

Indispensable auxiliary equipment for laser cutting machines--screw air compressor



Zhangdian, Shandong May 20, 2026 ([Issuewire.com](http://www.Issuewire.com)) - To meet the stable and pure compressed air requirements of laser cutting machines, Hanke has developed and produced specialized **Screw Compressors** for laser cutting. These include integrated permanent magnet variable frequency **Screw Compressors**, two-stage compression **Screw Compressors**, and oil-free **Screw Compressors** to meet the needs of various industries.

As an indispensable auxiliary device for laser cutting equipment, **Screw Compressors** for laser cutting primarily provide stable, pure, and dry compressed air for the laser cutting process. The following is a detailed description of their core functions and application scenarios:

1. Providing Assist Gas to Improve Cutting Performance

- **Slag Removal:** Compressed air, acting as an assist gas, is blown at high speed onto the material surface during laser cutting, quickly removing molten metal residue and preventing it from adhering to the cut edge, ensuring a smooth, burr-free cut.

- Improving Cutting Speed and Accuracy: The assist gas pressure directly impacts cutting efficiency and quality. The high-pressure airflow (typically 0.8-2.5 MPa) provided by a **Screw Compressor** accelerates the cutting process and is particularly suitable for non-oxidizing cutting of medium-thin sheet metals (such as stainless steel and carbon steel). - Cooling Protection: Compressed air cools the focusing lens of the laser cutting head, preventing contamination from high temperatures and splashing, thereby extending the life of the optical components.

2. Ensuring Compressed Air Cleanliness to Protect Laser Cutting Equipment

- Impurity Filtering: The air compressor features a built-in multi-stage filtration system (such as an oil-water separator and [Precision Filter](#)) to remove moisture, oil, and particulate matter from the air, preventing contaminants from clogging the air path of the laser cutting head or damaging delicate components.

- Dry Air: Compressed air is treated with a refrigerated or adsorption dryer to ensure the dew point of the compressed air meets the required standard (typically below -20°C), preventing condensation from fogging the lens or oxidizing the metal.

3. Stable Air Supply Pressure to Ensure Cutting Quality

- Pressure Stability: [Screw Air Compressors](#) offer continuous and stable air supply (pressure fluctuations are typically controlled within ± 0.1 bar), preventing unstable cutting quality (such as uneven cuts and dross) caused by pressure fluctuations.

- Intelligent Adjustment: Combined with variable frequency technology, the air compressor adjusts its output based on the real-time air demand of the laser cutting machine, reducing energy waste and lowering operating costs.

4. Energy-Efficient and Highly Efficient, Lowering Operating Costs

- High Energy Efficiency: The optimized design of **Screw Compressors** is more energy-efficient than piston compressors (saving approximately 15-30%), resulting in lower long-term operating costs.

- Low Maintenance: The screw structure operates smoothly, minimizes wear, and has long maintenance cycles (typically every 4,000-8,000 hours), minimizing downtime.

5. Adaptable to Different Cutting Needs

- Multi-Material Compatibility: Cutting results can be optimized for different materials (such as stainless steel, aluminum, and galvanized sheet) by adjusting air pressure and flow. For example, aluminum cutting requires higher air pressure to prevent reflections.

- Compatible with Various Laser Types: Compatible with mainstream equipment such as fiber lasers and CO_2 lasers, meeting industrial-grade high-power laser cutting requirements (e.g., power levels above 6kW).

Applications

- Metalworking Industries: Automotive parts, sheet metal processing, and aerospace precision component manufacturing.

- High-Precision Industries: Fine-cutting of electronic product casings, medical devices, and decorative metal parts. Therefore, laser cutting [Screw Compressors](#), by providing dry, clean, and stable compressed air, directly determine the efficiency, precision, and lifespan of laser cutting. Their energy-saving design and low-maintenance features further enhance production economics, making them an indispensable and crucial supporting equipment for modern laser processing lines.

As a leading manufacturer of laser cutting **Screw Compressors**, Hanke Compressor offers a variety of configurations and models of laser cutting **Screw Compressors**, compatible with various laser cutting and pipe cutting machines.

Media Contact

Hanke Compressor (Shandong) Co., Ltd.

*****@gmail.com

<https://www.hankeair.com/>

Source : Hanke Compressor (Shandong) Co., Ltd.

[See on IssueWire](#)