

Deck-to-Hull Bonding

Introduction

In the construction process of GRP boats one of the options is to design deck and hull as one integral unit. Another option is to fabricate the hull shell separately from the deck shell and marry the two parts at a later point in the assembly process. Both options have their advantages and disadvantages.

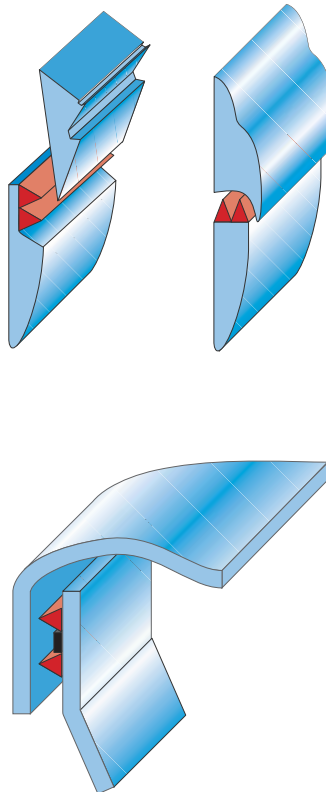
However, once it has been decided to manufacture the deck apart from the hull, an economical, safe and sound method of bringing and keeping the two parts together for the life time of the vessel operating under the most demanding conditions, has to be developed.

Description of the Application

In order to bridge the inherent dimensional tolerances of the hull and its accompanying deckshell, bonding with Sikaflex® adhesives represents a most elegant solution. The “marrying” of the two parts, which might consist of GRP for both substrates or in a “mixed” build of aluminium and GRP, requires a minimum of mechanical fixations.

With lifeboats of GRP and aluminium construction or sailing yachts of a pure GRP construction, it has become standard practice to assemble the deck and the hull shells using one-part polyurethane adhesives which form a strong, tough, elastic, long-lasting and leakproof bond.

Adhesive technology offers a number of significant benefits in this type of application. It eliminates the need for laborious GRP lamination work, while the gap-filling properties of the adhesive permit larger manufacturing tolerances of the moulding of hull and deck shells. The adhesive layer absorbs torsional stresses and impact shocks, and seals the joint against the ingress of water simultaneously.



Instructions for Deck-to-Hull Bonding

Preparation of Substrates

Aluminium



Heavily soiled surfaces should be cleaned off first with a pure solvent (Sika® Remover-208) to remove the worst of the soiling.



Lightly abrade contact area with a very fine sanding pad. Remove dust with a vacuum cleaner.



Clean the substrates with Sika® Cleaner-205, using a clean, lint-free rag or paper towel. Change rag frequently!



Drying time: minimum 10 minutes, maximum 2 hours.



Apply a thin, continuous coating of Sika® Primer-210T, using a clean brush or felt applicator.



Drying time: minimum 30 minutes, maximum 24 hours.

For bonding painted aluminium please contact your local Sika Company

GRP



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Lightly abrade contact area with a very fine sanding pad. Remove dust with a vacuum cleaner.



Clean the substrates with Sika® Cleaner-205, using a clean, lint-free rag or paper towel. Change rag frequently!



Drying time: minimum 10 minutes, maximum 2 hours.



Apply a thin continuous coat of Sika® Primer-206 G+P or Sika® Primer-215, using a clean brush or felt applicator.



Drying time: minimum 30 minutes, maximum 24 hours.

Note: All products sold subject to our current General Terms of Sale. Please refer to the relevant Technical Data Sheet(s) and Safety Data Sheet(s) before using any of these products.

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Fig. A

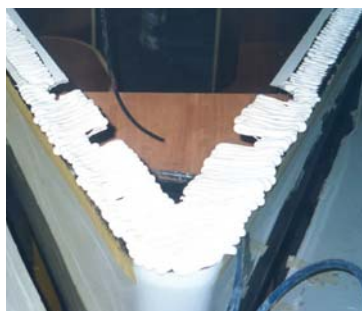


Fig. B



Fig. C



Fig. D

Application of Adhesive

It is vital to check the accuracy of the fit before applying the adhesive, so that the parts do not have to be separated again once they have been brought together.



Place spacers in position (thickness at least 4 mm; approximately 50 Shore A hardness). These can alternatively be pressed into the adhesive once applied.



Apply Sikaflex®-292 (Fig. A) or a boosted Sikaflex® System onto the entire periphery of the hull (depending on the width of the bond face, a minimum of three beads of Sikaflex®-292 should be applied. The adhesive bead must be carried continuously around any cut-outs or clearance holes (eg. for deck stanchions, pipes, chain plates) to maintain the integrity of the watertight joint. (Fig. B)



Assemble components within 20 minutes of applying adhesive. (Fig. C)



Apply pressure with clamps or other fastening aids to compress adhesive to the height of the spacers. (Fig. D)



Clamps and other fastening aids can be removed after 24 hours. Full service strength is attained after approximately 7 days.



Traces of uncured Sika® adhesives or sealants may be removed with Sika® Remover-208. On no account should other cleaning agents or Sika® Cleaner-205 be used for this purpose.



Important

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