



QUANTUM  
CONTROLS

*ADVANCED MOTION CONTROL SOLUTIONS  
DELIVERING PERFORMANCE AT ANY SPEED*

## *From ZeroSpeed™ - 60 Knots*

Many of today's high performance yachts are capable of cruising at greater speeds than was possible just ten years ago. Quantum is proud to be the pioneer in developing high performance motion control solutions for this growing market. Quantum, the first company to deliver a fully digital adaptive logic electronic control for stabilizers and trim tabs, also developed and fielded the first active trim tab ride control systems with retractable foils, designed to optimize the performance over a much broader speed range than was possible using either fins or trim tabs alone.

The concept leading to the ARCHER™ design was to develop a system that combined the roll damping benefits of the fin stabilizer with the pitch and trim control attributes of the active trim tab. The performance delivered by these systems has been proven to be "absolutely fantastic" providing the best of both worlds. The systems are designed to have minimum drag at the high end of the vessel's speed range (foils retracted) but much greater motion control at the lower end of the speed range with the foils extended. These systems allow for optimized motion control at long range cruise speed and at short haul "sprint" speeds. ARCHER™ also provides for significant enhancement of directional stability in quartering and following seas.

The engineering staff at Quantum works very closely with the builder and naval architect during the construction and installation phases of the project. This same level of installation support is provided for retrofit projects to assure successful implementation.

QUANTUM IS DEVELOPING  
THE NEXT GENERATION MOTION  
CONTROL SOLUTIONS.



*Blue Velvet*

## *Applications*

- **Yachts**  
Sizes: From 80' – 230'  
Speed Ranges: 20 – 60 knots
- **Commercial** (Fast Ferries, Patrol Boats)  
Sizes: 100' – 300'  
Speed Ranges: 15 – 60 knots



*Moonraker*



ARCHER™ - Active Trim Tabs with Extendable Foils

## System Configuration

Depending on the vessel's motion control requirements, Quantum can design, engineer and deliver the most appropriate solution to meet the most exacting specifications. These systems and system combinations are all powered and supported by Quantum's well-known and highly acclaimed, quality hydraulic power systems.

- ARCHER™ Active Trim Tabs with extendable foils
- ARROW™ Active Trim Tab Ride Control
- Quantum Multi-Foil Motion Control Systems for multi-hull vessels
- QC FIN Stabilizer and Active Trim Tab Combined Systems
- QC T-Foil and Active Trim Tab Multi-Point Ride Control Systems
- QC T-Foil, Interceptor, Active Tab and Fin Combinations

## Corporate Background

Quantum, the pioneer in leading edge technologies for motion control, has been engaged in the field of ship motion control for over 18 years. Over the past 5 years Quantum became the world's leader in the design, installation and support for On Anchor™ and ZeroSpeed™ roll stabilizer systems and technologies.

The company continues to be the supplier of choice by the world's best known yacht owners, builders and designers for its range of high quality, engineered equipment solutions including:

- Quantum "QT" Thrusters from 30 – 350 HP
- Quantum "QIS Series" Integrated Hydraulic Systems
- Quantum Controls "QC" family of fin stabilizer systems
- Quantum "Conversion Packages" for upgrade of existing stabilizer controls

THESE SYSTEMS ARE ALL POWERED AND SUPPORTED BY QUANTUM'S WELL-KNOWN AND HIGHLY ACCLAIMED, QUALITY HYDRAULIC POWER SYSTEMS.



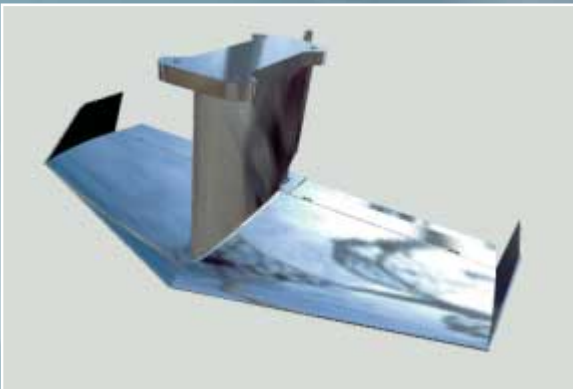
ARROW™ - Active Trim Tab Ride Control

A STRATEGIC ALLIANCE FOR  
COMMERCIAL AND MILITARY  
RIDE CONTROL SOLUTIONS.

*Quantum & Island Engineering*



Fast Ferry



IEI / QC T-Foil



SWATH – Quantum / IEI 4 Foil Motion Control System

Quantum and Island Engineering, Inc. have teamed up to take advantage of the technical expertise and experience of both companies. IEI is comprised of the most experienced engineers in the field of tailored ride control applications for all types of advanced marine vehicles. IEI's background in commercial and military applications is complimented by Quantum's experience in developing and supporting custom, application specific hydraulic power systems and control effectors.

The IEI-Quantum team has the experience to design, build, deliver and support a wide range of custom solutions for virtually any vessel requirements. The team's list of accomplishments is impressive indeed. Solutions delivered include SWATH multi-plane motion control systems, high speed catamaran and monohull motion control systems, as well as flight control for hydrofoil-supported craft, commercial and naval applications.

IEI features its Spectrum FO distributed control platform that can be adapted to suit the most demanding performance requirements. IEI's experience in T-foil, trim tab and interceptor design combined with its state-of-the-art control architecture allow the team to tailor each solution to meet the most demanding project-specific requirements.

**ISLAND ENGINEERING, INC.**





*kMAG Rotor – Magnus Effect Rotary Stabilizers (retractable version)*



*Military Applications*



*QIS-Integrated Hydraulic System*

## *Custom Ride Control Solutions*

Operating speed requirements for motion control system performance have become more demanding and varied. The latest platform design requirements call for optimized motion control covering a broad range of operating speeds to allow the vessels to accomplish multiple mission profiles in different modal configurations. Quantum's ability to design, engineer, deliver and support custom equipment packages is uniquely suited to this changing market.

Quantum's latest generation of Magnus Effect Rotary Stabilizers is specifically designed for applications where low speed stability is required for helo and/or RIB deployment. Our patented "kMAG Rotor" systems have significant advantages over alternative systems in that the rotors are fully retractable to eliminate drag. The "kMAG" has the highest lift to weight characteristics and the smallest interior footprint.

Quantum and its affiliated and allied development partners also specialize in delivering the highest level of engineering support, research and development services, testing and product/systems documentation.

## *Custom Hydraulic Solutions*

Quantum's "QIS" Integrated Hydraulic Systems can be employed to deliver hydraulic power to a wide array of ship systems. Quantum has gained a global reputation for excellence in design, quality and system reliability. The range of systems and options offered by Quantum provide architects, builders and operators the ability to reduce overall equipment requirements while saving space, reducing weight and providing redundancy. In place of HPU's dedicated to a single consumer, Quantum provides central integrated systems that serve multiple consumers without sacrificing operational control or flexibility.

ID: QC-ARCHER

AR: 0.69  
LC: 1.76



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*For more information on any of the Quantum Controls systems and services, please contact our office or visit our web site.*

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