



## Adhesives and Sealants for the Marine Industry



H.B. Fuller



**KÖMMERLING**

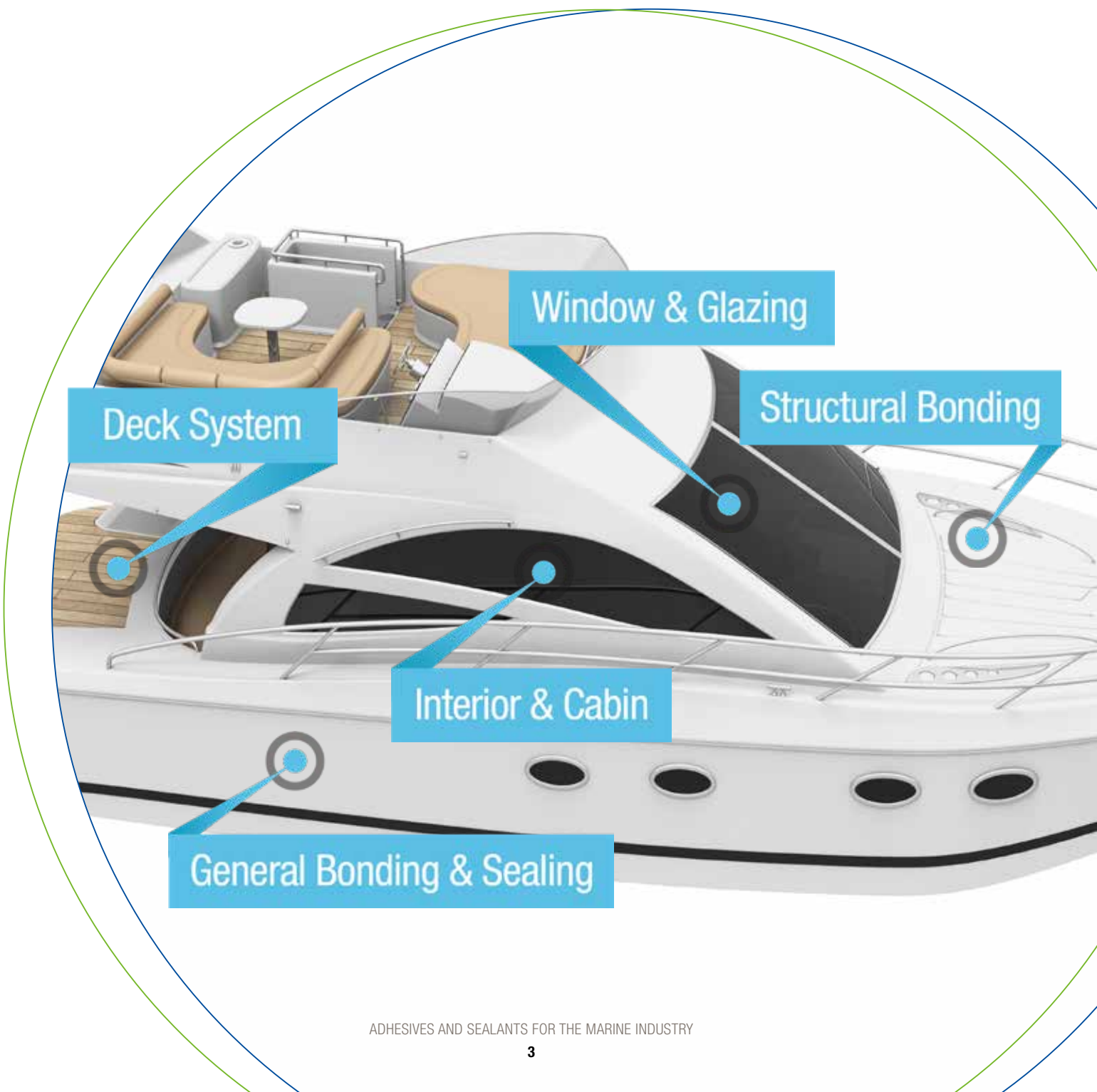


System Solutions  
for Higher  
Performance

## ADHESIVES AND SEALANTS FOR THE MARINE INDUSTRY

In the harsh marine environment, adhesives and sealants need to withstand strong UV radiation, humidity, fresh water, and salt water. It is also essential to durably and securely seal add-on components on a ship's deck and hull, as well as in the interior, as poor workmanship can lead to corrosion, leakage and damage.

