



*elan* 450





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## ELAN 450

Designed by Humphreys Yacht Design the new Elan 450 sets new standards in design and short handed sailing in its class. The elegant Elan 450 builds on success of the redesigned Elan performance range which main features are: open transom, flush hatches on coachroof, open bow pulpit, lines below deck, long length at waterline, pure bow lines, designers hull and deck portlights, bright and spacious interior ... The traditional interior 3 cabin layout offers luxurious owner's forecabin with large island double berth and generous head department with separate shower stall. Identical aft cabins offer lots of storage and optimum ventilation.

For larger crew 4 cabin layout makes sense. Additional bunk bed cabin on starboard side can accommodate extra 2 crew members.

Bright and airy saloon with U-shaped settee and large saloon table on starboard can accommodate the crew onboard whilst saloon's port offers a settee with an optional entertainment area, practical chart table and wet locker along with spacious second head department provides relaxing feeling. Fully equipped L-shaped galley fulfils even with the toughest chef's demands. The modern look is provided by horizontally grained Anigre wood with Wenge type laminated floorboards. Optionally is offered also classic teak interior.

An impressive sail plan with tall fractional rig, swept aft double spreaders, increased mainsail area, non-overlapping headsail and optional large gennaker handled by retractable bow sprit maximises her sailing performance and taking full advantage of precise combination of deep lead keel and twin rudder steering system.

The new Elan 450 ergonomic cockpit is designed for easy movement. Twin steering wheels, main sheet traveler mounted on cockpit floor, 3 pairs of powerful winches, German main sheeting system are the essentials for fast passagemaking. Cockpit table stored in dedicated space in cockpit floor, life raft storage, large cockpit lockers, recessed space for sprayhood, optional innovative hydraulic driven helmsman seat/gangway are just the features which makes Elan 450 more comfortable while cruising or moored. Transom can be open for more comfortable access to the sea and a useful space for storage.

Deck is foremost designed for efficient sailing and safety for crew. Head stay furler is recessed under deck as is the swiveling stemhead fitting for anchor.

Twin rudders offer great directional control and allow to navigate much easier in more difficult sailing conditions. Twin rudders have the advantage that they further immerse with heel – what results higher level of rudder control at increasing heel angle. When sailing the leeward rudder will always be in its most efficient position whilst the windward rudder will be creating very little or no drag. Twin rudders deliver outstanding performance under sails without sacrificing the responsiveness while steering, and capability of fast blue water passage making.

















## EXCELLENCY IN CONSTRUCTION

### Inner structure

The hull structural strength is a key factor in overall boat safety, and in its resistance to ever-demanding ocean conditions.

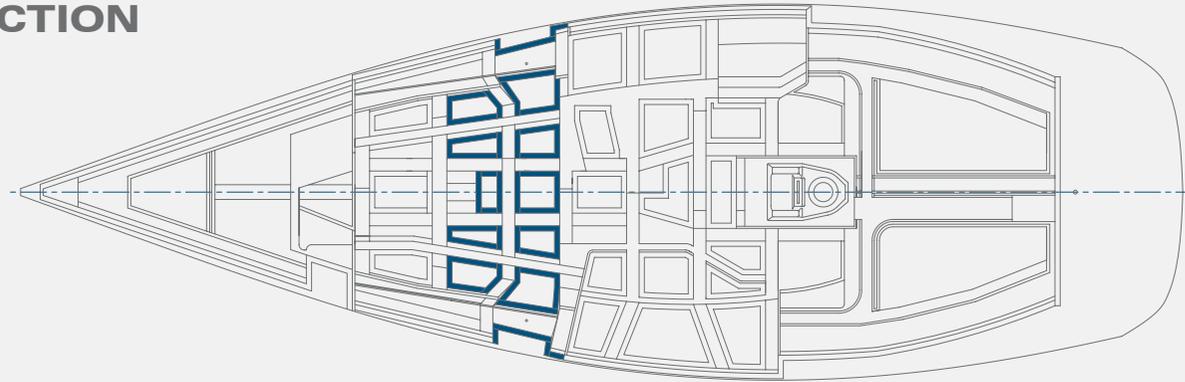
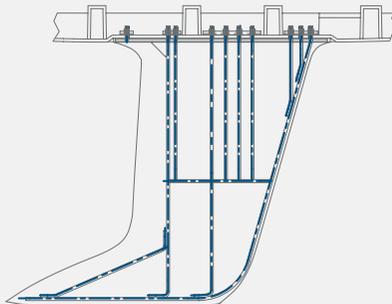
Maintaining the highest profile of structural frames among boat builders, and the highest number of longitudinal and transversal stringers, the Elan inner structure is one of the most comprehensive reinforced structure on the market today.

