
PROFJORD
PERFECTING PERFORMANCE AT SEA
HUMPHREE®

FACTORS THAT THREATENS THE OPERATION

- Uncontrolled pitch, roll and yaw motions
- Long time-to-plane
- Fuel inefficiency in harsh conditions
- Operator fatigue and performance degradation
- Slow, inefficient and high angle turns

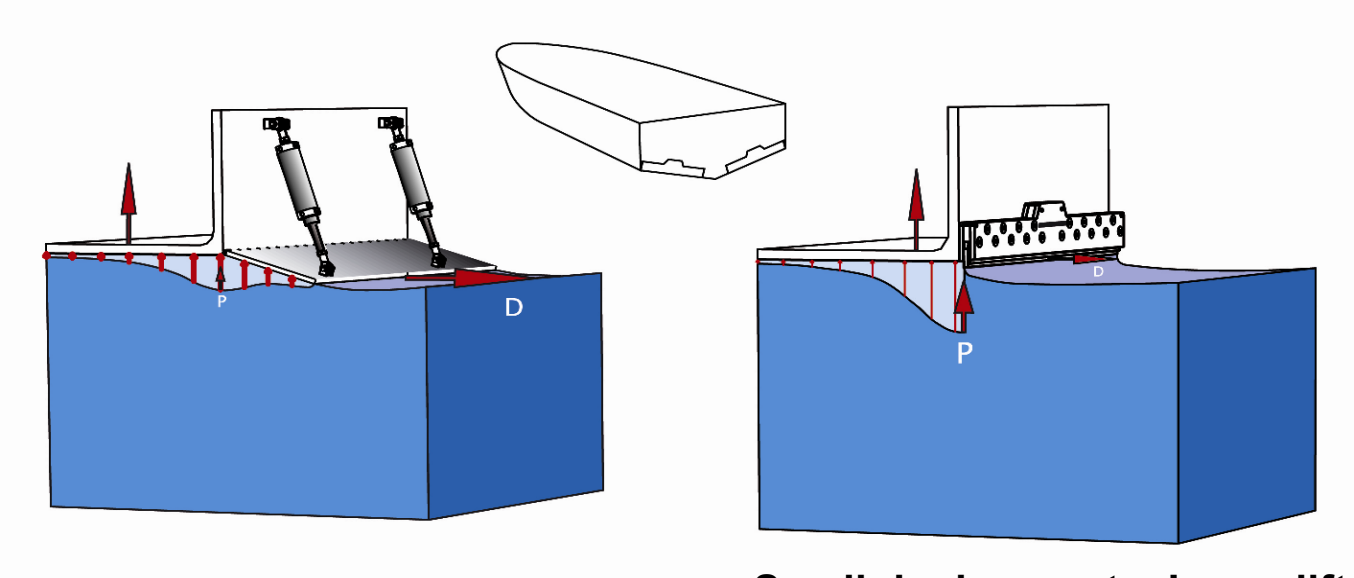
THE PROMISE: PERFECTED PERFORMANCE AT SEA

Your partners in optimizing vessel performance and efficiency for reliable and safe operations.

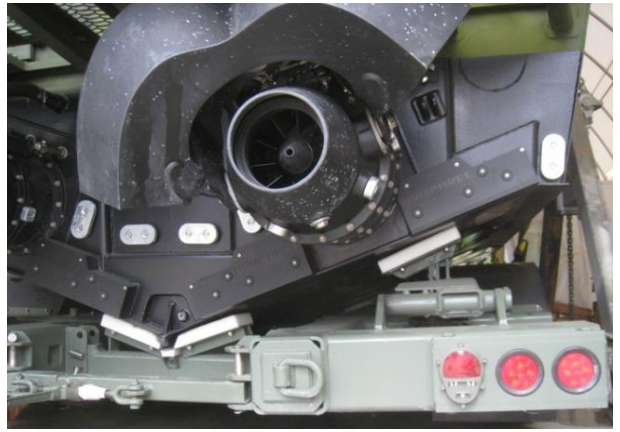
INTERCEPTOR TECHNOLOGY

Model testing results with equivalent lift:

- Interceptor drag is 25% less than for Trim Tabs
- The centre of lift is moved aft by 35% with interceptor (Provides larger lifting moment)



Small deployment = Large lift



AUTOMATIC FUNCTIONS

Works tirelessly in the background, autonomously so you don't have to.

