



Composites custom made solutions

# Reference book for the superyacht building industry

Rhebergen Composites, April 2013



FRP Workshop Accepted by:



### MEMBER:

Dutch association for the super yacht industry plus Dutch association for composite builders





# PREMIUM QUALITY

#### Who we are

Rhebergen Composites specialises in custom-made solutions in composite materials and applications of fibre-reinforced sandwich constructions using vacuum injection techniques. Based at the heart of the premium Dutch yachting industry, our company focuses on custom-made components for luxury superyachts.

We can take care of every stage of your turnkey project, from development, design and engineering to building, painting, transport and mounting.

Rhebergen's client base includes a wide range of world-renowned yards. We deliver everything from entire superstructures, hulls, decks and radar masts to tailor-made hatches, ventilation grills and deck furniture. Composite construction is lightweight, non-corrosive and low-maintenance, providing long-term cost savings and offering the greatest freedom of design. Combine your imagination with our skills and let Rhebergen Composites make your dream vessel a reality.

# New management since 2012

In 1987 Simon Rhebergen founded Rhebergen Multihull Yachts in Amsterdam. The company initially built catamarans and ten years after its inception divided into two entities, one of which specialised in composite materials. This is the foundation of the company known today as Rhebergen Composites. Simon Rhebergen retired in 2011 and sold his shares to investor Rolf Dothagen. The success story has continued apace!

A new management team was formed comprising the shareholder duo of Ad Broos and Thomas Thon, a composite technician who has worked for the company since 2001. Today the pair manages Rhebergen Composites based on their specific expertise while Rolf Dothagen assists in an advisory capacity.



Ad Broos



**Thomas Thon** 





















# **SPECIALIST**

## **Custom-made components**

Responding to continuously developing demands in the superyacht market requires meeting every challenge in terms of flexibility, quality and delivery. Dutch-built composite solutions by Rhebergen Composites are your answer.

The production of custom-made composites is a specialisation in itself. Rhebergen Composites is an expert in this type of design, engineering and production. Our primary focus is the creation of one-off components for superyachts. Anything is possible, from carbon and epoxy rudders to carbon superstructures with carbon signal masts.

Completed projects have included entire superstructures and hulls, exhaust funnels and radar masts, telescopic rudders, decks, hatches, ventilation grills and deck furniture. We can create components up to ninety metres in length and up to fifteen metres wide.

Composites offer you exceptional freedom in design, with any shaping possible. Whatever we create, weight savings and reliability are always major priorities. Your supervacht will look all the more striking for it.

# More strength, less weight

In general, modern composites can be said to be a combination of different types of materials, e.g., steel and concrete. Rhebergen Composites uses fibres, such as glass, carbon and aramide, to give its composites the requisite strength. An epoxy resin is used as a matrix to keep the fibres together.

Engineered to be as strong as steel, our composites weigh only a third as much. To increase stiffness, we add a sandwich core between the inner and outer skin. Products of vacuum infusion technology are characterised by high fibre contents, guaranteeing their strength while keeping weight low. Rhebergen Composites makes sure all procedures are applied correctly in order to create a product with the highest possible quality level.

#### **Pioneers in vacuum infusion**

The skilled personnel at Rhebergen Composites are especially trained to excel at vacuum infusion applications. Vacuum infusion involves fibres being applied into a dry mould or template, which is then sealed and placed under vacuum. The vacuum pulls and spreads the resin into the fibres in a clean and precise process that results in a high performance laminate.

Rhebergen Composites performed the first tests with vacuum infusion in the late 1990s. After developing special epoxy resins in cooperation with a resin manufacturer, we soon infused the first hull. As a pioneer in this technology for custom products Rhebergen Composites now utilises vacuum infusion throughout all its operations. Our workshop and machinery are dedicated to this highly developed system, which is permanently monitored.

# THE WHOLE PACKAGE

# Design

Based on early sketches or preliminary drawings, we develop a finished product to the specified requirements in close cooperation with the yard, designer and/or client. Using AutoCAD and Rhino software, Rhebergen Composites can assist with the 3D development of a product at every stage from sketch to final product adjustments. To ensure a perfect fit for our products, we take 3D measurements of the surrounding structures on site. It is also possible to measure large structures. All results are incorporated in our 3D files.