Adding a unique combination of gluing and laminating techniques to the inner mould to the hull joint is the final proof Elan yachts are built to last.

### Keel joint

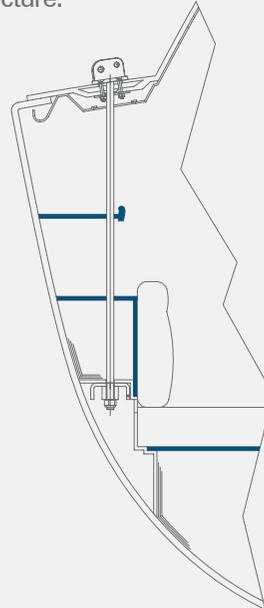
The cast iron ore lead keel is attached to the hull by premium grade stainless bolts that are highly resistant to corrosion.

The internal structure grid ensures the best possible strength and flexibility in beating to windward, or in severe groundings. Before fitting each Elan keel is sealed for protection and smooth finish.



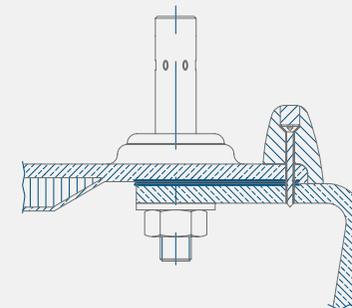
### Chainplates

Chainplate loads are spread via High Quality marine stainless steel rods to metal plates incorporated into the inner structure.



### Hull – deck joint

To preserve the design shape of the hull prior to the joint, specially designed metal jigs are used. Use of an in-turning wide flange offers a strong support for the deck on a large surface for bonding material. Hull and deck are joined together by a 3-way technique: Gluing of the hull and deck parts together, use of stainless steel bolts for mechanical shear, fastening and laminating of the joint at the bow and transom area to allow for even greater stiffness and sturdiness. 100% reliability with no recorded failure in thousands of miles of tough ocean conditions.



## High Quality materials

Carefully selected materials are subject to our strict quality control. Use of high technology materials, from the latest research, enable us to optimise the laminate plan of each yacht. Quadriaxial- and multiaxial- glass fibre, Kevlar® reinforcements at the mast support and bow area, Aramat® and Dyvinacell® all contribute to the well known strength of an Elan yacht. Use of Vinyl ester pre-laminate and Isophthalic polyester laminate which insures perfect antio-smosis protection and superb mechanical properties to weight ratio.

## Gelcoat spraying

Apart from the aesthetic function, a layer of gel coat is used to prevent water penetration into the laminate and preserve its stiffness over long periods of time. In order to achieve the highest level of consistency in quality and thickness, the HQ gel coat is being sprayed by computer-operated nozzle in a carefully monitored production process.

## VAIL

The proper goal in hull construction is to produce the required strength and stiffness with the least weight of material. Unnecessary weight makes a yacht more difficult to manage, and less enjoyable to sail. With our own system of Vacuum Assisted Infusion Lamination - VAIL the results were more than promising.