 TRIM	 LIST	 TURN	 ROLL	 PITCH
Controls the angle of trim in all speed ▪ Faster acceleration ▪ Better visibility ▪ Higher speed ▪ Lower fuel consumption ▪ Increaed operational range	Control the angle of list at speed ▪ Compensates side wind ▪ Compensates uneven load ▪ Reduced deviation	Controls list and turn at speed ▪ Maintain speed in turn ▪ Reduced turning radius ▪ True Turn list angle ▪ For performance or comfort	Dynamically stabilizes roll motions ▪ Reduces lateral motions ▪ Reduce sea sickness ▪ Improved safety	Stabilizes pitch motions ▪ Reduces vertical accelerations and impacts ▪ Safer in all conditions ▪ Adaptive to wave motions (Patented)

CUSTOMER VALUES FOR OPERATORS

Customer values for operator in **head sea**:

- Control of bow rise
- Reduced slamming forces – typical pitch damping: -15% - 30%
- Reduced risk of injuries
- Improved control

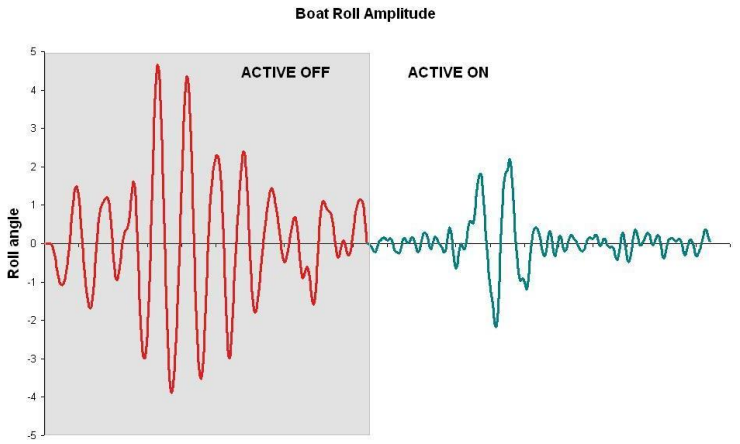
Customer values for operator in **following sea**:

- Less Yaw and Roll motions – Boat runs more on even keel
- Less risk of broaching
- Helmsman can drive with less fatigue

Customer values for operator in **beam sea**:

- Reduced roll motions – typical roll damping: -30% – 50%
- Improved course stability
- Improved Control

Improved turning radius in all sea conditions with interceptors installed



BIG IMPACTS

LOW IMPACTS

THE INTERCEPTOR RANGE

Lightning	➔	Two sizes, two versions, 20-35ft 50mm stroke
X-Series	➔	Standard model 50mm stroke
H-Series	➔	Customizable, fits all transoms 50mm stroke
HE-Series	➔	Longer stroke, heavy duty use 75mm stroke
HA/HAE-Series	➔	Assymetrical units for limited space 50/75mm stroke
HLS-Series	➔	Large and heavy vessels 110mm stroke