H.B. Fuller | KÖMMERLING have years of experience in formulating products for the marine industry. We offer optimal product solutions in ship and boat building. Our complete line of marine adhesives and sealants has been specially developed to fulfill all needs during production and to provide long-term stability in the final product in a broad set of applications.



# RECOMMENDED TECHNOLOGIES

## 2-k Polyurethane Reaction Adhesives

Solvent-free, 2-k polyurethane-based reaction adhesives that will harden at room temperature for bonding a great variety of surfaces such as wood-based materials, GFRP, untreated, primed and painted steel and aluminium sheets, many plastics and foams cores based on PUR, PS or PVC.

2-k Polyurethane reaction adhesives consist of a resin and a hardening component that are mixed at a fixed ratio, whereupon they will harden into structural or semi-structural adhesives, irrespective of the humidity, that are also particularly suitable for applications involving large surfaces.

## 1-k Polyurethane Reaction Adhesives

Polyurethane-based 1-k reaction adhesives that will harden at room temperature for bonding and sealing a great variety of materials such as wood-based materials, GFRP, untreated, primed and painted or anodized metals, as well as many plastics.

1-k Polyurethane reaction adhesives react with moisture to form elastic adhesives and sealants that are in particular applied where different thermal length expansions require permanent compensation.

## 1-k Silane-Terminated (Polymer) Reaction Adhesives

Solvent-free 1-k reaction adhesives that are based on silane-terminated polymers and will harden at room temperature for bonding and sealing a great variety of components such as wood-based materials, GFRP, untreated, primed and painted or anodized metals, as well as many plastics.

1-k products based on silane-terminated polymers react with moisture to form elastic adhesives and sealants that are in particular applied where different thermal length expansions require permanent compensation.

## 1- and 2-k Solvent Based Adhesives

1- and 2-k solvent based adhesives will harden after evaporation of the solvent. They are used for bonding various substrates like PVC, TPU, wood, paper, plastics, textile or leather. By adding a crosslinker, the resistance of the adhesive can be significantly improved.

## Reactive Hotmelt Adhesives

Solvent-free reactive hot melt adhesives are heated before processing and applied in molten state. After cooling down, the adhesive builds up its green strength (physical process). Ambient moisture starts crosslinking of the polymer (chemical process). Reactive hot melt adhesives provide a stronger bond with a superior resistance against moisture, heat and chemicals. They build up adhesion to a great variety of materials and allow fast production cycles due to short setting times.

## 1- and 2-k Silicone Adhesives and Sealants

Solvent-free 1- and 2-k silicones will harden at room temperature for bonding and sealing a great variety of substrates such as wood, plastics, glass and metals. 1-k silicone products react with moisture to form elastic adhesives and sealants. 2-k products consist of A-and B-component that are mixed at a fixed ratio, whereupon they will harden to structural, but elastic adhesives.



## DECK SYSTEM

### Deck Caulking

Adhesives and sealants for deck caulking have to fulfil the highest requirements regarding UV, salt water and fresh water resistance. The joints have to allow permanent absorption of movement. At the same time, they need to be easy to process and to sand. Köraflex Marine has been developed to fulfil all these requirements.

#### **Köraflex VP 990 Marine**

1-k moisture curing synthetic polymer

- + Very high UV-stability
- + Colour stable
- + Meets the requirements of IMO

### Bedding of Deck Floorings

Deck floorings are subject to volume changes as well as to thermal changes in length caused by temperature differences. To satisfy these requirements, bedding compounds need to have high flexibility on the one hand and great strength to keep the deck flooring in place on the other hand.

#### **Körapur 928 Marine**

1-k PUR adhesive

- + Long open time
- + High flexibility
- + Meets the requirements of IMO

# GLAZING

## Window Bonding

For a modern design, bonded windows and structural façade systems are becoming increasingly popular on boats and ships. They enable architectural freedom, modern design and novel types of constructions. Despite the lack of space, frameless windows support the illusion of wide spaces and limitless views. H.B. Fuller | KÖMMERLING provide different technologies to bond mineral glass as well as synthetic glass.

