



CJR

PROPULSION





THIS IS WHAT  
ADVANCED  
PROPELLER  
DESIGN  
LOOKS LIKE...

When your customer takes delivery of their yacht they want the ride, power and performance to be as exhilarating and rewarding as they dreamed it would be. CJR have been playing their part in fulfilling this promise for over 50 years.

Our dedication to advanced propeller design, craftsmanship and engineering excellence have made us the sterngear suppliers of choice for some of the most prestigious boat builders in the business.

...A WHOLE  
LOT OF  
FUN

# LET'S TALK FLUID DYNAMICS

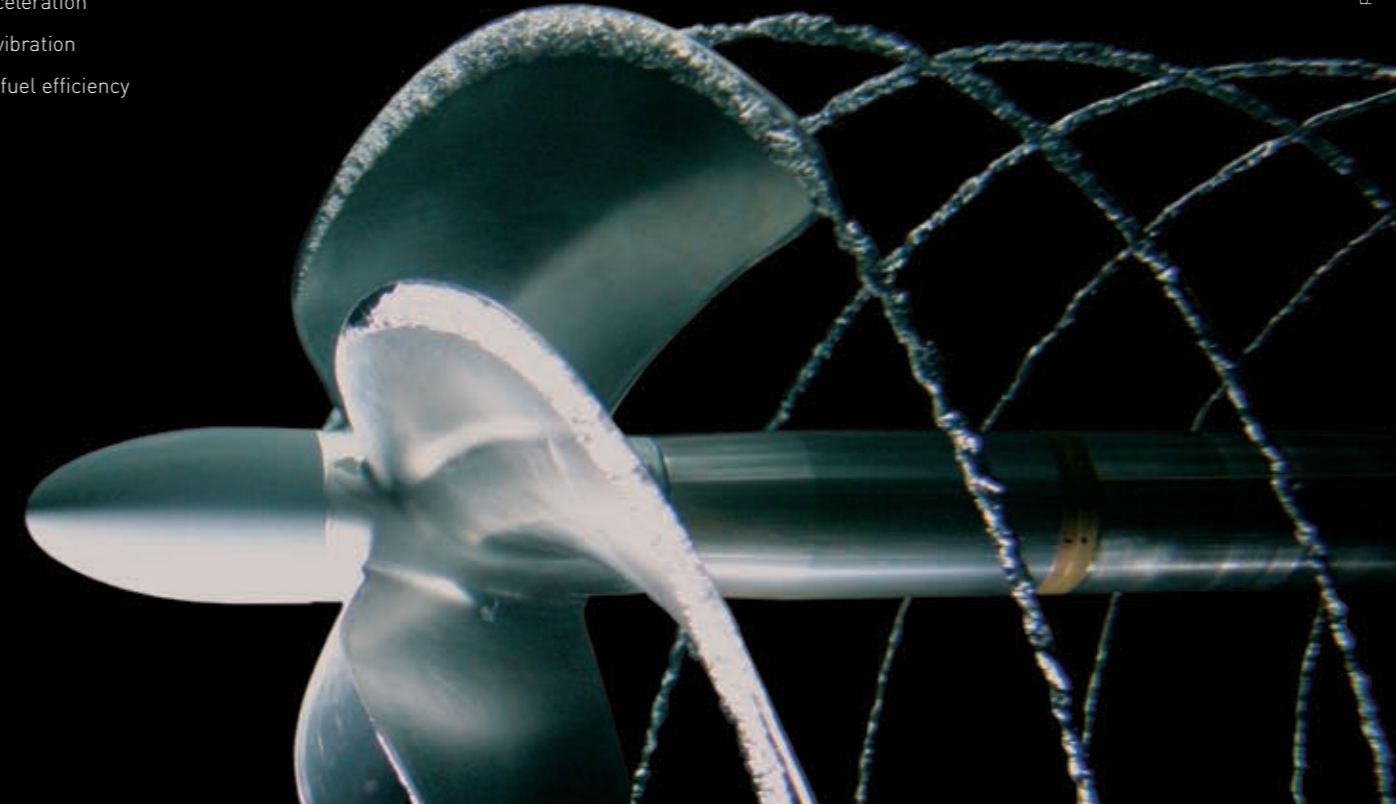
The secret to achieving super smooth power delivery right across the engine rev range is locked in the highly specialised world of fluid dynamics. That's why our propulsion systems are developed using the latest Computational Fluid Dynamics (CFD) software.