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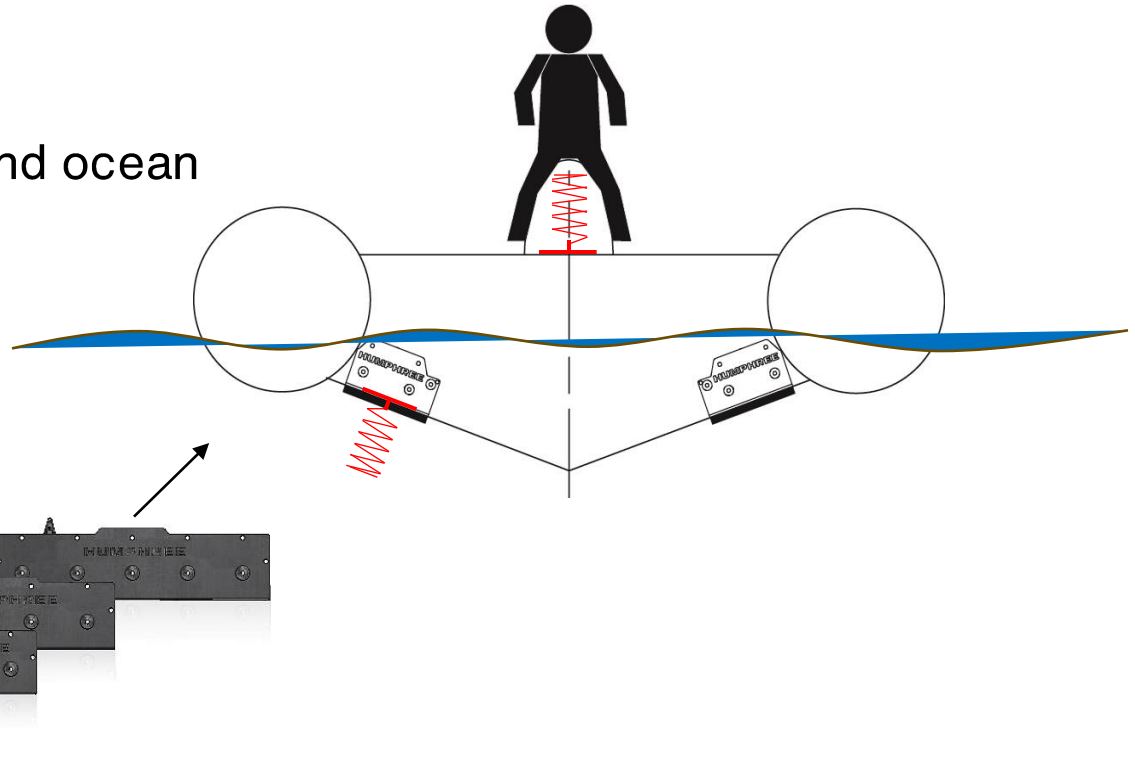
HOW TO REDUCE VERTICAL ACCELERATION

THE POWERFUL COMBINATION

- Suspension seat – well known and easy to understand
  - Reduce vertical acceleration between human and vessel
- Interceptors – power of the system is invisible
  - Reduce vertical acceleration between vessel and ocean
- Hull design – purpose driven design
  - Design the vessel correct from start lays the foundation for optimal performance



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SOLUTION IN FOCUS

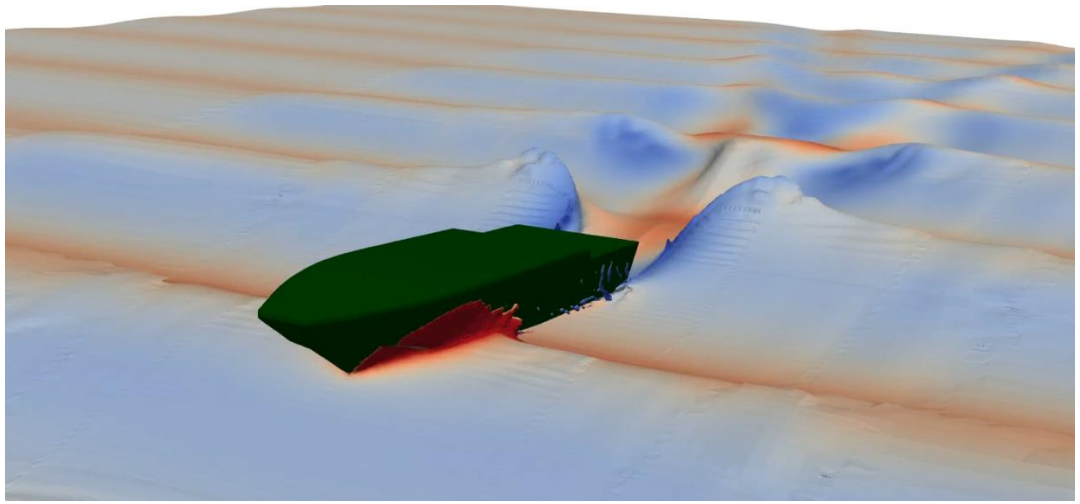
OPTIMIZE HULL DESIGN AND INTERCEPTOR CONFIGURATION WITH PROFJORD & HUMPHREE

Numerical simulations to predict your vertical accelerations:

