FINANCIAL ECONOMIC WEEKLY

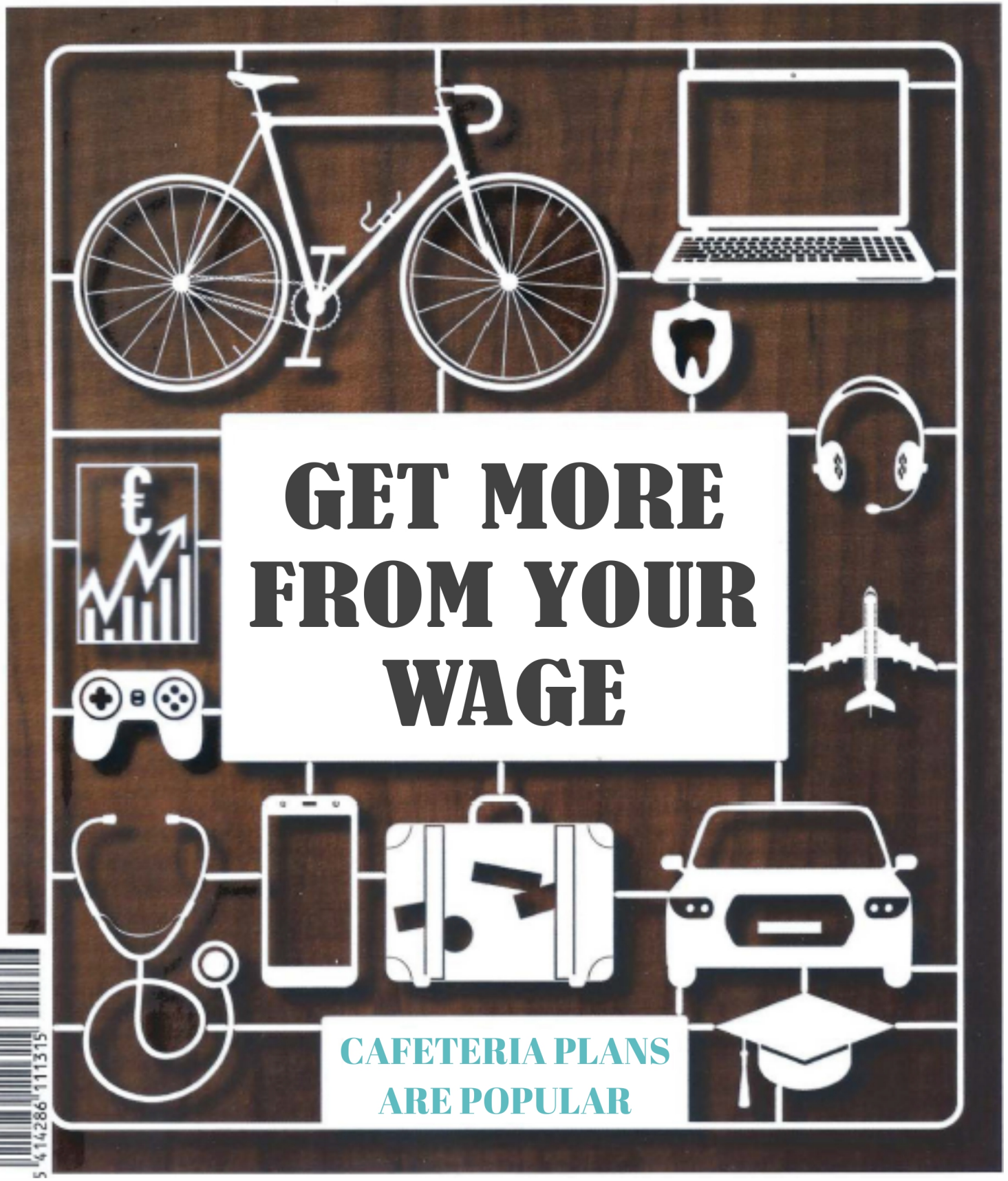
Trends

WORK

The Belgian loves his permanent, full-time job

TRADE

Gun shops are a lucrative business



GET MORE FROM YOUR WAGE

CAFETERIA PLANS ARE POPULAR

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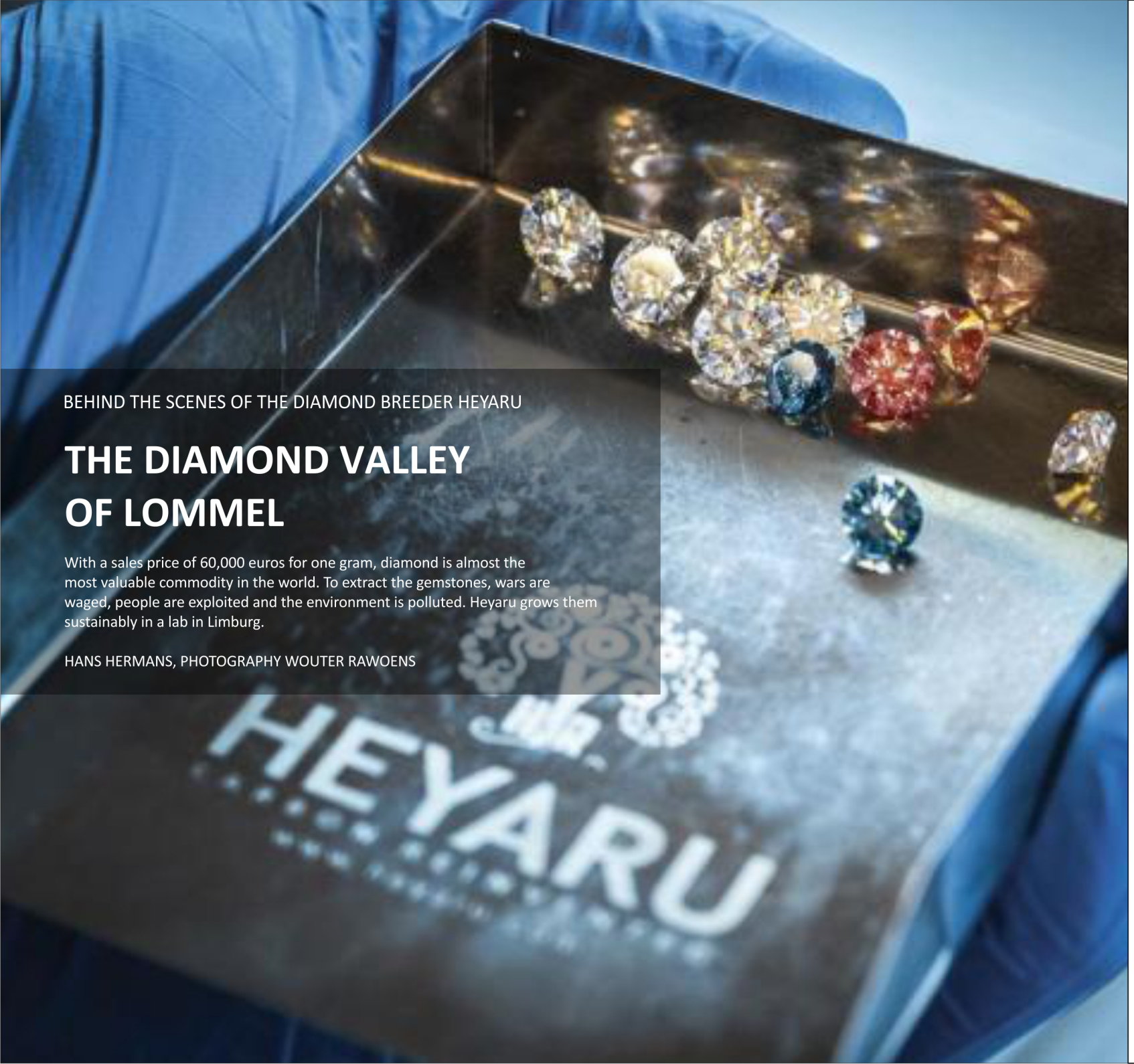


BEHIND THE SCENES OF THE DIAMOND BREEDER HEYARU

THE DIAMOND VALLEY OF LOMMEL

With a sales price of 60,000 euros for one gram, diamond is almost the most valuable commodity in the world. To extract the gemstones, wars are waged, people are exploited and the environment is polluted. Heyaru grows them sustainably in a lab in Limburg.

