ISRAEL LEADS THE WAY IN TECHNOLOGICAL SOLUTIONS FOR DIAMOND INDUSTRY

From rough diamond laser cutting and planning machines to a computerized color identification system, Israeli firms are at the forefront of supplying high-tech based advantages to the diamond industry.

For the wider public and diamond jewelry consumers, the image of diamond manufacturing is normally associated with an old man hunched over a bench manually polishing a diamond. Although this romantic image may provide a bonus for diamond jewelry manufacturers as far as consumers are concerned and, indeed, may still be how some diamonds are polished today, it is, for the most part, very much out of date.

Although this image may be how diamonds are manufactured in low-labor cost countries, such as India, China, Vietnam and Armenia, among others, it is, even in those nations, the minority of the manufacturing sector. In times of huge levels of competition when margins are razor thin and when rough has returned to levels last seen in mid-2008 before the global financial crash, the need to obtain the maximum yield from a stone has never been more important.

Although the expertise of experienced polishers is still undoubtedly important and plays a large role in the manufacturing of diamonds, the polishing of stones has long been carried out automatically, to a lesser and larger degree. Clearly, larger and better-financed firms can afford more up-date-equipment, while smaller firms operating closer to the breadline and with lower lines of credit acquire less state-of-the-art machinery.

Given Israel's former importance as a manufacturing center, it comes as no surprise that it has well-developed technology companies whose products are sold all over the world. Automation continues to be adopted across the diamond manufacturing centers, and companies are reporting rising sales following the slump after the global financial crisis.

A wide range of machines and devices have been developed to deal with all stages of a diamond's life – from the counting and weighing of stones, to their planning and manufacture and even machines developed for jewelry retailers so that they can prove to potential clients that the stone is exactly as claimed in terms of color, cut and clarity.

Perhaps one of the most important advantages of technology is to provide consistency in output. Human polishers, no matter how experienced and skilled, will inevitably not be able to produce the same exact diamond time after time. One example is the excellent grade diamond which was relatively rare even 30 years ago. Today, however, technology has upgraded the quality of diamonds produced.

Sarin recorded revenue of $36.4 million for the first nine months of this year, an increase of 230 percent from the depressed level of $11.0 million recorded in the same period of 2009 in the aftermath of the global economic crisis. The broad-based improvement was the result of rising capital

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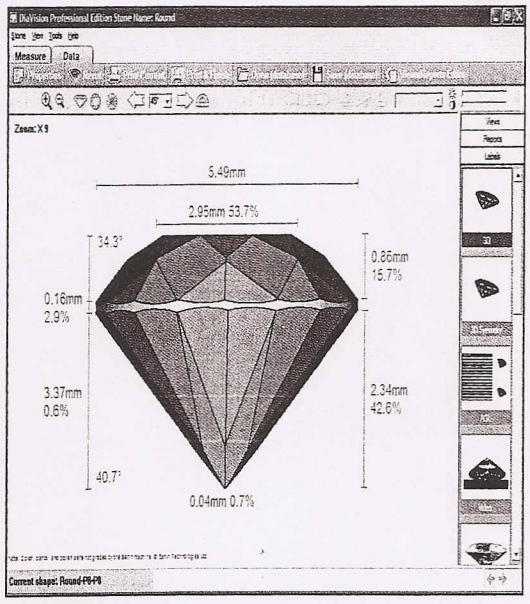


equipment expenditures across all diamond centers.

Sarin says it also benefitted from strong market interest in the improved version of its Quazer green laser systems, Quazer II, which was introduced in the second quarter. Driven by higher revenue and gross profit margins, Sarin recorded a net profit of $9.8 million during the nine-month period. For the third quarter of 2010, revenue and net profit rose respectively by 34 percent and 95 percent to $8.4 million and $800,000 over the same period of2009.

Sarin said the market was cautious sentiments under current macroeconomic conditions, lower profit margins for diamond manufacturers due to the disparity in the price increases of rough and polished diamonds, and uncertainty concerning the flow of Zimbabwean rough diamonds into the market, according to the company.

