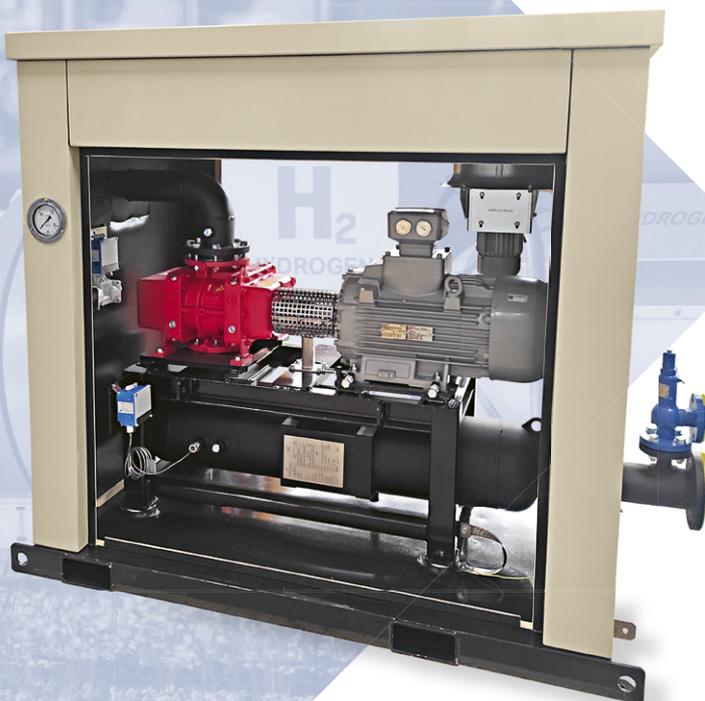


A PARTNERSHIP FOR BETTER OUTCOMES

HEAT TREATMENT FURNACE MAKER CHOOSES HIBON BLOWERS FOR SUPERIOR BRIGHT ANNEALING



OVERVIEW

Leading Manufacturer of Heat Treatment Solutions

Location France

Solution Ingersoll Rand Hibon's **NX3S ATEX Positive Displacement Blower**

Application Hydrogen Transfer



HEAT TREATMENT FURNACE MAKER CHOOSES HIBON BLOWERS FOR SUPERIOR BRIGHT ANNEALING

Heat treatment alters metal at the smallest scale, adjusting the grains that determine strength and flexibility. This microscopic makeover that has macroscopic effects on metal performance. Read on to discover how the right partner can help you take full advantage of this transformative process.

BRIGHT ANNEALING: SHAPING METAL PROPERTIES

Metal production hinges on precise control and strict attention to detail, with heat treatment being a key process that shapes a metal's strength, durability, and quality. **Heating or cooling metals in specialized furnaces** can tailor their physical and mechanical properties to meet specific needs. However, the success of heat treatment also depends heavily on the conditions it occurs in, as oxygen present in the furnace can react with metal surface to form a damaging oxide layer. Bright annealing comes as a solution. This **specialized heat treatment** creates a carefully controlled atmosphere in the furnace. Typically consisting of inert or reducing gases, the atmosphere inside prevents oxygen from reacting with the metal, resulting in a clean, bright finish with enhanced corrosion resistance and machinability.

A PARTNERSHIP FOR BETTER OUTCOMES

A leading manufacturer of heat treatment solutions sought to improve their annealing furnaces by **eliminating the risk of oxidation**. They required a solution that would not only boost the quality of the heat treatment outcomes but also ensure safety in their operations. With over 100 years of expertise, Hibon, renowned for supplying a wide range of blowers and vacuum pumps, was chosen for their proven track record in providing equipment for critical applications. Hibon's **blowers, capable of operating in explosive atmospheres and handling various gas mixtures**, were selected to assist in the customer's bright annealing furnaces, thus improving results for end users and extending the life of treated metals.



ENSURING A CONTROLLED ATMOSPHERE

A positive displacement blower is a key component of an atmospheric recirculation system that ensures a consistently controlled environment inside a furnace with optimum conditions for bright annealing. By circulating protective gas mixtures in the system, typically **nitrogen and hydrogen**, which shield the metal from oxidation in the furnaces, the blower ensures uniformity and stability throughout the annealing process.

Hibon's **process positive displacement blower** recommended to the customer is engineered to transport these gas mixtures with unparalleled precision. Capable of handling a wide range of hydrogen content -from 0 to 100 % - it adjusts to the specific needs of each bright annealing session, based on variables such as gas density, static pressure, and temperature.

Energy Recovery Process

The mixture of protective gases is very hot, reaching as high as 1 100 °C. The blower transports it to a heat exchanger where it is cooled down to around 40 °C. In doing so, the blower facilitates the mixture's later transfer to the dryer's inlet, navigating through filters and exchangers. This process not only ensures the integrity of annealing but also aids in **energy recovery**, capturing heat that would otherwise be lost, and contributing to an overall increase in the system's efficiency and sustainability.