CFD enables us to accurately model and fine-tune the design of all the components in a propulsion system, including the propellers, to deliver optimum performance and efficiency – and significant advantages over conventional equipment.

Underwater excellence delivers outstanding surface performance

- Higher top speed
- Better acceleration
- Reduced vibration
- Improved fuel efficiency



ONCE YOU'VE  
TOLD US ABOUT  
**TONNAGE**  
HORSEPOWER  
& PERFORMANCE...



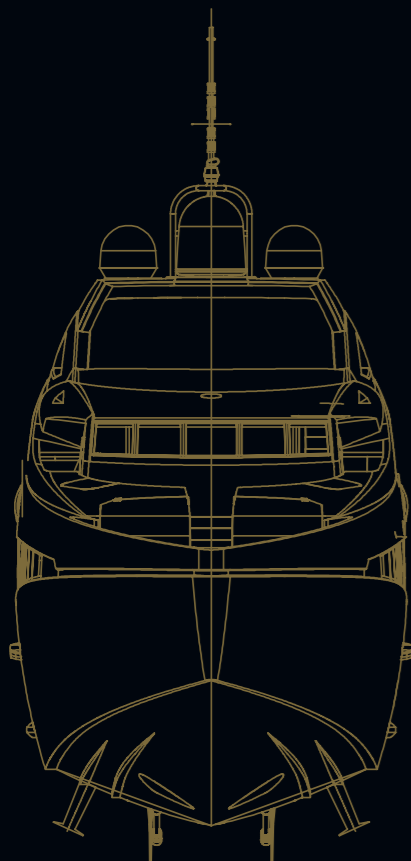
Our role at CJR is to work in harmony with yacht designers and builders to achieve the performance and experience that the customer is looking for.



...WE'LL ASK  
YOU ABOUT  
**RIDE**  
CHARACTERISTICS  
& FEEL

With performance at the heart of every one of our propeller and sterngear solutions, we continuously push the boundaries of CFD and Finite Element Analysis (FEA) software. We also develop our own CAD/CAM software and 3D modelling systems to help us achieve maximum efficiency with the least possible weight and drag.

And because we listen to what boat designers are aiming to achieve we have developed a progressive approach to design and manufacturing that's continuously pushing the boundaries of what modern propulsion systems can offer.





## BEFORE WE MAKE THE MOULD...

Just as with yacht building, successful propeller manufacture depends on the skilful combination of new technologies and experience.

We combine three generations of craftsmanship in the fashioning of propellers and sterngear with the science of sophisticated flow-test software to model and control how molten metal will flow and cool in the mould, ensuring that our designs are faithfully replicated in production.

## ...WE SPECIFY & MAKE THE METAL

Developing our own unique metal composite gives us ultimate control of how the finished product behaves. This is just one example of why all aspects of our sterngear's manufacture takes place in house, ensuring that the highest quality and attention to detail are maintained in every aspect of manufacture.



### Pattern Making

The epoxy polymer patterns are machined from a precise 3D model of the design which ensures that the very fine tolerances necessary for efficient sterngear are faithfully translated into our patterns, castings and finished products.



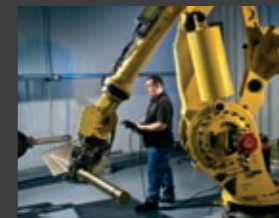
### Casting

Precision casting begins with the specification of the right metal, usually an Aluminium Bronze made to our requirements. Accurate flow modelling and tooling gives precise castings that match the fine tolerances of the design and give maximum structural integrity to the component.



