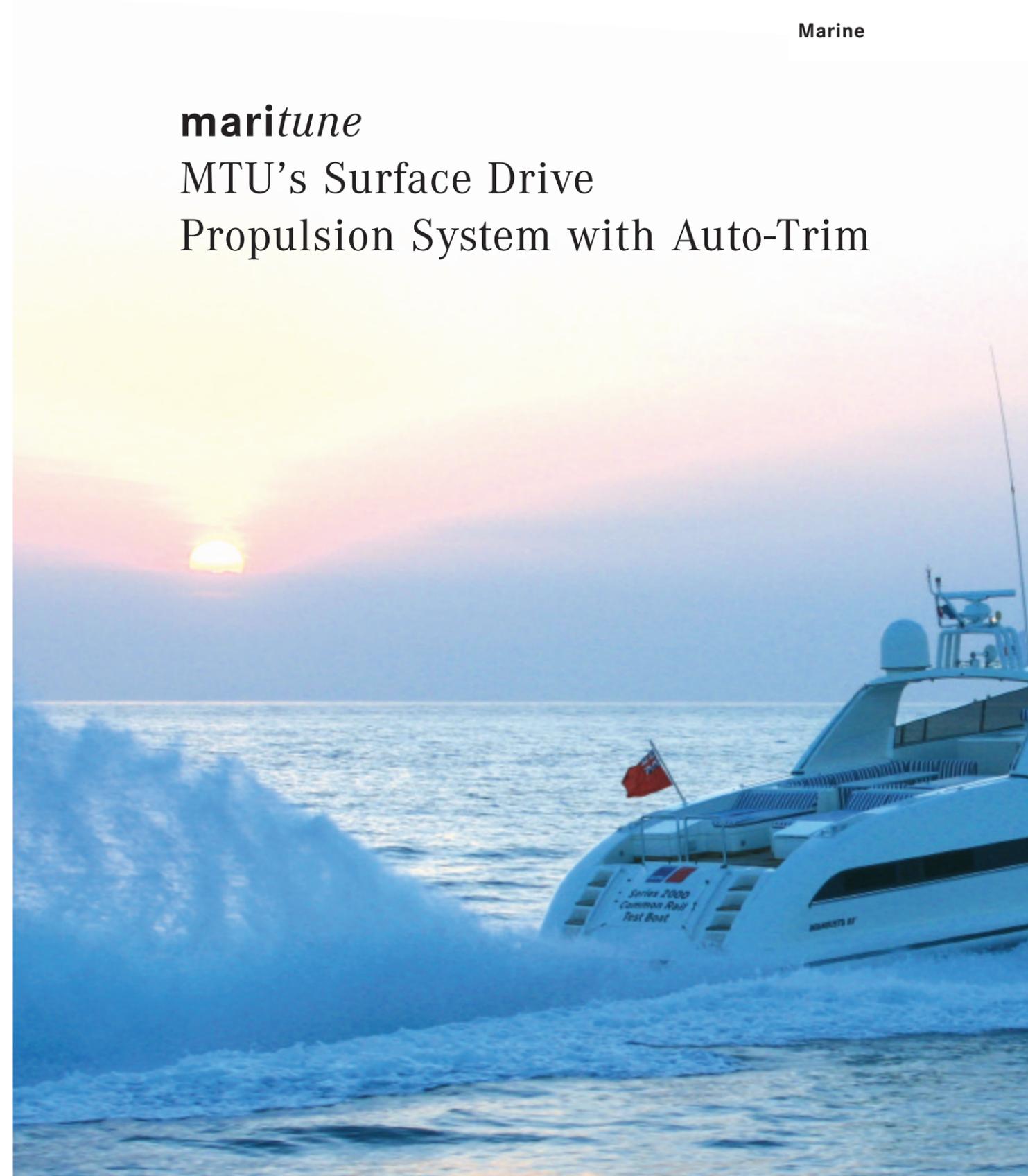


# maritune

## MTU's Surface Drive Propulsion System with Auto-Trim



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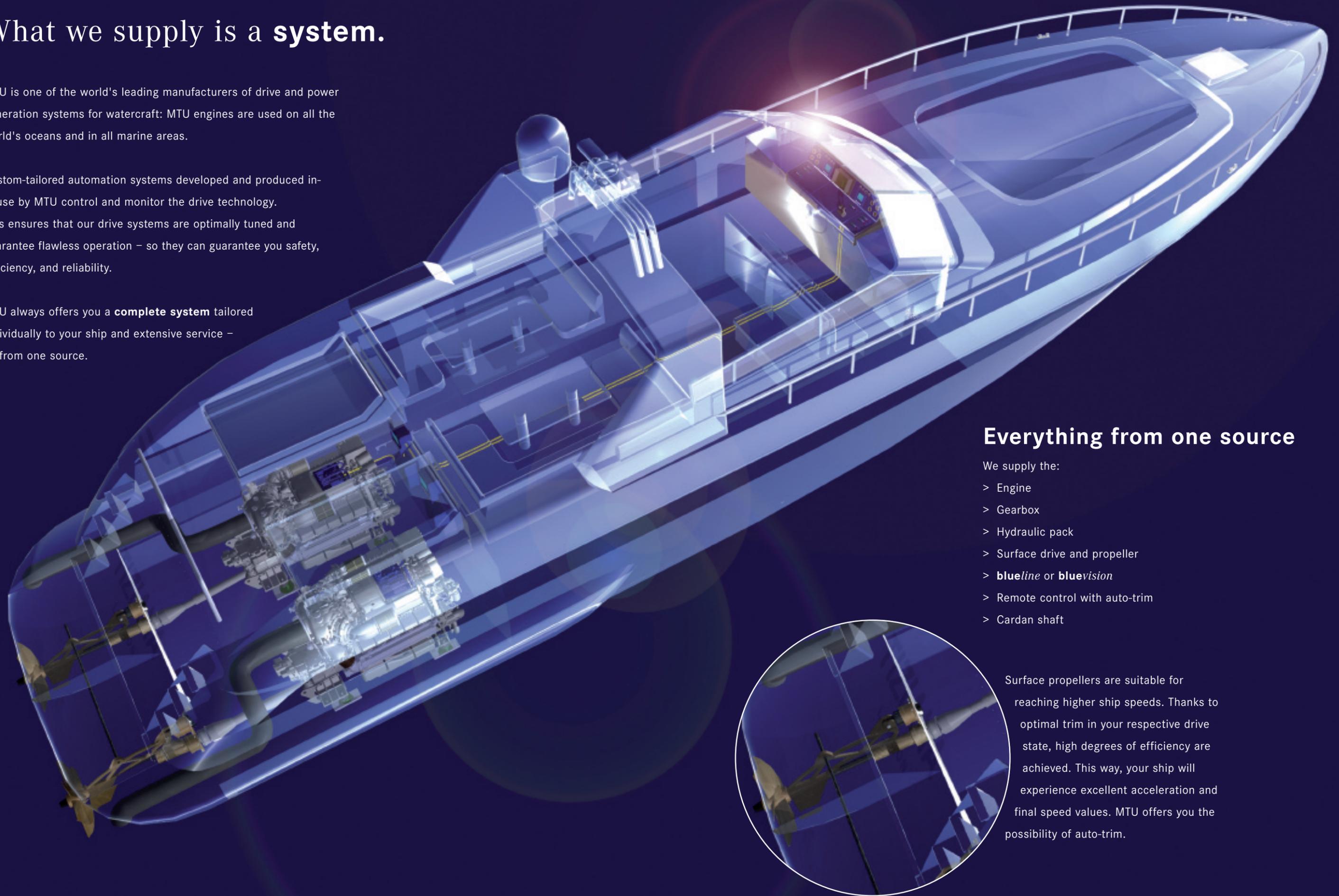
# What we supply is a **system**.

MTU is one of the world's leading manufacturers of drive and power generation systems for watercraft: MTU engines are used on all the world's oceans and in all marine areas.

Custom-tailored automation systems developed and produced in-house by MTU control and monitor the drive technology.

This ensures that our drive systems are optimally tuned and guarantee flawless operation – so they can guarantee you safety, efficiency, and reliability.

MTU always offers you a **complete system** tailored individually to your ship and extensive service – all from one source.