### Körapur 178

1-k PUR adhesive

- + High strength
- + Good position tack

### Körapop 250

1-k STP adhesive

- + Long open time
- + High strength

### Körapop 954 Marine

1-k STP adhesive and sealant

- + Fast curing
- + High UV stability
- + Meets the requirements of IMO

### Ködiglaze SDG

2-k structural glazing silicone

- + Fast curing
- + High UV stability

## Weather Sealing

Due to strong movements and torsions, boat and ship windows require stable and flexible sealings. H.B. Fuller | KÖMMERLING weather sealings provide protection from water, UV radiation and thermal changes in length.

### GD 826 N

1-k weather seal silicone

- + Very high flexibility
- + Very high UV stability

### Körapur 954 Marine

1-k STP adhesive and sealant

- + Fast curing
- + High UV stability
- + Meets the requirements of IMO



# GENERAL BONDING AND SEALING

## Outside Bonding and Sealing

Whether for design or safety requirements, many attachments on boats and ships need to be bonded or sealed. Körapop Marine for outside applications offers very good resistance against weathering and UV radiation.

### Körapop 954 Marine

1-k STP adhesive and sealant

- + Fast curing
- + High UV stability
- + Meets the requirements of IMO

## Bonding and Sealing Below the Water Line

Attachments below the water line need very tight bondings and sealings to ensure tightness of the hull during long periods in the water.

### Körapur 925 Marine

1-k PUR adhesive and sealant

- + Multi-use adhesive and sealant
- + Meets the requirements of IMO

### Körapur 940 Marine

1-k PUR adhesive

- + High strength
- + Long open time
- + Meets the requirements of IMO

## Inside Bonding and Sealing

To avoid mechanical fixings and cracking noises, many materials on the inside of a boat are bonded or sealed.

The H.B. Fuller | KÖMMERLING Marine range offers solutions for all common materials.

### Körapop 954 Marine

1-k STP adhesive and sealant

- + Fast curing
- + Meets the requirements of IMO

### Körapur 925 Marine

1-k PUR adhesive and sealant

- + Multi-use adhesive and sealant
- + Meets the requirements of IMO

### Körapur 940 Marine

1-k PUR adhesive

- + High strength
- + Long open time
- + Meets the requirements of IMO



# PANEL PRODUCTION

H.B. Fuller | KÖMMERLING provides a strong range of adhesives to produce sandwich panels and decorative panels made from different materials. Sandwich elements significantly reduce net weight without losing their intrinsic properties. Materials as diverse as wood, metal, plastics or ultramodern composites with a foam or honeycomb core are used in this context.

## Körapur 672

2-k PUR adhesive

- + Low sensitivity to moisture
- + Meets the requirements of IMO

## Körapur 666

2-k PUR construction adhesive

- + Low sensitivity to moisture
- + Meets the requirements of IMO

## Körapur 928

1-k PUR adhesive

- + Long open time
- + For decorative panels
- + High flexibility
- + Meets the requirements of IMO

## Swift®bond 9060

1-k liquid PUR

- + Multi-use adhesive
- + Long open time
- + Meets the requirements of IMO

## Icema™ R 145/31S

1-k liquid PUR

- + Medium open time
- + High bonding strength
- + Meets the requirements of IMO

## Icema™ R 145/75

1-k liquid PUR

- + Short open time
- + Short pressing time
- + Meets the requirements of IMO

## Icema™ R 145/12

1-k liquid PUR

- + Medium open time
- + Good adhesion grade
- + Meets the requirements of IMO

## Rakoll® GXL 3

1-k water based adhesive

- + Very robust
- + Easy to apply
- + Very strong bonding
- + Meets the requirements of IMO

## Rapidex® NP 2075 LT

1-k reactive hot melt adhesive

- + Very high initial strength
- + Very good bonding on tensioned substrates
- + High thermal stability
- + Low application temperature





# STRUCTURAL BONDING

In modern yachts made from GRP or aluminium, the deck-hull connection and the mounting of the flybridge constructions are some of the components that must endure high mechanical stress. By using adhesives, vibrations are reduced, different elongations are balanced and shocks are absorbed.

