

HTK Ultra Bond 100



Treatment of parts prior to bonding

Prior to the application of HTK ULTRA BOND® 100, parts should be clean, free of oil contamination and mechanically prepared. The solvent to be used for cleaning depends on the type of contamination. Generally, highly degreasing solvents such as acetone, methylene chloride, trichloroethane and others are used. Note: only use chemically pure solvents not leaving any residues. Prior to bonding, the substrates should be blast-cleaned with sharpcornered sand or steel grit or aluminous abrasive (e.g. coarseness 320). Never sand-blast thermal spray coated surfaces in order not to damage them.

It may, however, be necessary to degrease such surfaces. If, nevertheless, mechanical treatment should be required in the case of uneven thermal spray coated surfaces, it is recommended to use coarse-grained emery paper after sand-blasting. To develop full cure, the samples must be exposed to high temperatures for a certain period of time, while maintaining the contact pressure applied to them before. Full cure is obtained upon exposure of the samples to 150°C for approx. 80 minutes or to 180°C for approx. 50 minutes and to 190°C for approx. 35 minutes. The bonding strength obtained among other criteria depends on the materials used for bonding, the roughness of the substrates and the thickness of the adhesive layer. When bonding test punches featuring a substrate roughness of $R_t = 30 \text{ my}$ by applying a contact pressure of 70 N/cm², the median value of traction-adhesive strength obtained for 5 samples was 102 N/mm².

Application range

HTK ULTRA BOND® 100 is a single-pack epoxy resin adhesive and is used for the determination of adhesive strength according to DIN 50160. Various industrial application are know in the meantime. This single-pack adhesive is superior by its ease of handling. HTK ULTRA BOND® 100 adheres very well to almost any metals used for technical applications and to a number of nonmetallic materials such as glass, ceramics and various plastics.

Handling

Any test results of the tensile strength are subject to YOUR procedures of applying and curing the HTK ULTRA BOND 100. Best results are achieved with a final thickness of the cured Bond layer of not less than 0,2mm and not more than 0,3mm. Furthermore you should know that there is a liquid phases of the HTK ULTRA BOND® 100 at a temperature of abt. 80°C. Therefore we recommend to wrap a piece of Aluminum or PTFE foil tight around the test specimen at the bonding zone to avoid HTK ULTRA BOND® 100 to drip aside. Use a spatle for applying HTK ULTRA BOND® 100 out of the can and apply a thin layer on the substrates treated before. Make sure that the adhesive covers 100% of the substrates. Then, bond the test pieces prepared in this way. The contact pressure used for bonding should not fall below 20 N/cm².

Optimum bonding results were achieved at a bonding pressure of approx. 70 N/cm². The bonding, however, depends on the roughness of the surface coating and the counterpart.

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Storage

Special attention should be focused to the storage of the HTK ULTRA BOND® 100. HTK ULTRA BOND® 100 is sensitive to oxygen. Oxygen will accelerate the hardening process and reduce the shelf life of the HTK ULTRA BOND® 100. Do not leave the lid open longer than necessary! Flushing of the headspace with N2 gas before closing the jar with the lid might be helpful for storage the HTK ULTRA BOND® 100 in the refrigerator at ambient temperatures between 6 to 8°C is recommend.

The shelf life of HTK ULTRA BOND® 100 is abt. 6 months and can be maintained if the product is stored at temperatures not exceeding +10°C and if the can is kept closed. Before using the adhesive, allow for storage at room temperature for approx. 24 hours with lid kept closed.

Generalities

When handled by hypersensitive persons, this epoxy resin adhesive may cause skin irritations. For this reason, avoid contact with skin. Use adequate ventilation and avoid contact with food.