# **Engineering**

Rhebergen Composites engineers structures with maximum precision based on the exact design and specifications. Together with you, we inventory the specifications and use Finite Element Software to control and analyse the calculations made.

A simulation of specified load cases is also provided so as to make sure that the component functions properly in all types of circumstances.

#### New build

There are few pleasures in life that can compare to that of owning a fine yacht built according to your very own wishes and specifications. Composites by Rhebergen Composites are ideal for any shape. Together with the yard, designer and/or owner, we identify what is needed for the right component construction.

Rhebergen Composites deploys the full extent of our expertise, high-quality craftsmanship, professional equipment and building capacity to ensure on-time delivery. All production takes place in our facility in Amsterdam where the shop floor is temperature-controlled and suitable for handling large structures. A major point of focus is ensuring the complete reliability of all processes.

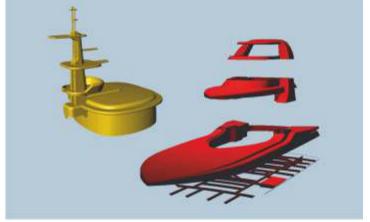
#### Refits

Composite construction is the perfect solution for refit projects. It adds little weight and offers complete freedom of shape. An extra deck section or sun awning can easily be added. The addition of new masts or other exterior parts allows you to create a fresh new styling.

Another major benefit of composites is their low maintenance requirements. By replacing worn aluminium and wooden sections with composite, you can make your yacht look like new now and generate major cost savings for the future.

## Turnkey

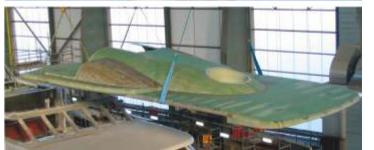
Rhebergen Composites is able to manage the entire package for a complete composite project, from design and engineering via production and painting to delivery and onboard mounting. Rhebergen Composites can cover every stage of your composite project from beginning to end: We are your turnkey partner.











# REFERENCE LIST 2003-2013

DELIVERY DATE	COMPOSITE SOLUTIONS PROVIDED	YARD NUMBER	CONTRACTOR
2013, February	DANCING PLATE		AMELS
2013, February	TWO SERIES OF LIGHT MASTS		MEYER WERFT
2012, December	EXTENSION RIVIERA GANGWAY	RVL 808	AKERBOOM YACHT EQUIPMENT
2012, December	PULLMAN BED (CAPTAINS CABIN)	392	ROYAL HUISMAN SHIPYARD
2012, December	MAST GRILL	685	KONINKLIJKE DE VRIES SCHEEPSBOUW
2012, December	DOOR PANELS   GRILLS	YN195	MOONEN SHIPYARDS
2012, October	RUDDER	'Bellatrix'	DAMEN MARINE SERVICES
2012, October	CEILING COMPONENTS	805	ROYAL VAN LENT SHIPYARD
2012, October	REPAIRS TENDER   REFIT SUPERSTRUCTURE	'A' / SF99	HAMILTON YACHTS
2012, October	DOOR CONSTRUCTION	683	KONINKLIJKE DE VRIES SCHEEPSBOUW
2012, July	BIRD CAGE	VL807	STRUIK & HAMERSLAG
2012, June	TENDER FENDERS WITH LOCKING PINS AND RAILING   TV UNIT	'Lady Dee'	VOORLAND SHIPYARDS
2012, June	WATER JET INTAKE		METUR YACHTS
2012, May	CANOPY CEILING   DOOR PANEL	684	KONINKLIJKE DE VRIES SCHEEPSBOUW
2012, April	FAIRING	DVM 1004	BEEKMANS RVS
2011, December	SUNAWNING REFIT	795	DE VOOGT / ROYAL VAN LENT SHIPYARD
2011, December	TRI FLYER		DIJKSTRA & PARTNERS
2011, August	GANGWAY TO GANGPLANK	684	AKERBOOM YACHT EQUIPMENT
2011, May	SUNWNING	802	ROYAL VAN LENT SHIPYARD
2011, April	PLATFORM	807	AKERBOOM YACHT EQUIPMENT
2011, April	PLATFORM ACC. LADDER	1004	AKERBOOM YACHT EQUIPMENT
2011, April	TOPDECK PANELS		PRIVATE OWNER
2011, March	DODGER CREW DOOR		AKERBOOM YACHT EQUIPMENT
2011, March	OVERPRESSURE GRILLS	682	KONINKLIJKE DE VRIES SCHEEPSBOUW
2011, February	TV CABINET	802 / Tango'	ROYAL VAN LENT SHIPYARD
2011, January	CROWNMAST/TOPDOME	802 / 'Tango'	ROYAL VAN LENT SHIPYARD
2011, January	CURVED GRILLS		DE VRIES MAKKUM
2011, January	PRODUCTION MAST AND CANOPY	802 / 'Tango'	ROYAL VAN LENT SHIPYARD
2010, December	LIFE RAFT DOORS	802 / 'Tango'	ROYAL VAN LENT SHIPYARD