HANS HERMANS, PHOTOGRAPHY WOUTER RAWOENS

Inspiration

MADE IN BELGIUM

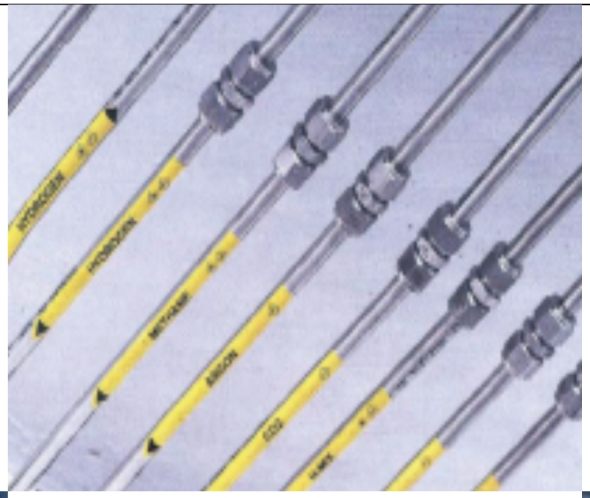
In 2012, Vikram Shah exchanged his natural diamond activities for the lab version. “Technically, the Microwave Plasma Carbon Vapor Deposition (MPCVD) process is finally ready. For the first time, I had an alternative to diamonds that often come from conflict areas and are mined in a way that is devastating to the environment and people,” says the founder of Herayu.

Since 2017, the Belgian-based Indian has been producing lab diamonds for the luxury industry. The 2 million euros in strategic transformation support from the Flemish government, innovation support from Vlaio and investments from LRM and PMV convinced him to set up his European production in Lommel, on the former Philips-Emgo site. “We farm, just like farmers. I looked for the best conditions for this. India is too hot. In Belgium, the cool air flows in through the gates. Compared to the air conditioners we would have to use in India, we save at least 30 percent on energy consumption. However, water consumption for cooling is limited here.” Herayu's ambitions were visible in the Kristal Park, a stone's throw from the current production site. There, a white, ultra-modern building will rise, the first of nine. By 2027, the vacant lot will be 10 hectares of land transformed into a Diamond Valley with 300 machines and 150 employees. At full capacity they will produce 20,000 diamonds per month. Financing the risky project is not self-evident. Herayu searches 260 million euros. Some banks wish to have nothing to do with diamonds and make no distinction with this more sustainable version. Moreover, the machines cannot be converted to another activity if things go wrong.

Vikram Shah sees demand picking up: “The use of lab diamonds for weddings increased from 10 to 45 percent. More and more companies are choosing cultured stones for ESG reasons. In addition, diamonds offer enormous benefits for artificial intelligence and sophisticated technology. The gemstone can store energy and data store them, and also transport them at ultra-speeds of up to 3 Gbps. That is necessary for quantum computers!”

1 CARBON SEEDS

The production process in Limburg starts with seeds from India. They are transparent carbon discs, cut to 0.3 millimetres from stones previously grown in Belgium. The production worker places 70 to 80 of the flat seeds on a round plate made of molybdenum, a metal with an extremely high melting point. The company is also experimenting with larger discs.

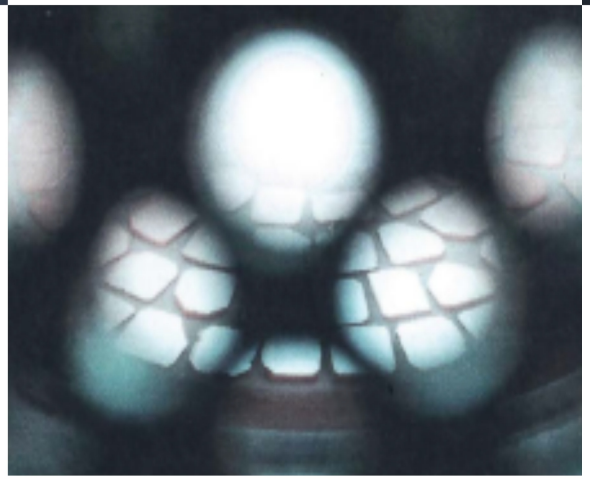


2 PURE HYDROGEN

The purer the raw materials, the purer the diamond. Pure hydrogen is an essential raw material. In a fireproof room on the site, a hydrogen generator converts the demineralized water into hydrogen gas. With an additional purification device, the company succeeds in making 99.99999999 percent pure hydrogen. The gas is fed to the production via fine tubes. Blue, slim gas bottles are ready as a backup.