## Körapur 940 Marine

1-k PUR adhesive

- + High strength
- + Long open time
- + Meets the requirements of IMO

## Körapop 954 Marine

1-k STP adhesive and sealant

- + Fast curing
- + Meets the requirements of IMO

## Körapur 666

2-k PUR construction adhesive

- + Low sensitivity to moisture
- + Meets the requirements of IMO

## Körapur 790

2-k PUR construction adhesive

- + Very high strength
- + Meets the requirements of IMO

## Körapur 840

2-k PUR construction adhesive

- + Good impact resistance
- + Meets the requirements of IMO

# INFLATABLES

Whether used for fun in the sun, rafting, diving or fishing, or by firefighters, sea rescue teams and military personnel, inflatable boats are equipped for even the toughest jobs. Whether compact or comfortable, luxurious or functional, they prove their many uses every day on rivers, lakes and oceans.

Depending on the type of boat and the usage area, PVC, TPU, chlorosulfonated polyethylene (CSPE), synthetic rubber or neoprene are bonded. Our inflatable boat adhesives provide a secure bond that prevents the loss of function and resistance to UV, temperature, and hydrolysis, thereby ensuring that the inflatable boat will last for many years.

## Körplast 81

1- or 2-k solvent based PUR adhesive

- + High strength
- + Long open time
- + Toluene free

## Körplast 82

1- or 2-k solvent based polyurethane adhesive

- + High initial tack
- + Toluene free

## Körapren 88

1- or 2-k solvent based polychloroprene adhesive

- + High initial tack
- + Toluene free

# COMPLIMENTARY PRODUCTS

## Primers and Cleaners

The reliable adhesion of the glue on the surface of the material is a decisive factor for successful execution. To ensure this, the surface needs to be thoroughly cleaned beforehand. Apart from that, the adhesion between substrate and glue can also be optimized by the application of a primer.

For the pre-treatment of metal and plastic surfaces, H.B. Fuller | KÖMMERLING has developed primers and cleaners that are individually tailored to the materials to be bonded, and to the H.B. Fuller | KÖMMERLING adhesives. This ensures that the products reach their greatest possible effectiveness.

### Körabond HG 17

Black primer as adhesion promoter and UV protection agent in direct glazing applications. General purpose primer for glass, aluminium, steel and plastics.

### Körasolv CL 17

Cleaner for glass, aluminium, steel and plastics in combination with Körabond HG 17.

### Körabond HG 77

Primer for pre-treating rigid PVC and ABS.

### Körabond HG 81 / Körabond HG 83

Bonding agent for pre-treating painted surfaces, metals or plastics, GRP.

### Körabond HG 92

Moisture-hardening primer for pre-treating rigid PVC and GFRP, as well as absorbent substrates such as wood, etc.

### Körasolv GL

For cleaning and degreasing different plastic, metal and glass surfaces.

### Körasolv WL

Cleaner for powder-coated metals, as well as GRP.

### Körasolv PU

Cleaner for untreated metals and for diluting the floor coating.



Competence  
and Service

# H.B. FULLER | KÖMMERLING - YOUR SYSTEMS PARTNER

Boat and ship building projects are becoming more and more demanding in terms of architectural and design aspects, but also with regard to technical requirements. To ensure successful application and design, H.B. Fuller | KÖMMERLING provides professional solutions for the boat and ship building industry.

H.B. Fuller | KÖMMERLING offers a complete product range from a single source – from the manufacturing of high-quality glasses to sealing below the water line. All materials are matched to each other. With these system solutions, H.B. Fuller | KÖMMERLING ensures the highest level of safety and quality in boats and ships, from small boats to cruise liners.

## Our Service Portfolio

- ✚ Adhesion testing
- ✚ Compatibility tests
- ✚ Application training at the processor's site
- ✚ Support for working with independent laboratories for external testing
- ✚ Development of quality assurance programmes





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For more information about our company, visit [www.hbfuller.com](http://www.hbfuller.com) or [www.koe-chemie.de](http://www.koe-chemie.de)



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IMPORTANT: It is the user's responsibility to test and determine the suitability of a product for the user's intended use. Any product samples provided for testing are provided in accordance with standard limited warranties as stated on our technical data sheets.

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