DELIVERY DATE	COMPOSITE SOLUTIONS PROVIDED	YARD NUMBER	CONTRACTOR
2010, November	DODGER CREW DOOR		AKERBOOM YACHT EQUIPMENT
2010, October	DECK FURNITURE	682	KONINKLIJKE DE VRIES SCHEEPSBOUW
2010, October	MODIFICATION SAT DOMES	802 / 'Tango'	ROYAL VAN LENT SHIPYARD
2010, October	SUNAWNING	797	ROYAL VAN LENT SHIPYARD
2010, October	SWIM STAIR COVER		AKERBOOM YACHT EQUIPMENT
2010, October	TOP MAST	797	ROYAL VAN LENT SHIPYARD
2010, September	FLAG POLES   BRACKETS		HOLLAND JACHTBOUW
2010, September	HELI ESCAPE HATCH		AKERBOOM YACHT EQUIPMENT
2010, September	SET OF HATCHES		LIFT EMOTION
2010, June	DECK FURNITURE		PRIVATE OWNER
2010, May	VENTILATION GRIDS		DE VRIES MAKKUM
2010, April	HINGES		HODGDON YACHTS
2010, January	LIFTING BEAMS FOR TENDERS	705	OCEANCO - ALBLASSERDAM YACHTBUILDING
2009, December	ENGINEERING MAST AND CANOPY	802 / 'Tango'	ROYAL VAN LENT SHIPYARD
2009, December	DISCO POLES	705	OCEANCO - ALBLASSERDAM YACHTBUILDING
2009, August	DECK FURNITURE	680	KONINKLIJKE DE VRIES SCHEEPSBOUW
2009, August	TENDER CRADLES		PRIVATE OWNER
2009, July	CARBON GANGWAY   CARBON HARDTOP FOR RIVA TENDER   CARBON LETTERS FOR VESSEL NAME	45 m	VICTORIUS SHIPPING COMPANY
2009, June	CONSTRUCTION OF BIMINI WITH SLIDING SUNROOF	3062	VITTERS SHIPYARD
2009, June	MAST GRILL	680	KONINKLIJKE DE VRIES SCHEEPSBOUW
2009, June	PASSARELLE DOOR	678	KONINKLIJKE DE VRIES SCHEEPSBOUW
2009, May	ULTRALONG GRILLS	680	KONINKLIJKE DE VRIES SCHEEPSBOUW
2009, May	CRANE COVERS	679	KONINKLIJKE DE VRIES SCHEEPSBOUW
2009, March	BULWARKDOORS	678	KONINKLIJKE DE VRIES SCHEEPSBOUW
2009, April	CARBON KEEL CONSTRUCTION		PRIVATE CUSTOMER
2009, April	DEVELOPMENT MAST AND CANOPY	802	ROYAL VAN LENT SHIPYARD
2009, February	SHOWERTUBS	680	KONINKLIJKE DE VRIES SCHEEPSBOUW
2009, January	DEVELOPMENT BIMINI WITH SLIDING SUNROOF	3062	VITTERS SHIPYARD
2009, January	GRILLS	678	KONINKLIJKE DE VRIES SCHEEPSBOUW
2008, winter	ANCHORARMS	3062	VITTERS SHIPYARD
2008, November	WING CONTROLS	677 / 679	KONINKLIJKE DE VRIES SCHEEPSBOUW