One of the main promoters of technology in diamond manufacturing in Israel is the Israel Diamond Institute (IDI) via its wholly owned unit, the Israel Diamond Technology Center (IDT). The center aims to create greater efficiencies and advances in diamond manufacturing through research and development which will cut production costs, increase yield and make, raise output, and allow the manufacture of a larger diversity of gems. The IDT works together with academic institutes and private companies to determine which technologies and techniques can be adopted and promotes joint ventures.

One of the best-known Israeli companies involved in creating high-tech machinery is OGI Systems Ltd. CEO Daniel Benjano said it is now marketing a table-top machine, the OGIRex, which can analyze a rough diamond, in little more than a quarter of an hour, without entering it and creating a 3D map that shows any flaws.

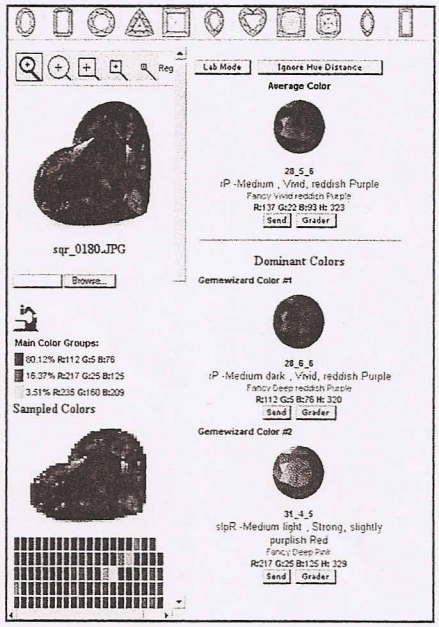
OGI Systems, established in 1990, also launched the Diamscope® Nano, a small-stone sorting computerized gauge to achieve invisible settings during the setting of stones. The guage enables the elaborate manual sorting of diamonds, which is not only time-consuming, but may also lead to inaccurate setting, to be by-passed. The machine will measure any stone shape, including princess, baguette and especially square shapes, displaying corner angles, length, width and edge. As with other smaller systems, no special training is needed. The diamond is placed on a platform, and within seconds the user receives all information needed regarding dimensions.

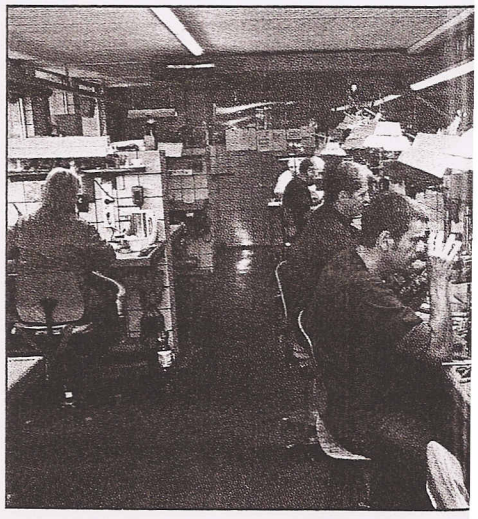
Such systems, which are also created by Sarin Technologies Ltd, are crucial for manufacturers in planning how they will cut a diamond to achieve maximum yield. Some diamonds, such as those from Zimbabwe, frequently have a hard exterior, or there are diamonds where the exterior is cloudy, so knowing what is inside the stone is vital.

Up to now, the most common means of seeing inside a diamond is to carefully polish a part of the diamond, or what is known as a "window". The problem is that the window does not show all the qualities of the stone. As a result, as the stone is manufactured, it unveils its true character meaning the polishing has to be changed, sometimes very considerably as flaws are revealed.

Sarin has been providing its services for 20 years and its machines include diamond cut grading tools, for round and fancy shapes, rough diamond optimization systems, gemology tools, diamond color grading and laser marking machines.

