012, pp 412 – 422
5. H Saayyaadi, M Nematollahi, 'Determination of optimum injection flow rate to achieve maximum micro bubble drag reduction in ships; and experimental approach', Scienta Iranica Transactions B: Mechanical Engineering, 2013, 20 (3), pp 535 – 541
6. E C Douvi, D P Margaris, 'Reducing the shear stress between the ship hull and seawater by means of air cavity lubrication system', 6th International Conference on Experiments, Process, System Modelling and Simulation Optimisation, Athens 8-11 July 2015. Paper focusses on ANSYS Fluent 2D simulation of cavity flows with different step height.
7. J Zhang, Shuo Yang, Jing Liu, 'Numerical investigation of a novel device for bubble generation to reduce ship drag', International Journal of Naval Architecture and Ocean Engineering 10, 2018, pp 629 - 643
8. S A Makiharju, S L Ceccio, 'On multipoint gas injection to form an air layer for frictional drag reduction', Elsevier International Journal of Ocean Engineering, 147, 2018, pp 206 – 214
9. S H Park, I Lee, 'Optimisation of drag reduction effect of air lubrication for a tanker model', International Journal of Naval Architecture and Ocean Engineering 10, 2018, pp 427 – 438
10. H Wang, S Chen, L Wang, "Experimental Research on the influence of Air Film on Propulsion Performance and Power Forecast of Low-Speed ship", Proceedings of 28th (2018) International Ocean and Polar Engineering Conference, Sapporo, Japan June 10 – 15, 2018, ISSN 978-1-880653-87-6. Model testing and CFD of 20,000 DWT bulk carrier at Wuhan University of Technology
11. Yanuar, K T Waskito, S Y Pratama, B D Candra, B A Rahmat, "Comparison of Microbubble and Air Layer Injection with porius media for drag reduction on a self-propelled Barge Ship Model" Journal of Marine Science and Application (2018) 17, pp 165 – 172
12. S Gokcay, M Insel, A Y Odabasi, 'Revisiting artificial air cavity concept for high speed craft' International Journal of Ocean Engineering 31, 2004 pp 253 – 267
13. S Gokcay, M Insel, 'Utilising air lubrication for energy efficient high speed marine vehicles' RINA High Speed Marine Vehicles Conference 2011, uploaded to Researchgate February 2017, at www.researchgate.net/publication/287083905. Includes model tests and CFD modelling for planing and cavity hull
14. J Butterworth, M Atlar, W Shi, "Experimental analysis of an air cavity concept applied on a ship hull to improve the hull resistance". Ocean Engineering, 2015, 110, pp 2–10. Research carried out at Newcastle University applying air cavity to a container ship
15. American Bureau of Shipping, "Air Lubrication Technology", Technology overview paper published April 2019, available at ww2.eagle.org/content/dam/eagle/advisories-and-debriefs/Air Lubrication Technology.pdf
16. SSPA Air Lubrication Article 2019, www.sspa.se/ship-design-and-hydrodynamics/hull-air-lubrication-future-and-challenges

17. HSVA Newswave 2016 air lubrication article, www.hsva.de/files/newswave-1-2016_final_version.pdf
18. M Perlin, S Ceccio, 'Mitigation of Hydrodynamic Resistance – Methods to reduce hydrodynamic drag', Textbook, World Scientific Publishing Co Pte Ltd, ISBN 978-9814612258, January 2015, 164 pp, available through Amazon or other book distributors. Covers the authors' work at University of Michigan on the range from polymer injection and coatings, through bubbles, layers, cavities, and flaps wedges, bulbs etc.

