



Case Study Serra Laser and Waterjet Inc. - “Less for very much more”

About Serra Laser and Waterjet Inc.

Our company has been in business since 1994 or 26 years now. We are a laser job shop, and we run 7 Mitsubishi Lasers, all Co2, 1 Mazak Tube laser, 1 IPG Laser Cube Fiber (4W), and 1 IPG Han’s Laser (8KW). We also have a Mitsubishi Waterjet (MX), and Mitsubishi Mill. It would be fair to classify us as a Mitsubishi house as these are the majority of our machines.

General market research – Fiber Laser

We started looking at Fibers when they first came out, this was about 10 years ago at the Fabtech show. My first thought on seeing the Fiber was, how much simpler this was to make a laser machine whilst only using a Fiber cable to take the beam to the work table, it would redefine laser service and support therefore to me, pricing was inevitably going to go lower, but surprisingly the price was not and never came down which made us think that a Fiber source is really expensive, no matter who made the machine. After talking to several vendors starting with our preferred choice, all seem to be around \$900,000 – that was too big a number for Serra to make a move on.

First discussions with a Chinese manufacturer

We began discussions with a Chinese Manufacturer called Bodor to purchase a 4M x 2M machine, 4 KW. The manufacturer used mostly Chinese supplied resonators made by Max Photonics, being probably 80% with the other 20% being a Russian made IPG resonator. We worked out a deal for a 4020 (4M x 2M) with 4 KW IPG resonator. Price was under \$400,000. The deal never went ahead for two reasons, the manufacturer couldn’t supply the FDA product report which is required in the US and secondly, the manufacturer wanted 100% before it left China and our bank wouldn’t fund a machine until it got into the USA.

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IPG Photonics introducing Han's Laser

A few months after we gave up we were contacted by IPG Photonics. IPG had been contacted about help introducing a machine into the USA made by Han's Laser. Han's Laser is IPG Photonics largest worldwide customer and based in Shenzhen, China – next to Hong Kong. They were already located in the USA and owned their own building in San Jose, CA. Han's Laser has been in the USA for several years and they own and operate a business here that makes a wafer heating machine and have 35 employees. I talked to the Han's Laser people on the phone and made a reservation to see the machine running in San Jose, California. I went up to San Jose, CA and saw a 3015HF with 6KW IPG resonator. Very fast machine it had good specs at 200 m/min max speed, 2.8G of acceleration. About twice as fast as some of the machines we had been looking at. And the laser source they sold was the IPG, same as Mitsubishi, Bystronic, Salvagnini and others.

Factory visit at Han's Laser headquarters in Shenzhen, China

Based upon this visit I decided to visit the Han's Laser factory located outside of Hong Kong and went a few weeks later. During this visit we toured the Han's Laser factory and visited a one of their end users who were running 3 machines using an Auto load and unload system. The Han's Laser Factory was an incredibly impressive facility, very clean and organized, Han's Laser had over 110 machines in production on the floor the day we visited. What also struck me was how many big format lasers that Han's Laser were making – over 80% were 4M x 2M or bigger. Han's Laser was also making several other types of lasers including 5 axis models, laser welders, laser cleaners and laser-based 3D metal printers. Han's Laser has 14,000 employees and from my discussions I learned they were China's largest laser supplier with 40% of the domestic market. And they were delivering over 2000 2D machines a year. China is buying over 4000 Laser machines a year and Han's Laser market share was 40%. So, we got the feeling if you go Chinese, go Han's Laser. The manufacturing was very impressive, and we were able to see the machining of the frames using 15 huge Mitsubishi milling machines, and over 200 Mazak machining centres. They were actually manufacturing all component parts of the machines, not just an assembly operation. I also liked how the machines were made using Bosch Rexroth drives and motors.

Han's Laser also manufacture various different lines of machines to suit budget and speed, the high-speed machine has positioning speeds of 200m/min from the HF series – which now go up to 20KW of IPG power- and another line on the lower end is the EF series with models in between these are also available to suit specific requirements.

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Why we bought a Han's Laser

Based upon our visit, and a subsequent visit we made in October we decided to order a 4020HF model with 8 KW IPG resonator. We finalized the order in late October and by the end of December the machine had arrived in the port of Long Beach, ready for installation. We ended up buying the machine for circa. \$400,000 less than the others with the same IPG resonator. That's a big number considering the following points:

- 1. IPG Photonics laser source.**
Han's Laser uses **IPG Photonics laser source**, the same as most of the machine manufacturers.
- 2. Quality.**
The machines are made to a **High-Quality Standard**. Han's Laser are using **German Bosch Rexroth drives and guides** and are also **ISO certified and CE approved**.
- 3. Speed.**
Han's Laser is **twice as fast as the some of its competitors' machines on axis speed and acceleration**.
- 4. Price.**
The difference is a great deal of money when the heart of the laser is the IPG Laser source, it is exactly the same on a Han's Laser as the other competitors' machines, additionally they are IPG Photonics largest worldwide customer which gives greater buying power.

What has happened since the purchase?

In January 2019 we got the machine and Han's Laser had two people to install it and we haven't had any real issues since then, any small issues have been dealt with immediately.

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Summarised...

We like the Han's Laser and the people. It allowed us to add a new capability of larger sheets with a travel of 4M x 2M and with the speed of cutting using the 8 KW IPG resonator is allowing us to charge over \$500 an hour on the Han's Laser. No issues on operating the machine either as it is very intuitive. Our next purchase we plan to buy a Hans Tube laser. We already have a Mazak tube laser, so we think the Han's Laser is a good complement for it. I would say also buy as big a machine as you can. Our building is small so a 4020 size was the biggest we could fit. If we had more room, I would have gone a 6mx2.5m as Han's Laser only charges \$50,000 or so difference to go this big, there is no substitute for size. In reality we would not have bought this size and power of machine from a Japanese or European supplier as the price tag for me comparing it to Co2 was pay more for less, Co2 is more complex in comparison which made no sense to me. The Han's Laser has allowed us to offer a unique capability to our customers where I can now say, "Less for very much more", less investment at a truly sensible market price for very much more productivity.

Han's Laser is one way to go. Not all Chinese laser companies are the same for sure, and if you go down that road, Han's Laser is a good choice to make in our experience.

Yours sincerely,
Glenn Kline



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