HASKEL BOOSTERS IN LASER CUTTING

LASER CUTTING DEFINITION

Using a laser to cut materials, the traditional technology of laser cutting is used for industrial manufacturing applications. By directing the output of a high-powered laser, commonly through optics, the system is used to steer the material or the generated laser beam. Commercial laser cutting involves a motion control system to follow a CNC (computer numerical control) or G-code of the pattern to be cut onto the material.

The focused laser beam is directed at the material, which then either melts, burns, vaporizes, or is blown away by a jet of gas, leaving an edge with a high-quality surface finish.

In melt and blow processes, also known as fusion cutting, high-pressure gases are used to blow molten material from the cutting area. This method greatly decreases the power requirement. The material is heated to melting point and then a gas jet blows the molten material out of the kerf, avoiding the need to raise the temperature of the material any further. Materials cut with this process are usually metals. The gases used to perform this process are referred to as assist gases.

ASSIST GASES

Used for process enhancement and to produce a clean cut, boosted Assist Gases deliver optimized results in laser cutting.

Common Assist Gases include oxygen, argon, helium, and nitrogen.

Oxygen is commonly used at pressures between 4 to 6 bar for cutting mild steel. This supply can be met from either a gas or liquid bulk storage supply. Nitrogen is used at pressures between 20—25 bar (295—370 psi) for cutting stainless steel prevent burning and to assist cooling of the top edge. The volume of nitrogen used is in the order of 18—20 scfm.

Haskel Gas Boosters are used with nitrogen for laser cutting applications. Bottled gas can be used up very quickly and become costly. However, purchasing liquid nitrogen in bulk storage and boosting the “boil off” gas pressure (of about 12—15 bar or 175—22.0 psi) to the pressure at the “point of use” (20—25 bar or 295—370 psi), offers substantial cost savings.

Pairing a Haskel booster with your Assist Gas can quickly pay back the cost of the booster system. Depending on throughput, typical savings amount to $1 per minute operation or $400 per 8-hour day.