



Press Release

Twice the cutting speed

New processes on TRUMPF 2D laser cutting machines – 70 percent less cutting gas – Doubling of sheet throughput

Ditzingen, May 12, 2017 – Higher cutting speed = higher laser power. This formula has been more than just a rule of thumb. But TRUMPF engineers have now severed the correlation between speed and kilowatts. The fruit of their labor? The Highspeed and Highspeed Eco cutting processes. A newly designed nozzle boosts the feed rate by up to 100 percent for solid-state laser machines that employ fusion cutting with nitrogen. What's more, laser power does not need to be increased. Not only the feed rate is now faster, but also the piercing process. These new cutting processes also allow for a nearly twofold increase in sheet throughput compared to standard cutting. What's more, less cutting gas is used thanks to the nozzle's innovative design. The Highspeed process requires 40 percent less nitrogen on average; Highspeed Eco 70 percent less. These new processes mean that TRUMPF has achieved another milestone on the road to lower parts costs.

In fusion cutting, gas under relatively high pressure blows molten material out of the kerf; this entails high operating costs. Flame cutting using oxygen has usually been used for mild steel, especially for relatively thick sheets. The advantage of low gas costs is offset by oxidized cut edges, which often need to be reworked. The new Highspeed and Highspeed Eco processes, by contrast, are faster and use less gas, which greatly increases the cost-efficiency of fusion cutting mild steel with nitrogen. In addition, the scope of application is now broader for eight-kilowatt lasers used in fusion cutting. The laser can now cut sheets as thick as twelve millimeters – instead of just ten millimeters as in the past.

The Highspeed process makes use of a bi-flow nozzle. Some of the cutting gas passes through the center of this nozzle, as does the laser beam. The rest forms a secondary flow around the principal flow to concentrate it onto the kerf, expelling molten material more efficiently. The Highspeed Eco process relies on a patented nozzle fitted with a sleeve that forces the gas directly into the kerf,

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ensuring that little or no gas flows off to the side. While this moving sleeve glides across the material during fusion cutting, the nozzle remains 1.5 millimeters from the sheet surface. This ensures the nozzle can effortlessly withstand any chips generated during piercing – which accelerates piercing and minimizes the risk of damage.

Highspeed and Highspeed Eco can be used for fusion cutting of mild-steel and stainless-steel sheets at least four millimeters thick. And just one nozzle is needed in these cases, which makes mix-ups less likely and shortens setup times. Cut edges exhibit low surface roughness and a high-quality, homogeneous look.

Highspeed Eco and Highspeed can now be used on machines in the TruLaser Series 5000 equipped with an eight-kilowatt solid-state laser. Soon it will be available for use with six-kilowatt solid-state lasers. The Highspeed process is featured on machines in the TruLaser Series 3000 fitted with a six-kilowatt solid-state laser. Many relatively new machines can be retrofitted with these processes.

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Highspeed_Cutting_Process.jpg

The Highspeed cutting process can nearly double sheet throughput compared to standard cutting. A bi-flow nozzle reduces gas consumption by 40 percent on average.



Highspeed_Eco_Cutting_Process.jpg

A newly designed nozzle reduces nitrogen consumption by 70 percent on average in the Highspeed Eco process. As with the Highspeed process, feed rates and sheet throughput increase by as much as 100 percent.

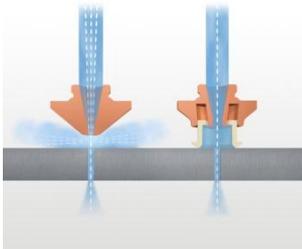


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Touchdown_Nozzle.jpg

The Highspeed Eco cutting process relies on a patented nozzle that is fitted with a sleeve.



Highspeed_Eco_Gas_Flow.jpg

The Highspeed Eco nozzle's sleeve forces the gas directly into the kerf.



About TRUMPF

The high-technology company TRUMPF offers production solutions in the machine tool, laser and electronics sectors. We are driving digital connectivity in manufacturing industry through consulting, platform and software offers. TRUMPF is the world technological and market leader for machine tools used in flexible sheet metal processing, and also for industrial lasers.

In 2015/16 the company – which has more than 11,000 employees – achieved sales of 2.81 billion euros. With over 70 subsidiaries, the TRUMPF Group is represented in nearly all the countries of Europe, North and South America, and Asia. It has production facilities in Germany, France, Great Britain, Italy, Austria, Switzerland, Poland, the Czech Republic, the USA, Mexico, China and Japan.

For more information about TRUMPF go to www.trumpf.com

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