WHITE PAPER

WASHPLANT DESIGN & SUPPLY

Established mining operations and start-ups have the choice between washplants of their own design/construction and OEM supplied equipment. In this whitepaper we discuss the differences in design, cost and machine life affecting the profitability of the project.

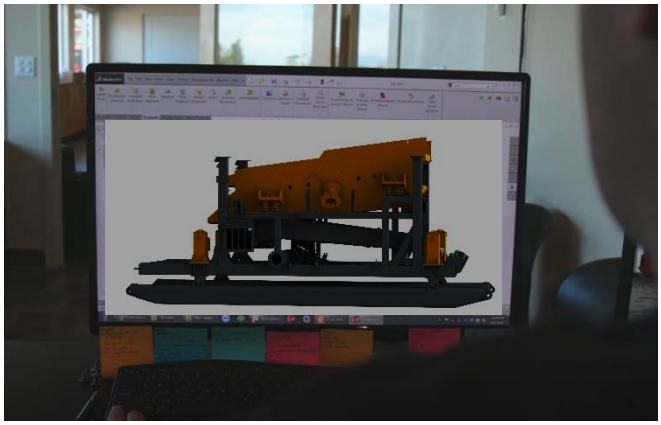
1. **Design**

Computer-aided 3D modelling has brought various advantages to the manufacturing industry. Straightforward, it enables a clear vision of the product before even beginning to build. Renderings and detailed engineering drawings can be reviewed between all stakeholders and then serve as reference materials for any future additions or changes to the equipment. Digital equipment models allow for cost efficient manufacturing techniques that employ laser cutting or programmable forming of sheet metal components with accurate tolerances. Based on the digital model compatible parts can be fabricated offsite and between seasons without requiring field measurements when the equipment may not even be accessible. Modular design and pre-configured mounting points simplify equipment modifications. For example, a machine originally supplied with skids can so be converted to a mobile track design if the operation requires it.

More noticeable now than ever, supply chain for various mechanical or electrical parts during construction can affect the build completion date. Macon identifies and purchases or stocks such critical or long-lead time items well before they are required.

An OEM series manufactured plant undergoes small design optimizations after every build based on performance measurements and customer feedback, with the effect of constantly improved

gold recovery, reduced operating cost and extended service life, incorporating specialized materials for high wear areas.



Most new designs or prototypes go through issues during the commissioning season that can have a drastic effect on the revenue produced. Such can be determining for the success and longevity of the business overall. Macon's entire team is committed to supporting clients with systematic and un-bureaucratic troubleshooting until performance criteria are satisfied. The time and energy spent to design, construct and commission a one-off design can be a distraction and can cut into getting other parts of the business prepared for the season.

2. Cost

Proven designs and in-house manufacturing reduce risk and cost. Macon incorporates all key disciplines including engineering design, cutting, forming, welding, painting and assembly, which provides maximum control over lead times, quality and pricing. A well-defined design, reviewed and agreed between the OEM and customer before manufacturing begins, is the foundation for a fixed price contract that the customer can rely on. And yet, with product lines laid out for serial production, Macon is not usually profitable on wash plants until #2 or #3 of the series, which would suggest that constructing a one-off design doesn't save money. It should also be considered that engineered OEM equipment usually maintains a higher re-sell value than prototype designs, which attracts more options for equipment financing.

3. Machine Life

Major equipment items, such as excavators and washplants, have an expected service life of at least 15 years or are written off over such period. OEM equipment is covered under warranty for the first 12 months, during which possible manufacturing defects would become apparent. Common spare parts, such as screen panels and bearings are available through various supply sources. Since such parts are often required in a rush, Macon stocks an inventory of common parts at their Parksville (BC) and Dawson City (YT) warehouses for immediate delivery.

Engineering design considers the interchangeability of parts between washplants of the same series, such that miners can draw from each other's inventory when the situation requires it. Over the past 10 years, Macon has built a reputation for responsive on-site or on-call technical support to their customer base in North America, many of which are experienced operators who designed and constructed their own washplants before contracting Macon with their ideas and requirements.