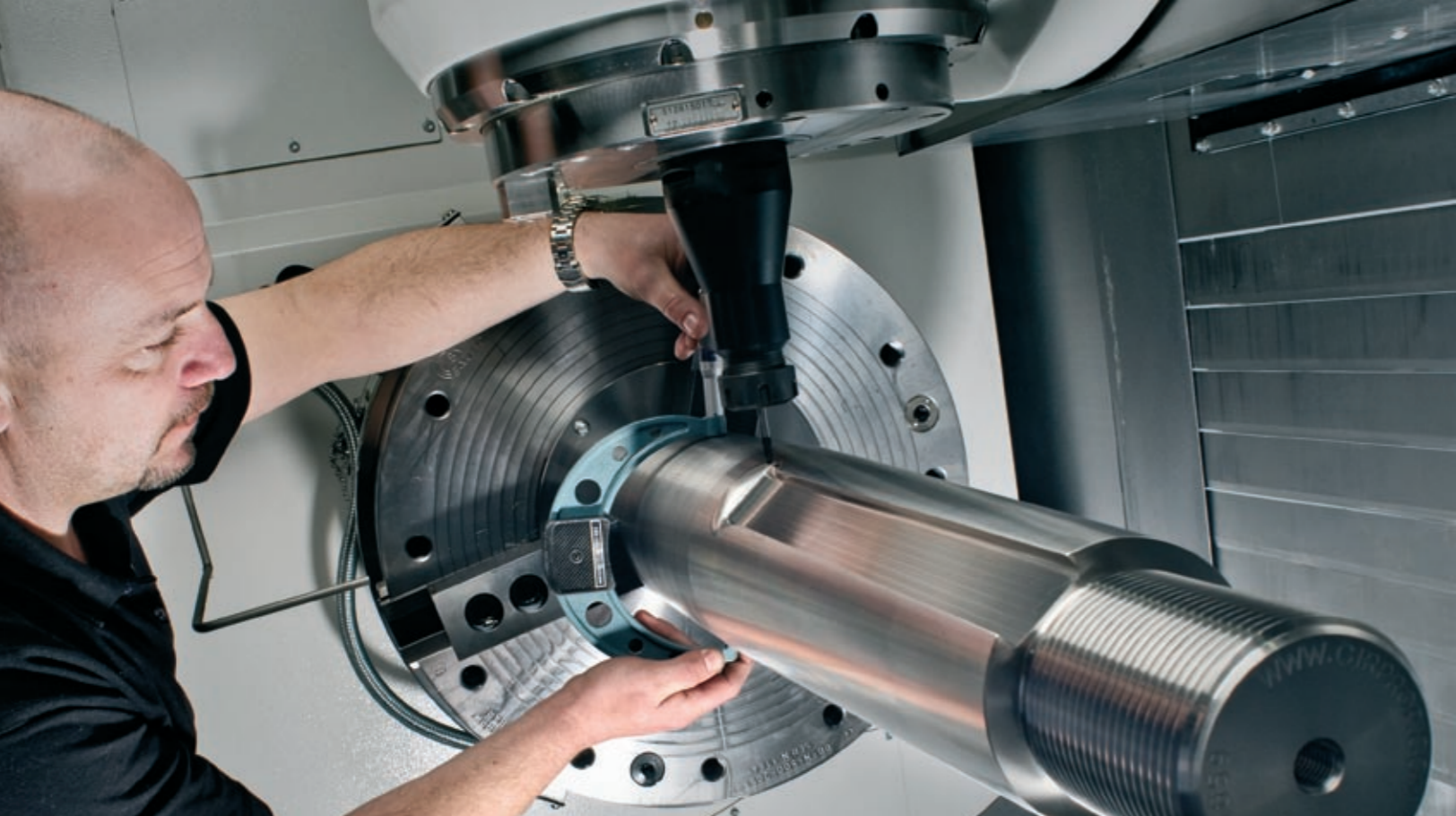
### Machining

CAD/CAM controlled machining of propellers, P brackets and rudders is undertaken to the fine tolerances of their original design. Propeller shafts up to 180mm in diameter are machined in house in the designer's chosen steel.



### Robotic Finishing

Our processes ensure that the geometry of our finished castings perfectly replicate the design of their 3D models. Consequently, there's little need for extensive finishing, saving time and reducing costs. Additionally all propellers are thoroughly inspected for geometry, skew, rake and pitch using our VEEMScan system.



## STATE OF THE ART

Significant investment throughout our design and manufacturing departments have made our facilities some of the most technically advanced in Europe. This investment enables us to manufacture propellers, prop shafts, P brackets, rudders and sterngear for motor yachts up to 260 feet (80m) in size, quickly, efficiently and to the most exacting tolerances.

