

POWDER
HANDLING

3D PRINTING

If it's thinkable, we make it buildable.

Performing additive manufacturing at the highest level is easy with the right gases and solutions. Just get in touch with us. Our experts are looking forward to showing you how Linde's innovative technologies refine every step of the AM value chain to provide perfect results every time.

Additive manufacturing from A to Z.

Linde technologies for the AM value chain.

POWDER
PRODUCTIONPOST
PROCESSES

The best gas solutions for additive manufacturing.

Additive manufacturing (AM) doesn't begin or end inside a powder bed. It's a long process that links the different functions of powder production, 3D printing, post-processing and powder handling into a synergistic whole. Making sure that the final result is up to par requires excellence in each of these areas, as well as the perfect gas or gas mixture for each application. And that's exactly what Linde Gas provides.

Because we realise how important all of these process steps are, we support them with cutting-edge technologies, solutions and gases that were meticulously designed for the particular requirements of additive manufacturing. So whatever part of the value chain you're contributing to, Linde Gas makes sure you're always at the top of your game.



Optimised powder production.

Sophisticated powder metallurgy lays the foundation for exemplary products. Linde Gas optimises your powder production process to create high-quality metal powders perfect for any application.



Secure powder handling.

Metal powders aren't just sensitive to atmospheric influences, they're also a potential health hazard. Linde Gas enables you to handle and store them safely at all times.



Flawless 3D printing.

The quality of the actual AM process depends on many variables. Linde Gas gives you full control of them all – and with it, the power to create anything.



Enhanced post-processing.

A finished fusion process doesn't result in a finished product. Most workpieces require extensive post-processing before their properties meet all requirements. Linde Gas makes sure that the structure and surface of your products are always up to the highest standards.



PARTICLE ATOMISATION

- Material-sensitive process gas
- High-pressure gas supply
- Gas recycling
- **SECCURA®** – secure gas supply



PACKAGING

- Aging protection
- Atmosphere sealing
- Inert gas purging & drying



POWDER SHAPING

- Innovative process
- Applied gas solutions



STORAGE

- Aging protection
- H₂O & O₂ elimination
- **ADDvance powder cabinet**



SIEVING

- Inert gas purging



ANALYSIS

- Analytical gases & mixtures



MATERIAL JETTING



LASER POWDER BED FUSION

- Production atmosphere control
- Material-sensitive process gas
- **ADDvance O₂ precision**



WIRE ARC ADDITIVE MANUFACTURING

- Material-sensitive process gas
- Active cooling



BINDER JETTING



LASER METAL DEPOSITION

- High-performance process gas



INHOUSE PART PRODUCTION

- Flat flame burner
- Smart heat exchanger
- Carbothan nozzle
- **HYDROPOX®** burner



HEAT TREATMENT

- Atmosphere control system
- Protective process gas



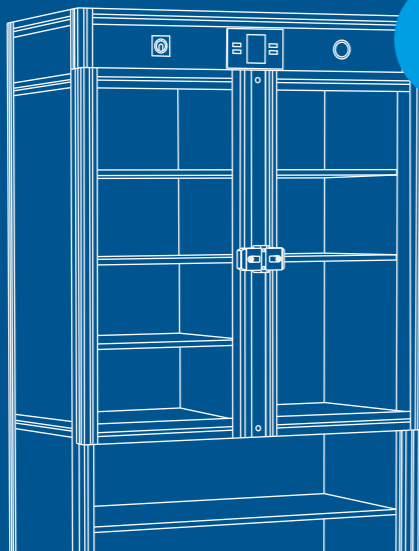
SURFACE FINISHING

- **LINSPRAY®**
- **CRYOCLEAN®**



HOT ISOSTATIC PRESSING

- Argon management
- High-pressure gas supply
- Innovative process gases



Linde ADDvance™ powder cabinet

Maintaining the quality of AM powders is essential for a consistent 3D printer output. Linde ADDvance powder cabinet automatically purges unwanted gases and humidity to always provide a safe, uniform storage environment for your metal powders.

- Monitoring and recording of humidity and temperature
- Optical humidity level alarm
- Improved gas purging logic and flow control
- Additional equipment storage space
- Protects up to 240 kg of powder



Linde ADDvance™ O₂ precision

The gas composition in your 3D printer unit determines the properties of the finished product. Linde ADDvance O₂ precision lets you define the perfect oxygen level for your application.

- Simple plug-and-play connectivity
- Ergonomic touch interface
- High detection accuracy
- Indication of H₂ traces
- Monitoring of dew point

