Top down & Bottom up Development

- Key components for technological leadership in the field of complex and well-engineered production machinery

The big challenge for manufacturers of production facilities in the market for complex and technologically well-engineered production machinery such as rolling mills and foil slitting machines is to set the focus of their development work twofold: On the one hand it is the top-down technology innovation, red-hot now, to develop digital solutions for system networking according to the industry 4.0 paradigm which enable the customers very practically and in a tailor-made way to visualize and to optimize their complete production process. On the other hand the objective remains to work continuously and intensively on the new and further development on the level of components and functions in the sense of bottom-up technology innovation. This is particularly important if they are of key importance regarding quality and production speeds. Often synergetic effects are achieved by the perfect match resulting in significant additional customer benefits during machinery operation.

Achenbach Buschhütten’s demand being leaders in technology and quality in the worldwide market for rolling mills, foil slitting machinery and media systems for exhaust air purification, rolling oil filtration and rolling oil rectification requires exactly these two approaches in technology development. Undoubtedly, Achenbach’s wide experience in building tailor-made machinery, the lively discussions with technology-leading customers in order to assess the placed features and the engineers’ corporate enthusiasm to permanently work on innovative solutions of benefit concerning solutions of productivity, product quality, processes and re-source efficiency are of great importance.

The rush of incoming orders impressively proves Achenbach’s strategy to develop digital solutions on their IoT platform Achenbach OPTILINK® and to further extend their high competence on the level of single components, assemblies and functions and in addition a comprehensive LifeCycle Support in the sense of manifold customer support throughout the entire lifetime of the machine by Achenbach as a reliable partner. The range of consulting, service and modernization is explicitly also addressed to operators of third-party machinery. Now here are some explanations on OPTILINK and the latest innovative technology components and third LifeCycle Support.

1. Achenbach OPTILINK® (img. 1)

With respect to overall equipment networking, Achenbach is doubtlessly in leading position and there is huge demand for the new IoT platform Achenbach OPTILINK®. A cloud gateway is integrated into the production network around which a multi-level highly efficient protective shell is built, if desired. Maximum secured information is extracted from the data streams in real time and visualized in interactive dashboards. In addition to pre-configured analytics solutions specially developed for the metals sector, a large selection of tools is available. The benefits are obvious: valuable insights into the evolution of plant productivity and quality, worldwide accessibility, easy integra-
tion and minimum IT administration efforts, just to mention a few benefit categories.

2. Latest developments on component level
Achenbach's worldwide excellent reputation is not only based on pioneering solutions on component and system level for all types of rolling mills and foil slitting machinery but also – besides their functional benefits – on robustness and reliability of all Achenbach machinery. Two outstanding innovations are to be outlined in the following:

- As specialist for flatness measuring rolls Achenbach has just extended its range by a new development: the Achenbach UniFlat® CFP flatness measuring roll (img. 2). While radially and peripherally drilled massive flatness rolls are installed in all metal rolling mills from steel to aluminium foil, the CFP (carbon-fiber reinforced plastics) rolls are low-inertia rolls which are used in foil slitting machines and strip rolling mills where the final flatness can be measured with high-precision by using piezoelectric power sensors with extremely sensitive and high signal resolution. A further advantage is the light and also robust design of the roll body needing only very small drives due to its low self-weight. Thus, the CFP flatness measuring roll can easily substitute an existing deflection roller. For its encapsulated design the new Achenbach UniFlat® CFP flatness measuring roll is a low-maintenance component.

- The Achenbach UniSpray® coolant distribution system is the decisive component to influence local flatness defects. Its perfect interaction with the Achenbach UniFlat® flatness measuring roll proves the pole position of the Achenbach MillFlat® strip flat-ness control system being characterized by highly dynamical control loops - independent of the actually installed roll type. Continuous development work has recently put forth the innovative direct integration of a BUS system in the nozzle valve header drastically reducing cabling in the rolling mill and therefore simplifying maintenance (img. 3). Moreover, there is the option to integrate a hot oil distribution system at the strip edges.

3. Achenbach LifeCycle Support (img. 4)
LifeCycle Support is traditionally included in the scope of supply of each new Achenbach machine after commissioning and acceptance: The product is not only the mere delivery of first-class machinery, but involves the commitment to give the machinery operator and consequently the customer optimum support and consultancy to secure life-time high machine availability on technologically top level. In real life, LifeCycle Support comprises both, instant spare parts deliveries, mostly in connection with assembly
In all modernization projects, the customer-side set frames and limitations always require tailored and technically very challenging solutions. It is obvious as for Achenbach that great experience, long-term available contacts, numerous references and very competitive inhouse manufacture and assembly are the keys to successful machinery modernization.

Mainly in highly-complex modernization projects the newly developed application of the Achenbach 3D simulation is of outstanding advantage. In advance to the practical realization, the technical solution is virtually commissioned to be verified. Last but not least, the current modernization customers more and more decide in favour of Achenbach OPTILINK® as an instrument to improve the control of their entire production process.

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