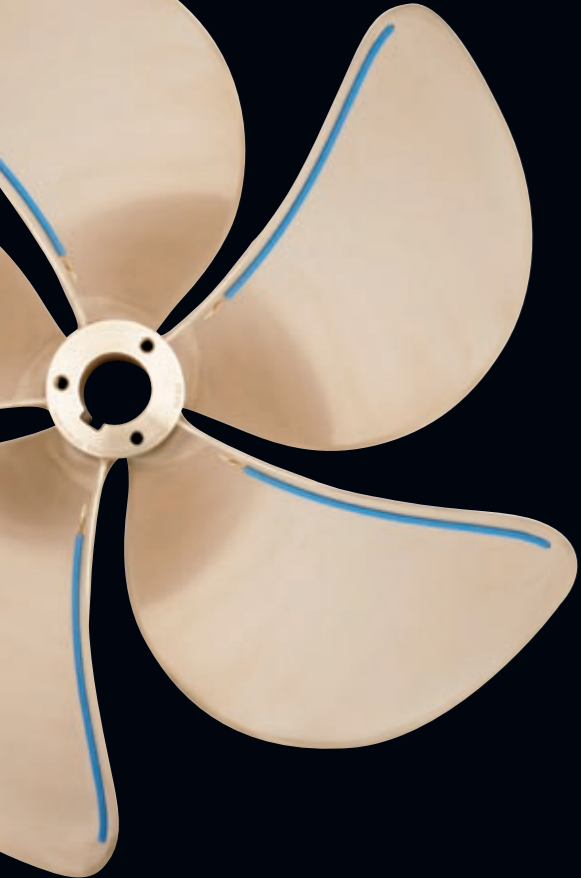
## STATE OF THE SCIENCE



The partnership of CJR Propulsion and Australia's premier propeller designer and manufacturer, VEEM, provides clients with the perfect sterngear package for their motoryacht – combining CJR's leading sterngear systems with VEEM's superlative propellers.

## STRENGTH THROUGH PARTNERSHIP CJR & VEEM

The two companies share a commitment to innovation, each leading their fields in product design and automated precision production techniques. Our combined strength gives us greater capacity and the capability to design and produce propulsion systems for yachts of all sizes.



# VEEM INTERCEPTOR



Improve the performance of a 30m yacht with just 3mm of engineering brilliance

The revolutionary Interceptor™ technology enables all vessels to be launched with the correct propeller every time, by attaining the right engine revs and load without the need to change or modify the propellers. The pitch of the propeller can be fine-tuned to the boat by using different height Interceptor strips on the trailing edges of the blades. Should the pitch of the propeller need to be changed, the old strip is simply pushed out and a new strip of a different height is pushed in. And the propellers can be adjusted in-situ without the vessel needing to leave the water.

By attaining the right engine revs and load the benefits of the VEEM Interceptor is particularly noticeable on high performance motorboats. The faster the boat, the more noticeable the improvements in speed, efficiency and smooth operation the Interceptors will make.