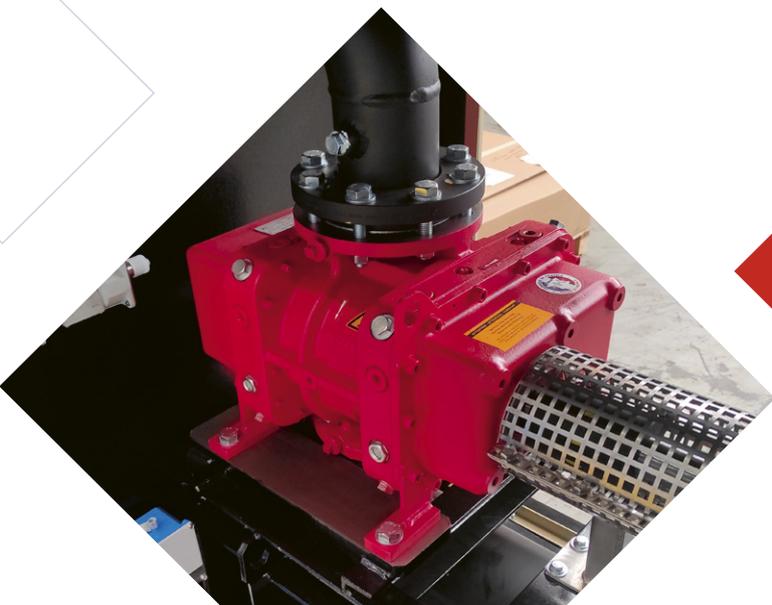
Hibon NX3S B1 AD Blower's Key Specifications for Bright Annealing

Hibon's **NX3S B1 AD blower** creates a consistent controlled atmosphere thanks to **specific parameters tailored** for the bright annealing application :

- **Gas** : 0 to 90 % maximum H₂ + the remainder in N₂ with a minimum of 10 %
- **Inlet temperature** : T° 40 °C
- **Suction pressure** : 984 mbar abs
- **Discharge pressure** : 1 250 mbar abs
- **Differential pressure** : 300 mbar
- **Flow rate** : 300 Nm³/h ±10 %
- **Rotation speed** : 2 970 rpm (50 Hz) – 3 500 rpm (60 Hz)
- **Power absorbed at the shaft** : 11 - 12 kW DP 300 mbar
- **Motor** 18,5 kW – 3 000 rpm – 400/690-tri-50 Hz piloted by one customer VSD DRIVER

Enhanced Safety with ATEX-Certified Blowers

Safety is a paramount concern when operating in environments with potential explosion risks, and the Hibon blower's **ATEX Group Zone 2 Cat.3 «II 3 G Ex c IIC 200 °C Gc EXT» certification** is a testament to its robust design for such conditions. This certification means that the blower is equipped to handle hazardous atmospheres, where flammable gases, such as **hydrogen**, might be present. This high level of protection provided by the blower minimizes the risk of ignition and ensures operational safety, making it a trustworthy component in any heat treatment application with demanding safety requirements.



THE BENEFITS OF HIBON'S BLOWERS AT A GLANCE

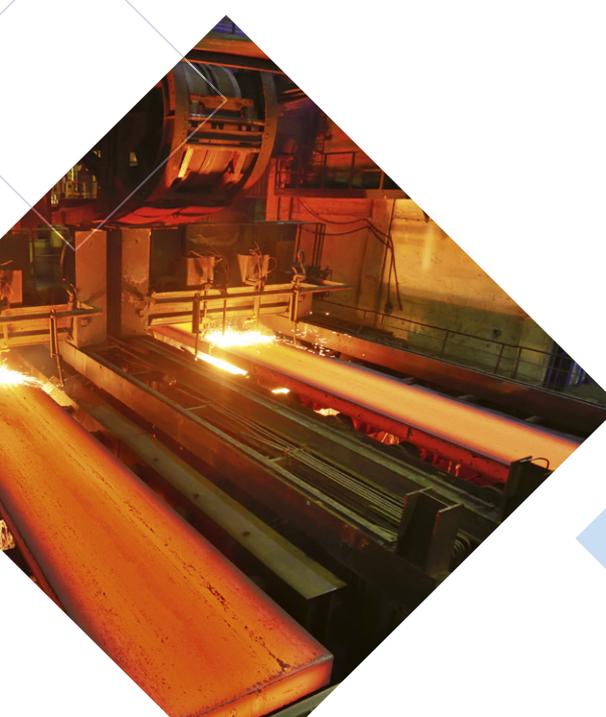
By incorporating Hibon's ATEX-certified positive displacement blowers into their furnace designs, our customer has enhanced both the safety and effectiveness of their products. These furnaces now consistently produce metals with improved **corrosion resistance and extended lifespan**, offering the end users a reliable, high-quality solution in the demanding metal production market.



Our customer's experience underscores the broader benefits that Hibon's blowers offer to all players in the metal production market. Here are the key advantages of integrating Hibon's blowers into your heat treatment processes:

- **Reliability:** Hibon's blowers are known for their durability, ensuring long-term operation with low maintenance needs and minimized downtime.
- **Sealing Options:** Hibon offers a variety of sealing solutions tailored to meet different levels of customer requirements, effectively reducing the chances of gas leaks and ensuring process integrity.
- **Consistent Performance:** With their ability to **transfer a steady massive flow & to self-adapt the discharge pressure at the pressure drop generated by the process line.**
- **Safety Compliance:** Hibon blowers are designed to conform to rigorous safety protocols, including ATEX certification, providing peace of mind in hazardous working environments.
- **Customization:** The blowers come in various sizes and configurations, making them adaptable to specific industrial needs and enhancing their utility across diverse applications.

Hibon is committed to supporting their customers' goals for improved performance and process optimization. If you're looking to enhance the safety, efficiency, and output quality of your heat treatment operations, reach out to us to find out how our blower solutions can contribute to the success of your business.



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