Another company producing physical items, this time for diamond counting solutions, is Data Tech, a Jerusalem-based company that specializes in producing counters and weight machines for the diamond industry. The firm's first machines were produced to count rough diamonds, to keep stock and for inventory control. After a short





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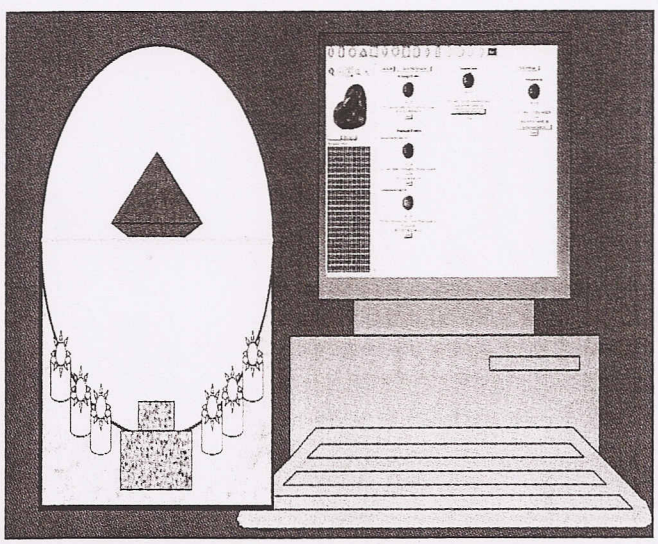
period, it became clear that a device for counting polished diamonds was also needed. The Data Tech devices offer jewelry manufacturers the power to count large quantities of small stones very quickly, and even to sort them. Jewelry manufacturers, who often use large numbers of small diamonds, need to be able to count them quickly and accurately and this is where the company's machines provide a clear advantage. One device, the Vibe 130, which is named for its size in millimeters and the way it weighs the stones, does so by vibration in a matter of seconds.

A different type of technology has been developed by Menahem Sevdermish relating to the color identification of diamonds. The first product was called GemeWizard – a color communication software system. That was followed by GemeFancy aimed at the colored diamond market.

The system provides a rational method for providing a price for fancy diamonds. Pricing for diamonds is notoriously difficult and controversial. How does the industry decide a price for a diamond? After all, a price quoted in New York may be entirely different to that asked in Israel or anywhere else in the world. Certain stones may be more popular in some countries than others and therefore can secure a higher price which appears totally out of proportion to a buyer in another country.

The technology is possible due to the tremendous advances in the quality of LCD computer screens. The newest generation of screens is so true-to-life that they allow users to see enormous differences in the color of potential gem matches based on shade, saturation and hue that was not possible with older screen models.



"These screens give an easy solution for finding and seeing the differences between colored stones. We have thousands of color variations and tones that allow users to easily see, within an almost near perfect ability what shade their stones are. All you have to do is look and you can match the stone," Sevdermish explains.

With the later product, GemeFancy, the company also offers a solution for the colored diamond market. GemeFancy is a digital colored diamond master, enabling users to recognize the relative location of colors within the fancy diamond color range and to identify its color. The program assigns values to fancy diamonds color variations using standard terminology and the GemeWizard alphanumeric color code. Users can communicate fancy color by sending specific GemeWizard images via Gememail.

"Unlike white diamonds where there is an established system for grading color, the system to describe and communicate colored diamonds is somewhat vague, with no clear rules," Sevdermish explains. "[When a trader has possession of a colored diamond] the trader rarely has the ability to grasp the full scope of colored diamond colors and grades."

GemeFancy has been calibrated using thousands of certified fancy diamond colors grades. To compute the colored diamond prices quoted by GemeFancy, GemeWizard developed an integrated system that includes a color analysis of thousands of diamonds offered for sale online, gemstone prices allocated by a panel of industry-renowned experts, and real time commercial data collected by the company.

Because the system allows for color identification, it also aids in pricing fancy color diamonds. "The GemeFancy pricing system is groundbreaking, not only because of the ease and accuracy with which users can define what is the price of the diamond they are examining, but also because of the scientific method by which we collect and collate the pricing data," Sevdermish claims.

He stressed that the system is not run by traders who may have an interest in setting prices, but by information technology specialists who have no interest in the prices of gems but only in gathering data and creating a price list from it. Users cannot change the prices, since it is an independent system running purely on received information. ◆

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