*Gelcoat spraying*



*Inner structure*

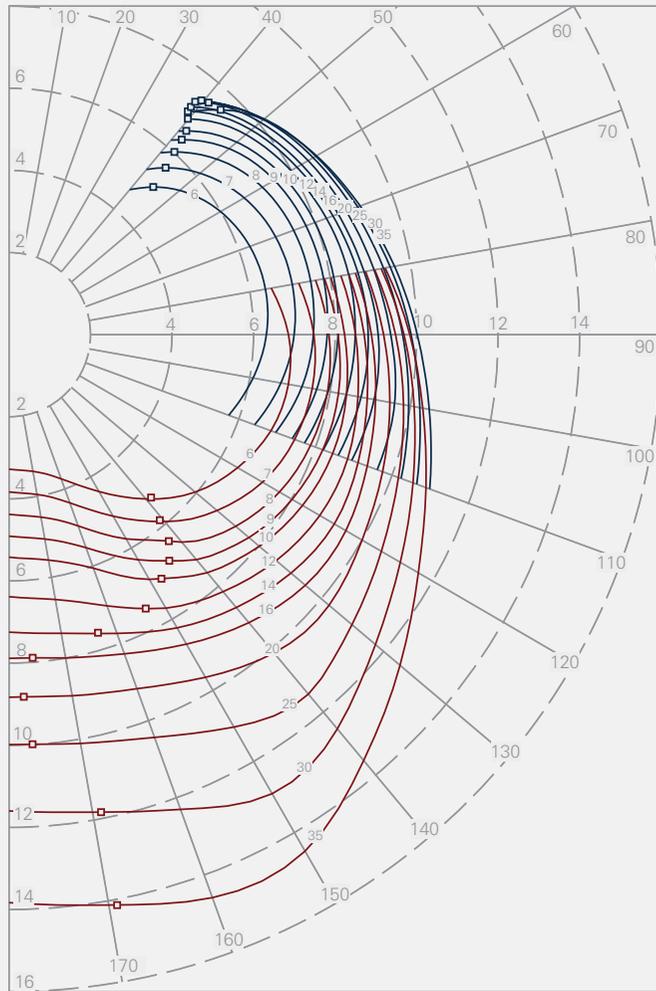
## Germanischer Lloyd

All our yacht are under constant supervision of Germanischer Lloyd. With its long history of more than 150 years Germanischer Lloyd is setting the highest demands in boat building industry today. Each ELAN yacht is carrying a GL certificate as ultimate proof of her quality, durability and safety. Only in that way do we know we have fulfilled the owner's expectations. The Elan range of performance cruising yachts and Impression cruisers are all built under permanent technical supervision of Germanischer Lloyd for Sailing Yacht specification on a hull structure designed to give any sailor confidence.