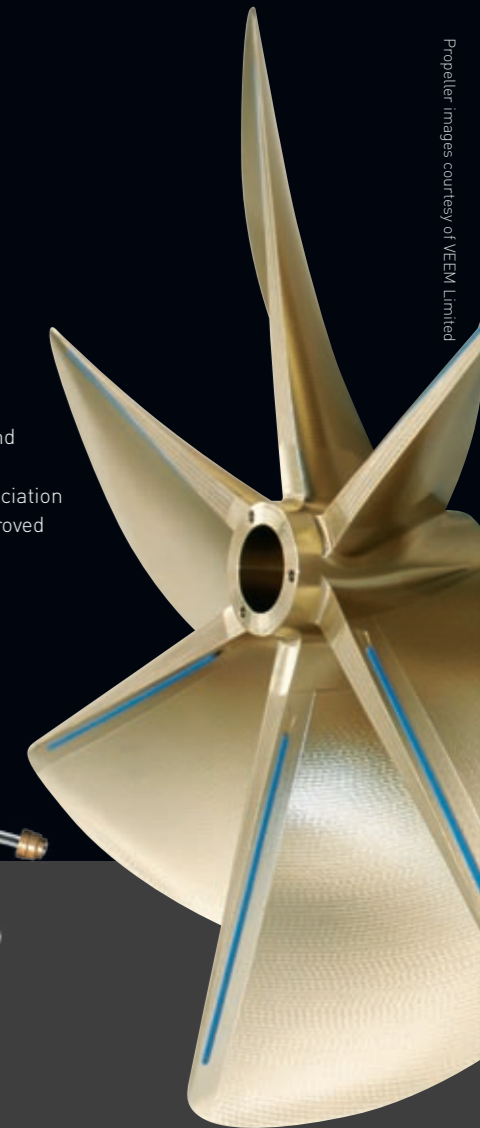
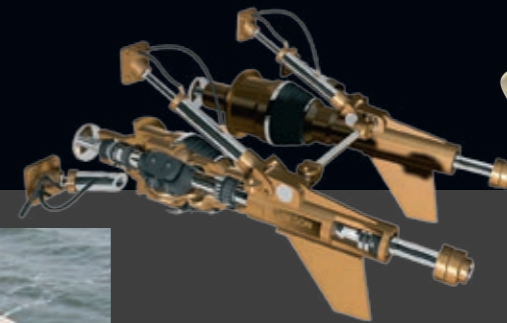
The ability to perfectly tune the propeller's pitch to the boat and propulsion system makes the VEEM Interceptor the perfect match for the ultra-high performance demands of a surface drive system.



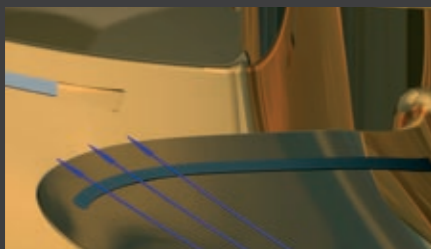
# VEEM SURF INTERCEPTOR

Custom designed to suit each application, the VEEMSurf Interceptor Propeller is the latest in surface piercing propeller design. It has been developed in partnership with surface drive and vessel manufacturers for high speed planing vessels and features a cleaver-type blade profile, with hollow faced, wedge shaped sections, designed to optimise shock free entry, and hence provide smooth operating characteristics.

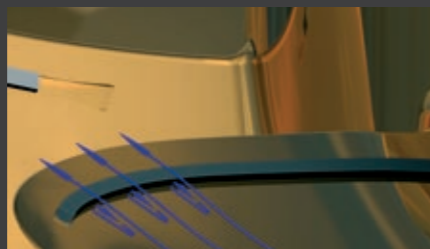
Every propeller is fully CNC machined to the highest quality and accuracy and is then dynamically balanced at VEEM's National Association of Testing Authorities (NATA) approved balancing facility.



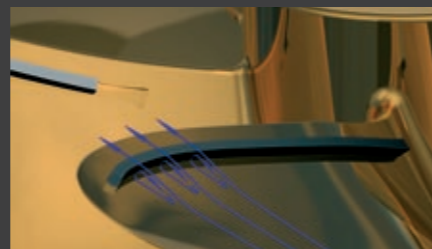
Propeller images courtesy of VEEM Limited



0mm Insert Strip



1.5mm Insert Strip

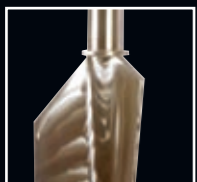


3mm Insert Strip



Designer and Naval architect:  
Mulder Design  
Builder: FM Yachts

# TURN WITH GRACE THANKS TO ENGINEERING ELEGANCE



## RUDDERS

Cast rudders are made using our precision tooling and cast in either Aluminium Bronze or High Tensile Bronze. We also manufacture fabricated rudders in a variety of different materials.



## STERN TUBES

Manufactured from GRP, Aluminium, Steel or Bronze these are supplied fully machined and, where appropriate, fully assembled. Standard sized items can be supplied from stock.



## THROUGH-HULL LOGS

Cast in Aluminium Bronze or High Tensile Bronze which are highly resistant to corrosion, the logs are supplied with water lubricated bearings and are complete with all fittings ready for installation.



