

Increasing the service life of press hardening tools with the innovative EvolutionClad 58 coating solution using Laser Metal Deposition

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The service life of press hardening tools is a decisive factor for the efficiency of production processes, particularly in the hot forming of galvanized and AlSi-coated sheet metal. With the EvolutionClad 58 coating solution, which is applied by laser deposition welding, the service life is significantly increased compared to through-hardened variants. This approach to tool manufacturing is characterized by an optimal combination of a hard shell with a hardness of 56-58 HRC and a soft, tough core with a hardness of 30-34 HRC, which significantly reduces the tendency to crack, especially at the critical transitions from the cooling channel to the surface. EvolutionClad 58 offers excellent resistance to abrasive and adhesive wear and significantly extends tool life. The pre-tempered base material also offers numerous advantages. The high toughness (A5 18-20%) reduces the risk of cracking, while the very high thermal conductivity (33.5 W/m²K at 20°C) leads to a reduction in cycle time compared to through-hardened variants. Added to this is the possibility of efficient machining in the soft state, which is guaranteed with a hardness of 30-34 HRC. These properties contribute to excellent weldability, especially when reprocessing the coating. In addition, the base material offers good availability at comparatively low cost. These advantages make EvolutionClad 58 an excellent choice for the coating of press hardening tools, as it not only increases the service life of the tools, but also contributes to an improvement in process stability and efficiency.

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Primary author: BARTLING, Andreas (voestalpine Additive Manufacturing Center GmbH)

Co-authors: Dr LEUDERS, Stefan (voestalpine Additive Manufacturing Center GmbH); Dr WIEDENEGGER, Armin (voestalpine Additive Manufacturing Center GmbH)

Presenter: BARTLING, Andreas (voestalpine Additive Manufacturing Center GmbH)

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