



Hull Design

The design of Cherub hulls has changed significantly over the years as designers have strived to search for the best hull shape to suit particular crews and particular local conditions. The design rules for the class allow for significant differences in hull shape while maintaining the basic performance parameters of the class.

The most successful designs among the modern Cherubs have been:

- The *Matthews* design
Developed in Brisbane by the Matthews brothers Mark and Brendan, this design has become the most prominent and successful of the modern Cherubs. Matthews hulled Cherubs have won every Australian National Championship since year 2000. New Matthews hull shells are built by Brendon and Mark Matthews at Brenmark Industries. Recently built examples include 3162, 3161, 3160, 3158, 3157). Read more about the Matthews design [here](#).
- The *Howell Mk 1 and Mk 2*
A design by Richard Howell from Perth. These boats have proved to be very effective in their home state of WA with consistent top placings. (Examples include 3140, 3139, 3132). Read more about the Howell design in the November 2007 newsletter [here](#).
- *The Lairy Canary (and variations)*
Proven fast and effective design capable of being built from a jig without specialist tooling. (Examples include 3152, 3147, 3143, 3062)

Many other successful designs are also prominent in fleets across Australia.

Most modern Cherubs share some key measurements. Most have the narrowest possible chine width at the central 6ft measurement station, close to minimum beam at the transom and as close as possible to the maximum beam at deck or sheerline level. These features make the hulls as narrow as possible while maintaining deck width to give righting leverage for the crew.

The approach taken by designers has changed since the advent of asymmetric sailing. In the 1980s and 1990s before the introduction of asymmetric kites, the *Foreign Affair* design kept the chines as high up as possible to try to keep them clear of the water when sailing to windward thereby reducing drag. This was done by putting the maximum amount of hull shape or buoyancy as low as possible in the hull. The various versions of the *O'Mahony* designs are conceptually similar to *Foreign Affair* but tend to have more rounded sections towards the bow. Boats built to these designs are still competitive in club racing.

By contrast, the more modern designs that have emerged since the introduction of asymmetric kites and the higher downwind speed brought on by asymmetric sailing have taken a different approach. The *Matthews*, *Howell* and *Lairy Canary* designs have aimed at creating more dynamic lift, inducing planning early and shedding water when planning at high speed. In practice this seems to give the more modern designs an advantage on the high speed downwind legs that make up so much of contemporary Cherub races.

Over the page are some example of modern Cherub hull designs.

The [*Matthews*](#) design (pictured right) is easy to identify due to the prominent shoulder or bump created in the chine line at the mid point measurement station. The chine line is quite high in the forward sections, giving a fine entry. In the run of the chine going aft from the mid point, the chines are quite straight and do not rise much. This, combined with the flat sections near the centrecase, gives the boat a powerful planing hull. It can be prone to nosediving and it trades off light air performance for exceptional efficiency at higher planing speeds.



The [*Howell Mk I*](#) design features smoother lines on the chine and rounded U sections throughout. The result is that it planes at lower speeds than a Matthews hull. At 6 to 7 kts it is up and planing while the Matthews is still bow down. Because of this feature it accelerates faster out of a tack or when a small gust hits. It is also a forgiving shape with its fuller ends. This means that it is not as sensitive to the crew's fore and aft trim. It can be a handful if it is driven into a nosedive downwind. The design is at its best sailing to windward and in lighter breezes.



[*The Lairy Canary*](#) design was developed by Brendon Matthews and Trevor Fay. It has many similar features to the *Matthews* shape being a predecessor to the *Matthews*. It has V sections forward of the centrecase resulting in a relatively fine entry. The chine line is smoother than a Matthews and the aft sections similar to the *Matthews*. The fair curves make it a good option to build from scratch on a jig. It is a very good all round performing hull.



[*Pocket Rocket*](#), (3154) is a one off design by Denis Phillips from Belmont. It features fuller V sections from the centrecase forward to the bow. It has one of the narrowest stems of the modern Cherubs with a very narrow chine width at the transom. The aft sections are more rounded.