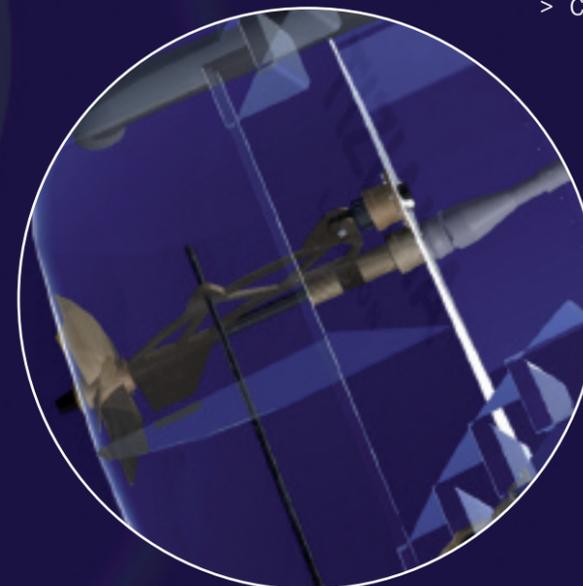


## Everything from one source

We supply the:

- > Engine
- > Gearbox
- > Hydraulic pack
- > Surface drive and propeller
- > **blue**line or **blue**vision
- > Remote control with auto-trim
- > Cardan shaft

Surface propellers are suitable for reaching higher ship speeds. Thanks to optimal trim in your respective drive state, high degrees of efficiency are achieved. This way, your ship will experience excellent acceleration and final speed values. MTU offers you the possibility of auto-trim.



# MTU *maritune*: safety and optimal drive behavior. Completely automatic.

Optimal drive behavior depends on various factors  
– different trim settings.

Here, automatic setting has advantages as compared to conventional setting.

## With conventional trim setting ...

- > ... the skipper tries to set the best trim position for each situation – generally using a joystick.
- > This additional task burdens the skipper and disturbs his concentration.
- > The capability of the drive is not exploited fully.

## Auto-trim with MTU *maritune* ...

- > ... the RCS automatic sets the optimal trim position for each situation.
- > The skipper is relieved completely of this task and can concentrate entirely on navigation.
- > The capability of the drive is exploited fully.
- > Optimized drive behavior of the ship in case of acceleration, crash stop, curve navigation, single-shaft operation, heavy seas, reverse motion
- > Control of speed, coupling, and trim with just one control lever

## Trim angle for different driving states

The **optimal degree of efficiency of the ship's propeller** is achieved with a maximum of push and a minimum of current resistance. This point is set via the immersion depth of the propeller, the so-called **trim**.

### A – At rest



Boat at rest

### B – Pre-planing



The propeller force helps to get on plane

### C – Planing

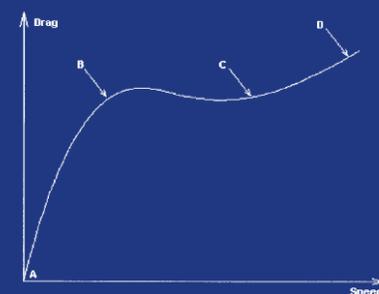


The propeller lift is reduced and thrust increases

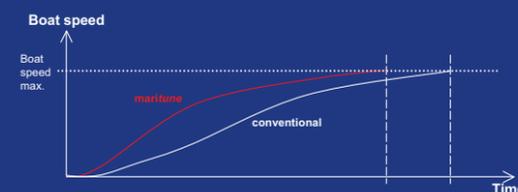
### D – Top speed



The trim has been optimized to reduce the drag forces due to fluid viscosity on the wetted area and speed increases again



The diagram shows the ship resistance at different speeds.



The diagram shows the improved acceleration with auto-trim.

## RCS auto-trim: the functions

- > We have combined **two** levers (drive and trim) into **one**.  
If necessary, your design will be optimized during the sea trials.
- > For dynamic processes (acceleration, crash stop, curve navigation, etc.), the trim setting is adjusted automatically depending on the engine's available power reserve.

