

**BONDING +
SEALING +
ENCAPSULATION**

Kisling

MEMBER OF THE WÜRTH GROUP

Next generation of adhesive bonded laminated cores

ADVANTAGES OF ADHESIVE STACKING TECHNIQUE

- + Enhanced geometrical and electromagnetic properties
- + Improved stacking factor due to thin adhesive layer
- + Reduced electrical losses
- + Reduction of eddy currents
- + Integration in punching process possible

CUSTOMER BENEFITS

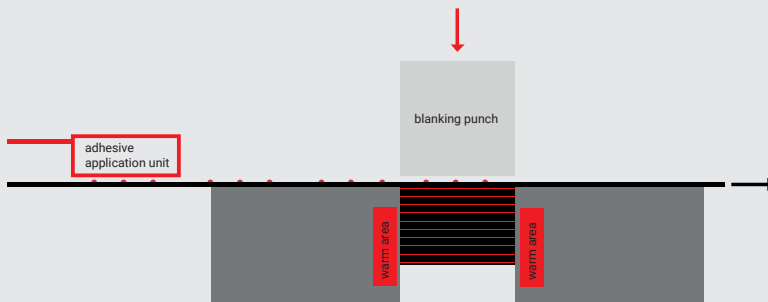
- + Freely accessible technology for every producer of laminated cores - easy in-house realisation
- + Low investment due to possible integration of adhesive application unit into already existing production lines
- + Adhesive stacking technique meets the increasing requirements for the production of high-efficiency motors versus commonly used technologies
- + Increase of motor efficiency up to 3 %
- + Reduced scrap rate due to reliable part quality

In cooperation with BAUER Lean-Engineering

COMMONLY USED TECHNOLOGIES

Interlocking	Welding	Backlack	Adhesive Bonding
<ul style="list-style-type: none"> + Since long time state of the art (well known) + Possibility of integrating stacks and packaging in the punching tool - Short circuit inevitable 	<ul style="list-style-type: none"> + Laser or gas-shielded metal welding - short circuits through weld seams - separate stacking and positioning necessary - Thermal distortion 	<ul style="list-style-type: none"> + No liquid chemicals in production + Already coated metal + High mechanical strength - Relative thick (4μ) layer of coating - Limited shelf life of coated metal - Slow/complex process 	<ul style="list-style-type: none"> + Enhanced geometrical and electromagnetic properties + Improved stacking factor due to thin adhesive layer + Reduced electrical losses + Reduction of eddy currents + Integration in punching process possible

PROCESS DESCRIPTION



1. In line, a sufficient number of tiny adhesive drops is applied to the coated steel strip.
2. Metal strip feeding to the blanking punch.
3. The metal laminations are punched out.
4. The growing stack is held by a choke system and passes through a moderately heated area.
5. After a short period of time the complete stack leaves the tool sufficiently bonded.

Engineered by  **Lean-Engineering GmbH**

ADHESIVE PROPERTIES

Description	Specifications		
<p>The low to medium viscosity products 2206 and 2124 are specially developed for reliable bonding of electrically insulated stator or rotor laminations into stacks. They are easy to dispense automatically. Curing can take place in a short time by increasing the temperature during the stamping process. 2124 can also be used in combination with the special solvent-based activators 2900 or 2901 to achieve fast curing at room temperature. The self-levelling, capillary flowing 2206 can only be cured thermally ($\geq 100^\circ\text{C}$). Both adhesives lead to high-strength, slightly tough-elastic bonds that are also resistant to hot ATF oils.</p>	Productname	2124	2206
	Chemical Base	Modified urethane acrylate	Modified urethane acrylate
	Color	Light Yellow	Light Yellow
	Viscosity at 25°C	300 – 500 mPa·s	55 – 85 mPa·s
	Tensile shear strengt according to DIN EN 1465 on steel	> 13 N/mm ²	> 13 N/mm ²
	Compression shear strength according to DIN EN ISO 10123 on steel	> 21 N/mm ²	> 21 N/mm ²
Temperature range	-55°C to +175°C	-55°C to +175°C	

Interested? Our experts are happy to support:

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