High Speed Stability

1. Y Ikeda, T Katayama, 'Stability of High Speed Craft', Contemporary ideas on Ship Stability, Elsevier Science Ltd, 1st Edition 2000, pp 401-409, ISBN 978008054715, www.elsevier.com
2. P Payne, 'On the high speed porpoising instability of a prismatic hull' SNAME Journal of Ship Research, Vol 28, No 2, June 1984 pp 77 to 89. A theoretical analysis for chines dry triangular planing form with deadrise.
3. T Cellano, 'The prediction of porpoising inception for modern planing craft' SNAME Transactions, Vol 106, 1998, pp 269 to 292, ISBN 0.939773-25-2.
4. M Simeone, 'Hydrodynamic lift effect on the stability and on the banking angle of fast craft', FAST '91, Trondheim, Norway, Volume 1, pp 331 to 346, ISBN 82-519-0962-7
5. S Tavakoli, A Dashtimanesh, S Mancini, 'A theoretical method to explore the influence of free roll motion on thge behaviour of a high speed planing vessel through steady yawed motion', RINA Transactions, Vol 160, Part B1, International Journal of Small Craft Technology, January – June 2018, pp B67-77, ISSN 0035-8967. Paper looks at two planing hulls in roll fixed or roll free behaviour when yawed in calm water to assess resistance and motion response.
6. D L Blount, L T Codega, 'Dynamic Stability of Planing Boats', Marine Technology Vol 29, No 1, January 1992, pp 4 – 12, SNAME, ISSN 0025-3316
7. A W Troesch, 'On the hydrodynamics of vertically oscillating planing hulls', Journal of Ship Research, Vol 36, No 4, December 1992, pp 317 – 331, SNAME, ISSN 0022-4502

Systematic Hull Series

1. E P Clement, D L Blount, 'Resistance tests of a systematic series of planing hull forms', SNAME Transactions 1963. Outlines the Series 62 programme and results.
2. J B Hadler, E N Hubble, 'Prediction of the power performance of the Series 62 Planing Hull forms' Transactions SNAME 1971, pp 366 to 404.
3. D J Taunton, D A Hudson, R A Shenoi, 'Characteristics of a series of high speed hard chine planing hulls. Part I: Performance in calm water, Transactions of the Royal Institution of Naval Architects, Vol 152 Part B2 2011, ISSN 1740-0694. A systematic series programme at Southampton University
4. D J Taunton, D A Hudson, R A Shenoi, 'Characteristics of a series of high speed hard chine planing hulls. Part II: Performance in waves, Transactions of the Royal Institution of Naval Architects, Vol 153 Part B1 2010, ISSN 1740-0694
5. F De Luca, C Pensa, 'The Naples warped hard chine hulls systematic series', Ocean Engineering 139 (2017) pp 205–236, www.dx.doi.org/10.1016/j.oceaneng.2017.04.038, Open access article published by Elsevier under creative commons. An extensive test series at University of Naples, Italy, including effect of transom interceptors for trim control.
6. D J Kim, S Y Kim, Y J You, K P Rhee, S H Kim, Y G Kim, 'Design of high-speed planing hulls for the improvement of resistance and seakeeping performance', International Journal of Naval Architecture and Ocean Engineering 5 (2013) pp161-177, www.dx.doi.org/10.2478/IJNAOE-2013-0124. A useful series of three deep vee planing and wave piercing forms at Seoul University and Korea Institute of Ocean Science
7. G J Grigoropoulos, T A Loukakis, 'Resistance and Seakeeping Characteristics of a systematic series in the preplaning condition (Part 1)' SNAME Transactions Voll 110, 2002, pp 77 to 113, ISBN 0.939773-37-6
8. J A Keuning, L Hillege, 'The results of the Delft Systematic Deadrise Series', FAST 2017 Transactions Session B1, pp 97 – 106, Data is available at www.dsds.tudelft.nl once you set up an account for access, or via www.fast2017.com

9. D Radojcic, M Kalajdzic, 'Resistance and trim modelling of the Naples hard chine systematic series', RINA Transactions, Vol 160, Part B1, International Journal of Small Craft Technology, January – June 2018, pp B31-41, ISSN 0035-8967

