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LASERDYNE’S Optical Focus Control (OFC) Feature Enhances Laser Processing Of Thermal Barrier Coated (TBC) And Uncoated Metals Along With Other Non Metallics

Champlin, Minnesota: LASERDYNE’S new patent pending Optical Focus Control (OFC) feature is now available for all 790 BeamDirector® systems. OFC makes laser processing of 3D non-metallics, composites and thermal barrier (ceramic) coated metals as easy and as accurate as with metals.

OFC is available on all new 790 BeamDirector NdYAG laser systems and as a field retrofit to existing 790 systems.

OFC complements the 790 BeamDirector’s patented Automatic Focus Control (AFC) and provides new capabilities such as precision drilling of cooling holes in thermal barrier coated turbine engine components. It also contributes to improved quality by better controlling focus at the precise location of the drilled hole and to greater throughput with its faster response and wider working range.
In one application, for example, OFC reduced the time for drilling a pattern of shallow angle cooling holes by 24 percent. It accomplished this by eliminating the time to measure the distance between the laser focal point/gas assist nozzle and workpiece. In addition, the system operator has the ability to switch back and forth between OFC and AFC within part programs, increasing versatility and production efficiencies.

OFC has increased sensing frequency compared with capacitance based sensors. This allows it to follow a surface under closed loop control at twice the speed of AFC while avoiding the need to find the surface location. OFC senses part surfaces inaccessible to conventional AFC nozzles and it eliminates side sensing problems that can occur with nozzle based sensors.

Additional benefits include a wide sensor range for commonly used focal lengths. Most important, OFC enhances system flexibility because it can be used on a wide range of materials, both metal and non-metal, and with different surface finishes and colors. It can be operated with or without nozzles, is highly reliable, and does not add weight, external cabling or other appendages to the BeamDirector.

OFC is another feature resulting from LASERDYNE solving a specific customer problem. It is one of many 790 BeamDirector features and capabilities that contribute to increased throughput and quality in laser drilling. The 790 BeamDirector with new OFC option is built and tested to ASME B 5 5.54 and ISO 230 standards. The system design supports today’s manufacturer’s goals for high throughput of precision laser drilling and cutting applications in an industrial environment.

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