

Press Release



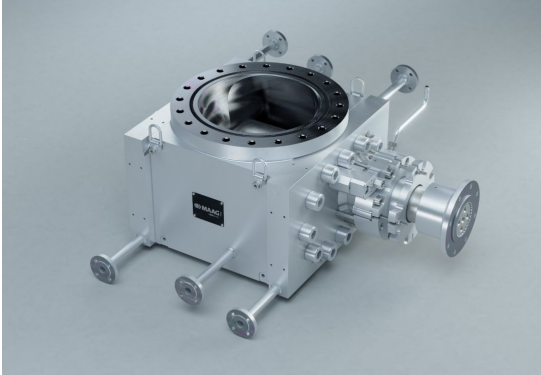
MAAG Group x⁶ class melt pump technology for production of bioplastic PLA


Oberglatt, Switzerland, December 2, 2020 – How to handle plastic waste and the reduction of CO₂ emissions are two of the most important topics our society will be dealing with for the next decades to come. MAAG Group is proud to have supplied its latest state of the art x⁶ class melt pump technology for the first fully integrated sugar-to-PLA (polylactic acid) plant in China. The plant is based on a Sulzer technology and key equipment for converting lactide into PLA. The lactic acid and lactide production is made from sugars (in this case won out of locally grown corn). Not only is the plant reducing the carbon footprint because of using plant-based resources instead of hydrocarbons, by using MAAG Group's x⁶ class gear pump technology, the specific energy requirement is optimized furthermore.

MAAG Group's pumps are used in the polymerization reaction stage, making sure that the efficient Sulzer SMR™ reactors are working smoothly in all operating conditions. But they are also used in the devolatilization stage, where, a minimum level is required when unreacted lactide is removed from the PLA melt to achieve a good product quality. In the last stage, MAAG Group's melt pumps are used to build up the necessary pressure to process the melt through the downstream equipment, up to the underwater pelletizer.

MAAG Group's x⁶ class melt pump technology key feature is the reduced back-flow to lower the energy consumption. The x⁶ class melt pump helps to save up to 50 % energy and reduces material recirculation in the pump of about 50 %.

While the reduction of 50% of energy is possible in exceptional cases and in extreme operating conditions only, the trend is true for all the applications when MAAG Group's x⁶ class technology is used. With the energy saving, also the CO₂ footprint is reduced. But x⁶ class pumps offer far more than that. The high efficiency of the pumps is offering a wider operating range as compared to other state of the art technologies. It allows for example that low viscous pre-polymer can safely be processed through the Sulzer plug flow reactor when the polymer conversion is progressing and the viscosity is continuously increasing in the same. The high efficiency of the x⁶ class technology keeps the bearing temperatures lower than in former pump technologies, allowing always a stable film of polymer, lubricating the turning shaft. The favorable shaft geometry, where the length over center distance ratio has increased, allows the operation of extraction pumps at a lower fill level than it was ever possible before at a given connection size to the vessel. Only like this the PLA can fully be concentrated. But also, the reliability has increased. Not only are the bearing surfaces almost 30% bigger, providing a better cushioning, but the pump is also working with bigger gaps, allowing potentially small foreign particles entering the system to pass the pump easier without damaging it. The x⁶ class pumps are the perfect fit for a modern, sustainable plant producing bio-plastics.

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Picture 1		Bioplastic PLA pilot plant Source: Sulzer
2		Swiss quality melt pump from MAAG Group
3		MAAG Group vacorex® x® class polymer extraction gear pump ideally fulfills modern polymer production processes which require polymer pumps that can discharge at high pressure despite very low fill level and high vacuum conditions in the reactor/devolatilization vessel.

4		<p>Polymer processes require booster pumps and polymer metering pumps that gently process both high and low viscosity plastic melt through the polymer processing system.</p>
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About the MAAG Group

The MAAG Group is a broadly diversified global solutions provider with integrated and customizable systems in process technology for the polymer, chemical, petrochemical, pharmaceutical and food industries. Its Pump & Filtration Systems, Pelletizing & Pulverizing Systems, Recycling Systems and Digitalization divisions consolidate the many years of experience and in-depth know-how of the AUTOMATIK, ETTLINGER, GALA, MAAG, REDUCTION, SCHEER and XANTEC product brands. The MAAG Group currently employs over 1,000 people at production sites in Switzerland, Germany, Italy, the USA, and China. Additional sales and service centers in France, Taiwan, Malaysia, India, Thailand and Brazil ensure close attention to customers' needs. For more information visit www.maag.com.

The MAAG Group is a business unit of Pumps & Process Solutions, a segment of the Dover Corporation.