## RCS steering: the standard extra

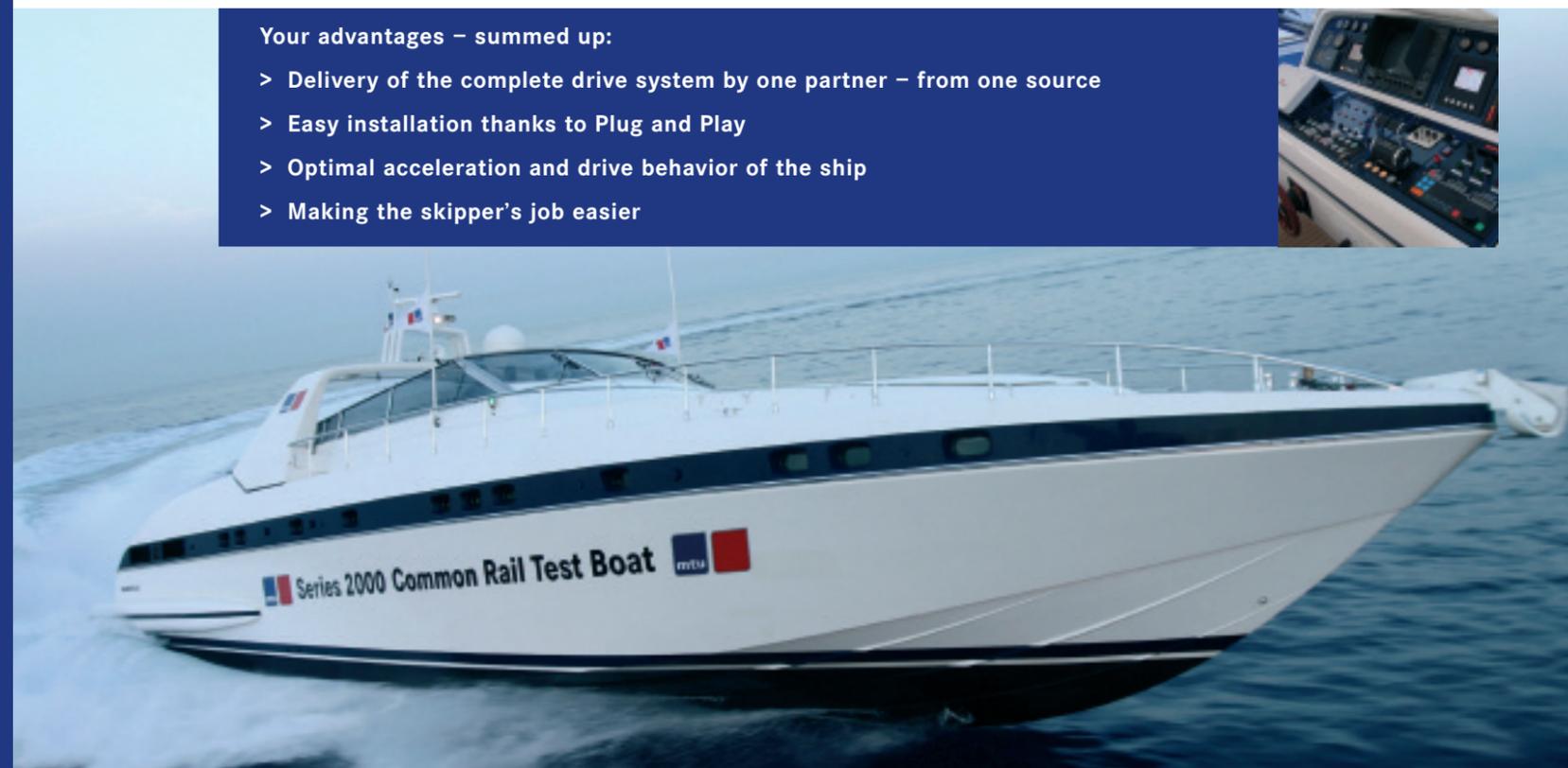
- > The steering function expands the auto-trim function package, complete with the integrated steering wheel that replaces the hydraulic control system.  
As with waterjet drives, the course is specified by the RCS steering wheel.

## Auto-trim + Steering = the perfect solution.

- > No hydraulic lines to the bridge or to other control stands
- > Only one hydraulic unit for trim and steering in the machine room
- > Separate, independent hydraulic pumps for trim and steering
- > Uniform design of trim and steering displays and control panels
- > Parameter steering, e.g. ship speed-dependent steering; setting in rate of movement and amount

## Your advantages – summed up:

- > Delivery of the complete drive system by one partner – from one source
- > Easy installation thanks to Plug and Play
- > Optimal acceleration and drive behavior of the ship
- > Making the skipper's job easier



Tested.  
Proven.