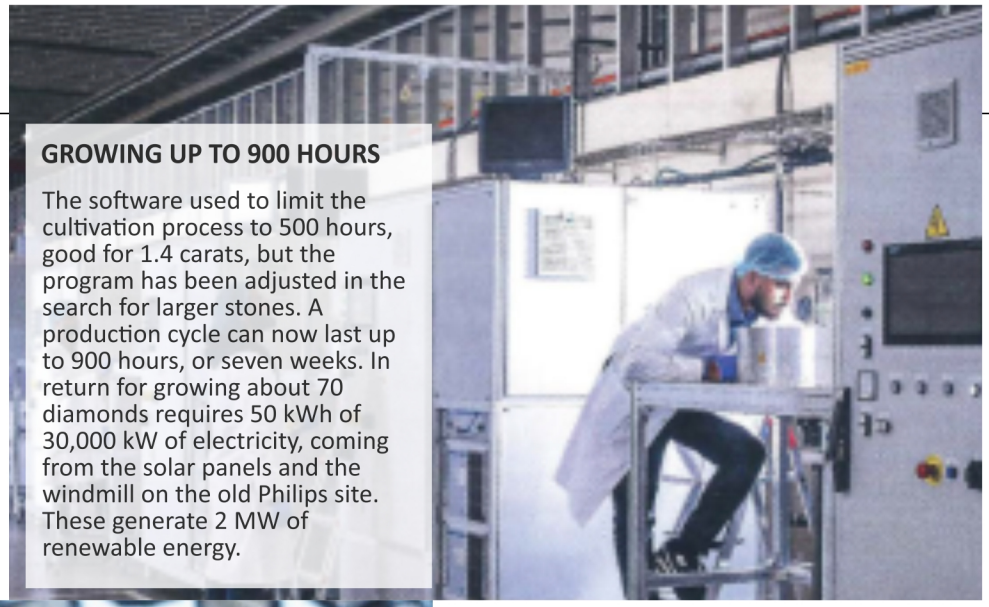
3 ARTIFICIAL SUN

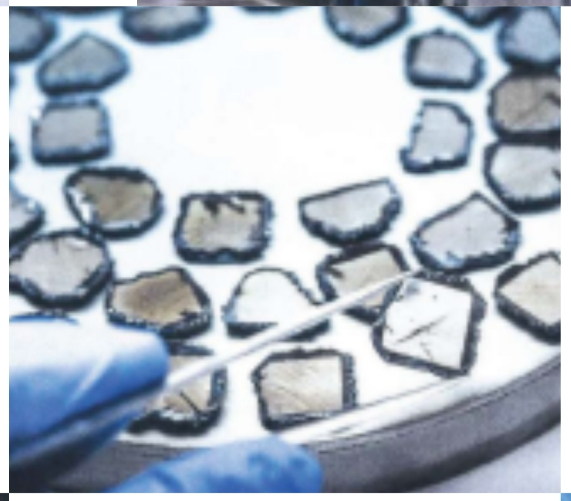
Sixteen extremely powerful microwave ovens create a plasma by splitting the hydrogen: a controlled, bright green sun with a diameter of 160 millimetres. She shines on the seeds with temperatures of 2,000 to 2,500 degrees Celsius. The sun and the high pressure in the machine cause the carbon to grow into diamonds of 5 to 8 mm thick. Fresh air is constantly sucked in from the operating room through hundreds of narrow holes.



4 GROWING UP TO 900 HOURS

The software used to limit the cultivation process to 500 hours, good for 1.4 carats, but the program has been adjusted in the search for larger stones. A production cycle can now last up to 900 hours, or seven weeks. In return for growing about 70 diamonds requires 50 kWh of 30,000 kW of electricity, coming from the solar panels and the windmill on the old Philips site. These generate 2 MW of renewable energy.





5 Type II

85 percent of cultured stones achieve type II. This is the purest type of diamond without measurable nitrogen impurities, perfect for the jewelry sector. In nature only 2 percent of those found belong stones to that type. Through experimentation, the Belgian-Indian team hopes to one day create the largest diamond in the world. Today it is the Cullinan, incorporated into the royal scepter of the British royal family.

6 POLISHING AND COLORING IN INDIA

The gemstones have grown to 1.5 carats. On average they are 5 millimetres thick, with peaks of up to 8 millimetres. They leave in bulk to the mother house in India. There they were colored and cut into the well-known faceted stones. The lab diamonds cost a third of the price of natural diamonds, but no one sees the difference. Optically, qualitatively, aesthetically and in chemical properties they are similar to mined diamonds.