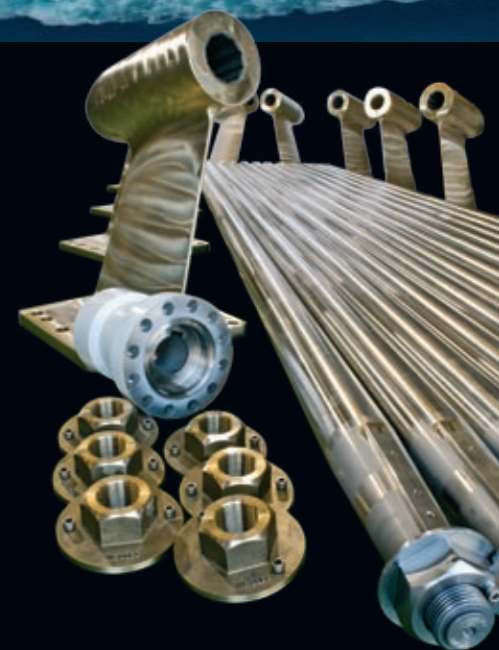
## P BRACKETS

P Brackets are cast from Aluminium Bronze or High Tensile Bronze and machined on our specialized 5 axis machining centre. Its precision ensures perfect alignment on the hull whilst its speed gives very fast turnaround times.



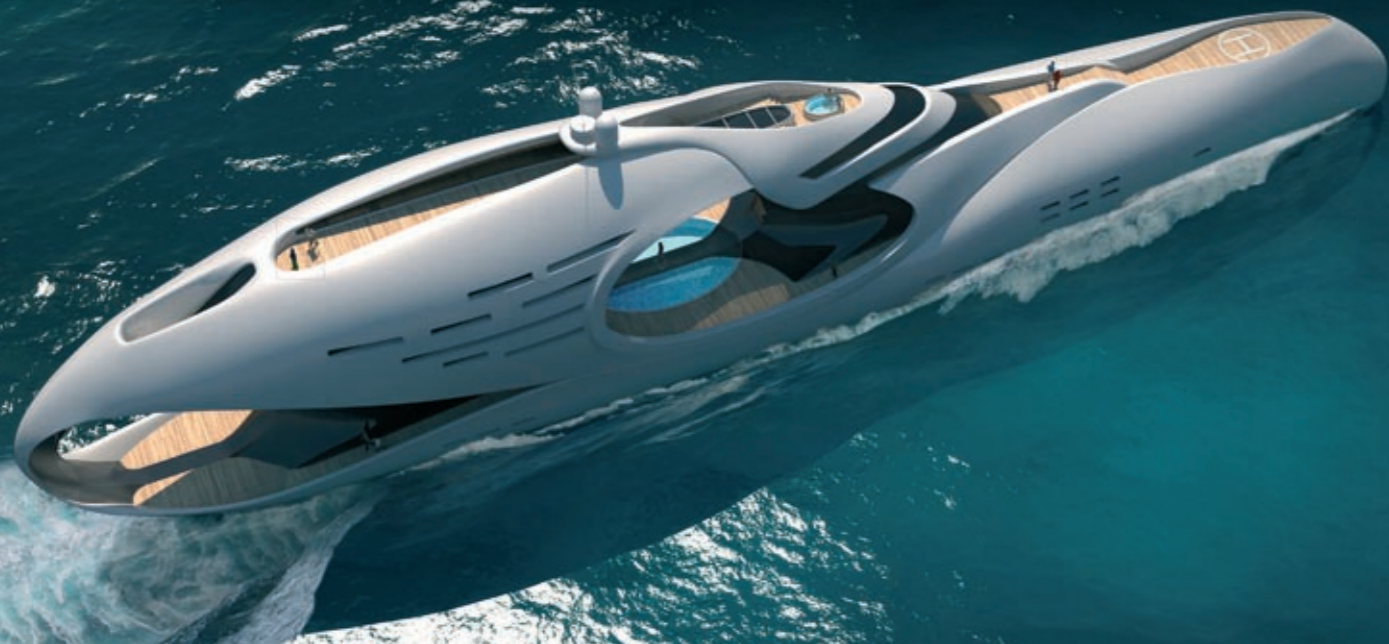
## PROPELLER SHAFTS

We have experience with all kinds of stainless steel in the machining of propeller shafts. Every bar of up to 180mm in diameter is straightened to exacting tolerances and is machined in one piece on our 5-axis CNC lathe including spoon machining the keyways.



