

## Views

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# Four laser companies to exceed \$1 billion revenue in 2016

DOI 10.1515/aot-2016-0071

Received December 22, 2016; accepted December 22, 2016; previously published online January 25, 2017

**Abstract:** It seems very likely that for first time four companies will exceed the revenue of \$1 billion in 2016. This comes along with substantial changes in the market for lasers and laser systems. The article analyzes some of the changes and looks at the individual success strategies of the major players in these markets.

**Keywords:** Coherent Inc.; Han's Laser; industry 4.0; IPG Photonics; laser market; Rofin Sinar; Trumpf.

The year 2016 is over, and it looks like a good one for most players in the laser industry [1]. However, for some, it was very special: The numbers for 2016 still have to be refined, but probably, four enterprises cross the line of \$1 billion in revenue, mostly for the first time. These four companies represent a substantial part of the \$12 billion [2] market for lasers and laser systems for material processing. Still, it is a healthy and competitive market, and it is growing faster than other markets, such as that of machine tools in Germany [2].

However, the market for industrial lasers and laser systems is changing. I first had an inkling of this at the Stuttgart Laser Technology Forum in June 2014, when I heard Peter Leibinger, Vice Chairman of the Trumpf Group, saying that the laser is becoming a commodity. It seems as if the times are over when a laser company had a market advantage just because they had developed a new laser source. Now, many competitors fight for pieces of the market, and with growing availability of laser sources, the price becomes the dominant sales argument.

Now, the interesting question is: How do the big makers of lasers and laser systems react to the changes

in the market? What ideas for growth do they disclose? In fact, I found some insights about these companies, and they differ remarkably.

It should be noted that most numbers are shown as US dollars (USD). Because of significant changes in exchange rates, the numbers for global market trends may differ strongly depending on the currency in which they are counted. For example, the global market for laser systems for material processing did not change from 2014 to 2015 based on USD, while it grew by 22% in euros [2].

Furthermore, I would like to remark that market data are used as available to the public in December 2016.

## Just married: Coherent, Inc., and RofinSinar

It came as a surprise when Coherent announced the acquisition of RofinSinar in March 2016 [3]. Probably, all involved parties had a sigh of relief when the European Commission approved it [4] in October, subject to the sale of Rofin's low-power CO<sub>2</sub> laser business in Hull (UK). The total annual revenue of Coherent (\$857 m for FY2016) and RofinSinar (\$520 m in FY 2015) adds up to more than \$1.3 billion if we take the last separately counted numbers.

John Ambroseo, the president and CEO of Coherent, explained the market position of the merged company in a conference call in November: 'Coherent participates in four end markets: microelectronics, instrumentation, scientific, and material processing. On a stand-alone basis, we have leading market positions in the first three and a trailing position in material processing' [5].

In FY 2015, Coherent sold about 50% (\$406 m) into the microelectronics market, but only \$111 m into material processing. Rofin sold almost 40% (\$200 m) into the segment of macro applications, which is part of the material processing market.

Therefore, the purchase will more than double Coherent's share in this desired end market. The match is just as good on a regional basis: Rofin stands strong in Europe, while the old Coherent sold mostly to the US and Asia.

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The old Coherent had a strong portfolio of laser sources already. With Rofin, they acquired not only substantial market share but also a new production line of kW fiber laser modules [6] and well-established turn-key systems for material processing. According to recent information from Coherent, Inc. [5], all fiber laser activities will be concentrated at the Rofin site in Hamburg, Germany. Related activities in Santa Clara, CA, USA, will be terminated.

The laser diode packaging designs and processes in Santa Clara, CA, USA, will be transferred to Mainz, Germany. For full vertical integration, Coherent will extend its semiconductor facilities and expects to ship vertically integrated fiber lasers with fully qualified chips in fiscal 2018.

The new Coherent will have two segments: OEM laser systems (or OLS) will be largely focused on microelectronics, instrumentation, and scientific. The other segment, industrial lasers and systems (or ILS), will predominantly support the material processing market. As Ambrose added: ‘Based upon a pro forma analysis of fiscal 2016, OLS was 55%, and ILS was 45% of combined company revenues.’

To recognize the strong Rofin, Dilas, and Nufern brands, Coherent will dual brand each of these as Coherent-Rofin, Coherent-Dilas, and Coherent-Nufern before transitioning them to a consolidated brand structure in 2 or 3 years.

As with every new couple, the partners inside Coherent look happy with what they have won. Based on full vertical integration, they will catch up with competitors in the market for material processing. It remains to be seen what new offspring (i.e. products or ideas) they develop to make this marriage successful for the long term.

## The old and new champion: Trumpf

When I saw a Trumpf booth for the first time at SPIE Photonics West early in the 2000s, the company was widely unknown to the scientific community because almost 100% of its sales were into industrial markets. Today, Trumpf is much better known to scientists, not only because of regular Photonics West participation but also for its disk lasers and industrial femtosecond lasers.