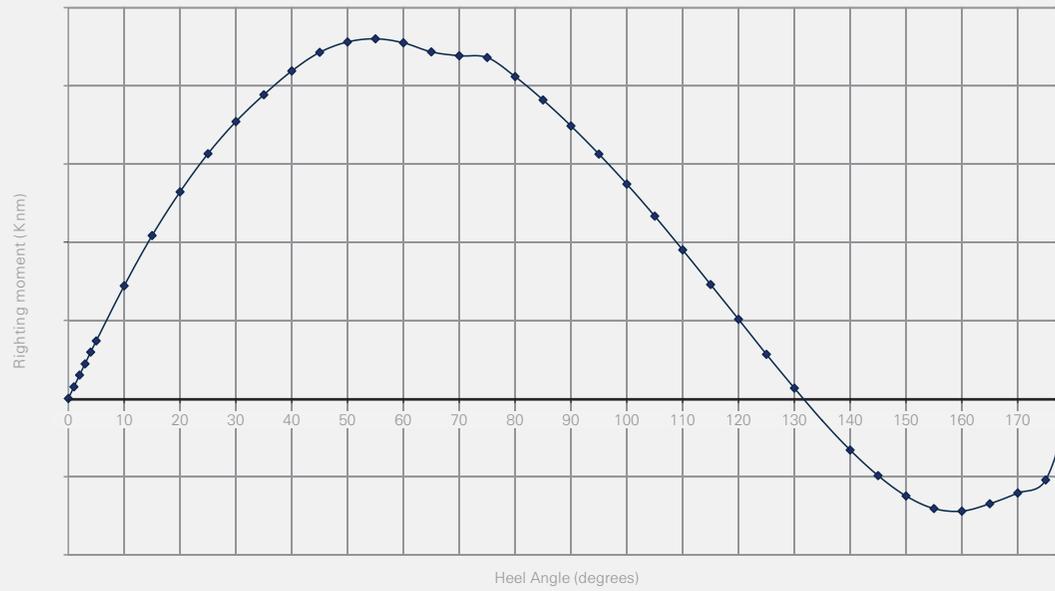


# PERFORMANCE

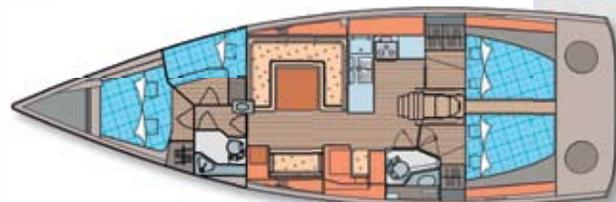
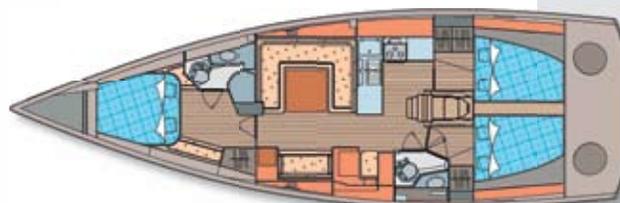
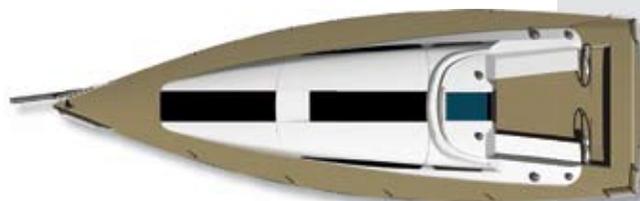
## Polar diagram



## Stability curve



# elan 450



## Technical specifications

Length overall	13,60 m
Hull length	13,60 m
Length at waterline	12,52 m
Beam	4,37 m
Draft	2,05 / 2,60 m
Displacement	approx. 11300 kg
Ballast	4180 kg
Water capacity	444 l
Fuel capacity	203 l
Engine	55 / 75 HP
Mainsail	61,4 m <sup>2</sup>
Genoa	63 m <sup>2</sup>
Gennaker	201,36 m <sup>2</sup>
I	17,72 m
J	4,90 m
P	17,43 m
E	5,87 m
Boat design category CE	A
Design	Rob Humphreys

## EXCELLENCY IN DESIGN

Sailing has many layers of activity, and while there is always some form of osmosis between them it is sometimes surprising how long developments enjoyed in one sector take time to trickle across into another. Two cases in point are the general production boat industry and the short-handed, trans-oceanic environment. The former is a sector where boats must be appealing and affordable to enthusiasts who have to justify their investment, not only to themselves but often to their families as well; the latter, on the other hand, is a sector where form follows function in a most overt way, with rapid development improving the breed and producing lessons for all who choose to notice.

For the private owner versed in the wider aspects of sailing it can be frustrating to be trapped in the sometimes conservative world of the production boat arena, deprived of the virtues he can see being enjoyed in the short-handed sector. Is he not often short-handed himself, sailing with friends who may not be so experienced, or with his family who may love the sailing life but not necessarily its technical aspects? Why, for once, can't he enjoy some of the refinement he can see taking place elsewhere, but in a package that isn't going to deprive him of his investment return?

Well, now he can because this, precisely, is what the Elan 450 is all about. It is a boat for the man who knows what he wants but hitherto has been unable to find. A series-built, affordable yacht that offers all the comfort of its peers but in a package that brings with it a level of sailing experience that will delight him.

The core of the Elan 450 concept is the twin-rudder installation, a well proven arrangement that opens the door to a host of other benefits. At Humphreys Yacht Design we have enjoyed a great deal of twin-rudder experience in a number of different formats, from Ellen MacArthur's Open 60 Kingfisher to a range of lifting keel cruising yachts, and in all cases the winning feature is a level of control that is hard to behold for anyone who has not enjoyed the experience.



*Rob Humphreys*

Just when conventional, single-rudder boats are living on the edge of control, a properly-designed twin-rudder boat is just getting into gear, giving its helmsman the feel that he is running the boat down a railway line.

This level of control means that boats do not have to be so symmetrical longitudinally, but can be wider aft to enhance form stability and increase the power of the boat at no cost to its steerability. Thus the owner wins the feel and motion of a bigger boat, with a more tolerant sailing envelope that is not so demanding of sail changes as a conventional production boat. And with an essentially non-overlapping rig the sailhandling aspects of the boat again play into the short-handed philosophy, creating an upwind permutation that is easy to work and the source of a disproportionately healthy upwind VMG. For downwind gratification he can roll out his A-sail, projected off the end of its extending sprit and giving him a rig he can gybe with impunity and increase his light air horsepower. Of course, the robust construction of the Elan 450 means that it can only replicate in part and in flavour the performance of its carbon cousins, but unlike these ocean greyhounds it concedes nothing in terms of comfort level, either to them or to others in the mainstream production sector. Indeed, the Elan 450 is a well-worked hybrid design where the whole, in most respects, is greater than the sum of its parts. For aficionados only, those that want their cake and eat it; a glass of wine in their hands while savouring the refined aspects of sailing which they thought they would only be able to watch from afar, as spectators.







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