DELIVERY DATE	COMPOSITE SOLUTIONS PROVIDED	YARD NUMBER	CONTRACTOR
2008, October	DECK FURNITURE	677	KONINKLIJKE DE VRIES SCHEEPSBOUW
2008, September	LIFERAFTDOORS	680	KONINKLIJKE DE VRIES SCHEEPSBOUW
2008, August	FAIRING STRIPS	677	KONINKLIJKE DE VRIES SCHEEPSBOUW
2008, summer	3D GRILLS		LÜRSSEN KRÖGERWERFT
2008, summer	CURVED GRILLS	1001	DE VRIES MAKKUM
2008, summer	MAST AND CANOPY	191	MOONEN SHIPYARDS
2008, summer	SLIDING HATCHES		VAN DAM NORDIA
2008, July	REMOVABLE BULWARK	677	KONINKLIJKE DE VRIES SCHEEPSBOUW
2008, June	CRANE COVERS	703	OCEANCO ALBLASSERDAM YACHTBUILDING
2008, spring	3D ENGINE ROOM GRILL	'Bermuda'	LÜRSSEN KRÖGERWERFT
2008, spring	FAIRING SUNSCREEN	'My Trust'	HAKVOORT SHIPYARD
2008, spring	VARIOUS GRILLS	675 / 676 / 678	KONINKLIJKE DE VRIES SCHEEPSBOUW
2008, spring	WING CONTROLS	703	OCEANCO - ALBLASSERDAM YACHTBUILDING
2008, May	TRANSOM HATCHES	703	OCEANCO - ALBLASSERDAM YACHTBUILDING
2008, beginning of	MAST	'My Trust'	HAKVOORT SHIPYARD
2007, summer	AFT CANOPY	SF99	HDW - HOWALDTSWERKE-DEUTSCHE WERFT
2007, summer	EXHAUST COVERS	SF99	HDW - HOWALDTSWERKE-DEUTSCHE WERFT
2007, summer	GRILLS	SF99	HDW - HOWALDTSWERKE-DEUTSCHE WERFT
2007, summer	MOORING HATCHES	SF99	HDW - HOWALDTSWERKE-DEUTSCHE WERFT
2007, summer	MAST AND CANOPY	SF99	HDW - HOWALDTSWERKE-DEUTSCHE WERFT
2007, June	ANCHORAGE ARM		VITTERS SHIPYARD
2007, June	DECK FURNITURE	703	OCEANCO - ALBLASSERDAM YACHTBUILDING
2007, May	PASSARELLE DOOR	674 / 'Predator'	KONINKLIJKE DE VRIES SCHEEPSBOUW
2007, May	GRILLS	702	OCEANCO - ALBLASSERDAM YACHTBUILDING
2007, May	GRILLS   BULWARK DOOR   ENGINE ROOM GRILLS	675	KONINKLIJKE DE VRIES SCHEEPSBOUW
2007, February	BIMINI		VITTERS SHIPYARD
2007, February	GRILLS	643 / 'Siran'	DE VRIES MAKKUM
2007, February	REPAIRS		DAMEN MARINE SERVICES
2007, February	SUNBEDS   HATCH   GRILLS   BULWARK DOOR	674 / 'Predator'	KONINKLIJKE DE VRIES SCHEEPSBOUW
2007, February	WING CONTROL STRUCTURE	702	OCEANCO - ALBLASSERDAM YACHTBUILDING
2007, January	TENDER FENDER   STEPS	701	OCEANCO - ALBLASSERDAM YACHTBUILDING

