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FOR IMMEDIATE RELEASE

Linde Highlights Advanced Technologies at Heat Treat 2015

For Heat Treatment Processes and Furnace Atmospheres

Murray Hill & New Providence, N.J., U.S., September 9, 2015 – [Linde LLC](http://www.linde.com) will showcase advanced gas control technologies and engineering services for heat treatment furnaces at Heat Treat 2015 in Detroit, October 20-22, booth 248. This includes:

- CARBOJET® Gas-injection Technology for Improving Production up to 20%
- HYDROFLEX® Atmosphere Control System for More Reliable Oxide-Free Annealing
- 'World-Class' Heat Treatment Engineering and Laboratory Services
- Safety Solutions for Flammable Atmosphere Furnaces (re: NFPA 86)

These heat treatment services and proven technologies are in demand for improving process efficiency, productivity, and quality in manufacturing metal parts for: Automotive, aerospace and military components; construction and industrial equipment; and electrical systems, to name a few. More consistent process quality can mean less rework and fewer rejects, and lead to higher profits, process reliability and longer service life.

Linde offers decades of experience in heat treatment across all common furnace types from continuous to batch type furnaces, including roller hearth, pusher, pit or rotary-retort. Expertise spans all typical protective atmospheres -- from pure nitrogen, pure hydrogen, nitrogen/hydrogen, nitrogen/hydrocarbon type atmospheres to endothermic gas, exothermic gas and monogas atmospheres.

Improve Gas Flows and Atmosphere Homogeneity without Fans

The patented CARBOJET® gas-injection technology can [improve efficiency and the productivity of heat treatment furnaces](#) including: roller hearth, pusher, pit or rotary-retort. Ultra-high-speed injection of a gas or gas mixture through special CARBOJET® lances improves gas flows and atmosphere homogeneity without the use of circulation fans. This includes both the better mixing of the injected gases with the furnace atmosphere, and better movement of the gas flows within the furnace.

Oxide-Free Parts Annealing

The HYDROFLEX® atmosphere control system offers a universal solution for clean and bright oxide-free annealing of steel, stainless steel, copper, bronze or brass, with high reliability and repeatability. One or more carrier gases (nitrogen or argon) maintain the furnace pressure while a controlled ratio of hydrogen helps prevent oxidation. With the HYDROFLEX® technology, many annealing tasks can be completed with non-flammable gas mixtures containing less than 5 percent hydrogen.

Engineering & Lab Services

Engineering is key to optimizing heat treatment solutions. Linde engineers can perform process audits to investigate areas for improvement. This may include analyzing furnace atmospheres, gas supply and control systems, as well as upstream and downstream processes. Linde can also perform customer tests and demonstrations in furnaces at its Technology Center to support feasibility studies, and provide safety and process training.

In addition, engineers at Linde Application Centers can develop new gas supply systems for heat treatment processes and improve the control systems of existing processes. Our metallography laboratory services include material analyses, scanning electron micrography (SEM) and a variety of hardness tests.

“An optimized process can often improve quality and reduce costs at the same time.”

– Grzegorz Moroz, Program Manager, Heat Treatment and Atmospheres, Linde LLC

Meeting New NFPA Safety Standards

The National Fire Protection Association (NFPA) is the industry accepted authority of industrial gases and furnaces. All heat treating facilities should familiarize themselves with NFPA 86 “Standard for Ovens and Furnaces”. Within NFPA 86 there are specific requirements for Nitrogen Supply Systems used to purge flammable atmosphere furnaces. Linde developed the system to satisfy the NFPA 86 “Standard for Ovens and Furnaces.” It includes a nitrogen supply system with an integral alarm panel for safety purge of flammable atmosphere furnaces.

Heat Treat 2015 is the premier heat treating event in North America and presented by the ASM Heat Treating Society. The conference and exposition run in conjunction with Gear Expo, presented by the American Gear Manufacturers Association.

Linde provides industry-leading portfolio solutions for heat treatment and the ferrous and non-ferrous metallurgy industries, ranging from gases and equipment to process consulting and services. For more information, contact Linde (www.lindeus.com), 800-755-9277.

About Linde in North America

Linde North America, Inc. is a member of The Linde Group. In the 2014 financial year, The Linde Group generated revenue of USD 17.9 bn (EUR 17.047 bn), making it the largest gases and engineering company in the world with approximately 65,500 employees working in more than 100 countries worldwide. The strategy of The Linde Group is geared towards long-term profitable growth and focuses on the expansion of its international business with forward-looking products and services. Linde acts responsibly towards its shareholders, business partners, employees, society and the environment – in every one of its business areas, regions and locations across the globe. The company is committed to technologies and products that unite the goals of customer value and sustainable development.

For more information, visit www.lindeus.com

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