

Robotic Colored Stone Cutting Machines

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Figure 1. Kiwon Jang checks a cassette of stones during the Jang 1024's robotic cutting process. Photo by Tao Hsu.

At the technology pavilion of the AGTA show, master cutter Kiwon Jang of KLM Technology (New Brunswick, New Jersey) demonstrated the Jang 1024, a robotic system for cutting colored stones (figure 1).

KLM Technology provides cutting services to the gem trade. Mr. Jang began his career working with cubic zirconia in his native Korea. Since moving to the United States 30 years ago, he has developed multiple systems for automatic gem cutting, with 10 systems in KLM's New Jersey factory. The

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The Jang 1024 is his most recent product. The machine's process is controlled by a computer installed with designing and cutting software written by Mr. Jang. The water-cooled system (figure 2) is designed for mass production; depending on stone size, it can handle up to 56 melee at a time (figure 3). The machine can produce a round brilliant cut from 1 to 30 mm, while the largest size for emerald cuts is 25 mm. According to Mr. Jang, the maximum tolerance the machine can accommodate is 0.05 mm. The daily capacity of this machine is 2,000–4,000 melee between 1.0 and 3.0 mm, 400–800 stones between 3.5 and 10.0 mm, or 100–200 stones larger than 10.0 mm. Aside from periodically checking the stones, the entire process from preforming to polishing is done by the computer. Mr. Jang informed us that the majority of his clients are miners and cutting factories in Brazil and Russia, along with many African countries. Most of his customers in the United States are domestic dealers seeking fast local service.

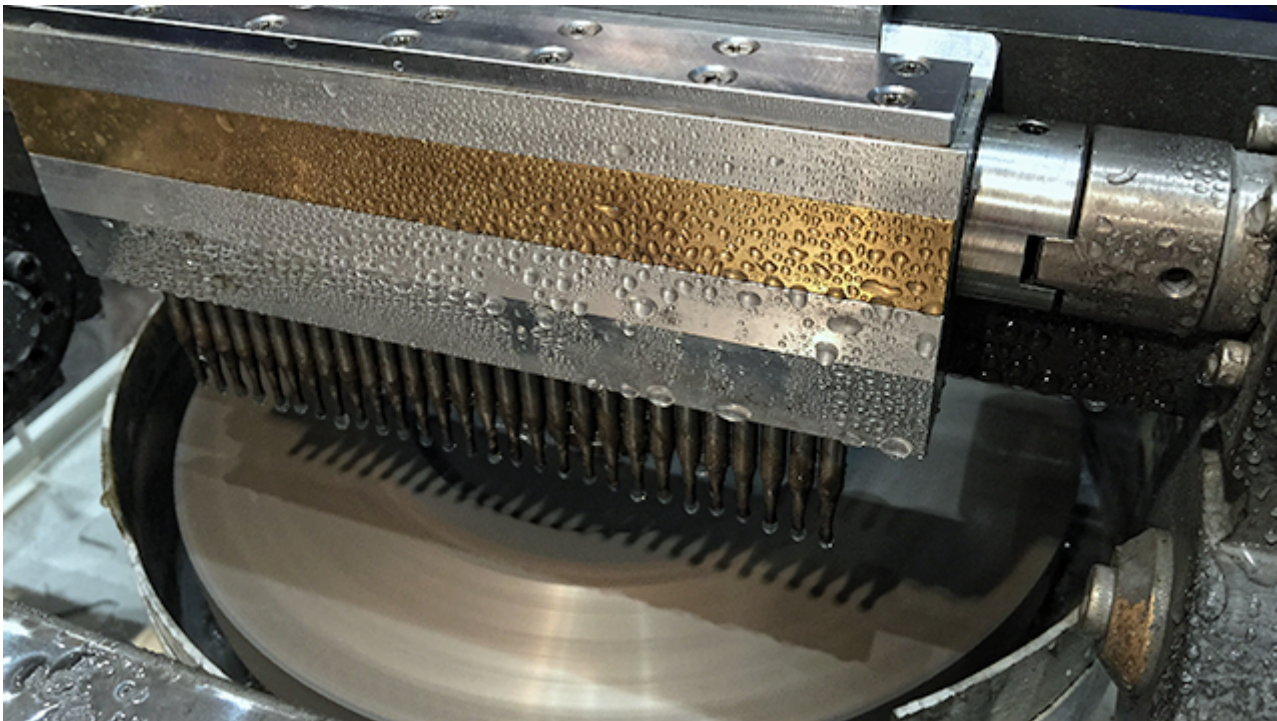


Figure 2. A cassette of stones is cut using water as a cooling agent. Photo by Tao Hsu.

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Figure 3. A cassette of stones is cut using water as a cooling agent. Photo by Tao Hsu.

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