# YOU DREAM UP THE YACHT

Our new generation propellers are high precision works of engineering that are shaped by the latest hydrodynamic modelling and tested in cavitation tanks to be the best possible match to your motoryacht or commercial vessel.

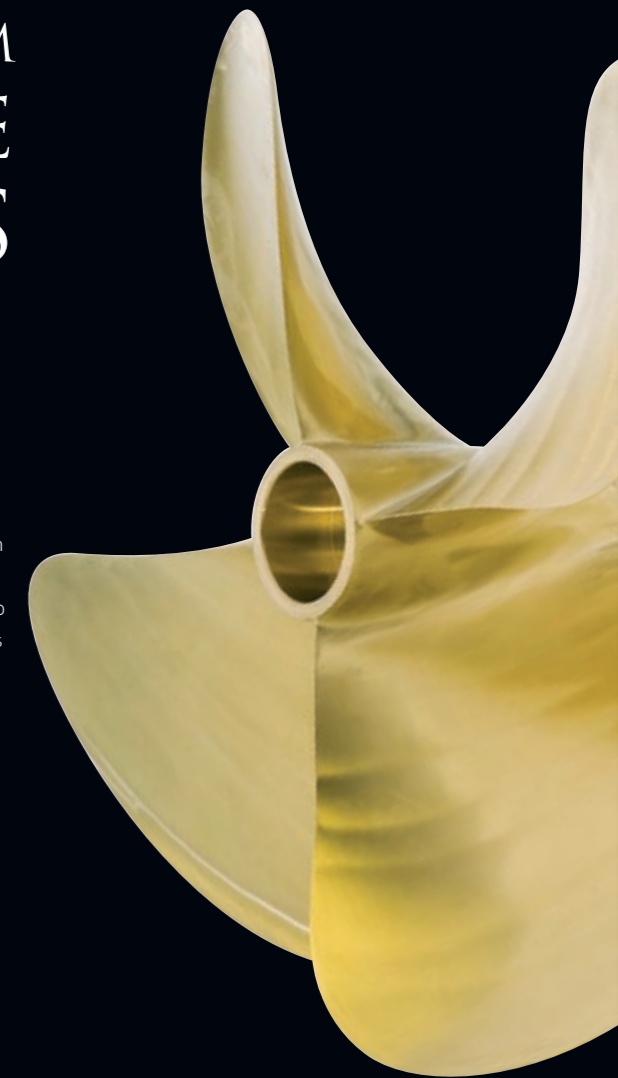
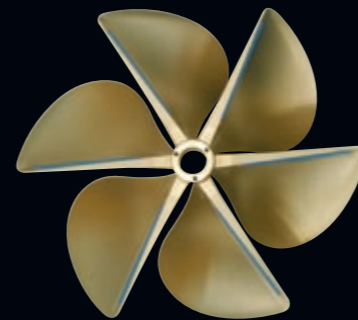


# WE'LL DREAM UP THE PROPS

Propellers are usually cast in Aluminium Bronze, CNC machined, dynamically balanced and VEEMScanned to achieve the Classification Society Standard that is required for your vessel.

All propellers are designed for optimum performance and manufactured for smooth running. Our ranges include props that are individually tailored to a particular vessel to provide the ultimate speed, responsiveness and efficiency.

Many of our custom designs have now been installed and trialed with outstanding improvements in top speed, responsiveness, operation and fuel efficiency – improvements that were accurately predicted in our design models.



# CJR SET THE STANDARDS

Quality is inherent in all we do. It is embedded in everything from our culture to our processes. That's why our customers know we'll strive to get it right for them, consistently, first time, every time, year in, year out.



And our design and manufacturing conforms to the most stringent Classification Standards which is your guarantee that the quality of our equipment will be a match for the quality of your yacht. Our delivery-on-time record,

accuracy of patterns and tolerance-matching are like our products – class leading. And every item of material we use is recorded and controlled for traceability right down the line. This quality ethic reaches right through to our

dedicated customer support team. They aim to exceed your expectations, with a service that's professional, experienced and expert.

Our aim is not just to offer you the ultimate in propeller and sterngear systems but to empower you to minimise build times, production costs and maximise productivity, profitability and satisfaction.





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