Laser Cutting: Application story

Compressed Air is often required in the laser cutting process for the cutting machine. It also can be used for the actual cutting. The specific type of material being cut, required edge quality, material’s thickness are three major aspects which help for choosing right assist gas. When the cut of the laser needs to be excellent, nitrogen gas is employed as the assist gas of choice. It ensures that the cut edge won’t be discolored and heat dissipates quickly. Laser-cutting metal relies on a continuous supply of nitrogen gas as a blanket to avoid burning during the process. The laser cutting process vaporizes the metal, and the nitrogen gas moves the vaporized metal far from the cut edge before it re-solidifies. This creates a barrier between the heated metal edge and therefore the atmospheric oxygen also eliminates or reduces discoloration of the cut edge. This also assists gas in the dissipation of heat, helping the edge cool faster.

Having invested in laser equipment that would allow faster production turnaround, 24-hour operation, and a variable system for future capacity, many companies found that the equipment’s full potential was hampered by the supply, and costs of delivered nitrogen, which is crucial for the process.

These problems were solved when **increased productivity, continuity of supply, and substantial cost savings** were achieved by the installation of an Atlas Copco **on-site, nitrogen generation skid package**. Atlas Copco’s combination of **high-pressure compressors and premium nitrogen generators** offers an **energy-efficient reliable** source of nitrogen.

Atlas Copco’s on-site nitrogen generation benefited industries in many ways. On-site generation produces nitrogen **at exactly the needed pressure & flow rate**, so it has helped to **avoid wastage of gas**. Because of the generation of nitrogen on-site **cost and risk** related to suppliers delivering nitrogen was eliminated. This **plug-and-play solution** is sized to match laser cutter, so companies never need to empty their bottles and refill during valuable production hours. By saving the time that is normally spent on changing tanks, companies can ensure that their application runs continuously and without much attention from the operator.