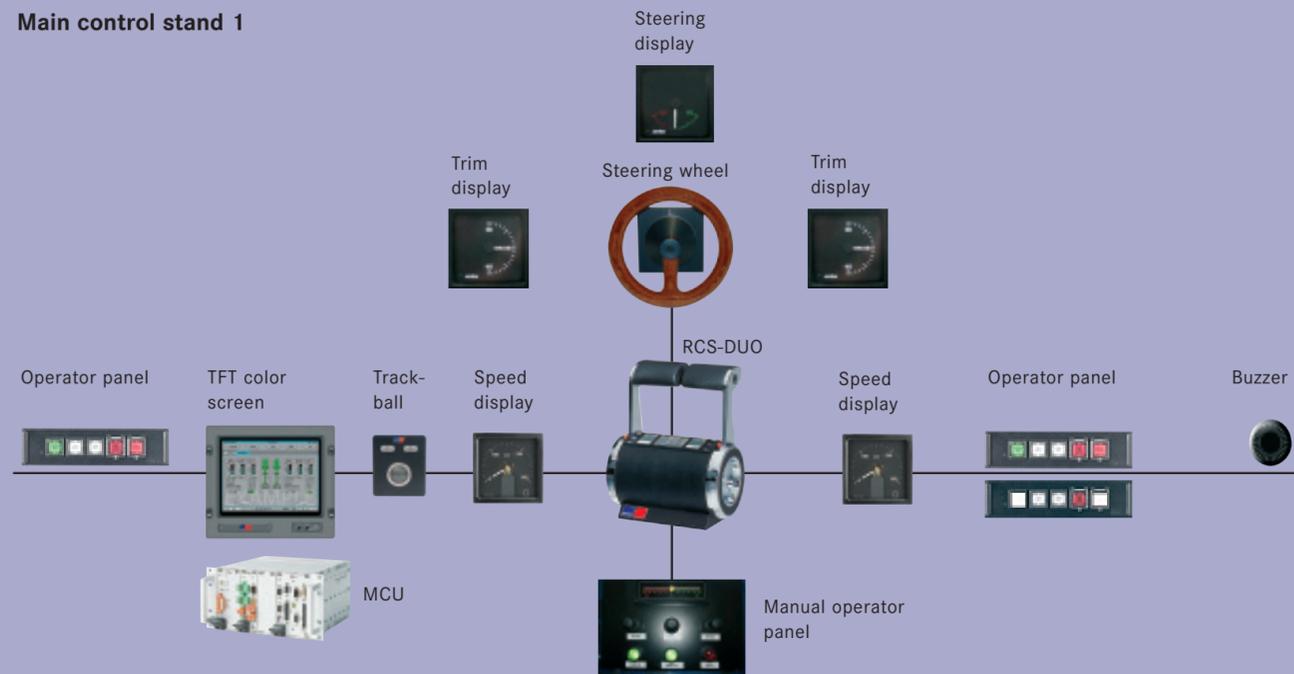


\* Test boat "Tiziana," Mangusta-80 yacht, powered by two MTU 16V 2000 M93

# MTU *maritune*: The Scope of Supply.

## Version bluevision

### Main control stand 1



### Engine Room



#### Abbreviation list

CB	Connection Box	LOP	Local Operating Panel	PCMU	Propeller Control and Monitoring Unit	SDS	Surface Drive System
GCU	Gearbox Control Unit	MCU	Management Computer Unit	RCS	Remote Control System	TFT	Thin Film Transistor Technique

## MTU *maritune*

has been designed exclusively for marine applications for use with:

- > Engine Series 2000 and 4000
- > SDS, twin engine

### Key characteristics

Everything from one source

- > Auto-trim and steering function
- > Plug and Play system

### Options

- > Interface to autopilot
- > Local operator panel in engine room for surface drive

Other Drive Suppliers on request





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### **“Perfect in Practice”**

At first, I couldn't imagine giving up manual trim control because that is the way I had done things for years.

I was especially concerned when they said I had to use an electrical steering wheel instead of a hydraulic wheel. But after testing the system, installed on a vessel, I'm now convinced that MTU's 'maritune' is perfect.

After using it, I have to admit that the new MTU system is optimum in practice! Everything is now fully automatic and I can concentrate on getting on with the job I'm supposed to do, which is navigating.

Sergio Martini  
Captain

A handwritten signature in black ink, appearing to read 'Sergio Martini'.