The Trumpf Group (Ditzingen, Germany) is a family-run business with a total revenue of €2.8 billion in the fiscal year 2015/2016 [7], mostly from machine tools for flexible sheet metal and tube processing. Their laser



Integrated digital solutions for laser-based sheet metal processing was the showstopper at EuroBlech trade show in October 2016, in Hannover, Germany.

technology and electronics division created a revenue of €1.01 billion, but about two thirds of the total group revenue is related to lasers.

Trumpf has a 90-year record of machine tool fabrication. They started selling cutting machines with CO<sub>2</sub> lasers in 1979. Today, Trumpf is a vertically integrated enterprise with competences from diode or fiber laser production up to full-scale manufacturing solutions. They not only have a 24/7 global customer service, they even founded a fully licensed bank to offer their customers products and financing out of one hand.

They focus on new horizons: This year, they presented an entirely new sheet metal-processing machine. It is fully automated and fits perfectly into their big vision of Industry 4.0. Most new R&D hires in 2015/2016 were dedicated to that field. To focus on such a digitally connected production process with integrated manufacturing solutions, Trumpf founded the digital business platform AXOOM GmbH. To develop even more advanced ideas, Trumpf started its own venture capital firm.

## The contender: IPG Photonics

IPG Photonics was founded in 1990 by the Russian laser scientist Valentin Gapontsev. Within two decades, he made it the largest manufacturer of industrial fiber lasers. IPG’s core technology [8] is cladding pumping of single-mode fiber lasers. Multimode diodes can be used for that purpose in an almost unlimited number.

IPG Photonics went public in 2006, and it has grown rapidly ever since. In 2015, they had revenues of \$901 m

and \$726 m for the first 9 months of 2016 [9]. Given its impressive growth history, it may well cross the \$1-billion mark by the end of 2016.

Because of its vertical integration and a direct-sales model, IPG enjoys an excellent gross margin of about 55%. They sell more than 90% of their products into the laser material processing market, to original equipment manufacturers (OEMs), system integrators, and end users.

As recent market reviews show, fiber lasers are replacing CO<sub>2</sub> lasers and conquering new applications.

Given that for 2015 IPG reported sales of \$849 m into the market of material processing [10] and a total market share for fiber lasers in that market of \$1480 billion (number presented at the IPG investor day, May 11, 2016), we see that IPG has more than 50% market share in this field.

During that investor day in May 2016, IPG presented some plans on how they will exploit these trends in laser sales. Beyond cutting, welding, and additive manufacturing, they see opportunities in brazing and drilling, micro processing (displays), and medical applications. For their core market of sheet metal cutting, they expect a doubling of the market size from 2015 to 2020, with fiber penetration growing toward 80%.

It certainly appears that they have bet on extending their core technology to adjacent markets. Still, they have to tackle the problem of competing with their own customers if they sell complete systems to OEMs and end users.

## The next contender: Han's Laser

Then there is China... It is a big market for material processing and even with reduced growth, it will probably continue to develop. This attracts not only foreigners but also sparks a dynamic national laser community. A recent article [11] quoted Trumpf's turnover in China as €360 m for its 2015/2016 financial year and IPG's sales of \$96.4 m in China for Q2 2016.

Han's Laser Technology Industry Group is listed on the Shenzhen stock exchange and reported total sales of RMB 3.1 billion (\$452 m) for the first half of 2016, growing 22.7% year over a year, which is much faster than either Trumpf or IPG. Given this pace, they will probably cross the \$1 billion mark by the end of 2016.

Little is published on their strategy. They grow in China, but they purchase technology worldwide. In November 2016, they bought CorActive High-Tech (Québec, QC, Canada), a manufacturer of specialty optical fiber and fiber laser modules. As reported in another article [12],

for Han's Laser, CorActive would be a 'small, but highly strategic acquisition,' as it would help the Chinese laser maker boost its capabilities in fiber laser manufacturing and expand into new applications and geographies.

## What can we learn from all that?

Vertical integration seems to be the order of the day. Lasers are becoming a commodity, and even if (or because) one company dominates the production of fiber lasers, all other players seek to make their own fiber laser systems. This makes falling prices for fiber lasers probable, and that will hold for all kinds of diode modules as well. It is a matter of time.

Being the pioneer with new laser sources will help for some time, but I assume that the bigger margins are made with full production solutions, at least in the long term. Hence, I found the Trumpf approach interesting – to develop entire digital production systems. However, Industry 4.0 is not unquestioned even in Germany. Some see it as a bare revival of CAD/CAM/CIM, which was hyped in the 1980s. If it keeps the promise of substantial productivity gains, it will be the right bet for many big players.

If laser sources finally have become a commodity, it will be interesting to extend this discussion of market trends to larger system providers such as Amada Miyachi or Bystronic.

This article is an updated and extended version of my blog post at [www.laserfocusworld.com](http://www.laserfocusworld.com) [13].

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