



Diamond Pilot Plant Scale-up

Project Category: Design

Client: Confidential

Location: Angola

Capacity: 7.2 Mtpa

Commodity: Diamonds



Scope of Work

OMC's scope of work consisted of a pilot plant circuit survey, ore characterisation and interpretation of historical results. From this data the design ore characteristics had to be selected and the optimal circuit configuration determined. The major comminution equipment was then sized.

Flowsheet

The flowsheet consists of ROM blending, AG milling, recycle crushing, classification, X-ray fluorescence separation, DMS and sorting. HPGR's were evaluated for the recycle crushing option for the commercial plant design. OMC's focus was on the AG milling and recycle crushing sections of the plant design.

Outcomes

- Detailed pilot plant (83 tph pilot plant) circuit survey established valuable operating information.
- On-site ore characterisation to establish indicative breakage parameters.
- The survey data was model-fitted in JK SimMet to serve as a realistic base for further simulations and scale-up. These models were compared to power based designs with acceptable correlation.
- Numerous simulations were done on a number of equipment sizes and circuit configurations to aid the Engineer in flowsheet development.
- The difference in approach to comminution circuit design used in various parts of the world was highlighted in this project.