

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

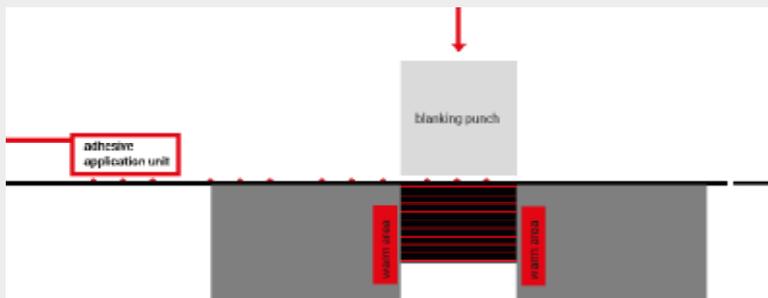
Customer Benefits

- + 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

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 adhesive VP0124 is a low viscous product that can be easily dispensed automatically. It was developed to reliably bond electrically insulated stator or rotor laminations. Curing can be achieved in a short period of time by increasing the temperature in the stacking process. The adhesive cures to a slightly tough-elastic bond that is also resistant to hot ATF oils.</p> <p>VP0124 can also be used in combination with the solvent based activators 4900 or 4901 in order to achieve fast curing at ambient temperature.</p>	Product technology	Modified Urethanacrylate
	Colour	Light yellow
	Viscosity @ RT [mPas]	300 - 500
	Tensile shear strength [N/mm²] Steel-Steel	> 13
	Operational temperature range [°C]	-55 – +150
	Compression shear strength [N/mm²]	> 21

Interested? Our experts are happy to support:

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