DELIVERY DATE	COMPOSITE SOLUTIONS PROVIDED	YARD NUMBER	CONTRACTOR
2006, December	MOB HATCH		AKERBOOM YACHT EQUIPMENT
2006, December	PASSARELLE	357	STRUCTOR
2006, November	GRILLS	702	OCEANCO - ALBLASSERDAM YACHTBUILDING
2006, November	SUNBED	671 / 'Calisto'	KONINKLIJKE DE VRIES SCHEEPSBOUW
2006, October	MOORING HATCH	SF99	HDW - HOWALDTSWERKE-DEUTSCHE WERFT
2006, October	SIDE BOARDING LADDER		AKERBOOM YACHT EQUIP
2006, September	CRANE COVER	673	KONINKLIJKE DE VRIES SCHEEPSBOUW
2006, September	GRILLS	701	OCEANCO - ALBLASSERDAM YACHTBUILDING
2006, August	DECK MATERIAL	674	KONINKLIJKE DE VRIES SCHEEPSBOUW
2006, August	HATCH		PRIVATE OWNER
2006, July	BULWARK	674	KONINKLIJKE DE VRIES SCHEEPSBOUW
2006, July	GRILLS	'Falcon'	LÜRSSEN KRÖGERWERFT
2006, July	HATCH	SF99	HDW - HOWALDTSWERKE-DEUTSCHE WERFT
2006, July	REFIT	SOS	PRIVATE OWNER
2006, July	SIDE BOARD LADDER		AKERBOOM SCHEEPSWERF
2006, June	DASHBOARD		VICTORIUS SHIPPING COMPANY
2006, June	DIVERSE COMPOSITE PARTS	701	OCEANCO - ALBLASSERDAM YACHTBUILDING
2006, June	PSP ELEMENT		BLOHM + VOSS
2006, May	PANEL		DIJKSTRA & PARTNERS
2006, May	REFIT RUDDER		PRIVATE OWNER
2006, May	X-RAY LARS OUDRUP		RHEBERGEN MULTIHULL YACHTS
2006, April	TENT BOWS	792	ROYAL VAN LENT SHIPYARD
2006, March	LIFE RAFT DOORS	673	KONINKLIJKE DE VRIES SCHEEPSBOUW
2006, February	PIPE GRILLS	701	OCEANCO - ALBLASSERDAM YACHTBUILDING
2006, February	TV CUPBOARD	792	ROYAL VAN LENT SHIPYARD
2006, January	EYEBROWS	673	KONINKLIJKE DE VRIES SCHEEPSBOUW
2006, January	FRONT RIG		VICTORIUS SHIPPING COMPANY
2006, January	HATCHES   CRANE COVERS   GRILLS   DOORS DECK CONSOLE	672 / 'Gallant Lady'	KONINKLIJKE DE VRIES SCHEEPSBOUW
2005, December	GRILLS	701	OCEANCO - ALBLASSERDAM YACHTBUILDING
2005, November	GRILLS	671	KONINKLIJKE DE VRIES SCHEEPSBOUW
2005, August	MAST BEARING TUBE		VICTORIUS SHIPPING COMPANY

DELIVERY DATE	COMPOSITE SOLUTIONS PROVIDED	YARD NUMBER	CONTRACTOR
2005, July	RECESS SWIM LADDER	672 / 'Gallant Lady'	KONINKLIJKE DE VRIES SCHEEPSBOUW
2005, July	ROOF FOR OBSERVATION LOUNGE (REFIT)	643 / 'Siran'	KONINKLIJKE DE VRIES SCHEEPSBOUW
2005, June	PROTO HATCH		RCC INNOVATIONS
2005, June	REFIT OF RESCUE VESSEL	'Johanna Magareta'	KNRM
2005, June	REFIT SAT DOMES	'Lady Ann'	AMELS MAKKUM
2005, May	GRILLS	671	KONINKLIJKE DE VRIES SCHEEPSBOUW
2005, April	ANCHOR STEPS	'Dilbar'	OCEANCO - ALBLASSERDAM YACHTBUILDING
2005, March	DECK HATCH 3M	671	KONINKLIJKE DE VRIES SCHEEPSBOUW
2005, March	GRILLS	670	KONINKLIJKE DE VRIES SCHEEPSBOUW
2005, March	UNDERWATER ANCHOR HATCH	417	JACHTWERF JONGERT
2005, January	REMOVABLE BULWARK HELIDECK	671	KONINKLIJKE DE VRIES SCHEEPSBOUW
2004, December	HELM STATION	417	JACHTWERF JONGERT
2004, December	COMPLETE SUPERSTRUCTURE   BRIDGE DECK   FLY BRIDGE	672 / 'Gallant Lady'	KONINKLIJKE DE VRIES SCHEEPSBOUW
2004, December	HATCHES	793 / 'Blue Moon'	ROYAL VAN LENT SHIPYARD
2004, November	REFIT 15 M TRIMARAN	'Sound of Silence'	PRIVATE OWNER
2004, November	REMOVABLE BULWARK   MAST	793 / 'Blue Moon'	ROYAL VAN LENT SHIPYARD
2004, October	COMPOSITE ROOF CONSTRUCTION   CARBON PANELS	417	JACHTWERF JONGERT
2004, October	DECK PLUG		HASWOLD
2004, October	DECORATION WINGS	661	OCEANCO - ALBLASSERDAM YACHTBUILDING
2004, October	GRILLS MAST	670	KONINKLIJKE DE VRIES SCHEEPSBOUW
2004, October	RAILING ON 4 DECKS	Experimental vessel 'Dupuy de Lôme'	KONINKLIJKE NIESTERN SANDER
2004, September	GRILLS MAST	669	KONINKLIJKE DE VRIES SCHEEPSBOUW
2004, September	RADAR MAST SAIL CRUISER   SPIBOOM		PRIVATE OWNER
2004, September	SLIDING ROOF	415	JACHTWERF JONGERT
2004, August	DECK HATCHES	417	JACHTWERF JONGERT
2004, July	BERTH PANELS	Ted Hood 54	DAMEN SHIPYARDS
2004, July	EXTENSION OF ROOF	415 / 'Ameena'	JACHTWERF JONGERT
2004, July	POOL COVER	669	KONINKLIJKE DE VRIES SCHEEPSBOUW
2004, July	RUDDER BLADE	417	JACHTWERF JONGERT
2004, June	COMPOSITE CONSOLE	'Ghost'	VITTERS SHIPYARD
2004, June	HINGING WINDOW   WASHBOARDS	446	AMELS MAKKUM

