

# The **creative** laser



The increasing development in lasertube cutting technology of straight tubes over the last 10 years evolved further with the availability of engineered solutions to cut pre-formed, bent or hydro formed tubes efficiently.

BLM GROUP with its well established leading product line of lasertube cutting systems recently extended this technology **also to bent or hydro formed tubular components.**

## Innovative design

Existing design and engineering processes of tubular components are usually made with sequential operation: sawing, mitre cut, bending followed by punching, drilling, notching, machining, deburring.

Lasertube cutting of pre-formed or bent components revolutionises the manufacturing flow **consolidating as many as six fabrication steps into one continuous process.** A proper design is functional to both manufacturing efficiency (bending and laser cutting) and to assembling and welding operations.

Main advantages of this innovative manufacturing process are:

- Two machines only (bending and laser cutting)
- Elimination of all intermediate steps
- Elimination of semi-finished product and re-work
- Elimination of hard tooling, tooling lead times and sophisticated welding jigs

- Leaner material flow and simpler job routing
- Efficient manufacturing of low batches
- Minimising prototyping costs
- Reduction of prototypes time to market
- One machine to cut different materials
- Enabling robotic welding eliminating non conform rejected parts
- Automatic manufacturing, low noise level, clean and safe

## Three applications

Manifold exhausts for motorcycle made out of a single bent tube minimizing material scrap:

- (1) bending with an engineered shape
- (2) laser cutting of single components
- (3) perfect match of 3D notches





The following example shows a self locking components designed to minimise jigs:

- (1) bending
- (2) laser cut with micro-joints
- (3) separation of all components
- (4) self locking assembly using slot and tabs
- (5) components ready for final welding

Finally an "end tail" for car exhaust systems:

- (1) tube bending
- (2) end forming of the oval tube
- (3) round tube laser cutting
- (4) oval tube laser cutting
- (5) final assembly ready for final welding



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