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2. M Ricciardo, Planing Hull Hydrodynamics, Study of the Effects Caused by Variation of the Thrust Line Due to Displacement, Series 62 Model No. 4667-1, Research Paper, University of Michigan, Naval Architecture and Marine Engineering, March 2010, 32 pp.
3. S Pennino, A Scamardella, 'Dynamic equilibrium and resistance assessment for warped hulls bymeans of total pressure distribution', RINA Transactions, Vol 160, Part B1, International Journal of Small Craft Technology, January – June 2018, pp B91-100, ISSN 0035-8967. Looks at pressure distribution using Morabito method published in Journal of Ship research in 2014 to improve understanding for warped hulls.
4. A Troesch, 'Dynamics and Hydrodynamics of High Speed Craft' PASI 2010 in Dynamics and Control of Manned and Unmanned Marine Vehicles, June 29 2010, Barranquila, Colombia. Provides a very useful overview of steady and unsteady planing craft dynamics research.
5. D Villa, M Viviani, E Ferri, 'Application of CFD Calculations for the improvement of planing crafts manoeuvrability mathematical models' 12th International Conference on Hydrodynamics, Egmond an Zee, Holland, 13 to 23 September 2016, Paper 33. Go to www.ichd2016.nl, transactions and search on author, click on tracking (paper) number for full text as pdf.
6. A R Kohansal, H Ghassemi, M Ghaisi, 'Hydrodynamic Characteristics of high speed planing hulls, including trim effects' Transactions of the Turkish Journal of Engineering and Environmental Science, 34 (2010) pp 155 – 170.
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8. M Iacono, 'Hydrodynamics of planing hull by CFD', Masters Thesis at University of Naples 'Federico II', presented academic year 2014/2015. STAR CCM+ used to study one monohedral and one warped deadrise hull including comparisons with experiment, and Savitsky and Marabito's empirical formulations.

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1. R Latorre, 'Study of prismatic planing model spray and resistance components', SNAME journal of Ship Research, vol 27, No 3, September 1983, pp 187 to 196.
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2. G J Grigoropoulos, T A Loukakis, 'Effect of spray rails on the resistance of planing hulls', FAST 1995, Lubeck- Travemunde, Germany, Transactions Volume 1, pp 33 to 44. Looked at chine located horizontal spray rails on models of the series 62 form, a deep vee, double chine and rounded bilge form. Results mixed while positive in reducing resistance at higher speeds.
3. Jeonghwa Seo, Hak-Kyu Choi, Uh-Cheul Jeong, Dong Kun Lee, Shin Hyung Rhee, Chul-Min Jung, Jaehoon Yoo, 'Model tests on resistance and seakeeping performance of wave-piercing high-speed

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4. M Orych, L Larsson, 'Hydrodynamic aspects of transom stern optimisation', 5th High Performance Yacht Design Conference, Auckland, 10-12 March 2015, pp 247 to 256
5. T C. Fu, A M. Fullerton, T Ratcliffe, L Minnick, D Walker, M L Pence, and K Anderson, 'A Detailed Study of Transom Breaking Waves', Naval Surface Warfare Centre, Hydromechanics Department Report NSWCCD-50-TR-2009/025 May 2009
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3. Kobus Potgeiter 'Understanding design and performance of stepped hulls', article, at Kobus Naval Designs, South Africa, www.navaldesign.co.za/articles/Stepped Hulls- Feb07.pdf
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1. T Hansvik, 'Use of interceptors and stepped hull to improve performance of high speed planing', High Speed Craft – ACV's WIG's and Hydrofoils Conference at RINA 31 October – 1 November 2006

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1. The specialist Committee on Waterjets, Final Report and Recommendations to the 22nd International Towing Tank Conference, 1999 available at www.ITTC.info

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1. S Sindagi, R Vijayakumar, B K Saxena, 'Frictional drag reduction: Review and numerical investigation of microbubble drag reduction in a channel flow', RINA Transactions, Vol 160, Part A2, International Journal of Maritime Engineering, April – June 2018, pp A121-139, ISSN 0035-8967