- CFD head sea predictions in regular waves or irregular waves (jonswap spectrum)
- Used in combination with numerical methods and reference boats to get full picture of seakeeping
- Prediction of accelerations at any point on the boat
- The boat speed can be varied

Case: 16m FPV in head sea, Hs 1m, Tp 8s & 30 kn

- With interceptors: -10% reduction in z-acceleration

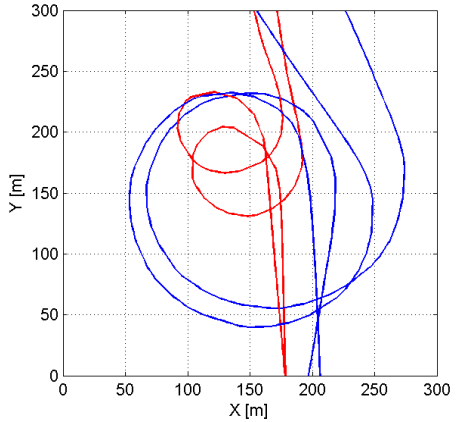


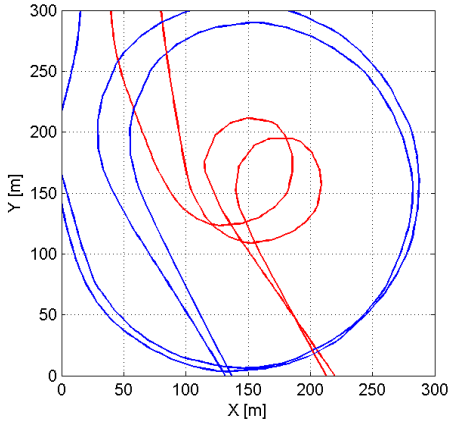
CASE STUDIES

CB 90
FAST PATROL CRAFT

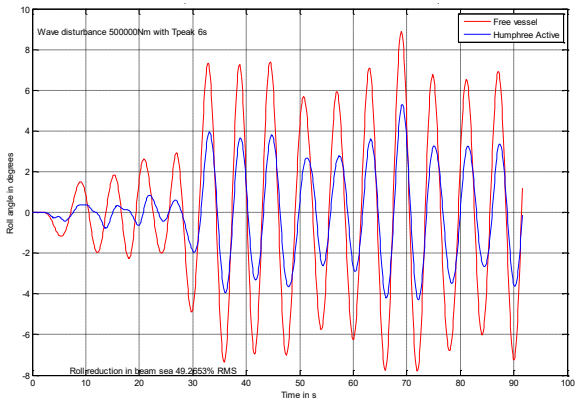
LOA: 16.1 meter, Operating speed: 20 - 50 knots

- Speed increase: Up to 4 knots at constant engine rpm
- Fuel saving: 14-30 knots between 6-15%
- Active Roll stabilization 50%
- Results Coordinated Turn:
  - Turning radius reduced with over 50%
  - Time required for a 360 degree turn was reduced with almost 50%





About 45 knots entering speed Blue line – Off Red Line – On



Graph of roll reduction

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CASE – 70m+ OPV

Task: Low resistance hull with good seakeeping performance

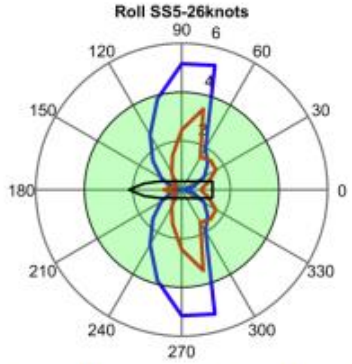
- Designed and optimized the hull form of the vessel
- Sea keeping analysis with NATO STANAG criteria
- Model test planning and supervision
- Seachest inlet design
- ✓ **Sea trial results: Matched design speed!**

Humphree

- Interceptors: Full beam HLS-interceptors
  - ✓ **Sea trial results: 5-10% resistance reduction**
- Fins: Quad 4 x 1m^2 - Underway roll stabilization
  - Prediction: 20% roll stabilization in SS6 (5m waves)

PROFJORD
Innovative Technology for Speed at Sea

HUMPHREE®
Trim and stabilization systems



Blue - No active stabilization

Red – With active stabilization

(f) Roll motion 26kn, RMS.