DELIVERY DATE	COMPOSITE SOLUTIONS PROVIDED	YARD NUMBER	CONTRACTOR
2004, June	TRANSOM HATCHES	417	JACHTWERF JONGERT
2004, May	COMPLETE HULL FOR 56' SAILING VESSEL	Sportcruiser SC56	PRIVATE OWNER
2004, May	COMPOSITE BOX		OCEANCO - ALBLASSERDAM YACHTBUILDING
2004, April	WING CONTROL COVERS PASSARELLE DOOR	790	ROYAL VAN LENT SHIPYARD
2004, March	WING CONTROL PLUS COVER	661	OCEANCO - ALBLASSERDAM YACHTBUILDING
2004, March	SLIDING HATCH   CARBON PANELS	Ted Hood 54	DAMEN SHIPYARDS
2004, February	FAIRING	Ted Hood 54	DAMEN SHIPYARDS
2004, February	GRILLS	790	ROYAL VAN LENT SHIPYARD
2004, February	REMOVABLE BULWARK HELIDECK   GRILLS   BULWARK DOOR	668	KONINKLIJKE DE VRIES SCHEEPSBOUW
2004, January	L-PROFILES   LIFE RING COVERS	668	KONINKLIJKE DE VRIES SCHEEPSBOUW
2003, November	GRILLS	668	KONINKLIJKE DE VRIES SCHEEPSBOUW
2003, October	ONE OFF HULL FOR 10M SAILING YACHT	LH33	LELYSTAD HAVEN /PRIVATE OWNER
2003, September	BULWARK HATCH   PASSARELLE DOOR	667	KONINKLIJKE DE VRIES SCHEEPSBOUW
2003, September	DECK COMPONENTS   GRILLS	790	ROYAL VAN LENT SHIPYARD
2003, September	HOUSE FOR BOW-THRUSTER	'Ghost'	HYDROSTA (VITTERS SHIPYARD)
2003, September	PROTO FOR 6M PRODUCTION BOAT		HASWOLD
2003, August	COVER FOR SUNROOF		HAKVOORT SHIPYARD SHIPYARD
2003, August	GRILLS	667	KONINKLIJKE DE VRIES SCHEEPSBOUW
2003, August	MAST/CANOPY   PARTS ON DECK	790	ROYAL VAN LENT SHIPYARD
2003, June	SANDWICH PANELS		RHEBERGEN MULTIHULL YACHTS
2003, May	FASHION PLATES   TURBINE / GENERATOR EXHAUST	790	ROYAL VAN LENT SHIPYARD
2003, April	MAST / FUNNEL	665	KONINKLIJKE DE VRIES SCHEEPSBOUW
2003, February	BULWARK DOOR	665	KONINKLIJKE DE VRIES SCHEEPSBOUW
2003, February	PANELS FOR WHEELHOUSE		DICK VAN DE ENDE
2003, January	CARBON RUDDER FOR TRIMARAN	TR10	PRIVATE OWNER



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