

One of the main design features of GEARBOX is what we call the **LOAD BEAM COLLAR**, this is a structural beam that sits below the upper surface of the box, extending around the entire perimeter, the web of the beam has trussed openings to reduce weight without sacrificing strength!

COVER - fills load beam collar providing large bonding surface for bottom lamination. Made from any material with good bonding properties (sectional view). Shows hex scoring providing better mechanical bonding properties

GRUB SCREW - stainless steel grub screws lock fin into the box

FLANGE - flange around perimeter of collar provides stiffness and more vertical bonding surface area

CANT ANGLE - recessed number indicating the cant angle of the box

SLOT BRIDGE - bridge ties sides of box together to prevent spreading

CANT LABEL - indicates the cant angle of the box

LOAD BEAM COLLAR - strengthening structure around the perimeter of the box, houses bonding cover

DAM - raised dam around fin slot and screws allows laminating directly over box

TRUSS OPENINGS - openings in the load beam collar web save weight without sacrificing strength

The load beam collar serves two crucial functions. Firstly, it is the primary means for dissipating the loads created by the surfboard fin, this helps prevent bowing of the slot under load. The curved profile of the collar also helps prevent rolling of the box by providing a large surface area. The collar is heavily trussed in order to reduce weight without sacrificing stiffness, this trussing is located in the web of the beam.

bottom laminate, thereby creating the strongest possible under the glass installation! Because the cover protrudes through the truss openings in the collar, a stronger bond is achieved with the underlying surfboard foam, further enhancing strength!. The slot features a bridge in the center, tying the two sides of the slot together, adding additional support.

Secondly, the combination of the beam flange and web, forms a cup into which a bonding cover is installed. The upper surface of the cover provides a very large bonding area for the

The cover can easily be customized by overlaying different materials on the upper surface. Materials can range from wood veneer to fiberglass or fabrics.

Feel the difference

Full Box Range & Routing System

This overview highlights the various components of the GEARBOX system.

The routing system is capable of performing many different types of installations. Installation technique can vary based on the construction style of the surfboard.

Primary installation method is a two step routing process. Creates a dual cavity with a shelf onto which the box rests. Allows the underside of the load beam cover to bond with the surfboard foam. Routing system make this process simple. After initial setup router bit does not need to be re-adjusted.

gearbox

LOAD BEAM COVER - adds increased bonding area for bottom laminate

FIN BASE - full base with center notch, 5 mm (3/16") of adjustment, recessed semi-circular notches for positive screw engagement

CUSTOM HEX KEY

CANT ANGLE - a cant angle indicator on the outer edge of the cover makes for easy cant identification

GRUB SCREWS - the boxes employ grub screws to lock the fin into the slot

HEX SCORING - all covers feature a scored hex pattern that enhances the mechanical bond to the box

BOX RANGE - there are a full range of boxes in the system covering the most important cant angles - 0°, 2°, 4°, 6°, and 8°, plus a dedicated center box.

TOP JIG - is used to rout the shelf onto which the load beam will rest when installed. It sits on top of the base jig, and is sized such that the router bit does not need to be adjusted to achieve the correct depth

BASE JIG - used to both position the routing system on the board, and locate the other jigs in the system. Markings help position the jig on the shapers marks, in the appropriate orientation. It has a soft non-slip rubber pad on the bottom for grip

BOTTOM JIG - used to rout the slot for the base of the box. The jig fits within the base jig and is used with the router bit at full depth

ROUTER BIT - features a top bearing to follow the inner shape of the jig

The 1ROUT routing system supports alternative installation options. Designed to provide more stable installs in lighter weight foams, like EPS. For more on these alternatives, see the GEARBOX website for details. The standard GEARBOX comes with a cover in the load beam

collar. There is support for alternatives, for example, balsa wood for wooden boards. Additionally, the cover can support different overlays on the top. These overlays can be carbon fiber, fiberglass, floral fabric, wood veneer, etc. All geared towards enhancing the appearance and

structural integrity. Different colors are also available for the covers allowing optimization of the appearance with the surfboard.

PATENT US 9,663,198 B2