RIVERHAWK SEASTRIKER 22M FAST PATROL CRAFT

Interceptors – ACTIVE Ride Control (LOA: 22 meter, Operating speed: 20 - 50 knots)

“ACTIVE Interceptor stabilization responded extremely well and kept the boat very even keel”

“There was a following sea with 2-3 chop which had zero effect on the ride at 46 knots“

“Very navigable with the ACTIVE interceptors and a speed of 40-45 knots”

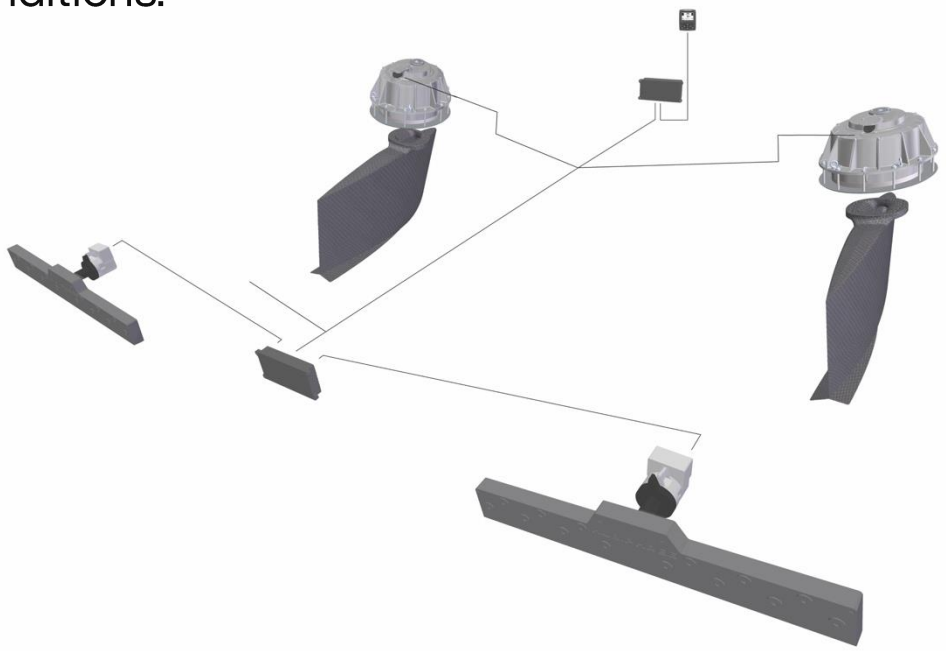
“In quartering seas, with ACTIVE on, interceptors took care of keeping her on even keel and I pretty much kept the tiller loose in my hand and let the boat steer itself. This is a very strong advantage to assisting the helmsman during long transits and reducing his fatigue“

— Adrian F. Bishop
Mission Assurance International

THE POWER OF TOTAL STABILIZATION

ONLY AT HUMPHREE

Our unique integration of fin stabilizers and interceptors, managed by the same control unit, delivers optimal stabilization of roll, pitch, and yaw at all speeds and in all conditions.



INTERCEPTORS

ELECTRIC FINS

CONTROL UNIT

FINS AND INTERCEPTORS WORKING TOGETHER

- **Enhanced Efficiency** — The combination of fins and interceptors optimizes fuel efficiency and reduces drag while dynamically adjusting to changing sea conditions.
- **All-Speed Control** — Interceptors excel at high-speed while fins provide effective control at low speeds or when at anchor—ensuring total stability.
- **Seamless Integration** — our stabilizers are designed to communicate with each other, allowing for a smooth and responsive experience only Humphree can deliver.

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